



InformaticaTM

Configuration

Informatica MDM - Product 360

Version: 10.1

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The Configuration Manual provides the full list of all possible preference and configuration options. The installation and operation guides usually describe only the properties and preferences and settings which you are required to adjust in order for the installation. The configuration guide on the other hand describes also the optional configuration possibilities.

1 General Notes for Properties Files

Some configuration files are stored as a java properties file. Some special characters are reserved in property files, like '!' or '#' which both indicate a comment in the file. Additionally to that, the dollar sign '\$' indicates a dynamic parameter which is at runtime interpreted as the value of another key in the properties file. Those characters, together with backslashes or spaces should not be used in passwords or other parts of the configuration files. They would need to be escaped and this tends to get very dirty when someone wants to check the passwords and some characters need to be escaped and so on.

❗ Special characters like '!', '#', '\' or '\$' should not be used in property files - especially not as part of a password. Additionally to that we recommend to never use paths with spaces in them but that's just a general "best practice".

⚠ In case you need to use the special character '\' for paths, like for an instance name of the database, you have to escape those with an additional backslash.

E.g. your instance name for a database is 'myDatabase\myInstance' then you have to define 'myDatabase\\myInstance' in the properties file

2 Encrypt secure information

Product 360 supports the encryption of secure information like passwords in configuration files. The encryption will be executed only if your secure information in the configuration files is enclosed by the marker `[_to_encrypt_]`.

So, if you want to have e.g. the password "MyPassword" encrypted in a configuration file just use the marker before and after the password like this: `[_to_encrypt_]MyPassword[_to_encrypt_]`.

All passwords for which encryption is supported are marked accordingly in the following chapters.

3 Server Configuration

db.default.pool.reportMetricsInterval

This section describes configuration parameters which can be used to adjust the Product 360 Server to the individual needs of the customer. In contrary to the Installation Guide, it contains all available configuration parameters.

- [Server Settings \(server.properties\)](#)(see page 15)
- [Authentication Setup](#)(see page 29)
 - [General Requirements Desktop Waffle SSO](#)(see page 29)
 - [Supported Authentication Scenarios](#)(see page 29)
 - [LDAP Authentication \(LDAPConfig.xml\)](#)(see page 32)
 - [LDAPS](#)(see page 35)
 - [SAML Configuration \(SamlConfig.xml\)](#)(see page 36)
- [Communication from P360 server to Control Center](#)(see page 36)
- [Control Center Configuration \(ClusterixConfig.xml\)](#)(see page 36)
- [Network Configuration \(NetworkConfig.xml\)](#)(see page 37)
 - [Reverse Proxy Configuration](#)(see page 44)
 - [Setup a keystore for SSL certificates](#)(see page 44)
- [Hazelcast configuration \(hazelcast.xml\)](#)(see page 45)
- [Command Line Arguments](#)(see page 45)
- [Application Preferences \(plugin_customization.ini\)](#)(see page 46)
 - [Task management](#)(see page 47)
 - [Task background jobs](#)(see page 47)
 - [Task E-mail notification](#)(see page 47)
 - [Mail server settings](#)(see page 47)
 - [Notification level](#)(see page 48)
 - [Product paradigm](#)(see page 49)
 - [Standard delivery](#)(see page 49)
 - [Setting up 3PPD mode](#)(see page 49)
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 - [File type mapping](#)(see page 50)
 - [Database version check](#)(see page 50)
- [Repository configuration \(Repository.repository\)](#)(see page 51)
 - [Changing the default language of the repository](#)(see page 51)
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- [Application Modules configuration \(application_modules.properties\)](#)(see page 53)
- [Spelling dictionaries](#)(see page 53)
- [Media Asset Management Configuration](#)(see page 54)
 - [Media Manager](#)(see page 54)
 - [Classic Provider](#)(see page 55)
 - [Preview Generation Parameters](#)(see page 55)
 - [Previews for PS, EPF, PDF, HTML and other formats.](#)(see page 56)
 - [Running "Classic MediaAssetProvider" with unicode encoded folder names](#)(see page 57)
- [Security logging](#)(see page 59)
 - [Setup a keystore for SSL certificates](#)(see page 59)


3.1 Server Settings (server.properties)



The central configuration properties file of the Product 360 Server is located in **<PIM_SERVER_INSTALLATION_ROOT>\server\configuration\HPM\server.properties** of the server installation package. The application server needs to be restarted in order to have changes take effect. The configuration file itself contains properties following the standard "key: value" pattern as is encoded as a standard java properties file.

The following tables contain a complete list of all properties available in Product 360 Server, grouped by functionality. Each property is described with further explanation and examples.



Property	Description
System settings	
system.name	This is a mandatory property. It specifies the name of the system, e.g. Test System / Productive System / Demo / Poad etc. Blanks will be replaced with _. Best practice: use 0-9A-Za-z.-
File Transfer Settings It is crucial for multi-server deployments that <i>all servers</i> can access the <i>same file storage</i> and the <i>same directories</i> in there. For example, it might be that Server A uploads files to the import area in the file storage, but Server B is executing the import for this. So Server B needs to have the identical file access then Server A. The currently available default implementation for the file storage is SMB which uses the SMB protocol to access the files. Please note that the file transfer from the Desktop Client is done using HTTP only. Clients do not need to have access to the file transfer shares, only the servers!	
filestorage.dir.shared	Folder which has to be accessible by each Product 360 server. In case of a single server system, the folder does not have to be a shared one
filestorage.default	Default file storage implementation. Currently only SMB is available. SMB stores the files using the SMB file protocol
filestorage.import	File storage implementation for import files, default is also SMB
filestorage.import.path	Path for the import files used by the SMB file storage implementation
filestorage.mime	File storage implementation for mime files, default is also SMB. Applies only to the Classic Media Asset Provider.
filestorage.mime.path	Path for the import files used by the SMB file storage implementation. Applies only to the Classic Media Asset Provider.
filestorage.export	File storage implementation for export files, default is also SMB


filestorage.export.path	Path for the export files used by the SMB file storage implementation
filestorage.shared	File storage implementation for various shared files, default is also SMB
filestorage.shared.path	Path for various shared files used by the SMB file storage implementation
upload.root.local	Path for the service api file upload
filestorage.dataquality	File storage implementation for data quality (DQ) files, default is also SMB
filestorage.dataquality.path	Path for the data quality (DQ) files used by the SMB file storage implementation
filestorage.bpm	File storage implementation for Informatica BPM (Workflow) files, default is also SMB
filestorage.bpm.path	Path for Informatica BPM (Workflow) files used by the SMB file storage implementation
Informatica Queue Settings (required for Batch API queue processing and for integration with Informatica BPM) These are the default settings for all queues. They can be individually adjusted per queue by using a queue name instead of the key word 'default' (i.e. queue.myQueue.name). The required queues for Product 360 are contained in the server.properties template file.	
queue.default.type	The message queue type which will be used. Currently only type "ActiveMQ" is supported
queue.default.writer.count	Number of threads which can write on the queue
queue.default.consumer.count	Number of threads which can read from the queue
queue.default.url	The base url and port to access the message queue. For example: tcp://localhost:61616
queue.default.username	Username to authenticate against the message queue
queue.default.password	Password to authenticate against the message queue
queue.default.message.format	Message format which will be used for writing messages into the queue. Possible values are: "XML" or "JSON"

queue.default.label	Human readable label to display the queue in Product 360
queue.default.name	Technical name to identify the queue by Product 360 and third party applications
queue.default.selector	<p>(optional) String which can be used to configure which messages are consumed. Other messages are left in the queue for consumption by other consumers. Eg. "JMSPriority=1" (consumes only messages that have priority 1), "WorkflowName=BPM1" (consumes only messages that have the header value 'WorkflowName' set to 'BPM1').</p> <p>Note: ActiveMQ assumes any value that starts with 'JMS' to be a JMS header.</p>
queue.default.delivery.delay	<p>Defines the duration [ms] after that the message will be made available to consumers to the message queue. Default is 10000 [ms] in a multi server environment and 0 in a single server environment. This allows value changes to the persistence to propagate to all server nodes before e.g. a workflow instance is started.</p> <p>Note: This setting needs the message queue server to have scheduling support enabled. (This is not default)</p>
Informatica Batch API Queue Settings (needed for Batching framework)	
 Data Quality and Merge requests coming via message queue can be batched as of now.	
queue.batchapi.type	The message queue type which will be used. Currently only type "ActiveMQ" is supported
queue.batchapi.writer.count	Number of threads which can write on the queue
queue.batchapi.consumer.count	Number of threads which can read from the queue
queue.batchapi.url	The base url and port to access the message queue. For example: tcp://localhost:61616
queue.batchapi.username	Username to authenticate against the message queue
queue.batchapi.password	Password to authenticate against the message queue
queue.batchapi.message.format	Message format which will be used for writing messages into the queue. Possible values are: "XML" or "JSON"
queue.batchapi.name	Technical name to identify the queue by Product 360 and third party applications (P360_BATCH_API)

queue.batchapi.label	Human readable label to display the queue in Product 360 (Batch API)
queue.batchapi.delivery.delay	<p>Defines the duration [ms] after that the message will be made available to consumers to the message queue. Default is 10000 [ms] in a multi server environment and 0 in a single server environment. This allows value changes to the persistence to propagate to all server nodes before e.g. a workflow instance is started.</p> <p>Note: This setting needs the message queue server to have scheduling support enabled. (This is not default)</p>
Informatica BPM Settings (only needed for integration with Informatica BPM)	
infa.bpm.base.url	REST The base url to the Informatica BPM instance in the form http://[server]:[port]/active-bpel
infa.bpm.workflows.path	REST The workflows path. Will be used together with the property infa.bpm.base.url to find the endpoints
infa.bpm.user	REST The username for accessing the Informatica BPM instance. Only required if basic authentication on BPM side is configured
infa.bpm.password	<p>REST The password for accessing the Informatica BPM instance. Only required if basic authentication on BPM side is configured</p> <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
com.heiler.ppm.bpm.server/proxy	REST QUEUE Allows to track any call from the server to the Informatica BPM system using a proxy like Fiddler web debugger, example is localhost:8888, this property is disabled by default
infa.bpm.queue.jms.connection.username	REST The username for accessing the ActiveMQ service
infa.bpm.queue.jms.connection.password	<p>REST The password for accessing the ActiveMQ service</p> <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>



infa.bpm.queue.jms.queue.suffix	REST A suffix that will be appended to the default queue name ("infa.bpm"). The suffix can contain characters a-z, 0-9
infa.bpm.trigger.queue.ids	QUEUE Comma separated list of queue ids of all queues which will be available in the trigger configuration. The first queue in this list is representing the default response queue, which is used e.g. if queue messages do not specify any queue id. Queue configuration settings are described in the "Informatica Queue Settings" section where "default" can be exchanged with any queue id.
infa.bpm.consumer.serviceapi.queue.ids	QUEUE Comma separated list of queue ids on which a service API consumer is applied to. Each queue consumer can have its own settings regarding thread count and message selector, which also allows to define multiple consumer on the same physical queue with different message selectors and different thread counts.
	 The Product 360 server can be configured to use REST and QUEUE communication mode. REST communication is deprecated and will be removed in future versions. The QUEUE communication is using a message queue instance for primary transport of events to Informatica BPM. Be aware that the BPM instance has to be configured accordingly.
Inbox/Hot Folder Settings	
inbox.hotfolders	Local folder in which the incoming files should be placed, shares are not supported.
inbox.processingfolder	
inbox.archivefolder	Local folder of the processed inbox files, shares are not supported
inbox.errorfolder	Local folder of the failed files, shares are not supported
Customer license key	
license.customer.file.local	Local path to the license file. Please contact the Informatica Partner Management to obtain a license file.
license.customer.key	Appropriate customer key (in case of multiline keys, use backslash at the end of the line)
Media Asset Server Settings	


mime.defaultProvider	Identifier of the media asset provider. Possible values are HLR which corresponds to the Classic Provider or HMM for the Product 360 - Media Manager. Default is HLR
Informatica MDM Settings (only needed for integration with Informatica MDM)	
infa.mdm.host	
infa.mdm.port	
infa.mdm.base.url	
infa.mdm.systemName	
infa.mdm.user	
infa.mdm.password	<div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
Repository Settings	
repository.defaultLanguage	<p>The default language of the repository regarding all language specific aspects like e.g. default logical key language. Possible values: Key synonyms of the corresponding language entries defined in the repository enumeration "Enum. Language", e.g. "de" or "en_US" - default is German, if property does not exist.</p> <div>  Note: The repository language MUST NOT be changed as soon as entity data such as items/products/variants or structures/structure groups have been created and exist in the database. In such a situation, the stability of the system can no longer be guaranteed since logical key fields most likely will contain null values. </div>
Mail Server Settings (Change these properties, if you are using workflows, task notification or other functionality that requires sending e-mails)	
mail.host	Host name of the e-mail server
mail.port	If the mail server uses the standard port for the protocol, this property can be left empty.
mail.protocol	E-mail protocol used, currently only SMTP is supported




mail.user	If the e-mail server requires authentication, then the properties "mail.user" and/or "mail.password" must be set.
mail.password	
<div> If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual.</div>	
Various Settings	
context.sessionin activeinterval	http session timeout sec. if not set no timeout is defined
http.client.proxy	The base URL of the reverse proxy (e.g. Apache WebServer). Mandatory if web links used in email notifications.
Full-text Search Integration	
fulltextsearch.en abled	Full-text search can be enabled (default) or disabled by setting either true or false. If the full-text search is enabled, ensure you setup the Elasticsearch integration properties.
fulltextsearch.re st.url	URL path to the Elasticsearch REST server. E.g. fulltextsearch.rest.url = http://localhost:9200,http://localhost:9201
fulltextsearch.re st.user	Login name of the Elasticsearch REST server.
fulltextsearch.re st.password	Login password of the Elasticsearch REST server.
fulltextsearch.re st.allow.self- signed.certificat e	Allows self-signed certificate only if you use https.
Audit-trail Integration	
audittrail.rest.u rl	URL path to the Elasticsearch REST server. E.g. audittrail.rest.url = http://localhost:9200,http://localhost:9201
audittrail.rest.u ser	Login name of the Elasticsearch REST server.
audittrail.rest.p assword	Login password of the Elasticsearch REST server.



audittrail.rest.allow.self-signed.certificate	Allows self-signed certificate only if you use https.												
audittrail.mode	<p>Audit trail can be set up with the below modes -</p> <table><tr><th>Mode</th><th></th></tr><tr><td>PRODUCTION</td><td>(Recommended) All Audit trail data will remain intact even if Product 360 - Server is restarted.</td></tr><tr><td>CLEAN_SLATE</td><td>(Only for testing, use with caution) All Audit trail data will be erased when Product 360 - Server is restarted.</td></tr><tr><td>DISABLED</td><td>The audit trail will be disabled.</td></tr></table>	Mode		PRODUCTION	(Recommended) All Audit trail data will remain intact even if Product 360 - Server is restarted.	CLEAN_SLATE	(Only for testing, use with caution) All Audit trail data will be erased when Product 360 - Server is restarted.	DISABLED	The audit trail will be disabled.				
Mode													
PRODUCTION	(Recommended) All Audit trail data will remain intact even if Product 360 - Server is restarted.												
CLEAN_SLATE	(Only for testing, use with caution) All Audit trail data will be erased when Product 360 - Server is restarted.												
DISABLED	The audit trail will be disabled.												
audittrail.installation.type	<p>Audit trail can have below installation types -</p> <table><tr><th>Installation type</th><th>Configuration folder</th><th></th></tr><tr><td>elastic-standalone</td><td>conf/audittrail/elastic-standalone</td><td>On-premise installation of Elasticsearch for PROD</td></tr><tr><td>elastic-aws</td><td>conf/audittrail/elastic-aws</td><td>AWS Elasticsearch Service</td></tr><tr><td>elastic-test</td><td>conf/audittrail/elastic-test</td><td>On-premise installation of Elasticsearch for DEV, QA</td></tr></table>	Installation type	Configuration folder		elastic-standalone	conf/audittrail/elastic-standalone	On-premise installation of Elasticsearch for PROD	elastic-aws	conf/audittrail/elastic-aws	AWS Elasticsearch Service	elastic-test	conf/audittrail/elastic-test	On-premise installation of Elasticsearch for DEV, QA
Installation type	Configuration folder												
elastic-standalone	conf/audittrail/elastic-standalone	On-premise installation of Elasticsearch for PROD											
elastic-aws	conf/audittrail/elastic-aws	AWS Elasticsearch Service											
elastic-test	conf/audittrail/elastic-test	On-premise installation of Elasticsearch for DEV, QA											
audittrail.thread.pool.size	<p>The maximum number of threads available for audit trail processors.</p> <p>This property should have a value that is the same as <code>db.default.pool.maxPoolSize</code></p>												
audittrail.backup.restoration.mode	<p>This setting will synchronize the Product 360 records in the relational database and their corresponding audit trail data in Elasticsearch.</p> <p><i>Default: false</i></p> <p>NOTE: Set to "true" only when Product 360 - Server starts after recovering from a disaster.</p>												

Database settings for Microsoft SQL Server (We only describe the default settings here. Most of those can be adjusted individually for each database schema as you will see in the server.properties template file. However, splitting the schemas on multiple database hosts/instances is not supported since there are cross schema sql statements which would not work!)

db.default.type	MSSQL This property should never be changed!
db.default.server	The host name of the Microsoft SQL Server; Change this in case you have a separate database server
db.default.port	Port of the Microsoft SQL Server instance, usually this is 1433
db.default.user	User name of the database user
db.default.password	Password of the database user  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual.
db.default.dir	Base folder for the database schema and database transaction log files (also used by the database setup) Note: This folder needs not to be local to the application server but to the database server!
db.default.dir.data	Folder for the database schema files (*.mdf) Note: This folder needs not to be local to the application server but to the database server!
db.default.dir.log	Folder for the transaction log files (*.ldf) Note: This folder needs not to be local to the application server but to the database server.
db.default.data.size	Default size in MB allocated for a database schema; adapt this setting to your needs
db.default.data.size.growth	Default increment value in MB allocated when space for a database schema is insufficient; adapt this setting to your needs  In a productive environment you should define the initial size of the database to the expected maximum. A data base growth action always "stops the world" of the database until the files are enlarged. In case the growth size is too small, this might occur very often which is a serious performance problem!
db.default.log.size	Default size in MB allocated for a database transaction log file; adapt this setting to your needs

db.default.log.size.growth	<p>Default increment value in MB allocated when space for a database transaction log file is insufficient; adapt this setting to your needs</p> <p>Default increment value in MB allocated when space for a database schema is insufficient; adapt this setting to your needs</p> <div>  In a productive environment you should define the initial size of the database log files to the expected maximum. A data base growth action always "stops the world" of the database until the files are enlarged. In case the growth size is too small, this might occur very often which is a serious performance problem! </div>
db.default.schema.prefix	Usually, this property needs not to be changed. The common prefix for all Product 360 - Server schemas; it must be in capital and start with a latin character
db.default.schema.suffix	<p>Usually, this property needs not to be changed. The common suffix for all Product 360 - Server schemas; it must be in capital, and start with a latin character</p> <p>This property is helpful to distinguish between productive and test schemas (e.g. _PRO and _TEST)</p>
db.default.debug.show_sql	Usually, this property needs not to be changed. Generated SQL statements during runtime will be shown in the log file. This is a debugging feature which will slow down the application drastically if turned on.
db.default.rowPrefetchSize	Affects the default prefetch size which is especially important for mass data retrieval. In SQL Server there is usually no need to change that.
db.default.pool.hibernate.dialect	<p>The corresponding dialect for your MSSQL version</p> <p>For MSSQL 2016: com.heiler.ppm.persistence.db.internal.dialect.SQLServer2016</p> <p>For MSSQL 2014: com.heiler.ppm.persistence.db.internal.dialect.SQLServer2012</p>
Database settings for Oracle (we only describe the default settings here. Most of those can be adjusted individually for each database schema as you will see in the server.properties template file. However, splitting the schemas on multiple database hosts/instances is not supported since there are cross schema sql statements which would not work!)	
db.default.type	<p>ORACLE</p> <p>Never change this property!</p>
db.default.database	Oracle Service Name
db.default.server	The host name of the Oracle server; change this in case you have a separate database server.

db.default.port	Port of the Oracle instance, usually this is 1521 <div>  If you want to connect the P360 Server to an Oracle Database via TCPS, please refer to chapter "How to configure a secure database connection for Product 360 Server" in the ".Server Configuration v10.1(see page 13)" manual. </div>
db.default.password	Password for the created schema users <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
db.default.dir	Base folder for the database schema and database transaction log files, used by the database setup too Note: This folder needs not to be local to the application server but to the database server.
db.default.dir.data	Folder for the database schema files Note: This folder needs not to be local to the application server but to the database server.
db.default.dir.tmp	Folder for the database transaction log files Note: This folder needs not to be local to the application server but to the database server.
db.default.dir.index	Folder for the index tablespaces Note: This folder needs not to be local to the application server but to the database server.
db.default.data.size	Default size in MB allocated for a database schema; adapt this setting to your needs
db.default.data.size.growth	Default increment value in MB allocated when space for a database schema is insufficient; adapt this setting to your needs <div>  In a productive environment you should define the initial size of the database log files to the expected maximum. A data base growth action always "stops the world" of the database until the files are enlarged. In case the growth size is too small, this might occur very often which is a serious performance problem! </div>
db.default.temp.size	Default size in MB allocated for a database transaction log file; adapt this setting to your needs

db.default.temp.size.growth	<p>Default increment value in MB allocated when space a transaction log file is insufficient; adapt this setting to your needs</p> <div>  In a productive environment you should define the initial size of the database log files to the expected maximum. A data base growth action always "stops the world" of the database until the files are enlarged. In case the growth size is too small, this might occur very often which is a serious performance problem! </div>
db.default.index.size	<p>Default size in MB allocated for an index tablespace; adapt this setting to your needs</p>
db.default.index.size.growth	<p>Default increment value in MB allocated when space for an index tablespace is insufficient; adapt this setting to your needs</p> <div>  In a productive environment you should define the initial size of the database log files to the expected maximum. A data base growth action always "stops the world" of the database until the files are enlarged. In case the growth size is too small, this might occur very often which is a serious performance problem! </div>
db.default.schema.prefix	<p>The common prefix for all Product 360 - Server schemas; it must be in capital letters! Note that the resulting tablespace name (prefix + <MAIN MASTER SUPPLIER> + suffix) must not be longer than 24 characters.</p>
db.default.schema.suffix	<p>The common suffix for all Product 360 - Server schemas; it must be in capital letters! Note that the resulting tablespace name (prefix + <MAIN MASTER SUPPLIER> + suffix) must not be longer than 24 characters. This property is helpful to distinguish between productive and test schemas (e.g. _PRO and _TEST).</p>
db.default.debug.show_sql	<p>Generated SQL statements during runtime will be shown in the log file. This is a debugging feature which will slow down the application drastically.</p>
db.default.rowPrefetchSize	<p>Affects the default prefetch size which is especially important for mass data retrieval. This value might be modified in case you have a lot of memory. The oracle driver is allocating the complete, theoretically needed memory for a single round trip. In case you run into memory problems because of the Oracle database access, you might want to decrease this property. See also the How to enable Java Management Extensions (JMX).</p>
db.default.pool.hibernate.dialect	<p>The corresponding dialect for your Oracle version. Currently only one value, no need to change. com.heiler.ppm.persistence.db.internal.dialect.Oracle12c</p>

Connection pool settings (make sure to only change values after consultation with Informatica Support)	
db.default.pool.statementCacheSize	The size of the underlying SQL statement cache. Increasing this value might help increasing performance however it will also lead to more memory consumption on the database server.
db.default.pool.connectionTimeout	The maximum number in milliseconds that the application will wait for a connection from the pool (lowest acceptable connection timeout is 250 ms). If this time is exceeded without a connection becoming available, a SQLException will be thrown. <i>Default: 2000 (2 seconds)</i>
db.default.pool.idleTimeout	Controls the maximum amount of time in milliseconds that a connection is allowed to sit idle in the pool. This setting only applies when minPoolSize is defined to be less than maxPoolSize. Idle connections will <i>not</i> be retired once the pool reaches minPoolSize connections. Whether a connection is retired as idle or not is subject to a maximum variation of +30 seconds, and average variation of +15 seconds. A connection will never be retired as idle <i>before</i> this timeout. A value of 0 means that idle connections are never removed from the pool. The minimum allowed value is 10000ms (10 seconds). <i>Default: 60000 (1 minute)</i>
db.default.pool.minPoolSize	Controls the minimum number of <i>idle connections</i> that will constantly be maintained in the pool. <i>Default: 5</i>
db.default.pool.maxPoolSize	Controls the maximum size that the pool is allowed to reach, including both idle and in-use connections. Basically this value will determine the maximum number of actual connections to the database. A reasonable value for this is best determined by observing the corresponding environment. When the pool reaches this size, and no idle connections are available, calls to getConnection() will block for up to connectionTimeout milliseconds before timing out. Before throwing a PoolExhaustException, the connection pool will grow to the maximum size specified by the maxPoolOverflowSize property. <i>Default: 100</i>
db.default.pool.maxLifetime	Controls the maximum lifetime of a connection in the pool. An in-use connection will never be retired, only when it is closed will it then be removed. A value of 0 indicates no maximum lifetime (infinite lifetime), subject of course to the idleTimeout setting. <i>Default: 0 (unlimited)</i>

db.default.pool.maxPoolOverflowSize	This is the maximum limit a target connection pool can stretch to. <i>Default: 120</i>
db.default.pool.maxRetryBeforeOverflow	This is the maximum number of retries attempts before trying to stretch the target connection pool. <i>Default: 10</i>
db.default.pool.validationTimeout	Controls the maximum amount of time in milliseconds that a connection will be tested for aliveness. This value must be less or equal than the connectionTimeout. Lowest acceptable validation timeout is 250 ms. <i>Default: 2000 (2 seconds)</i>
db.default.pool.validationQuery	SQL query that can be used by the pool to validate connections before they are returned to the application. If specified, this query MUST be an SQL SELECT statement that returns at least one row. <i>Default:</i> MSSQL: SELECT 1 ORACLE: SELECT 1 FROM DUAL
db.default.pool.leakDetectionThreshold	Controls the amount of time in milliseconds that a connection can be out of the pool before a message is logged indicating a possible connection leak. A value of 0 means leak detection is disabled. Lowest acceptable value for enabling leak detection is 2000 (2 seconds). <i>Default: 600000 (10 minutes)</i>
db.default.pool.leaseTimeThreshold	Specifies a time threshold in milliseconds for the connection lease. When the time limit is exceeded a log entry will be generated. <i>Default: 2000 (2 seconds)</i>
db.default.pool.registerMbean	Controls whether or not JMX Management Beans ("MBeans") are registered or not. <i>Default: true</i>
db.default.pool.registerMetrics	Controls whether or not Micrometer metrics are enabled or not. <i>Default: true</i>
db.default.pool.reportMetricsInterval	Controls the amount of time in milliseconds after which metrics are being updated (only in case metrics are enabled). <i>Default: 5000 (5 seconds)</i>

Quartz Database settings

Since there is only one quartz template file "quartz.properties.template" for MSSQL and ORACLE, then the following properties should be configured as variable references for some quartz properties which might have different values for the corresponding database type.

org.quartz.jobStore.driverDelegateClass	Driver delegates understand the particular 'dialects' of various database systems. <i>Default:</i> MSSQL: org.quartz.impl.jdbcjobstore.MSSQLDelegate ORACLE: org.quartz.impl.jdbcjobstore.oracle.OracleDelegate
org.quartz.jobStore.selectWithLockSQL	Must be a SQL string that selects a row in the "LOCKS" table and places a lock on the row. <i>Default:</i> MSSQL: SELECT LOCK_NAME FROM {0}LOCKS WITH (UPDLOCK,ROWLOCK) WHERE LOCK_NAME = ? ORACLE: SELECT * FROM {0}LOCKS WHERE SCHED_NAME = {1} AND LOCK_NAME = ? FOR UPDATE

3.2 Authentication Setup

3.2.1 General Requirements Desktop Waffle SSO

- Server needs to be on Windows
- Client and Server need to run within same domain

3.2.2 Supported Authentication Scenarios

Authentication Scenario	Server Configuration / Requirements	User Entities	Desktop Client	Web Client	Service API / Supplier Portal / Mobile	Automatic User Sync
PIM Internal Auth only	plugin_customization.ini com.heiler.ppm.security.server/login.sso.enabled = false	<ul style="list-style-type: none"> • AuthenticationMode internal • Domain any value (not considered) 	User Name / Password	User Name / Password	User Name / Password	No

Authentic ation Scenario	Server Configuratio n / Requiremen ts	User Entities	Desktop Client	Web Client	Service API / Supplier Portal / Mobile	Automatic User Sync
PIM Internal Auth with Waffle SSO	<i>Default configuratio n</i>	<ul style="list-style-type: none"> Authenti cationMo de internal Domain matches Windows domain, e.g. informati ca.com 	Silent Login User Name / Password with SHIFT/ CTRL	User Name / Password	User Name / Password	No
LDAP	LdapConfig. xml configured plugin_custo mization.ini com.heiler.p pm.security. server/ login.sso.en abled = false	<ul style="list-style-type: none"> Authenti cationMo de external Domain matches LDAP domain, e.g. informati ca.com 	Ldap User Name / Password	Ldap User Name / Password	Ldap User Name / Password	User creation on login. Periodic sync job for groups.
LDAP with Waffle SSO	LdapConfig. xml configured	<ul style="list-style-type: none"> Authenti cationMo de external Domain matches LDAP domain, e.g. informati ca.com 	Silent Login Ldap User Name / Password with SHIFT/ CTRL	Ldap User Name / Password	Ldap User Name / Password	User creation on login. Periodic sync job for groups.

Authentic ation Scenario	Server Configuratio n / Requiremen ts	User Entities	Desktop Client	Web Client	Service API / Supplier Portal / Mobile	Automatic User Sync
SAML	SamIConfig.xml configured plugin_customization.ini com.heiler.ppm.security.server/login.sso.enabled = false	<ul style="list-style-type: none"> • AuthenticationMode external • Domain any value not considered 	<i>Not possible</i>	SAML SSO only	<i>Not possible</i>	User creation on login in Web.
SAML with LDAP	SamIConfig.xml configured LdapConfig.xml configured SAML user name must match LDAP user name plugin_customization.ini com.heiler.ppm.security.server/login.sso.enabled = false	<ul style="list-style-type: none"> • AuthenticationMode external • Domain matches LDAP domain, e.g. informatica.com 	Ldap User Name / Password	SAML SSO Ldap User Name / Password on Login page	Ldap User Name / Password	User creation on login in Web. User creation on login. Periodic sync job for groups for LDAP login.
SAML with Waffle SSO	SamIConfig.xml configured SAML user name must match Windows user name	<ul style="list-style-type: none"> • AuthenticationMode external • Domain matches Windows domain, e.g. INFORMATICA 	Silent Login only	SAML SSO only	<i>Not possible</i>	User creation on login in Web.

Authentic ation Scenario	Server Configuratio n / Requiremen ts	User Entities	Desktop Client	Web Client	Service API / Supplier Portal / Mobile	Automatic User Sync
SAML with Waffle SSO and LDAP	SamlConfig. xml configured LdapConfig. xml configured SAML user name must match LDAP user name SAML user name must match Windows user name	<ul style="list-style-type: none"> Authenti cationMo de external Domain matches LDAP domain, e.g. informati ca.com 	Silent Login Ldap User Name / Password with SHIFT/ CTRL	SAML SSO Ldap User Name / Password on Login page	Ldap User Name / Password	User creation on login in Web. User creation on login. Periodic sync job for groups for LDAP login.

3.2.3 LDAP Authentication (LDAPConfig.xml)

The LDAP authentication and synchronisation feature is activated as soon as a valid LDAP configuration is available in the LDAPConfig.xml file which is located in the standard configuration directory. The modification of this file requires a server restart.

An example of this file can be found in the LDAPConfig.xml.template file which can easily be adjusted to your local LDAP environment.



```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ldapConfig>
  <directory identifier="myLDAP" domain="myDomain.com" url="ldap://myLdap.com">
    <principal>user@myDomain.com</principal>
    <password>myPassword</password>
    <userConfig objectClass="user" accountNameFilter="(&
(sAMAccountName={userName})(objectClass=user))" sidFilter="(&(objectSid={sid})
(objectClass=user))">
      <name>sAMAccountName</name>
      <sid>objectSid</sid>
      <groups>memberOf</groups>
    </userConfig>
    <groupConfig objectClass="group" objectFilter="(objectCategory=Group)">
      <name>name</name>
      <description>description</description>
      <sid>objectSid</sid>
      <refreshIntervalInMin>10</refreshIntervalInMin>
    </groupConfig>
  </directory>
</ldapConfig>


```

The LDAP configuration consists of one or more directory configurations which need to be identified by a unique identifier. Each directory has a userConfig and groupConfig element which provides attributes to configure the user and group access in the directory. For your convenience the template file already has a common configuration which is typically found for Active Directories.


Element/Attribute	Description
identifier	unique identifier of the directory
domain	<p>The domain which is controlled by this LDAP. In case the LDAP directory controls more than one domain, you can specify multiple directory elements for the same LDAP server, but with different domains.</p> <p>Please note: It is not possible to define multiple domain controllers for the same domain. If you want to use a backup domain controller you have to use a loadbalancer in front of your domain controllers.</p>
url	<p>The URL to the LDAP server. <ldap ldaps>://<fullyQualifiedHost>:[Port]</p> <p>You can use ldaps in case you want and can connect to your LDAP server using the SSL protocol (LDAP over SSL), otherwise use ldap.</p> <p>The port is optional, if omitted the default port 389 for ldap and 636 for ldaps will be used.</p>


principal	<p>Each directory requires a management user which is used for the background synchronization of Product 360 users with LDAP. This user must have read privileges to the directory and is provided with a principal (like username@domain.com) and a password.</p> <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
password	
referral	<p>Should Product 360 follow existing referrals defined in LDAP server. If referrals exist and value is set to follow please ensure Product 360 Server is able to access the referrals as well.</p> <p>Possible values are follow and ignore.</p> <p>Default is follow.</p>
UserConfig	
objectClass	the class of the object which represent the users in this directory
accountNameFilter	filter definition to search for the user based on its user name
sidFilter	filter definition to find an user based on his unique SID
name	the property of the LDAP user class which represents the username
sid	the property of the LDAP user class which represents his unique id
groups	the property of the LDAP user class which contains his group memberships
firstName	the property of the LDAP user class which represents the first name of the user. If empty, the first name will not be synced from LDAP to Product 360
lastName	the property of the LDAP user class which represents the last name of the user. If empty, the last name will not be synced from LDAP to Product 360
email	the property of the LDAP user class which represents the email of the user. If empty, the email will not be synced from LDAP to Product 360
UserGroup Config	

objectClass	the class of the object which represents the user groups in this directory
objectFilter	the filter to use to return all relevant groups (default is all groups in the directory). Adjust this attribute to limit the number of groups in the LDAP group selection in Product 360
searchBase	(optional) Root node for objectFilter to filter user groups. Default is DC values build out of the domain (like DC=domain,DC=com).
name	the property of the LDAP user group class which represents the groups name
sid	the property of the LDAP user group class which represents it's unique id
refreshIntervalInMin	To increase the performance of the Organization perspective in which LDAP groups are mapped to Product 360 user groups, the LDAP groups will be cached. With the default of 15, the users need to wait 15 minutes until a new LDAP user group appears in Product 360.

 It is only possible to resolve user group mapping starting by the user object. The user object has to provide the user group mapping as attributes. One attribute per user group mapping.

For advanced LDAP configuration see [Advanced LDAP configuration](#)(see page 59). This page also describes how to use PIM with LDAP without a active principal name.

 Please be sure at least one LDAP user group is mapped to a PIM user group for the user to login. Otherwise the login will be rejected and the user will be shown as inactive.

 Please contact your local LDAP directory administrator in case it is unclear how to configure these settings.

3.2.3.1 LDAPS

If you use LDAPS to connect to the LDAP server please note that since Java 8.181 an additional security mechanism called Endpoint Identification is available. This requires that the host name of your LDAP server is given in the certificate used for the encrypted connection.

Endpoint Identification is enable for the P360 server by default. You can disable Enpoint Identification via a JVM argument in the `/P360Server/service/wrapper.conf` file. Set the value `-Dcom.sun.jndi.ldap.object.disableEndpointIdentification` to `true` if you want to disable Endpoint Identification.


```
wrapper.java.additional.XX =
-Dcom.sun.jndi.ldap.object.disableEndpointIdentification=true
```

3.2.4 SAML Configuration (SamlConfig.xml)

Please see the [SAML Configuration page](#)(see page 66) for details.

3.3 Communication from P360 server to Control Center

The P360 server communicates via REST with the Control Center. For the communication from the P360 server to the Control Center are the host name, port, username and password of the Control Center required. The host name can be given to the P360 server via JVM arguments in the /P360Server/service/wrapper.conf file. If the host name is not given to the P360 server via JVM arguments the computer name will be used as host name of the Control Center. All the other information will be parsed from the /P360Server/configuration/HPM/ClusterixConfig.xml file.



Open the file /P360Server/service/wrapper.conf in an editor and adjust the JVM arguments as described:


JVM argument	Description	Example
clusterix.host	The host name of the Control Center. If the Control Center is with fully qualified domain name configured. This parameter has to be set.	wrapper.java.additional.XX = -Dclusterix.host=computerna me.informatica.com

3.4 Control Center Configuration (ClusterixConfig.xml)

Open the file <PIM ROOT>\clusterix\configuration\clusterix\ClusterixConfig.xml in an editor and adjust the properties as described:

Property Name	Description	Example
port	The HTTP port which should be used for the Control Center Web UI	9000
clusterixHttpsConfiguration		
enabled	Enables HTTPS for Control Center Web UI.	false
httpsPort	The HTTPS port which should be used for the Control Center Web UI.	443
keyStoreFile	The full path to the keystore file.	D:/keystore.jks

keyStorePassword	The password of the keystore file.	
keyPassword	The password of the key used inside the keystore file	
clusterixLogin		
user	The username which must be used for access to the Control Center	clusterix
password	The password to use for the control center <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>	
hpmLogin		
user	The username of the Product 360 user which has Service API access permissions. This user is not needed for the installation process, but later for monitoring Product 360 operations.	rest
password	The password of the Product 360 user <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>	


 **Important Notice:** When using HTTPS for the Control Center, make sure that your certificate is trusted! To do so follow these steps:



- export your certificate from your wanted keystore file by using this command in your java home path:
keytool -export -keystore fullPathToYourKeystoreFile -alias yourChosenAlias -file certificateName.cer
- import your exported certificate into the cacerts file at [yourJREHomePath\lib\security](#) by using the following command: **keytool -keystore cacerts -importcert -alias yourChosenAlias -file certificateName.cer**
- restart your system

=> to simplify this process, you can use an external tool named "portecle".

3.5 Network Configuration (NetworkConfig.xml)

Open the file <PIM ROOT>\clusterix\configuration\clusterix\NetworkConfig.xml in an editor and adjust the properties as described:


Element/Attribute	Description	Example/Default
network	Root element of the network configuration, contains one or more nodes	
node	Represents a server node in the cluster	
identifier	Unique identifier of the node within the network. See <i>-Dppm.nodeIdentifier</i> command line argument below!	pim-server1
host	The host name / IP address this node runs on. Note: Do not use localhost or similar addresses. The host name or IP address in this attribute must be visible from all nodes in the cluster. In case the server has the CLIENTS_SERVER role, it also must be visible from the desktop clients.	
default-role  mandatory attribute	Default role(s) each server node must have at start time. Available roles are CLIENTS_SERVER, JOB_SERVER and MQ_CONSUMER_SERVER. Currently the server roles can not be modified during runtime of the server, but this might change in the future.	CLIENTS_SERVER. JOB_SERVER and MQ_CONSUMER_SERVER
node/web	Web relevant protocol settings (either HTTP or HTTPS)	
useHttps	Enables/disables the SSL protocol. Default is false - in case you want to enable it, you need to provide a valid SSL certificate	
maxIdleTime	Configures the maximum idle time of all Jetty server connectors. Replaces the com.heiler.ppm.http.jetty.multicontext/maxIdleTime setting in plugin_customization.ini. Since 8.0.03.01.	200000
node/web/http	HTTP specific settings	
port	HTTP port to be used for the web server	
useNio	Use SelectChannelConnector based on non blocking input-output (default is true)	
node/web/https	HTTPS specific settings in case SSL protocol should be used	
port	SSL port	
keystore	Properties for the SSL certificate	

password	 If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual.	
keyPassword	 If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual.	
needClientAuth		
wantClientAuth		
protocol		
algorithm		
keystoreType		
node/web/session-cookie	Configuration for the handling of the session cookie that is managed by the HTTP service (Jetty). Detailed information: SessionCookieConfig JavaDoc	
name	<p>Sets the name that will be assigned to any session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired.</p> <p>NOTE: Changing the name of session tracking cookies may break other tiers (for example, a load balancing frontend) that assume the cookie name to be equal to the default JSESSIONID, and therefore should only be done cautiously.</p>	
domain	Sets the domain name that will be assigned to any session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired.	
path	Sets the path that will be assigned to any session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired.	

comment	<p>Sets the comment that will be assigned to any session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired.</p> <p>As a side effect of this call, the session tracking cookies will be marked with a <code>Version</code> attribute equal to 1.</p>	
httpOnly	<p>Marks or unmarks the session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired as <i>HttpOnly</i>.</p> <p>A cookie is marked as <code>HttpOnly</code> by adding the <code>HttpOnly</code> attribute to it. <i>HttpOnly</i> cookies are not supposed to be exposed to client-side scripting code, and may therefore help mitigate certain kinds of cross-site scripting attacks.</p>	
secure	<p>Marks or unmarks the session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired as <i>secure</i>.</p> <p>One use case for marking a session tracking cookie as secure, even though the request that initiated the session came over HTTP, is to support a topology where the web container is front-ended by an SSL offloading load balancer. In this case, the traffic between the client and the load balancer will be over HTTPS, whereas the traffic between the load balancer and the web container will be over HTTP.</p>	
maxAge	<p>Sets the lifetime (in seconds) for the session tracking cookies created on behalf of the application represented by the ServletContext from which this SessionCookieConfig was acquired.</p>	
node/web/threadPool	Thread pool relevant settings for web. Since 8.0.03.01	
maxThreads	<p>Maximum number of threads in pool that can be created (optional setting). Replaces the <code>http.maxThreads</code> setting in <code>server.properties</code>.</p>	512
maxIdleThreadTime	<p>Maximum idle time in milliseconds for threads in pool (optional setting). Replaces the <code>http.maxIdleThreadTime</code> in <code>server.properties</code>.</p>	60000
node/web/request	Settings for connector requests. Since 8.0.03.01	

bufferSize	Request buffer size in bytes (optional setting). Replaces the com.heiler.ppm.http.jetty.multicontext/ request.bufferSize setting in plugin_customization.ini.	16384
headerSize	Request header size in bytes (optional setting). Replaces the com.heiler.ppm.http.jetty.multicontext/ request.headerSize setting in plugin_customization.ini.	102400
node/web/ response	Settings for connector responses. Since 8.0.03.01	
bufferSize	Response buffer size in bytes (optional setting). Replaces the com.heiler.ppm.http.jetty.multicontext/ response.bufferSize setting in plugin_customization.ini.	32768
headerSize	Response header size in bytes (optional setting). Replaces the com.heiler.ppm.http.jetty.multicontext/ response.headerSize setting in plugin_customization.ini.	6144
node/data-grid	Settings for the distributed data grid	
port	Port to be used for the data grid connection.	
node/internal	Internal communication protocol settings	
defaultRequestTime out	Timeout in milliseconds for requests in communication framework	300000 (5 min.)
node/internal/hlr- tcp	Settings for the internal communication protocol	
port	Port for incoming / outgoing connections regarding internal communication	1712
useTLS	true in case the communication between desktop client and server and in between servers should be encrypted using a certificate. If set to true the keyStore element must also be defined (see below). False or omitted to not use TLS encryption.	false
connectTimeout	The timeout in milliseconds when connecting to the host. A value of 0 is interpreted as an infinite timeout. The connection will then block until established or an error occurs.	0
tcpNoDelay	Disables (= true!) resp enables (= false) the so-called Nagle's algorithm	true

keepAlive	Causes a packet (called a "keepalive probe") to be sent to the connected system if a long time (by default, more than 2 hours) passes with no other data being sent or received. This packet is designed to provoke an ACK response from the peer.	true
reuseAddress	<p>Enables (=true) the reuseAddress option. Default is false.</p> <p>When a TCP connection is closed the connection may remain in a timeout state for a period of time after the connection is closed (typically known as the TIME_WAIT state or 2MSL wait state). For applications using a well known socket address or port it may not be possible to bind a socket to the required SocketAddress if there is a connection in the timeout state involving the socket address or port.</p> <p>It is not recommended to enable this option without prior consultation of the Informatica Support.</p>	false
node/internal/thread-pool	Settings for communication framework's thread pool	
maxQueueSize	Maximum size of the request/event processing queue. New processing threads will be created only when the queue is full	100
maxCoreThreads	The maximum number of core threads that are processing request/events. Roughly speaking this is a hint for the thread scheduling strategy which denotes expected number of requests/events to be concurrently processed in a 'normal' operation mode. Scheduling strategy will tend to keep this number of threads in a ready-to-run state. Consider maxQueueSize together with this parameter. For more details concerning scheduling algorithm consult Java SDK ThreadPoolExecutor	100
maxThreads	The maximum number of threads that are processing request/events. This is a hard limit (in comparison with maxCoreThreads). If this value is reached, server will start rejecting requests	1000
keepAliveTime	Time in milliseconds that the thread scheduling strategy will wait, before reducing number of idle threads down to maxCoreThreads. This value protects from the situations when average number of required threads is higher than maxCoreThreads and scheduling strategy is constantly recreating threads, because it tries to reduce number of threads down to maxCoreThreads	300000 (5 min.)

doPrestartAllCoreThreads	Flag value which instructs node to start all core threads on initialization. Usually this value should not be changed from its defaults (which is <code>false</code>). The reason to set this value to <code>true</code> could be the situation when all clients connect to the server together during a short period of time.	<code>false</code>
node/service	Settings for the Service of the Application Server	
identifier	Short identifier of the service	<code>PIM_8.0</code>
name	Name of the service	Informatica <code>PIM_8.0</code>
node/jmx	Settings for the Java Management Extension (JMX) interface. JMX is needed for monitoring the application server using SNMP, the Control Center Web Interface or any JMX Client	
port	Port for the JMX communication	<code>55555</code>
node/snmp	Settings for the SNMP protocol communication	
oid	Object id of the node in the cluster. Each node must have a unique oid.	1.1 (first node) 1.2 (second node) and so on...
node/keyStore	Settings for the keystore location	
file	Path to the keystore file which contains the certificate for the SSL/TLS encrypted communication. The path might be relative to the configuration directory of the server. For example: In case the server application is installed here: <code>C:/Informatica/Product360/server</code> the configuration folder would be <code>C:/Informatica/Product360/server/configuration/HPM</code> . In case you set the file element to <code>certificates\keystore.jks</code> it is expected to be at <code>C:/Informatica/Product360/server/configuration/HPM/certificates/keystore.jks</code> . Alternatively you can define an absolute path.	
password	The password for the keystore <div> If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual.</div>	

3.5.1 Reverse Proxy Configuration

If a “reverse proxy” is used between Product 360 Desktop and Server, the URL of the proxy server should be configured in the “server.properties” file. The corresponding server-preference is: „http.client.proxy”. The valid value is the base URL of the proxy server (like <https://companydomain.com/>). This URL will be used in Product 360 Desktop for several components (e.g., RichText-Editor, Multichannel-Preview, Performance installation page) which require a HTTP connection to the Server. If the server-preference „http.client.proxy” is not configured – the default base URL (defined in “Network Configuration”) will be used instead.

3.5.2 Setup a keystore for SSL certificates

SSL certificates are optionally used for

- SAML Single Sign On
- Product 360 Rich Client to server encryption
- Jetty SSL connector for Product 360 Web for https communication

Product 360 server uses Java keystores for management of certificates. The keystore can be managed by a command line util keytool.exe which is part of the JDK. The procedure for working with certificates is the same as for other Java-based applications, like Apache Tomcat or Jetty. The keystore needs to be specified in NetworkConfig.xml on the server. Example:

```
<keyStore>
  <file>C:/Informatica/Product360/SSL/keystore.jks</file>
  <password>password</password>
</keyStore>
```

As a keystore contains sensitive information it is not recommended to put them on a shared folder. In a multi-server environment make sure that the same keystore file is available on all server instances.

For testing purposes, it is usually sufficient to use self-generated certificates. A good description can be found in the Tomcat manuals at <http://tomcat.apache.org/tomcat-7.0-doc/ssl-howto.html>

For production systems, it is recommended to use certificates of a trusted authority like Verisign, Thawte or GoDaddy. In this case the required steps are:

1. Create a new keystore and generate a private key
2. Create a CSR file (certificate signing request) and provide that to the authority so that they can create a certificate for you. Make sure to use the externally visible host name of your application in the CSR.
3. Import the certificate provided from the authority in your keystore. Also, the root and intermediate certificates need to be imported into the keystore.

Detailed commands for keytool can again be found in the Tomcat manuals at <http://tomcat.apache.org/tomcat-7.0-doc/ssl-howto.html>.

An alternative approach for importing certificates from a trusted authority into the Java keystore file is described at <http://xacmlinfo.org/2014/06/13/how-to-keystore-creating-jks-file-from-existing-private-key-and-certificate/>.

Some hints:

- When importing the official certificate, make sure to import it into the same keystore where the private key was generated in. Also you must use the same alias, which was used for the private key.
- You can use "keytool -keystore keyStoreFile -list" to see the content of your keystore. Once all certificates are imported, it should look like this:

```
root, 16.12.2015, trustedCertEntry,
Certificate fingerprint (SHA1): 47:BE:AB:C9:22:EA:E8:0E:78:78:34:62:A7:9F:
45:C2:54:FD:E6:8B
server, 16.12.2015, PrivateKeyEntry,
Certificate fingerprint (SHA1): 95:EF:
9F:B0:92:F0:D2:41:2F:E7:3B:D3:14:2F:B1:B3:A6:9E:58:10
intermed, 16.12.2015, trustedCertEntry,
Certificate fingerprint (SHA1): 27:AC:93:69:FA:F2:52:07:BB:26:27:CE:FA:CC:BE:
4E:F9:C3:19:B8
```

- You can use OpenSSL to verify your SSL connection. Once installed, use this command to connect to the Product 360 server:

```
OpenSSL> s_client -connect product360.informatica.com:1712
```

- In case of the error "Failed to establish chain from reply" when importing a certificate back into the keystore, check this Stackoverflow Q&A: <http://stackoverflow.com/questions/23611688/keytool-error-java-lang-exception-failed-to-establish-chain-from-reply>

3.6 Hazelcast configuration (hazelcast.xml)

The hazelcast framework is used as data synchronization mechanism between nodes.

Configuring Hazelcast is not mandatory. Usually the pre-delivered default configuration is sufficient.

Open the file <PIM ROOT>\clusterix\configuration\HPM\hazelcast in an editor and adjust the properties as described in the official Hazelcast configuration documentation: <http://docs.hazelcast.org/docs/3.5/manual/html/hazelcastconfiguration.html>

3.7 Command Line Arguments

Additionally to the Eclipse command line options, Product 360 - Server defines own command line switches which can be used in special cases.

- -Dppm.configuration=<Configuration directory> (default: \$ {workspace_loc:com.heiler.ppm.configuration.server/conf})
Defines the location of the configuration directory in which the repository and other configuration files are being searched for
- -Dppm.properties=<name of server configuration file> (default: server.properties)
Defines the name of the property file which specifies the overall server settings like database connections, directories, license file, etc.
- -Dppm.initdialog.ontop=true|false (default: true)
Defines if the splash screen should be on-top or not. Default is true.

- `-Dhpm.repository=<name of repository file>` (default: `Repository.repository`)
Defines the filename of the repository to be loaded, the file has to be located in the configuration directory of the Product 360 - Server.
- `-Dppm.keepRunningOnError=true | false` (default: `false`)
Prevents the server from stopping in case of any error while startup. Use this switch if you want to use the osgi console to debug startup problems.
- `-Dhpm.network.settings.filename=<filename>` (default: `NetworkSettings.xml`)
Defines the filename of the `NetworkSettings`. The file must be located in the configuration directory of the Product 360 - Server (application root/configuration/HPM). (since 5.0)
- `-Dhpm.network.atomic-serialization=true | false`
A switch which forces the communication framework to serialize each request and event message first, before it's being sent to the destination node.
The atomic serialization can help to find (de)serialization issues because the corresponding error message will tell you exactly which parameter of the message failed. Note: activating this switch will decrease the overall system performance especially in multi-user scenarios since the streaming can't be that effective. (since 5.0)
- `-Dppm.excludeInitializers=<id of initializer>,<id of initializer>`
Defines which initializers should be skipped during startup (since 5.1)
- `-Dhpm.show-event-loop-exception=true | false`
Defines if in case of an unhandled event loop exception a dialog should be opened or not.
This switch overrides the `com.heiler.ppm.main/show-event-loop-exception` preference ! (since 5.1)
- `-Dhpm.default.deletion-mode=SOFT | HARD` (default: `SOFT`)
Overrides the default deletion mode for entities which are capable of both, soft and hard delete.
Note: This argument overrides the preference `com.heiler.ppm.std.server/default.deletion-mode`
- `-Dppm.listModelSynchronizer.requeryBoundary=<number of entity items>` (default: `3`)
Defines the number of entity items which must have been created or changed in order to use a list model based approach for synchronizing a list model. In case the number of items is less then the requery boundary a detail model access is issued. Modification of this setting might impact the system performance.

3.8 Application Preferences (plugin_customization.ini)

Many functionalities of the Server or Clients can be configured by plug-in specific preferences. All available preferences are documented in the file `<PIM_SERVER_INSTALLATION_ROOT>\server\configuration\HPM\plugin_customization.ini` and can be adjusted there. Changes in this file will override the settings in the individual plugins' `preferences.ini` files. Some settings need special explanation and are listed here for convenience.

Note: You shouldn't store secure information, e.g. passwords, since password encryption is not supported for this file.

3.8.1 Task management

3.8.1.1 Task background jobs

For tasks, there are several repeating server jobs, which e.g. check for escalated tasks to reassign them or update the item count of dynamic tasks. The repetition interval for these server jobs are configured in `plugin_customization.ini`:

```
# -----
# Task SERVER Settings
# -----
#
# Here you can define the cycle of task jobs.
#
# Specifies how many days a task should be retained after it has been marked as
# finished.
# The task will be deleted after this interval.
# Default is 0 which means that finished tasks will not be deleted automatically
# com.heiler.ppm.task.server/task.deleteFinishedAfter = 0
#
# interval in which the application will check all tasks for escalation.
# Default is 3600000 (one hour)
# com.heiler.ppm.task.server/task.job.checkEscalation = 3600000
#
# interval in which all tasks will be updated and checked for expiry
# Default is 86400000 (one day)
# com.heiler.ppm.task.server/task.job.update = 86400000
```

3.8.1.2 Task E-mail notification

3.8.1.3 Mail server settings

The mail server to be used for the task E-mail notification is specified in `server.properties`:


```
#####
### Mail Server Settings

# - mail.host: The mail server's host name (mandatory\!)
# - mail.protocol: The protocol to be used (mandatory\!)
# - mail.port: The port to be used (optional, may be kept empty when using the
protocol's standard port)
# - mail.user: The user name for authentication (optional, may be kept empty if the
server doesn't require authentication)
# - mail.password: The password for authentication (optional, may be kept empty if
the server doesn't require authentication)
```

i *If any other notification level than "None" is specified and the mail server cannot be reached, the application server will not start.
This is by design and is intended to avoid malfunctions after starting a misconfigured server.
To start the server anyway you need to delete the server's workspace to reset the notification level to "None".*

3.8.1.4 Notification level

The default notification level for tasks and the default sender address for outgoing mails is configured in plugin_customization.ini:

```
# -----
# Notification preferences
# -----

# The default notification level (1 - None, 2 - Low, 3 - Regular, 4 - Detail)
# com.heiler.ppm.task.notification.server/default-level = 1

# The default from address for outgoing notifications
# com.heiler.ppm.task.notification.server/from-adress = hpm@heiler.com
```

The default notification level is "1 (None)" and the default from adress is "hpm@heiler.com". These settings can be changed in the perspective "Task notification" in the client. The user-defined values for the preferences will be stored in the server workspace.

i *The default settings in plugin-customization.ini are only initial values for the task notification. After changing the settings on client level, the new user-specified settings will be used.
To restore the default values from plugin-customization.ini, the server workspace must be deleted.*

3.8.2 Product paradigm

In PIM 7, the product data model supports two different so-called product paradigms, which specify the possible hierarchy of how the ArticleType based repository entities can be arranged.

- 2 level product paradigm (2PPD): Products have subordinate items
- 3 level product paradigm (3PPD): Products have subordinate variants, which in turn have subordinate items

The functionality supporting the respective product paradigm has been split into different bundles, meaning that in order to set up the desired mode, only the correct plugins have to be added to/removed from the server and client installation. Following bundles are relevant for the product paradigm configuration and thus need to be considered:

- **com.heiler.ppm.product2g.level2pp.*** - These plugins are only allowed in 2PPD mode and are aggregated into features **com.heiler.ppm.feature.level2pp.server** and **com.heiler.ppm.feature.level2pp.client**.
- **com.heiler.ppm.variant.*** - These plugins are only allowed in 3PPD mode and are aggregated into features **com.heiler.ppm.feature.variant.server** and **com.heiler.ppm.feature.variant.client**.

3.8.2.1 Standard delivery

By default, the Product Manager is shipped with a 2PPD setup, meaning that the **com.heiler.ppm.feature.level2pp.server/client** features already reside in the server and client installations.

3.8.2.2 Setting up 3PPD mode

Perform the following steps in order to run the Product Manager in 3PPD mode:

1. Add the additional variant features to the server and client installation.
The **com.heiler.ppm.feature.variant.*** features needed for activating the 3PPD are shipped within two separate ZIP files for server and client:
 - a. **PIM_8.0.x_server_variant.delta.zip** - Unpack content into server installation folder (e.g. C:\Informatica\PIM\server)
 - b. **PIM_8.0.x_client_variant.delta.zip** - Unpack content into client installation folder (e.g. C:\Informatica\PIM\client)
2. Remove the **com.heiler.ppm.product2g.level2pp.*** and **com.heiler.ppm.web.product.level2pp*** plugins from the server and client installation's *plugins* folder.
3. Remove the **com.heiler.ppm.feature.level2pp*** and **com.heiler.ppm.feature.web.level2pp*** features from the server and client installation's *features* folder.

i It is NOT necessary to adapt the Product 360 - Server repository when configuring the product paradigm, this is performed automatically during server startup.

However, it may be necessary to clean up the workspace of the Server folder (except "HPM" folder) with the server restart in order to have everything in sync again.

3.8.2.3 Setting up 1PPD mode

This works out of the box in Desktop Client. To disable products in Web Client, please run the following steps:

1. Open the /plugins directory on the server
2. Remove the plug-ins **com.heiler.ppm.web.product*** and **com.heiler.ppm.web.product.level2pp***.

No additional plug-ins are needed. This will hide all options regarding products and will make the master catalog to load items instead of products on activation.

3.8.3 MIME values

3.8.3.1 Cleanup Job

The system job "Remove obsolete MIME files" will remove the physical representation of a mime value (e.g. used within the Characteristics or the Lookups or at any other field of datatype MIMEValue). You can configure when this job should run in the `plugin_customization.ini` in the section "MIMEValue SERVER Settings" using the preference `com.heiler.ppm.mimevalue.server/cleanup.job.mimevalue.repeatPattern`. The repeat pattern consists of a cron expression. See Quartz Enterprise Job Scheduler documentation for more details about the syntax. Don't forget to uncomment the line.

By default the job runs every Saturday at 9 PM.

3.8.3.2 File type mapping

The file type of a mime value (e.g. `image/png` etc.) is determined by the `mime.types` mapping file which maps file extensions to file types. You can find this file in the configuration folder of the server. It is already filled with a large set of common known mappings but of course can be adjusted

3.8.4 Database version check

Every release of the Product 360 Server has been tested against a certain number of database versions. During the lifetime of an Product 360 - Server installation it might be that you need to update the database to a not (yet) approved version. This might happen by accident (automatic windows updates) or on purpose due to company orders.

For such situations we provide a way to overwrite the database versions which we check against at application server startup.

Open the `plugin_configuration.ini` file which is located in your `<PIM_SERVER>/configuration/HPM` directory.

You will find a section called Version SERVER Settings which provides you with the properties you can adjust. Please don't forget to uncomment the corresponding line (remove the #).

⚠ In case you can't find the section, you might have a product version in which this setting has not been made public. However, you can just add the corresponding property to the file.
`com.heiler.ppm.version.server/version.dbms.MSSQL2008 = <YOUR VERSION>` (example: 10.0.1600.22)
`com.heiler.ppm.version.server/version.dbms.MSSQL2005 = <YOUR VERSION>` (example: 11.1.0.6.0)
`com.heiler.ppm.version.server/version.dbms.ORA11g = <YOUR VERSION>` (example: 10.2.0.3.0)
`com.heiler.ppm.version.server/version.dbms.ORA10g = <YOUR VERSION>` (example: 11.1.0.6.0)

⚠ Please note, we cannot guarantee the full compatibility of the Product 360 Server against every single database version unless they have been tested by our QA department. If you encounter errors which might originate due to the unsupported database version we might not be able to help you in a timely manner.

3.9 Repository configuration (`Repository.repository`)

⚠ Modifications of the repository should only be done by System Administrators which have been trained for this.
 Please see also the [repository documentation](#)(see page 13) in the SDK documentation.

3.9.1 Changing the default language of the repository

Sub entities of the repository are usually pre-qualified by default values directly in the repository. Especially the default language for language dependent fields is subject to be changed for a concrete installation environment, so the users do not have to re-qualify every column all the time. Please note that a modification of the default qualification in the repository affects all clients belonging to the server.

⚠ **Note:** The repository language **MUST NOT** be changed as soon as entity data such as items/products/variants or structures/structure groups have been created and exist in the database. In such a situation, the stability of the system can no longer be guaranteed since logical key fields most likely will contain null values.

As of PIM7, it is no longer necessary to keep language dependent versions of the repository file for configuring the repository's default language. These language dependent aspects are automatically configured during repository initialization, adjustable by a server property (`repository.default.language` - possible values: All key synonyms of the corresponding language entries defined in the repository enumeration "Enum.Language", e.g. "de" or "en_US" - default is German). The repository file in `<server installation folder>/configuration/HPM/repository.repository` no longer contains any hard wired language dependent enum keys, but a placeholder instead, which is replaced during server startup.

Since PIM 7.0.01 the server will check if all attributes of item/product/variant and structure are maintained in the repository default language key. The server won't start if any such entry will be found.
 The occurred error in the server log will look like this:

The database 'HPM_MAIN' contains invalid structure feature entries. '3' entries have been found which aren't maintained in the repository language German.

If you get this message please check out Troubleshooting for this behavior.

3.9.2 Adding a new language to the Repository

1. Take a look at the Language tables in the database and find the language you want to add. If you can't find it there, it might be that the language needs to be added to the database tables.
2. Open the <server installation folder>/configuration/HPM/repository.repository file with the Repository Editor from your installation package
3. Find the enumeration "Enum.Language" in the custom area of the repository.
4. Add a new entry to this enumeration, using the ID of the language record of the database as key value.
5. Do not forget to add also the locale identifier(s) for your language, especially in case you also want to use this language as the GUI language of the client (which might require the corresponding language pack licenses too)

3.9.3 Adding a new language to the database

In the database there are 3 tables which hold language information. Language, LanguageLang and LanguageISOCodes.

All must be filled with the corresponding values in order to make this new language available to the system.

Since the ID's are not just incremented and they need to match for all installations and further updates it is **not recommended**

to insert the new values by yourself. We strongly recommend to *open a ticket with our Global Support* so they can provide you an update script

which then will automatically be added to the standard product with the next releases.

For documentation purposes we document here the statements which are necessary to insert a new language in the tables:

Example for language 'Romanian'

```
INSERT INTO "Language" ( "ID", "Visible", "DisplayOrder", "Alpha3Code", "Locale")
VALUES ( 1048, 0, 2147483647, N'ron', N'ro');
```

```
INSERT INTO "LanguageISOCodes" ( "ID", "LanguageID", "AlphaCode") VALUES ( 800, 1048,
N'ron');
```

```
INSERT INTO "LanguageISOCodes" ( "ID", "LanguageID", "AlphaCode") VALUES ( 801, 1048,
N'ro');
```

```
INSERT INTO "LanguageLang" ( "ID", "LanguageID", "Name") VALUES ( 1048, 7,
N'Rumänisch');
```

```
INSERT INTO "LanguageLang" ( "ID", "LanguageID", "Name") VALUES ( 1048, 9,
N'Romanian');
```


i Language ID and AlphaCode

The required language ID is based on the languages defined by Microsoft called Locale ID (LCID). Use the value from the column "LCID Dec" when adding a language.

To get the corresponding AlphaCodes are based on the ISO 639. For the two letter code use ISO 639-1 and for the three letter code use ISO 639-2/T. A list with available codes can be found on Wikipedia.

3.10 Application Modules configuration (application_modules.properties)

Application modules include functionality which can be activated/deactivated for the whole application regardless of the user group membership. If a module is deactivated then all views, perspectives but even fields, entities and enumerations are not visible/available in the application. The availability of modules can be configured in the server-side file `application_modules.properties` which is located in the folder "**<PIM_SERVER_INSTALLATION_ROOT>\server\configuration\HPM**".

By default following application modules are activated/deactivated:

```
# Defines if the GDSN extension is installed (true) or not (false)
GDSN = false

# Defines if the GDSN pool "IM" is used (true) or not (false) if the GDSN extension
is installed.
gdsn_pool_im = true

# Defines if the GDSN pool "DSE" is used (true) or not (false) if the GDSN extension
is installed.
gdsn_pool_dse = false

# Defines if the GDSN extension is used in "data source" mode (true) or not (false)
if installed.
gdsn_data_source = true

# Defines if the GDSN extension is used in "data recipient" mode (true) or not (false)
if installed.
gdsn_data_recipient = false

# Defines if the food and beverage module is activated (true) or deactivated (false).
FoodAndBeverage = false
```

3.11 Spelling dictionaries

Here is a suggestion of sites where you can find spellchecker dictionaries. Please check and respect the particular rights and licences.

http://extensions.services.openoffice.org/dictionary
http://src.chromium.org/viewvc/chrome/trunk/deps/third_party/hunspell_dictionaries/
http://www.altova.com/dictionaries.html
https://addons.mozilla.org/de/thunderbird/language-tools/
https://wiki.mozilla.org/L10n:Dictionaryes

These dictionaries consist of two files: one file with the basic words and one file with the grammatical rules. Once this files are copied in the specific dictionary folder (which can be configured in the *plugin_customization.ini*) on the PIM server, at the next server start they will be converted in the flat word lists, which can be used from the PIM spellchecker.

We recommend using of following standard dictionaries:

German	http://extensions.services.openoffice.org/en/project/dict-de_DE_frami
US English	http://extensions.services.openoffice.org/en/project/en_US-dict

To install the spelling standard dictionaries please do following:

1. Download a spellchecking dictionary e.g from one of the sources listed above.
2. Extract the corresponding "***.dic**" and "***.aff**" files.
3. Make sure that both files are encoded with **ANSI**. If necessary - change the encoding of both files and save them (e.g. using "Notepad++" - file menu "Encoding" -> "Convert to ANSI").
4. Copy these files in the folder configured in the *plugin_customization.ini* as *com.heiler.ppm.spelling.server/sourceDictionariesFolder*.
The default value is **{CONF}/dictionaries/source**, where **{CONF}** is the placeholder of the configuration folder of the PIM-Server.
5. The file pattern for the dictionary files is: **{LANGUAGE}_{COUNTRY}.dic** and **{LANGUAGE}_{COUNTRY}.aff** (e.g. *en_US.dic*, *en_US.aff*). So rename the copied files if necessary.
6. Then at the next server start the source files will be converted in the word lists and cached in the dictionary cache folder (which is also configured in the *plugin_customization.ini*).

3.12 Media Asset Management Configuration

3.12.1 Media Manager

The configuration of the Media Manager is described in [Product 360 Core and PIM - Media Manager Configuration](#)(see page 285).

3.12.2 Classic Provider

3.12.2.1 Preview Generation Parameters

Configuration is done in the `C:\heiler\server\configuration\HPM\plugin_customization.ini` file. The parameters concerning the build-in media asset provider configuration can be found in the section *MediaAssetProvider*. The following table lists these parameters (simplifying readability, the preceding string `com.heiler.ppm.mediaasset.server.heiler/` has been omitted here):

Parameter	Description	Default value
<code>previewSize</code>	Image size of the preview (height x width) in pixel displayed(e.g. in "Image preview" view). The dimensions of the image will be changed only if its width or height exceeds the corresponding geometry specification. These thumbnails are stored in the folder \$ (filestorage.mime.path)\hlr-pv	1000
<code>thumbsizeSmall</code>	Image size of small thumbnails (height x width) in pixel displayed in table views. The dimensions of the image will be changed only if its width or height exceeds the corresponding geometry specification. These thumbnails are stored in the folder \$ (filestorage.mime.path)\hlr-ts.	32
<code>thumbsizeNormal</code>	Image size of normal sized thumbnails (height x width) in pixel displayed in the "Miniature view (documents)" and "Miniature view. The dimensions of the image will be changed only if its width or height exceeds the corresponding geometry specification. These thumbnails are stored in the folder \$ (filestorage.mime.path)\hlr-tn.	100
<code>thumbsizeBig</code>	Image size of big thumbnails (height x width) in pixel. The dimensions of the image will be changed only if its width or height exceeds the corresponding geometry specification. These thumbnails are stored in the folder \$ (filestorage.mime.path)\hlr-tb.	100

Parameter	Description	Default value
thumbnailFiletype	File type of thumbnails. Possible values are "jpg" and "png".	jpg
dpi	Resolution of thumbnails.	50
systemDirName	The name of the system directory which is a folder under \$(filestorage.mime.path) with following properties: 1) It can not be deleted by application. 2) It will not be changed by import. 3) It stores all files which are assigned per DND to a article/product/variant/structureGroup in Product 360 desktop. If unspecified, the system will create the folder hlr-system automatically.	hlr-system
blacklistExtensions	Comma separated list of file extensions which should not be supported by classic provider.	chm,db,doc,docx,eps,exe,htm,html,jar,log,pdf,ps,rar,txt,xls,xlsx,zip
numberOfThread.init Value	Number of threads which are used by initialization of the corresponding thread pools in HeilerClassic Provider, such thread pools schedules the job for execution of GraphicsMagick, or other parallel work. After start of the hpm server, the value of numberOfThread can be also changed by JMX tooling in real time.	10

The preview generation process can be customized by means of configuration parameters in the section *Heiler MediaAssetProvider* of the C:

\Heiler\server\configuration\HPM\plugin_customization.ini file.

Parameter	Description
com.heiler.graphicsmagick/ gm.execute.timeoutMSec	GraphicsMagic execute timeout. Gm.exe is considered as busy or crashed if there is no result after it takes longer than this time. An exception will be throws in this case. Default is 120.000 ms (2 minutes).

Previews for PS, EPF, PDF, HTML and other formats.

 In the basic configuration GraphicsMagick supports already many file formats, but not for PS, EPS, PDF and HTML files. Use the Informatica Media Manager for advanced capabilities.

3.12.2.2 Running "Classic MediaAssetProvider" with unicode encoded folder names

GraphicMagic can't handle unicode characters. Without changing the windows settings accordingly, you will get an error message like this


```

CommunicationWorker-14 ServerImageManager Error while loading file in
graphicsmagick
INFO | jvm 1 | 2011/03/03 20:25:20 |
org.eclipse.core.runtime.CoreException: An error occurred while running gm.exe.
INFO | jvm 1 | 2011/03/03 20:25:20 |
C:\Heiler\server\plugins\com.heiler.graphicsmagick.win32_4.5.0\os\win32\x86\gm.exe
identify: Unable to open file (c:\Shared\Test????\123.jpg) Invalid argument.
INFO | jvm 1 | 2011/03/03 20:25:20 |
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.graphicsmagick.internal.ProcessExecutor.postErrorHandling(ProcessExecutor.
java:189)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.graphicsmagick.internal.ProcessExecutor.runGuarded(ProcessExecutor.java:
143)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.graphicsmagick.command.InfoCommand.executeAsExternalProcess(InfoCommand.ja
va:238)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.graphicsmagick.command.InfoCommand.execute(InfoCommand.java:225)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.mediaasset.server.heiler.ServerImageManager.getProperties(ServerImageM
anager.java:499)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.mediaasset.server.heiler.HeilerClassic.getMediaAssetFileProperties(Hei
lerClassic.java:2966)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.mediaasset.server.heiler.HeilerClassic.getMediaAssetFileProperties(Hei
lerClassic.java:3090)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.mediaasset.server.handler.GetMediaAssetFileProperties.onMessage(GetMed
iaAssetFileProperties.java:77)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.communication.core.internal.node.AbstractNode.processRequestMessageFo
rOursel(AbstractNode.java:398)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.communication.core.internal.node.AbstractNode.processLowLevelMessageFo
rOursel(AbstractNode.java:295)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.communication.core.internal.node.ServerNodeImpl.processLowLevelMessage
(ServerNodeImpl.java:554)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
com.heiler.ppm.communication.core.internal.node.AbstractNode$LowLevelMessageRunnable.
run(AbstractNode.java:214)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
java.util.concurrent.ThreadPoolExecutor$Worker.runTask(ThreadPoolExecutor.java:886)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:908)
INFO | jvm 1 | 2011/03/03 20:25:20 | at
java.lang.Thread.run(Thread.java:619)
INFO | jvm 1 | 2011/03/03 20:25:20 |
INFO | jvm 1 | 2011/03/03 20:25:20 | !ENTRY com.heiler.graphicsmagick 4 10

```



```

2011-03-03 20:25:20.631
INFO    | jvm 1    | 2011/03/03 20:25:20 | !MESSAGE An error occurred while
running gm.exe.
INFO    | jvm 1    | 2011/03/03 20:25:20 |
C:\Heiler\server\plugins\com.heiler.graphicsmagick.win32_4.5.0\os\win32\x86\gm.exe
convert: Unable to open file (c:\Shared\Test????\22581_250x286test.jpg)
Invalid argument.
INFO    | jvm 1    | 2011/03/03 20:25:20 |
INFO    | jvm 1    | 2011/03/03 20:25:20 | 20:25:20,522 ERROR


```

It works again with the correct language configuration of windows. Please make sure the language type of your file names (and folder names) is consistent with the one which you set as "Language for non-Unicode programs"

Windows Server 2008

Control Panel -> Regional and Language Options -> Administrative tab -> Change system locale

Select a language which contains the letters you want to use (see picture below)

 Unknown Attachment

3.13 Security logging

All login activities are logged by default in a separate file `securityLogin.log` as well as persisted in the database. The date, login name and the source will be logged. To disable the logging in the database you have to set the field `User.LastLoginDate` to inactive. If you only want to deactivate the file logging, you can adjust the `log4j2.xml` and remove `SECURITY_LOGIN` section.

3.13.1 Setup a keystore for SSL certificates

3.14 Advanced LDAP configuration

 The advanced LDAP settings are available since 8.0.03.03, 8.0.5.01

With the Elements/Attributes it is possible to adjust PIM to special LDAP environments. Especially if user authentication should not be done by the `userPrincipalName` (`username@domain`).

The following values are optional and additional to the parameters mentioned in "Server Configuration" -> "Authentication Setup" -> "LDAP Authentication (LDAPConfig.xml)" chapter.

Element/Attribute	Description
serviceBindDN	(optional) Used to authenticate the management user. Overwrite <principal>
domainComponentIdentifier	(optional) Used to identify domain tokens. Default is 'DC'
UserConfig	
accountBindDN	(optional) Used to authenticate user. {userName} will be replaced with entered user name. {domainName} will be replaced with attribute domain value of directory. Default is authentication by principal name.
accountNameFilterBaseDN	(optional) Root node for accountNameFilter to filter user. Default is DC values to build the domain (like DC=domain,DC=com).

Find a view samples below. It is possible to combine the LDAP fields and adjust the filters for the existing LDAP setup.

3.14.1 uid example

This sample uses the uid to authenticate and filter the users.

Action		LDAP field
Authenticate manager user		uid
Authenticate client user		uid
Filter client user		uid
LDAP configuration		Additional comments
DC identifier	dc	The domain setup looks like 'dc=myDomain,dc=com
User object class	inetOrgPerson	
Group object class	groupOfNames	


```

<ldapConfig>
  <directory identifier="myLDAP" domain="myDomain.com" url="ldap://myLdap.com">
    <principal>user@myDomain.com</principal>
    <password>myPassword</password>
    <serviceBindDN>serviceUserUid</serviceBindDN>
    <domainComponentIdentifier>dc</domainComponentIdentifier>
    <userConfig objectClass="inetOrgPerson" accountNameFilter="(&
(uid={userName})(objectClass=inetOrgPerson))" sidFilter="(&(objectSid={sid})
(objectClass=inetOrgPerson))" accountBindDN="{userName}"
      accountNameFilterBaseDN="dc=myDomain,dc=com">
      <name>cn</name>
      <sid>objectSid</sid>
      <groups>groupMembership</groups>
    </userConfig>
    <groupConfig objectClass="groupOfNames" objectFilter="(objectCategory=groupOfNa
mes)">
      <name>name</name>
      <description>description</description>
      <sid>objectSid</sid>
      <refreshIntervalInMin>10</refreshIntervalInMin>
    </groupConfig>
  </directory>
</ldapConfig>

```

3.14.2 CN example

This sample uses the CN to authenticate and filter the users.

Action		LDAP field
Authenticate manager user		CN
Authenticate client user		CN
Filter client user		CN
LDAP configuration		Additional comments
DC identifier	DC	The domain setup looks like 'DC=myDomain,DC=com
User object class	user	
Group object class	group	
All your PIM users are below your OU	yourOrg	


```

<ldapConfig>
  <directory identifier="myLDAP" domain="myDomain.com" url="ldap://myLdap.com">
    <principal>user@myDomain.com</principal>
    <password>myPassword</password>
    <serviceBindDN>CN=serviceUser,OU=yourOrg,DC=myDomain,DC=com</serviceBindDN>
    <domainComponentIdentifier>DC</domainComponentIdentifier>
    <userConfig objectClass="user" accountNameFilter="(&
(CN={userName},OU=yourOrg,DC=myDomain,DC=com)(objectClass=user))" sidFilter="(&
(objectSid={sid})(objectClass=user))" accountBindDN="CN={userName},OU=yourOrg,DC=myDo
main,DC=com"
      accountNameFilterBaseDN="OU=yourOrg,DC=myDomain,DC=com">
        <name>sAMAccountName</name>
        <sid>objectSid</sid>
        <groups>groupMembership</groups>
      </userConfig>
    <groupConfig objectClass="group" objectFilter="(objectCategory=group)">
      <name>name</name>
      <description>description</description>
      <sid>objectSid</sid>
      <refreshIntervalInMin>10</refreshIntervalInMin>
    </groupConfig>
  </directory>
</ldapConfig>

```

3.14.3 Do not determine domain from username

By default P360 server tries to determine the user and the domain value from the given typed in user name. This means that given input user@domain.com will split into 2 parts. 'user' is used as user name - 'domain.com' is used as domain. The same if you use the pattern domain.com\user.

This default behavior can be changed via the parameter <extractDomainFromUserName>. This parameter is not mandatory and the default value is true. The value is used for all available <directory> entries. If the value is set to true the typed input is used as user name without any changes.

A sample configuration would look like this.


```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ldapConfig>
  <directory identifier="myLDAP" domain="myDomain.com" url="ldap://myLdap.com">
    <principal>user@myDomain.com</principal>
    <password>myPassword</password>
    <userConfig objectClass="user" accountNameFilter="(&
(sAMAccountName={userName})(objectClass=user))" sidFilter="(&(objectSid={sid})
(objectClass=user))">
      <name>sAMAccountName</name>
      <sid>objectSid</sid>
      <groups>memberOf</groups>
    </userConfig>
    <groupConfig objectClass="group" objectFilter="(objectCategory=Group)">
      <name>name</name>
      <description>description</description>
      <sid>objectSid</sid>
      <refreshIntervalInMin>10</refreshIntervalInMin>
    </groupConfig>
  </directory>
  <extractDomainFromUserName>false</extractDomainFromUserName>
</ldapConfig>
```

3.15 EH-Cache Configuration

Caching is a difficult topic in every application and it's hard to predict which cache is useful and which isn't. Mainly because this is driven by the use cases the user execute on the system, manual ones, or automatic ones.

This page should give some simple overview.

In Product 360 we have multiple various caches which support different use cases. Some of those caches are designed in a ways that their content always needs to be in memory and therefore those caches can not really be adjusted by the user. Others are more transparent in their performance impacts and are provided using the EH-Cache framework.

EH-Cache is an open source caching framework which allows to create cache structures within the application which can then be configured and monitored from outside. The configuration of caches which are implemented using this framework is done in the ehcache.xml file within the configuration/hpm folder of the control center, respectively the application server.

For detail on the general structure of the ehcache.xml file, we kindly ask you to see the official eh-cache documentation. However, for the purpose of this document we will use a small part of it.

3.15.1 General Cache configuration

Mandatory Attributes	Description
----------------------	-------------

name	Sets the name of the cache. This is used to identify the cache. It must be unique. This must never be changed as the application uses the name to find the configuration!
maxElementsInMemory	Sets the maximum number of objects that will be created in memory
maxElementsOnDisk	Sets the maximum number of objects that will be maintained in the DiskStore. The default value is zero, meaning unlimited.
eternal	Sets whether elements are eternal. If eternal, timeouts are ignored and the element is never expired.
overflowToDisk	Sets whether elements can overflow to disk when the memory store has reached the maxInMemory limit.
Optional Attributes	Description
timeToIdleSeconds	Sets the time to idle for an element before it expires. i.e. The maximum amount of time between accesses before an element expires Is only used if the element is not eternal. Optional attribute. A value of 0 means that an Element can idle for infinity. The default value is 0.
timeToLiveSeconds	Sets the time to live for an element before it expires. i.e. The maximum time between creation time and when an element expires. Is only used if the element is not eternal. Optional attribute. A value of 0 means that and Element can live for infinity. The default value is 0.
diskPersistent	Whether the disk store persists between restarts of the Virtual Machine. The default value is false.
diskExpiryThreadIntervalSeconds	The number of seconds between runs of the disk expiry thread. The default value is 120 seconds.
diskSpoolBufferSizeMB	This is the size to allocate the DiskStore for a spool buffer. Writes are made to this area and then asynchronously written to disk. The default size is 30MB. Each spool buffer is used only by its cache. If you get OutOfMemory errors consider lowering this value. To improve DiskStore performance consider increasing it. Trace level logging in the DiskStore will show if put back ups are occurring.
clearOnFlush	Whether the MemoryStore should be cleared when flush() is called on the cache. By default, this is true i.e. the MemoryStore is cleared.

memoryStoreEvictionPolicy	Policy would be enforced upon reaching the maxElementsInMemory limit. Default policy is Least Recently Used (specified as LRU). Other policies available - First In First Out (specified as FIFO) and Less Frequently Used (specified as LFU)
---------------------------	---

3.15.1.1 Specific Caches

List Model Cache

The List Model Cache is mainly used in the Rest Service API of Product 360 - specifically for the purpose of "paging" in larger list model. In case client application don't want to, or just can't process large list models at once, they have the possibility to use the ListModel cache in order to do that. This way the larger list model is kept on the server until the time to live is expired or the client sends an evict message.

The ehCache.xml file has two cache configurations predefined. One specific for the Item entity (**listModel.Article**) and one for all other entities (**listModel._shared**). As described in the ehCache.xml file you can also add a specific configuration for other entities if needed. The application will check if there is an appropriate configuration in the ehCache.xml file, and if not will use the listModel._shared.

An "element" in the context of a list model cache is a "full list model", not single rows of the model.

```
<!-- shared cache for list models. Comment it to disable shared list mode caching -->
<cache
  name="listModel._shared"
  maxElementsInMemory="100"
  eternal="false"
  timeToIdleSeconds="600"
  timeToLiveSeconds="3600"
  overflowToDisk="false"
  memoryStoreEvictionPolicy="LRU"
/>
```

```
<!-- entity specific cache for list models. use 'listmodel.' prefix to configure cache
for a specific entity -->
<cache
  name="listModel.Article"
  maxElementsInMemory="100"
  eternal="false"
  timeToIdleSeconds="600"
  timeToLiveSeconds="3600"
  overflowToDisk="false"
  memoryStoreEvictionPolicy="LRU"
/>
```


3.16 SAML Configuration



This guide describes the necessary steps to configure Product 360 for usage with SAML Single Sign On (e.g. Active Directory Federation Services (AD FS) or Shibboleth). SAML support has been introduced with Product 360 v8.0.02.

- [Overview](#)(see page 66)
 - [Roles](#)(see page 66)
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3.16.1 Overview

3.16.1.1 Roles

The SAML specification defines three roles:

- the Principal (typically a user)
- the Identity Provider (IdP) e.g. AD FS, OKTA or Shibboleth
- and the Service Provider (SP) in our case Product 360

This section describes all steps necessary to setup Single Sign On via SAML in PIM 360.

In general, if you want to know more about what SAML SSO is, documentations can be found on the official SAML documentation pages provided by the OASIS consortium.

The chapter '5.1 Web Browser SSO Profile' in the Saml 2.0 documentation is of most interest, since P360 is using Web Browser based Saml POST bindings.

In such documentations the term "Service Provider" can be replaced by "Product 360" and the term "User agent" can be replaced by "Browser" in case of Web based SSO scenarios.

3.16.1.2 Single Sign On flow

Product 360 supports two ways for Single Sign On. Service Provider initiated and Identity Provider initiated Single Sign On.

Service Provider Initiated

In this scenario

1. The principal requests a service from the service provider (e.g. access to a web resource within Product 360).
2. To provide this resource to the principal the service provider redirects user authentication (AuthRequest) to the identity provider.
3. In case the user is not yet authenticated at the Identity Provider, the IdP requests credentials from the user, e.g. by presenting a login form with username and password.
4. The IdP sends an identity assertion (SAML Assertion like a security token) for the principal. On basis of this assertion, the service provider can make a decision to provide the resource to the principal or not.
5. The SP ensures that the user is directed to the initially requested resource.

Identity Provider Initiated

In this scenario, there is no initial authentication request from the SP. Instead, the IdP provides links to the SP to certain SP resources. IdP initiated Single Sign On is started when clicking on such a link.

1. The user clicks on an IdP provided link to access a resource in the SP.
2. In case the user is not yet authenticated at the Identity Provider, the IdP requests credentials from the user, e.g. by presenting a login form with username and password.
3. The SP directly receives an identity assertion for the principal. On basis of this assertion, the service provider can make a decision to provide the resource to the principal or not.
4. The SP ensures that the user is directed to the resource given in the assertion information.

3.16.1.3 Product 360 SAML support

- HTTP communication security is ensured by SSL between the IdP and SP.
- Messages can be signed and encrypted to ensure message-level security. This includes:
 - signing of AuthRequest message from SP to IdP
 - signing of SAML Assertions
 - encryption of SAML Assertions
- While the IdP is signing the assertions, this allows Product 360 to verify against the IdP's public X509 certificate that this assertion's where issued by exactly this IdP.
- Optionally supplying Product 360 with a public X509 certificate and private key allows Product 360, as the SP, to sign outgoing requests to the IdP, as well as decrypt assertions from the IdP.
- To take advantage of these security features, the IdP must be configured to validate signatures and encrypt assertions using the same private key and public X509 certificate that Product 360 uses to sign outgoing requests to the IdP.
- Product 360 signs outgoing messages to the IdP with the SHA1 hashing algorithm. Product 360 supports incoming messages from the IdP signed with the SHA1 or SHA256 hashing algorithms.
- Product 360 can decrypt assertions from IdP, encrypted with AES-128, AES-256, or Triple DES encryption algorithms.
- Passwords are never transmitted as part of a SAML authentication request or response. Requests only contains the username and (optional) any additional metadata (username, domain, etc.) that was

configured by the IdP administrator. The optional information can be used for automatic user creation.

3.16.2 Preparation steps

3.16.2.1 Certificate keystores

i For AD FS, it is necessary to have https enabled. Therefore you need a keystore file, which has to be provided for each node.

Product 360 currently operates only on JKS format keystores. The JKS format is Java's standard "Java KeyStore" format, and is the format created by the `keytool` command-line utility. This tool is included in the JDK.

Each entry in a keystore is identified by an alias string to avoid issues related to the case sensitivity of aliases, it is not recommended to use aliases that differ only in case.

To setup SAML support in Product 360 we will need to start with creating the keystore's for the different X509 certificates which will be needed for transport and message level security. If there is no SSL connection used within your Product 360 yet, you will need to setup an initial keystore.

Create new certificate and keystore

To create a new JKS keystore from scratch, containing a single self-signed Certificate, execute the following from a terminal command line:

Create new certificate and keystore

```
keytool -genkey -alias [your alias] -keyalg RSA -keystore c:\path\to\your\desired\keystore -keysize 2048
```

This command will create a new file under the specified (`-keystore` parameter) location. You will also need to reflect this new location in the Product 360 `NetworkConfig.xml` file in the `<keystore>` element.

After executing this command, you will first be prompted for the keystore password. You will also need to specify the custom password in the `NetworkConfig.xml` file, as described later.

Next, you will be prompted for general information about this Certificate, such as company, contact name, and so on. This information will be displayed to users who attempt to access a secure page in your application, so make sure that the information provided here matches what they will expect.

Finally, you will be prompted for the *key password*, which is the password specifically for this Certificate (as opposed to any other Certificates stored in the same keystore file). The key password as well as the specified alias (`-alias` parameter) you need to specify in the appropriate use case (HTTPS, SAML signing, SAML encryption) and there configuration files.

If everything was successful, you now have a keystore file with a Certificate that can be used by your Product 360 server.

Import existing certificate into keystore

If you already have a Certificate you can import it into your local keystore. First of all you have to import a so called Chain Certificate or Root Certificate into your keystore. After that you can proceed with importing your Certificate

Download a Chain Certificate from the Certificate Authority you obtained the Certificate from.

- For Verisign.com commercial certificates go to: <http://www.verisign.com/support/install/intermediate.html>
- For Verisign.com trial certificates go to: http://www.verisign.com/support/verisign-intermediate-ca/Trial_Secure_Server_Root/index.html
- For Trustcenter.de go to: <http://www.trustcenter.de/certservices/cacerts/en/en.htm#server>
- For Thawte.com go to: <http://www.thawte.com/certs/trustmap.html>

Import the Chain Certificate into your keystore

Import the Chain Certificate into your keystore

```
keytool -import -alias root -keystore c:\path\to\your\desired\.keystore -trustcacerts
-file c:\path\to\your\trustcacertFileName
```

Finally you can import the CA certificate

Import the CA certificate

```
keytool -import -alias https -keystore c:\path\to\your\desired\.keystore -file c:
\path\to\your\certificateFileName
```

Export existing certificates public keys for metadata usage

For the SAML metadata's you will need the public keys in a readable format, to get them execute the following commands from command line:

Export existing certificates

```
keytool -export -file c:\mycertificate.cert -alias samlEncryptionCert -keystore c:
\path\to\your\desired\.keystore
```

Convert certificate to readable format

```
keytool -printcert -rfc -file c:\mycertificate.cert > c:\mycertificate.txt
```


3.16.2.2 Enabling HTTPS

In the NetworkConfig.xml add a keystore tag for each node you want to enable https/SAML:

keyStore configuration in NetworkConfig.xml

```
<keyStore>
  <file>c:/users/myUser/.keystore</file>
  <password>secret</password>
</keyStore>
```

To enable https, change the web tag as follows:


https configuration in NetworkConfig.xml

```
<web useHttps="true">
  <http port="1512" />
  <https port="8443" keyPassword="secret" alias="https" />
</web>
```

By specifying an alias, you refer to a certificate stored in the keystore beforehand. The keyPassword is the password you set while importing or creating the certificate.

3.16.3 Configuring SAML for Product 360

3.16.3.1 Adding SAML relevant configuration files (SamlConfig.xml and IdP metadata)

 The current SAML implementation requires the IdP to deliver the username (without domain or email extension) in the Name_ID attribute.

After having https enabled and a keystore configured, the SamlConfig.xml as well as metadata for the IdP have to be configured.

SAMLConfig.xml

In the configuration folder, there is a template for the SamlConfig.xml. Adapt it to fit to your needs, add the alias and password of your key and enable SAML:

If you want to use different keys for signing and encryption, you have to create multiple keys in the keystore. The following assumes the use of the same data for both actions.

SamlConfig.xml

```

<samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
  <active>false</active>
  <logoutUrl>https://idpserver/login.html</logoutUrl>
  <defaultUserGroup>defaultGroup</defaultUserGroup>
  <idpMetadata>
    <metadataLocation forceAuthRequestsSigned="false" disregardSslCertificate="false">
saml/idp-metadata.xml</metadataLocation>
  </idpMetadata>
  <spMetadata>
    <assertionConsumerServiceLocation>https://pim.informatica.com:8443/pim/
webaccess</assertionConsumerServiceLocation>
    <signingKey password="secret" alias="localhost"/>
    <encryptionKey password="secret" alias="localhost"/>
    <entityId>spEntityID</entityId>
    <wantAssertionsSigned>true</wantAssertionsSigned>
  </spMetadata>
</samlConfig>

```

Active

Defines whether SAML shall be used to initiate automated SAML Single Sign On if the user is not logged in yet.

Type	Required	Default
Boolean	yes	false

LogoutUrl

Defines the URL to which the user will be redirected after logout. Most typically this is an URL where a user may login to the application IdP initiated.

In case the element does not exist or the value is empty, the user is redirected to the default Product 360 login page.

Type	Required	Default
String or URL	no	Product 360 login page

DefaultUserGroup

When a user has been authenticated via SAML and there is no matching user with the same name in Product 360

it will be created on the fly and assigned to a default user group which can be provided here.

A matching user group with this name must exist in Product 360.

Type	Required	Default
String	no	-

SpMetadata


Required element defining all Service Provider relevant settings.


Sub element/Attribute	Type	Required	Default	Description
entityId	String	yes	-	An entity ID is a globally unique name for a SAML entity, either an Identity Provider (IdP) or a Service Provider (SP). The entityId defined will be used for communication between IdP and Sp.
assertionConsumerServiceLocation	URL	yes	-	Describes the endpoint to which SAML responses are to be sent by the IdP.
signingKey	-	yes	-	The signing key is used to establish a trusted handshake between SP and IdP (authentication).
alias	String	yes	-	Alias for the key used for signing.
password	String	yes	-	Password for accessing the key defined by the alias.
encryptionKey	String	yes	-	The encryption key is used to decrypt data received by IdP (data was encrypted by the SPs corresponding public key).
alias	String	yes	-	Alias for the key used for signing.
password	String	yes	-	Password for accessing the key defined by the alias.


wantAssertionsSigned	Boolean	yes	true	<p>If you want the IdP to sign Assertions set this flag to true.</p> <p>As signing of assertions is the recommended option, the default value is true.</p>
----------------------	----------------	------------	-------------	--

IdpMetadata

Required element defining all Identity Provider relevant settings.

Sub element/ Attribute	Type	Required	Default	Description
metadataLocation	URL or relative path in Product 360 configuration folder	yes	saml/idp- metadata.xml	<p>Provides information about the IdP. The element value itself defines the location of the metadata file. Currently two types of locations are supported:</p> <ul style="list-style-type: none"> • URL based (http and https), e.g. "https://idpserver/metadata/idp-metadata.xml" or "http://idpserver/metadata/idp-metadata.xml". • If neither a URL with http or https is provided, it is assumed that the file is located relatively to the server configuration folder. e.g. "saml/idp-metadata.xml" would be valid. <div> <p> Please note that if a URL with https is used and "disregardSslCertificate" is set to false, you have to ensure that the certificate presented by the IdP to access the metadata is trusted by Product 360. This is done by adding the certificate to the Product 360 keystore (see above how to add trusted certificates).</p> </div>
disregardSslCertificate	Boolean	no	false	Indicating whether the servers SSL certificate should always be accepted regardless of whether it is valid.

Sub element/ Attribute	Type	Required	Default	Description
metadataLocation	URL or relative path in Product 360 configuration folder	yes	saml/idp- metadata.xml	<p>Provides information about the IdP. The element value itself defines the location of the metadata file. Currently two types of locations are supported:</p> <ul style="list-style-type: none"> • URL based (http and https), e.g. "https://idpserver/metadata/idp-metadata.xml" or "http://idpserver/metadata/idp-metadata.xml". • If neither a URL with http or https is provided, it is assumed that the file is located relatively to the server configuration folder. e.g. "saml/idp-metadata.xml" would be valid. <div> <p> Please note that if a URL with https is used and "disregardSslCertificate" is set to false, you have to ensure that the certificate presented by the IdP to access the metadata is trusted by Product 360. This is done by adding the certificate to the Product 360 keystore (see above how to add trusted certificates).</p> </div>
				This flag is only relevant if the element value contains a https URL.

Sub element/ Attribute	Type	Required	Default	Description
metadataLocation	URL or relative path in Product 360 configuration folder	yes	saml/idp- metadata.xml	<p>Provides information about the IdP. The element value itself defines the location of the metadata file. Currently two types of locations are supported:</p> <ul style="list-style-type: none"> • URL based (http and https), e.g. "https://idpserver/metadata/idp-metadata.xml" or "http://idpserver/metadata/idp-metadata.xml". • If neither a URL with http or https is provided, it is assumed that the file is located relatively to the server configuration folder. e.g. "saml/idp-metadata.xml" would be valid. <div> <p> Please note that if a URL with https is used and "disregardSslCertificate" is set to false, you have to ensure that the certificate presented by the IdP to access the metadata is trusted by Product 360. This is done by adding the certificate to the Product 360 keystore (see above how to add trusted certificates).</p> </div>
forceAuthRequestsSigned	Boolean	no	-	You can force Product 360 to add a signature to the AuthRequest by setting this flag to true.

3.16.3.2 Service Provider Metadata

When your server is started successfully with SAML set to active, the SP metadata can be fetched directly at a URL provided by Product 360.

 <https://pim.informatica.com:8443/pim/saml/metadata>

This URL can be referenced by your IdP for getting current information about the Product 360 configuration, certificates etc.

As an alternative you can generate your metadata file with the following online tool:

https://www.samltool.com/sp_metadata.php

3.16.3.3 Identity Provider Metadata

The IdP metadata usually can be received over an URL provided by the IdP, which already contains all necessary information you need to know about your IdP. This includes certification information as well as endpoints etc.

Of course the IdP metadata can also be retrieved from a configuration folder. A template metadata file "idp-metadata.xml" is contained in the subfolder saml of the Product 360 configuration folder.

The following URL fragments show the metadata URL patterns for the two IdP implementations of Microsoft and Shibboleth:

Microsoft AD FS

<https://idpserver/FederationMetadata/2007-06/FederationMetadata.xml>

Shibboleth

<https://idpserver/idp/shibboleth>

OpenAM

<http://openamserver/openam/saml2/jsp/exportmetadata.jsp?entityid=entityID>

Place your idp-metadata.xml into the subfolder saml of the Product 360 configuration folder or the defined location within your SamlConfig.xml.

In case your IdP does not provide any metadata you need to generate the idp-metadata.xml file from a template located in within the Product 360 configuration folder. The relevant information can alternatively be generated with the help of https://www.samltool.com/idp_metadata.php.

Within the metadata file you need to provide the URL to your IdPs SingleSignOnService location which accepts POST requests. (Example URL schema matches Shibboleth IdP)

Sample idp-metadata.xml

```
<?xml version="1.0"?>
<md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata"
  entityID="idpEntityID">
  <md:IDPSSODescriptor WantAuthnRequestsSigned="false"
    protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
    <md:SingleSignOnService
      Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
      Location="https://idpserver/idp/profile/SAML2/POST/SSO" />
    </md:IDPSSODescriptor>
  </md:EntityDescriptor>
```

3.16.3.4 Information Security

Signing of AuthRequest (SP -> IdP)

If your IdP requires signed AuthRequest you need to enable this within Product 360. This can be done by setting the WantAuthRequestsSigned parameter within the idp-metadata.xml in the configuration folder to true.

Enable signing of SAML request

```
<md:IDPSSODescriptor WantAuthnRequestsSigned="true" ...>
```

- ❗ If you use the URL based metadata provider for referencing the IdP metadata, you can force your Product 360 to add a signature to the AuthRequest by adding the forceAuthRequestsSigned flag to true.

While the SAML metadata specification does not require the WantAuthRequestSigned parameter within the IDPSSODescriptor some IdP Implementations might not set it explicitly, but nevertheless require a signature.

Force Signed Auth Requests in SamlConfig.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
  ...
  <idpMetadata>
    <metadataLocation forceAuthRequestsSigned="true">https://idpserver/metadata/idp-
metadata.xml</metadataLocation>
  </idpMetadata>
  ...
</samlConfig>
```

Additionally you need to provide an X509 certificate in your keystore and refer to it over the alias and password attribute in the <signingKey> element within the spMetadata section of your SamlConfig.xml

Signing of SAML Assertions (IdP -> SP)

The SAML metadata specification defines an parameter for requesting an IdP to sign the SAML Assertions this might not be enough for all IdPs and you might need to enable the signing of SAML assertions over another way, but to enable Product 360 to require signature validation on assertion level you need to set the WantAssertionsSigned parameter in SamlConfig.xml within you Product 360 configuration folder to true.

Enable signing of SAML response

```
<samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
  ...
  <spMetadata>
    ...
    <wantAssertionsSigned>true</wantAssertionsSigned>
    ...
  </spMetadata>
</samlConfig>
```

The signature of the assertion will be verified by Product 360 against the public key of the X509 certificate within your idp-metadata.xml

Signing public key in idp-metadata.xml

```

<?xml version="1.0"?>
<md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata"
  entityID="idpEntityID">
  <md:IDPSSODescriptor WantAuthnRequestsSigned="false"
    protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
    ...
    <md:KeyDescriptor use="signing">
      <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
        <ds:X509Data>
          <ds:X509Certificate>MIIDZzCCAk+gAwIBAgIEFuHJDDANBgqhkiG9w0BAQsFADBkMQ
swCQYDVQQGEwJE

RTEQMA4GA1UECBMR2VybwFueTENMAsgA1UEBxMEU3RndDERMA8GA1UEChMIV2lu

ZG93czcxDTALBgNVBAsTBFBPSU0xEjAQBgNVBAMTCWxvY2FsaG9zdDAeFw0xNTEw

MDIxMjA2NDFaFw0xNjA5MjYxMjA2NDFaMGQxCzAJBgNVBAYTAkRFRMRAdgYDVQQI

          ...
        </ds:X509Certificate>
      </ds:X509Data>
    </ds:KeyInfo>
  </md:KeyDescriptor>
  ...
</md:IDPSSODescriptor>
</md:EntityDescriptor>

```

Encryption of SAML Assertions (IdP -> SP)**❗ JCE issues with strong cryptographic algorithms**

As already described in the general Server Installation section, it is not longer necessary to enable the strong cryptographic algorithms manually. Since Java 8.161 unlimited cryptographic algorithms are enabled by default.

Nevertheless if your IdP uses a strong cryptographic algorithm like AES-256 and you run into errors during encryption/decryption in Product 360, saying you're using an illegal key size you might need to enable the unlimited cryptographic algorithms manually.

This can be done by changing the configuration in file <PIM ROOT>\server\jre\lib\security\java.security. Enable the property 'crypto.policy=unlimited' to activate the unlimited cryptographic algorithms. If you adjust the setting manually you have to do this on each Hotfix update for all Product 360 components.

If your IdP supports assertion level encryption and the encryption is active, then you must provide your encryption public key X509 certificate within the metadata you provide to your IdP. The IdP will use this public key to encrypt the SAML assertion and only the owner of the corresponding

private key can encrypted the assertion. The best way of doing this is to get the metadata provided by Product 360 (see above).

This metadata already includes all certificates the IdP needs to know.

If Product 360 receives an encrypted assertion it will try to decrypted the assertion with the configured private key which is referenced by the <encryptionKey> in the SamlConfig.xml.

encryptionKey in SamlConfig.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
  ...
  <encryptionKey password="secret" alias="encryption"/>
  ...
</samlConfig>
```

Signing of Provider Metadata

It is possible to sign the metadata itself to verify its validity. For that a

```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
```

element is used. It contains information typically needed for signatures like digest and signature value, used algorithm and a certificate.

See <https://www.w3.org/TR/xmldsig-core2/> for further detailed information.

In order for Supplier Portal to verify the signature of IdP metadata, the corresponding certificate has to be

- provided by the IdP team
- added to the cacerts file of the Java used by Supplier Portal.

```
keytool.exe -importcert -file "{cert}" -keystore "<JAVA_HOME>/jre/lib/security/
cacerts" -alias "{alias}" -storepass {keystorePassword}
```

If during startup of the Supplier Portal server an error occurs while reading the metadata the cause can be outdated data inside the <ds:Signature> element or a wrong signature.

So ensure to get updated idp metadata and certificate from the IdP team.

In case the metadata is for an IdP and the IdP metadata is maintained as local metadata file on the Supplier Portal server, then the <ds:Signature> element provided by the IdP team can be completely commented out if not needed.

The local metadata file is unlikely to be tampered with and commenting out might comes in handy in case of signature deployment problems that could lead to errors mentioned before.

3.16.3.5 Usage of SAML with Product 360 multi-server and load balancer

For the usage of SAML in combination with a load balancer on a multi-server setup, there are some additional settings that have to be made on the load balancer and SAML configuration

Configuration of the load balancer

Additionally to the default load balancing scenario (see [Web Configuration](#)(see page 95)), the module **mod_rewrite** has to be enabled.

For the usage of SSL (https) in your load balancer (Apache), stick to the official Apache documentation. The example below defines a virtual host supporting SSL and the additional directives necessary for SAML support.

Example virtual host configuration

```
Listen 443
<VirtualHost *:443>
    ServerName loadBalancer
    SSLEngine on
    SSLCertificateFile "D:/certs/cert.pem"
    SSLCertificateKeyFile "D:/certs/pk.pem"
    SSLProxyEngine On
    SSLProxyVerify none #optional for disabling certificate validation
    SSLProxyCheckPeerCN off #optional
    SSLProxyCheckPeerName off #optional
    ProxyPreserveHost On

    Header add Set-Cookie "ROUTEID_HPMW=.{BALANCER_WORKER_ROUTE}e; path=/"
    env=BALANCER_ROUTE_CHANGED
    <Proxy balancer://hpmwcluster>
        BalancerMember https://server1:8443 route=1
        BalancerMember https://server2:8443 route=2
        ProxySet stickysession=ROUTEID_HPMW
    </Proxy>
    ProxyPass /pim balancer://hpmwcluster/pim
    ProxyPassReverse /pim balancer://hpmwcluster/pim

    RewriteEngine on
    RewriteCond %{REMOTE_HOST} =server1 [OR]
    RewriteCond %{REMOTE_HOST} =server2
    RewriteRule    "^/pim/(.+)" "https://loadBalancer/pim/$1" # optional [R,L]

</VirtualHost>
```

The most important additional directives to be configured are listed below:

Directive	Explanation
SSLProxyEngine On	Support SSL proxy
ProxyPreserveHost On	Preserve host name on proxy requests (required for successful validation of SAML requests/responses)
RewriteEngine on	Rewrite URLs so User always sees the load balancer URL
RewriteCond %{REMOTE_HOST} =server1 [OR] RewriteCond %{REMOTE_HOST} =server2 RewriteRule "/pim/(.+)" "https://loadBalancer/pim/\$1"	Rewrite rules and conditions, a condition for each member of the Product 360 cluster is required

IdP configuration

EntityId

The EntityId uniquely identifies Service Providers for the Identity Provider. Ensure that the EntityId in **SamlConfig.xml** and the EntityId defined in the Identity Provider for that Service Provider (in this case P360) are the same.

Saml Response Location

On IdP side, it is necessary to have the load balancer set as assertion consumer service of your IdP: If you fetch the SP metadata by the URL provided by Product 360, as recommended, adjust the **assertionConsumerServiceLocation** in the **SamlConfig.xml** to point to your load balancer URL on which you want to reach the Product 360 application e.g. https://loadBalancer/pim/webaccess. An Identity Provider configuration may contain its own definition of an assertionConsumerServiceLocation for each Service Provider. So ensure that the assertionConsumerServerLocation in that configuration and the SamlConfig.xml are the same.

Mandatory response data

Ensure that the login name used for P360 login is sent in the response. It is contained in the NameID element of the Subject element. See excerpt of example Saml response. For a full explanation and examples of Saml responses please refer to Web Browser SSO Profile chapters in the official specification documentation.


```

<samlp:Response ... >
  <saml:Issuer>https://idp.example.org/SAML2</saml:Issuer>
  ...
  <saml:Subject>
    <saml:NameID
      Format="urn:oasis:names:tc:SAML:2.0:nameid-format:transient">
      P360LoginName
    </saml:NameID>
    ...
  </saml:Subject>
</samlp:Response>

```

3.16.3.6 Automatic User creation on successful authentication

When the user authentication is successful, but the authenticated user does not exist yet, a new user will be created with the credential information provided by the SAML response.

The user will be created as external user with the unique user name from the assertion subject element "NameID". The created user will be assigned to the user group defined in the xml element defaultUserGroup of the SamlConfig.xml.

The user creation also takes information from the Assertions in the SAML Authentication Response. For uniquely identifying an attribute by its name the conventions in the Identity Selector Interoperability Profile V1.5 specifications are used. The following attributes will be taken from the one assertion containing the information about the NameID of the user:

Value of element attribute "name" in SAML Attribute	Mapped to User data	Mandatory	Comment
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	Given name	No	An Attribute may contain a list of values. Because of that all first name values are concatenated with a space as separator. E.g. the first name values {"John", "Karl"} will be mapped to "John Karl".
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	Name	No	An Attribute may contain a list of values. Because of that all last name values are concatenated with a space as separator. E.g. the last name values {"Earl", "Doe"} will be mapped to "Earl Doe".

Value of element attribute "name" in SAML Attribute	Mapped to User data	Mandatory	Comment
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress	E-mail	No	An Attribute may contain a list of values. In case of email values only the first value will be considered. E.g. the email values {"john@company.com", "jdoe@company.com"} are mapped to "john@company.com".

i In case there is also a LDAP configuration in place the user will be synchronized with the data stored in the LDAP. This includes group memberships and requires that the user can be found via the same user name in LDAP. Please see the [LDAP Configuration](#)(see page 59) for details.

3.16.3.7 Internal Users

In a SSO scenario it still might be desirable to bypass the automatic authentication flow, e.g. for service users or for troubleshooting issues. A mixed setup with external users authenticated via SAML and internal users is possible. Please run the following steps to authenticate with the credentials of an internal user (User authentication mode must be set to "internal"):

- In the Rich Client, hold the CTRL and SHIFT key during startup to prevent initiation of the SSO flow. A prompt asking for username and password will appear instead.
- For web, enter the url /pim/login to get access to the login page.

3.16.4 Logging

To identify problems in your SAML configuration you are able to activate an more detailed logging of the security components. To do so add the following log4j categories to the central log4j.xml within your Product 360's configuration folder.

Security Logging within log4j.xml

```
<category name="com.heiler.ppm.saml">
  <priority value="TRACE"/>
</category>

<category name="com.heiler.ppm.web.saml">
  <priority value="TRACE"/>
</category>
```


4 Desktop Client Configuration

- [OSGI Configuration Area](#)(see page 86)
- [Server Connection Configuration](#)(see page 87)
- [General Preferences](#)(see page 89)
 - [Load Balancing](#)(see page 90)
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4.1 OSGI Configuration Area

The OSGI Configuration area is a directory used by OSGI to store bundle-related files at runtime (f.e. the swt-win32-...dll). Per default for Product 360 Desktop it is configured to the directory "**%USERPROFILE%/AppData/Roaming/Informatica PIM Desktop**". The current windows user should always have write access to this directory. If in any case the windows user does not have write access to this directory, it should be changed to a writable directory by changing the value of the VM-Argument **-Dosgi.configuration.area** in the file **pim-desktop.cmd** and **pim-desktop-debug.cmd**.

4.2 Server Connection Configuration

The *ServerConnection.xml* file in the client's configuration folder can be used for specifying low-level communication protocol settings as well as the initial server's connection info (host + port). This guarantees that Product 360 Desktop instances are able to connect automatically to the correct server when deployed and started for the first time. After the start of the client, the client remembers all available servers and those will be used to connect if the configured initial server is not available. This list of servers can also be configured manually in the *ServerConnection.xml* if required. Each time a client connects successfully to a Product 360 server, the connection info of this server is updated in the *ServerConnection.xml* file, so when manually choosing a different server, next time the new settings are used.

The file looks like the following:

ServerConnection.xml Example

```
<?xml version="1.0" encoding="UTF-8"?>
<communication connectTimeout="0" tcpNoDelay="true"
  keepAlive="true" defaultRequestTimeout="300000">
  <thread-pool maxCoreThreads="5" />
  <initial-server host="localhost" port="1701" />
  <servers host="localhost" port="1701" connectTimeout="0" tcpNoDelay="true"
    keepAlive="true"/>
  <servers host="localhost" port="1702" connectTimeout="0" tcpNoDelay="true"
    keepAlive="true"/>
</communication>
```

The *ServerConnection.xml* file can contain the following XML elements and attributes:

Element/Attribute	Description	Example/Default
communication	Root element of the server connection.	
defaultRequestTimeout	Timeout in milliseconds for requests in communication framework	300000
connectTimeout	The timeout in milliseconds when connecting to the host. A value of 0 is interpreted as an infinite timeout. The connection will then block until established or an error occurs.	0
tcpNoDelay	Disables (= true!) resp enables (= false) the so-called Nagle's algorithm	true

keepAlive	Causes a packet (called a "keepalive probe") to be sent to the connected system if a long time (by default, more than 2 hours) passes with no other data being sent or received. This packet is designed to provoke an ACK response from the peer.	true
useTLS	true in case the communication between desktop client and server should be encrypted. In case the server uses a self-signed certificate, the trust-store element must be defined!	false
thread-pool	Settings for communication framework's thread pool	
maxQueueSize	Maximum size of the request/event processing queue. New processing threads will be created only when the queue is full	
maxCoreThreads	The maximum number of core threads that are processing request/events. Roughly speaking this is a hint for the thread scheduling strategy which denotes expected number of requests/events to be concurrently processed in a 'normal' operation mode. Scheduling strategy will tend to keep this number of threads in a ready-to-run state. Consider maxQueueSize together with this parameter. For more details concerning scheduling algorithm consult Java SDK ThreadPoolExecutor	
maxThreads	The maximum number of threads that are processing request/events. This is a hard limit (in comparison with maxCoreThreads). If this value is reached, server will start rejecting requests	
keepAliveTime	Time in milliseconds that the thread scheduling strategy will wait, before reducing number of idle threads down to maxCoreThreads. This value protects from the situations when average number of required threads is higher than maxCoreThreads and scheduling strategy is constantly recreating threads, because it tries to reduce number of threads down to maxCoreThreads	
doPrestartAllCoreThreads	Flag value which instructs node to start all core threads on initialization. Usually this value should not be changed from its defaults (which is false). The reason to set this value to true could be the situation when all clients connect to the server together during a short period of time.	

initial-server	Connection settings to the initial application server	
host	Hostname of any application server. In case of multi-server deployment this can be just any server of the cluster. The actual server the client connects to will be determined from this server.	
port	The port of the Product 360 application on the host	1712
trust-store		
file	<p>Path to the file which contains the certificates for the SSL/TLS encrypted communication. The path might be relative to the configuration directory of the server.</p> <p>For example: In case the server application is installed here: C:/Informatica/Product360/server the configuration folder would be C:/Informatica/Product360/server/configuration/HPM. In case you set the file element to certificates\keystore.jks it is expected to be at C:/Informatica/Product360/server/configuration/HPM/certificates/keystore.jks.</p> <p>Alternatively you can define an absolute path.</p> <p>Please note that this file is a keystore file, but it is used as trust store. That means, any certificate in this file will be trusted just like any regular, official certificate. This also means that the trust store element is only needed in case self-signed certificates are used for the communication. Certificates from a trust authority are trusted by default.</p> <p><i>It is always recommended to use trusted certificates and not self-signed ones.</i></p>	
password	The password for the keystore file	

4.3 General Preferences

The Product 360 Desktop preferences dialog contains several settings, which affect the common appearance and layout of the Product 360 Desktop application. The most of this preferences have default values, which can be maintain in the *plugin_customization.ini* file (on the client). In the following are listed the most important general preferences with the corresponding preference *keys* which can be used to customize the default values of these preferences.

i If you don't know the preference key and the according possible values, you can find your current client settings in
`<PathToClientWorkspace>client\metadata\plugins\org.eclipse.core.runtime.settings\<plugin_name>.prefs`

4.3.1 Load Balancing

4.3.1.1 Disable Load Balancing

The load balancing of the desktop client can be disabled. This might be required in some customer scenarios in which the also the desktop client load balancing should be handled by an external load balancer.

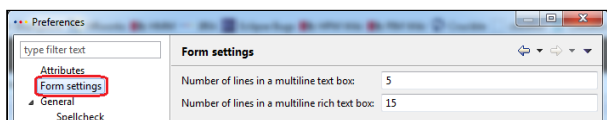
To disable the desktop client load balancing add the following line to the `plugin_customization.ini` of the **client**: `com.heiler.ppm.communication.ui/clientLoadBalancingEnabled = false`

In this case the client will think that there is only the server which is configured in the `ServerConnection.xml` file of the client.

4.3.1.2 Always open Server Selection Dialog

In case the `com.heiler.ppm.communication.ui/alwaysOpenServerSelectionDialog` preference in the `plugin_customization.ini` of the **client** is set to `true`, the server selection dialog during startup of the desktop client will always open. In case this preference is missing or set to `false`, the dialog only opens in case the user presses `ctrl` or `shift` during startup.

4.3.2 Form settings



The form settings affects the layout of the form views. On this preference page the user can specify the height of the text boxes.

4.3.2.1 Number of lines in a multiline text box

Specifies the height of a multiline text box in a form view (e.g. the "Group name" field of the *Article* entity).

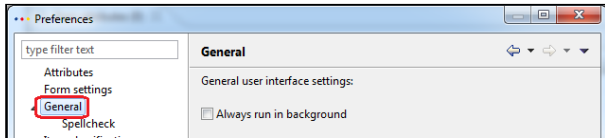
The preference key for the `plugin_customization.ini`: **com.heiler.ppm.std.ui/form.rows.multiline** (the default value is **5**)

4.3.2.2 Number of lines in a multiline rich text box

Specifies the height of a rich text box in a form view (e.g. the "Long description" field of the *Article* entity).

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/form.rows.multiline.richtext** (the default value is **15**)

4.3.3 General

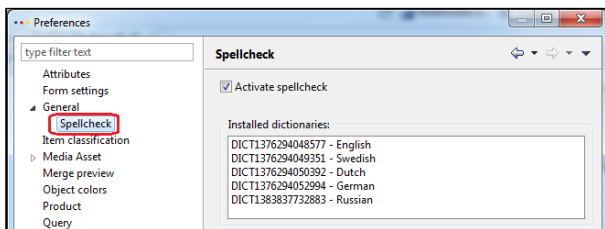


4.3.3.1 Always run in background

Determines if the showing of the progress dialog should be suppressed during a long running operation or an eclipse job is running.

The preference key for the *plugin_customization.ini*: **org.eclipse.ui/RUN_IN_BACKGROUND** (the default value is **false**)

4.3.4 Spellcheck



4.3.4.1 Activate spellcheck

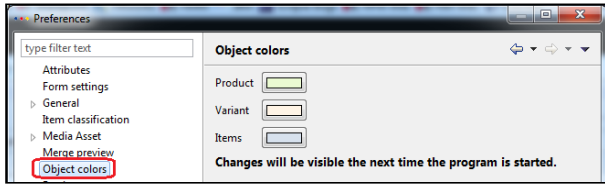
Determines if the spellchecking is enabled

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.spelling.ui/spellingEnabled** (the default value is **true**)

4.3.4.2 Installed dictionaries

In this list all dictionaries are showing which are currently installed on the server. This is for displaying only and has no function.

4.3.5 Object colors



4.3.5.1 Product

Specifies the object color for the entity *Product* used for the toolbar background for all views which are showing product-specific data.

The preference key for the *plugin_customization.ini* (on the server!): **com.heiler.ppm.std.ui/header.background.color.Product2G** (the default value is **235,251,210**)

4.3.5.2 Variant

Specifies the object color for the entity *Variant* used for the toolbar background for all views which are showing variant-specific data.

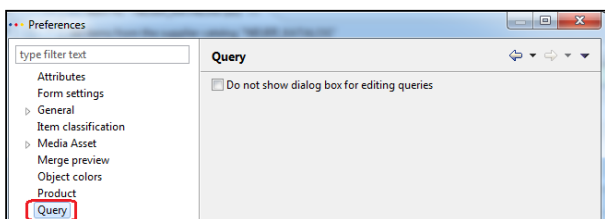
The preference key for the *plugin_customization.ini* (on the server!): **com.heiler.ppm.std.ui/header.background.color.Variant** (the default value is **255,244,229**)

4.3.5.3 Item

Specifies the object color for the entity *Article* used for the toolbar background for all views which are showing item-specific data.

The preference key for the *plugin_customization.ini* (on the server!): **com.heiler.ppm.std.ui/header.background.color.Article** (the default value is **215,225,237**)

4.3.6 Query

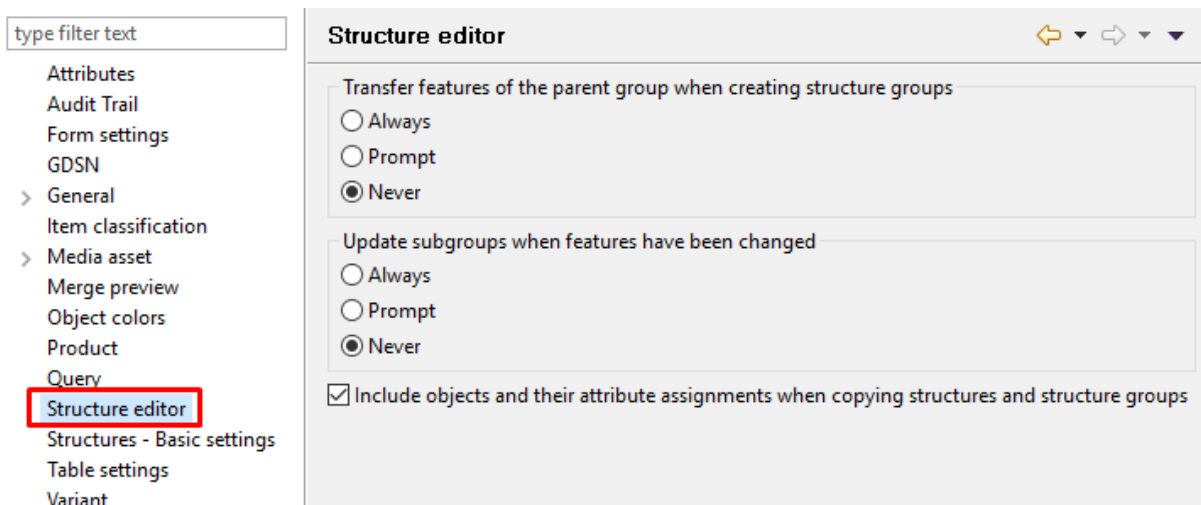


4.3.6.1 Do not show dialog box for editing queries

Determines if the showing of the "edit query" dialog should be suppressed if the user executes a report query (e.g. using the catalog popup menu)

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.entity.ui/edit.query.dialog.hide** (the default value is **false**)

4.3.7 Structure editor



The structure editor settings specify the general behavior of the structure editor.

4.3.7.1 Transfer feature of the parent group when creating structure groups

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.structure.ui/feature_transfer** with the options

- feature_transfer_mode_always
- feature_transfer_mode_ask
- feature_transfer_mode_never (default)

4.3.7.2 Update subgroups when features have been changed

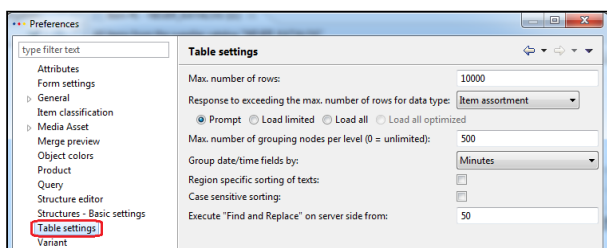
The preference key for the *plugin_customization.ini*: **com.heiler.ppm.structure.ui/feature_update** with the options

- feature_update_mode_always
- feature_update_mode_ask
- feature_update_mode_never (default)

4.3.7.3 Include objects and their attribute assignments when copying structures and structure groups

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.structure.ui/structuregroup_copy_with_mapping** with the options 'true' (default) and 'false'.

4.3.8 Table settings



The table settings affects the layout of the table views. On this preference page the user can specify several setting for the tables.

4.3.8.1 Max. number of rows

Specifies the maximum amount of rows to be displayed in tables. This value is also the threshold to provide so-called "virtual table" with optimized, server-based sorting, filtering etc.

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/table.max-rows** (the default value is **10,000**)

4.3.8.2 Max. number of grouping nodes per level

Specifies the maximum amount of table grouping nodes per level.

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/table.max-grouping-nodes** (the default value is **500**)

4.3.8.3 Group date/time fields by

Specifies the pattern which is used for the grouping of date-/time-fields.

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/table.date-fields-group-by** (the default value is **yyyy-MM-dd HH:mm** - grouping by minutes).

Other possible values: **yyyy-MM-dd HH** - grouping by hours, **yyyy-MM-dd** - grouping by days, **yyyy-MM** - grouping by months and **yyyy** - grouping by years.

4.3.8.4 Region specific sorting of texts

Specifies whether to use locale-sensitive (= **"true"**) resp. locale-insensitive (= **"false"**) string comparison in table sorting.

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/table.sort.locale-sensitive** (the default value is **false**)

4.3.8.5 Case sensitive sorting

Specifies whether to use case-sensitive (= **"true"**) resp. case-insensitive (= **"false"**) string comparison in table sorting.

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/table.sort.case-sensitive** (the default value is **false**)

4.3.8.6 Execute "Find and Replace" on server side from

Specifies the minimum amount of rows which are needed for performing a server-side job for a "Find&Replace" operation

The preference key for the *plugin_customization.ini*: **com.heiler.ppm.std.ui/findreplace.serversidejob-rows** (the default value is **50**)

5 Web Configuration

- [Activate Product 360 - Web Permissions & Interface Visibility](#)(see page 96)
- [Product 360 - Web Specific Configuration](#)(see page 97)
 - [General settings](#)(see page 97)
 - [Media Asset Configuration](#)(see page 101)
 - [Product 360 - Supplier Portal Integration](#)(see page 103)
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 - [AWS ELB](#)(see page 110)
 - [Troubleshooting Reverse Proxy / LB Setup and Product 360 Push issues](#)(see page 111)

5.1 Activate Product 360 - Web Permissions & Interface Visibility

Product 360 - Web contributes some action rights and interface visibility elements which allow customization of the Web User Interface. To change these permissions, open the Product 360 - Desktop Organization perspective. A couple of web-specific actions rights are shown in the group "Web permissions" in the Action Rights View.

Grouping	Allo...	Permission	Description	Rights group
1	<input checked="" type="checkbox"/>	Help (Web)	User is able to use the help in PIM Web	Web Permissions
2	<input checked="" type="checkbox"/>	Classify objects (Web)	General right to classify objects in PIM Web	Web Permissions
3	<input checked="" type="checkbox"/>	Log in (Web)	User is able to login through the PIM Web	Web Permissions
4	<input checked="" type="checkbox"/>	Change password (Web)	User is able to change his own password in PIM Web	Web Permissions
5	<input checked="" type="checkbox"/>	Activate spell check (Web)	Allows the usage of dictionaries for spell checking in PIM Web	Web Permissions

Left pane contents (Rights group):

- Catalogs (10)
- Channel (6)
- Company management (9)
- Customers (4)
- Data quality (5)
- Dictionaries (7)
- Discount groups (8)
- Document management (7)
- E-mail templates (1)
- Export (11)
- General (2)
- Import (8)
- Item assortments (6)
- Item search (6)
- Items (37)
- Merge (2)
- Multimedia attachments (3)
- Predefined queries (6)
- Process planning (4)
- Product assortments (6)
- Product search (6)
- Products (27)
- Qualified field rights (2)
- Search index (2)
- Structure features (4)
- Structure group search (6)
- Structure groups (10)
- Structure preset values (4)
- Structures (8)
- Suppliers (4)
- System messages (4)
- Task notifications (2)
- Tasks (6)
- Text features (1)
- Units (9)
- User (6)
- Versions (8)
- Web Permissions (5)**
- Workflow (4)

Even more configuration options are available on the Interface Visibility Tab. Please note that all web specific elements are only shown after the Web application was loaded at least once in the Browser.

The shown elements are dynamic and depend on the concrete configuration of the system. Hence new list definition contributions can be assigned to different user groups on the fly.

Action rights (5/266) Interface visibility (7/214) Object rights (system) Field rights (948) Qualified field rights (6)				
Grouping	Allowed	Name	Category	Type
Type	1	Context visibility: Catalogs (PIM Web)	Context	PIM Web Context
	2	Context visibility: Search (PIM Web)	Context	PIM Web Context
Informatica PIM Perspective (29)	3	Context visibility: Context visibility: Entire Context selection area (PIM Web)	Context	PIM Web Context
Informatica PIM View (129)	4	Context visibility: Queries (PIM Web)	Context	PIM Web Context
PIM Web Context (7)	5	Context visibility: Tasks (PIM Web)	Context	PIM Web Context
PIM Web List Definition (13)	6	Context visibility: Multimedia attachments (PIM Web)	Context	PIM Web Context
PIM Web Tab (36)	7	Context visibility: Structure groups in "[0]" structure (PIM Web)	Context	PIM Web Context


⚠ For some visibilities it is not enough to just activate them in the Interface visibility tab. The appropriate action right for general access needs also to be activated.

For example to see the Quality status tab for items in the web ui it is not enough to activate "Tab visibility: Item, Quality Status", also the Action right "Quality status, general access" needs to be activated


5.2 Product 360 - Web Specific Configuration


All configuration for Product 360 - Web is done in **<PIM_SERVER_INSTALLATION_ROOT>/server/configuration/HPM/webfrontend.properties**. This is a complete list of all configuration parameters:

General settings



<p>web.client.default.language</p> <p> deprecated with 8.0.5</p>	<p>Default language, effects login page only, other things are shown in selected on login page language or as configured on form.</p> <ul style="list-style-type: none"> • German = deu • English = eng • Spanish = esl • Finnish = fin • French = fra • Italian = ita • Dutch = dut • Swedish = swe • Portuguese = por <p>Default: eng</p>
---	--

<p>web.client.default.locale</p> <p>⚠ since 8.0.03.01</p>	<p>Default locale, effects login page only, other things are shown in selected on login page language or as configured on form.</p> <ul style="list-style-type: none"> • German = de_DE • English (American) = en_US • Spanish = es_ES • Finnish = fi_FI • French = fr_FR • Italian = it_IT • Dutch = nl_NL • Swedish = sv_SE • Portuguese (Brazilian) = pt_BR • English (British) = en_GB <p>Default: en_US</p>
<p>web.client.available.locales</p> <p>⚠ since 8.0.03.01</p>	<p>List of all available locales for login form. Must be a subset of language enum values in HPM. Separated by comma.</p> <p>Default value for this setting is a list of all languages where an official i18n package is available for.</p> <p>Default: de_DE,en_US,fr_FR,ru_RU,nl_NL,sv_SE,fi_FI,es_ES,no_NO,pt_BR,ja_JP,zh_CN,ko_KR,it_IT</p>
<p>web.client.theme</p>	<p>Theme affects the application appearance.</p> <p>Default: symphony</p>
<p>web.client.httpSession.timeout</p>	<p>Session time-out in seconds.</p> <p>Default (28800 seconds equals 8 hours): 28800</p>



web.client.xframeoptions  since 8.0.03.02	<p>If set, an X-Frame-Options response header will be set in the main page http response to prevent the application being embedded in other sites for security reasons.</p> <p>Please note, that this will break catalog editor functionality in Supplier Portal and Supplier 360.</p> <p>Details: https://tools.ietf.org/html/rfc7034</p> <p>Supported values: DENY, SAMEORIGIN, ALLOW-FROM</p> <p>Default: <empty></p>
web.client.detailform.inputs.limit	<p>Maximum number of inputs at detail form displayed by default. If inputs count limit will be reached, user will see "More (x)" button.</p> <p>Default:</p> <p>30</p>
web.client.filter.minimum.length	<p>Minimum length for text field used for filtering list views. Value has to be ≥ 0.</p> <p>Note that empty input (length=0) is always allowed as this is used to reset the filter to show all entries. Therefore setting minimum length to 1 does not have any impact.</p> <p>Default:</p> <p>1</p>
web.client.text.filter.timeout	<p>Timeout for text filters. It set a time for response between entered letter and search results.</p> <p>Recommended value between 200-1000 ms.</p> <p>Default:</p> <p>200</p>

<p>web.client.clone.referencetype.Article web.client.clone.referencetype.Variant web.client.clone.referencetype.Product2G</p>	<p>Reference type between cloned element and original. Value is based on repository Enum.ArticleReferenceType keys. WARN:Check your repository for valid keys! Example values from standard repository: sparepart=1,similar=2,followup=3,mandatory=4,select=5,accessories=6,others=7,diff_orderunit=8,consists_of=9,cross_selling=10,up-selling=11; if value is empty or doesn't exist at Enum, reference will not be created. for new custom entities just add new property : prefix 'web.client.clone.referencetype.' + entity identifier Default: ""</p>
<p>web.definition.dir</p>	<p>Relative path to web definitions XML files, starting from configuration directory. By default points to configuration/server/webdefinitions It can be also configured with absolute path. If path doesn't start with /, it is considered as absolute. Default: /webdefinitions</p>
<p>web.client.default.fetch.size  since 8.0.03.01</p>	<p>Default number of rows that are fetched in master list views. Smaller numbers result in slightly faster loading times, however, multiple db queries might be necessary. Value should be a bit larger than the number of rows that are visible on the screen. Default: 200</p>
<h2>Media Asset Configuration</h2>	
<p>web.client.mediaasset.servlet.path</p>	<p>Media asset bridge servlet (root path).. Default: /pim/mediaasset</p>

web.client.mediaasset.prefered.quality	<p>Prefered quality for thumbnails at mediaasset viewer. HLR Available values: web, lowres, highres [doc,htm,printxml,pdf, ...] Product 360 - Media Manager Available values: 1, originalimage. Please clarify available quality values from Product 360 - Media Manager system administrator</p> <p>Default web</p>
web.client.mediaasset.thumbnail.detail.panel.type	<p>Detail form top image type from available mediaasset. Available values: normal, thumbnail, data_sheet, logo, others, unknown [...]</p> <p>Default normal</p>
web.client.mediaasset.list.thumb.small	<p>Documents list view thumbnails quality mapping for small images.</p> <p>Default: small</p>
web.client.mediaasset.list.thumb.normal	<p>Documents list view thumbnails quality mapping for standard images.</p> <p>Default: normal</p>
web.client.mediaasset.list.thumb.big	<p>Documents list view thumbnails quality mapping for large images.</p> <p>Default: big</p>
web.client.mediaasset.list.page.size	<p>Number of multimedia document that are display on a single page.</p> <p>Default: 25</p>

Product 360 - Supplier Portal Integration	
web.client.hsx.supplier.login	<p>Login name of Product Manager user that is used for supplier editor. Only needed for Product 360 - Supplier Portal integration.</p> <p>Default: supplier</p>
web.client.hsx.supplier.password	<p>Login password of Product Manager user that is used for supplier editor. Only needed for Product 360 - Supplier Portal integration.</p> <p>Default: supplier</p> <div data-bbox="746 943 1425 1104">  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
web.client.hsx.readonly.supplier.login	<p>Login name of Product Manager user that is used for supplier read-only view. Only needed for Product 360 - Supplier Portal integration.</p> <p>Default: readonlysupplier</p>
web.client.hsx.readonly.supplier.password	<p>Login password of Product Manager user that is used for supplier read-only view. Only needed for Product 360 - Supplier Portal integration.</p> <p>Default: readonlysupplier</p> <div data-bbox="746 1626 1425 1787">  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>

Product 360 - Web Search Integration	
web.client.hps.max.display.facet	Maximum number of displayed search facets. Default: 5
Export Configuration	
web.client.export.max.selection	Maximum number of records that can be exported from the Web UI. Export will be disabled when selection count exceeds this number. Use -1 to disable this limitation. Default: 200
Various UI settings	
web.client.ui.search.and.replace.dialog.default.action	The default action in the Search and Replace dialog. Available values: SEARCH_AND_REPLACE, SET Default: SEARCH_AND_REPLACE
web.client.ui.classification.dialog.default.type	The default classification type in the Classification dialog. Available values: MOVE, COPY Default: MOVE

<code>web.client.ui.show.transition.fields.content</code>	<p>Show content of transition fields in the Field Selection dialog or not.</p> <p>Available values: TRUE, FALSE</p> <p>Default:</p> <p>TRUE</p>
<code>web.client.autoload.catalog</code>	<p>Autoselect Master catalog or catalog stored in cookies after login.</p> <p>Possible values: true, false</p> <p>The default is: true</p>
<code>web.client.menu.initial.structure</code>	<p>Specifies external identifier for structure which will be initially selected in context.</p> <p>If not specified - value from <code>com.heiler.ppm.structure.server/primaryStructureIdentifier</code> will be used.</p> <p>First available value will be used if none of the properties mentioned above specify explicit value.</p>
<code>web.client.popup.initial.structure</code>	<p>Specifies external identifier for structure which will be initially selected in classification popup.</p> <p>If not specified - first available value will be used.</p>
<code>web.client.enum.sort.locale-sensitive</code>  since 8.1.0.02	<p>Specifies whether to use locale-sensitive (= "true") resp. locale-insensitive (= "false") string comparison in enum list and lookup value sorting.</p> <p>Possible values: true, false</p> <p>The default is: false</p>
<code>web.client.enum.sort.case-sensitive</code>  since 8.1.0.02	<p>Specifies whether to use case-sensitive (= "true") resp. case-insensitive (= "false") string comparison in enum list and lookup value sorting.</p> <p>Possible values: true, false</p> <p>If <code>web.client.enum.sort.locale-sensitive</code> is "true" this property will be ignored</p> <p>The default is: false</p>

Vaadin Internal Configuration Parameters	
web.vaadin.productionMode	<p>Enables the application in development mode, must be true in production.</p> <p>Default: true</p>
web.vaadin.disable-xsrf-protection	<p>Enables the Vaadin XSRF protection. Set to true when running automated web tests. Should be false in production.</p> <p>Default: false</p>
web.vaadin.widgetset	<p>Vaadin Widgetset which is used in application.</p> <p>Default: com.heiler.ppm.web.widgetset.Widgetset</p>
web.vaadin.heartbeatInterval	<p>UI Heartbeat interval to track open sessions. https://vaadin.com/book/vaadin7/-/page/application.environment.html#aui_3_2_0_1292</p> <p>Default value is 300 seconds (5 minutes).</p>
web.vaadin.closeIdleSessions	<p>Close http session after user inactivity. # https://vaadin.com/book/vaadin7/-/page/application.environment.html#aui_3_2_0_1309</p> <p>Default: true</p>
web.vaadin.pushMode	<p>Mode for server side push. Possible values: AUTOMATIC, MANUAL, DISABLED When disabled, some application might not work correctly. Must be disabled for JMeter load test.</p> <p>Default: AUTOMATIC</p>

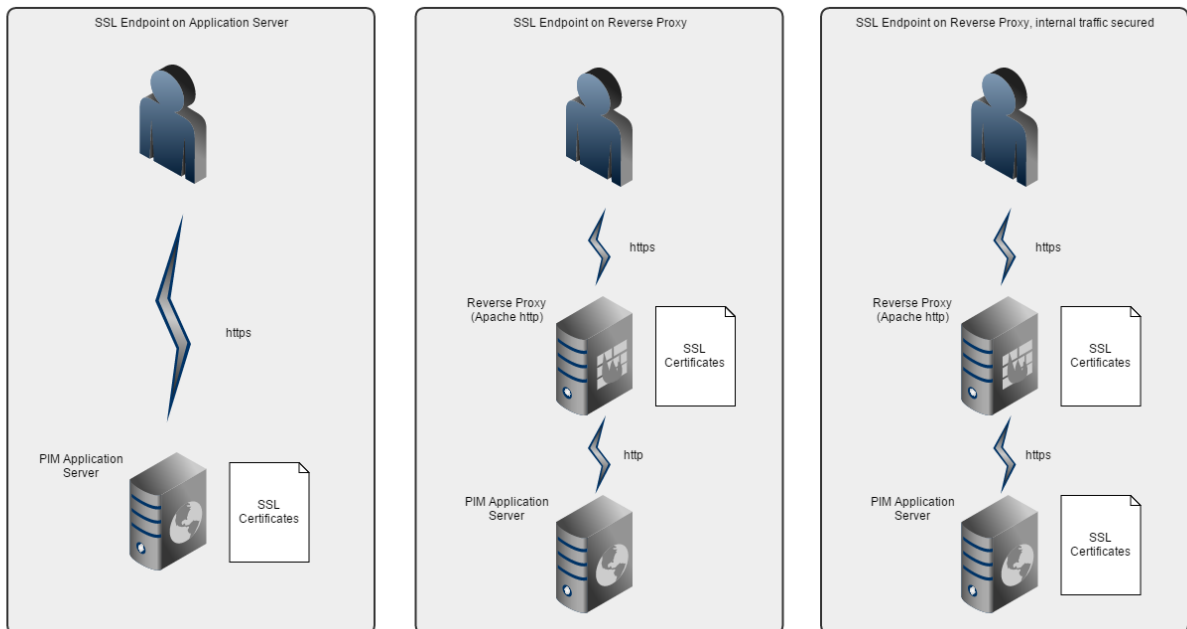
Vaadin Internal Configuration Parameters	
web.vaadin.pushTransport	<p>Transport mode for server side push. Possible values: WEBSOCKET, STREAMING, LONG_POLLING.</p> <p>Default: STREAMING</p>

5.3 Setup HTTPS/SSL Security

When configuring Product 360 Web for production usage, setting up https security is **mandatory**. Otherwise all user credentials will be send as plain text through the internet. There are two scenarios, how security can be ensured:

- Setup a Reverse Proxy that transparently forwards all requests to the Product 360 Application Server. SSL certificates are installed on the Reverse Proxy.
- Install SSL certificates directly on Product 360 Application Server.

A combination of both is possible, too.



5.3.1 Running Product 360 - Web behind a Reverse Proxy

For SSL support and security reasons, customers typically run web applications behind a dedicated web server (called reverse proxy) which transparently handles all incoming requests from clients and forwards them to the Product 360 -Web application server.

Product 360 - Web supports this scenario and has been tested with Apache 2.2. If you have installed and configured the Apache, the following lines in **httpd.conf** are necessary for request forwarding:

```
# Load the needed mod_proxy modules
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so
LoadModule proxy_http_module modules/mod_proxy_http.so

#Reverse Proxy
ProxyPass /pim http://<hpmserver>:<hpmpport>/pim
ProxyPassReverse /pim http://<hpmserver>:<hpmpport>/pim
```

For setup of SSL, please refer to the corresponding Apache manuals. For a guide how to export a certificate or private key from the Java keystore into an Apache Webserver compatible format, please check this page at <http://security.stackexchange.com/questions/3779/how-can-i-export-my-private-key-from-a-java-keytool-keystore>.

An example configuration for setting up a Reverse Proxy together with a Virtual Host for https looks like this:

```
<VirtualHost _default_:443>
  ProxyPass "/pim" "http://localhost:1512/pim"
  ProxyPassReverse "/pim" "http://localhost:1512/pim"

  LoadModule headers_module modules/mod_headers.so
  # Apache sets X-Forwarded-Host and X-Forwarded-For headers by default, but not X-
  Forwarded-Proto which is required by Jetty
  RequestHeader set X-Forwarded-Proto "https"

  SSLEngine on
  ServerName localhost:443
  SSLCertificateFile "${SRVROOT}/conf/ssl/server.crt"
  SSLCertificateKeyFile "${SRVROOT}/conf/ssl/server.key"
</VirtualHost>
```


5.3.2 Install SSL certificates on Product 360 Application Server directly

It is possible to setup SSL security on the Product 360 Application server, too. This is useful, if the connection between the Reverse Proxy and the Product 360 Server should be encrypted and secured, too.

To enable https, open the file <P360_SERVER>\configuration\HPM\NetworkConfig.xml.

```
<node identifier="pim-server1" host="localhost" >
  <web useHttps="true">
    <http port="1512"/>
    <https port="8443" keyPassword="password" keystore="C:/Users/
sroeck/.keystore" password="password"/>
  </web>
  <data-grid port="1801"/>
  <internal defaultRequestTimeout="300000">
    <hlr-tcp port="1701" />
  </internal>
  <default-role>CLIENTS_SERVER</default-role>
  <default-role>JOB_SERVER</default-role>
</node>
```

Please consult the [Product 360 Configuration guide](#)(see page 13) for a full list of all supported parameters.

Add the following lines to the Product 360 Server launch configuration (wrapper.conf) as JVM arguments to let Jetty know where the SSL certificate can be found:

```
-Djavax.net.ssl.keyStore=C:/Users/sroeck/.keystore
-Djavax.net.ssl.keyStorePassword=password
```

5.4 Setup Load Balancing

5.4.1 Apache Web Server

If there is a cluster of Product 360 servers then the SSL/TLS-enabled Reverse Proxy described above can be configured as a load balancer with sticky sessions:


```

LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
LoadModule proxy_http_module modules/mod_proxy_http.so
LoadModule slotmem_shm_module modules/mod_slotmem_shm.so
LoadModule lbmethod_byrequests_module modules/mod_lbmethod_byrequests.so #Apache 2.4

Header add Set-Cookie "ROUTEID_HPMW=.%{BALANCER_WORKER_ROUTE}e; path=/"
env=BALANCER_ROUTE_CHANGED
<Proxy balancer://hpmwcluster>
    BalancerMember http://<hpmserver01>:<hpmwport01> route=1
    BalancerMember http://<hpmserver02>:<hpmwport02> route=2
    BalancerMember http://<hpmserver03>:<hpmwport03> route=3
    BalancerMember http://<hpmserver04>:<hpmwport04> route=4
    ProxySet stickysession=ROUTEID_HPMW
</Proxy>
ProxyPass /pim balancer://hpmwcluster/pim
ProxyPassReverse /pim balancer://hpmwcluster/pim

```

Host and HTTP port for the nodes are defined in the corresponding elements of the NetworkConfig.xml. Please note that available scheduling algorithms and required modules differ between Apache httpd 2.4 and 2.2. Balancer manager provides some statistics and enables dynamic update of balancer members, please refer to the corresponding paragraph of the httpd documentation for details.

5.4.2 AWS ELB

Following the instructions on the official AWS ELB documentation pages at <http://docs.aws.amazon.com/ElasticLoadBalancing/latest/DeveloperGuide/setting-up-elb.html>

If you want to configure health check, make sure the ping is sent to the login page at <http://server:1501/pim/login>.

Make sure to configure Sticky Sessions and preferably use Application-Controlled Session Stickiness as described on <http://docs.aws.amazon.com/ElasticLoadBalancing/latest/DeveloperGuide/elb-sticky-sessions.html>.

The application cookie name is JSESSIONID, so the configuration might look like this:

```

"AppCookieStickinessPolicies": [
    {
        "PolicyName": "my-app-cookie-policy",
        "CookieName": "JSESSIONID"
    }
]

```


5.4.3 Troubleshooting Reverse Proxy / LB Setup and Product 360 Push issues

Product 360 uses Server-side push functionality implemented by the Vaadin framework. The supported modes can be configured in webfrontend.properties:

```
# Transport mode for server side push. Possible values: WEBSOCKET, STREAMING,
LONG_POLLING. Default is STREAMING.
web.vaadin.pushTransport=STREAMING
```

Please note that WEBSOCKET is not supported.

In case you're experiencing issues after login, e.g. spinning loading indicator, time-outs, unresponsiveness or session time-outs, try one of the following things:

- Switch pushTransport mode to STREAMING or LONG_POLLING. Requires a server restart to take changes in effect. LONG_POLLING seem to be more stable behind proxies than STREAMING.
- Check if the issue can be reproduced in local network, when calling the app on the server directly.
- Make sure, a proxy doesn't buffer requests.
 - In Apache, add "KeepAlive Off" in virtual host section.
 - In IIS, set "Response buffer treshold" to 0
- Turn http compression off, if enabled.

Some general hints regarding Push issues with Vaadin can be found on <https://vaadin.com/wiki/-/wiki/Main/Working+around+push+issues>

5.5 Configure Lists Views, Detail Tabs and Action Menus

- [Overview](#)(see page 112)
- [Declarative Customization Area](#)(see page 112)
- [Make Changes to XML Configuration Files](#)(see page 114)
- [Example Definitions](#)(see page 116)
- [List of Customization Areas](#)(see page 116)
- [Q&A](#)(see page 130)
 - [Debugging](#)(see page 130)
 - [Referencing Fields and Logical Keys](#)(see page 130)
 - [Display Media Asset Thumbnail in Table](#)(see page 131)
 - [Display Media Asset Thumbnail in Form](#)(see page 131)
 - [Display tool-tip in Table](#)(see page 132)
 - [Renaming the localization strings](#)(see page 133)
 - [Setting default 'Filter By' field to 'All Columns ' in the main table search of Web UI](#)(see page 134)

5.5.1 Overview

Web Access respects the Product 360 domain model definition, i.e. the Repository. That means, that meta information, such as field types, mandatory flags, etc. directly affect the Web UI. Having that said, many parts of the UI are built by referencing repository entities and fields and bring them in the desired structure and order. Since version 7 this composition of repository elements can be done declaratively

The following elements are be customized declaratively:

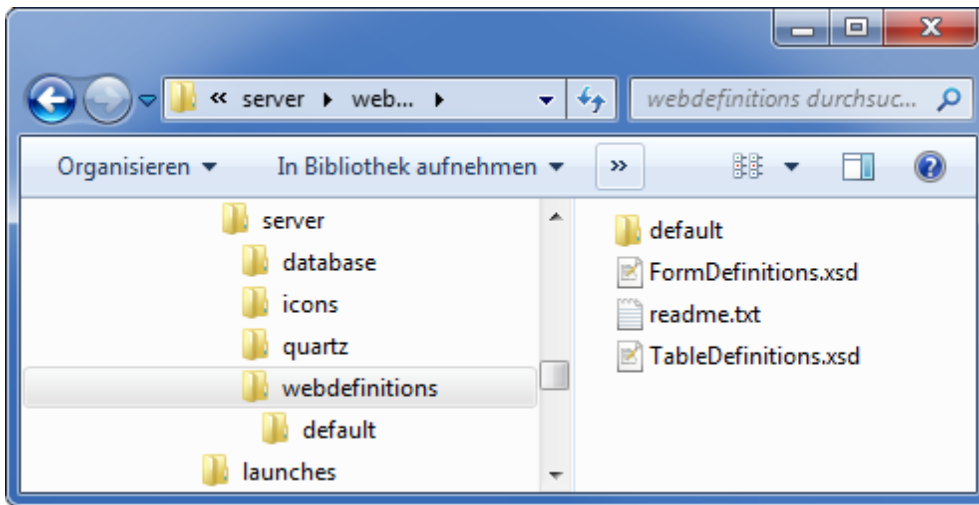
- All list views for the root entities like items, products, variants, tasks, structures and multimedia documents
- Most of the subentity list views, like prices, items/variants of the product, references
- All simple detail tabs like header, texts, change information
- Action menus for items, products, variants, tasks and structures list views

Declarative customization is not (yet) possible for

- Navigation area on the left
- Special detail tabs like media attachments, classification


5.5.2 Declarative Customization Area

During Product 360 server bootstrap (more precisely: when starting the very first Web session) the following folder structure is created in the server configuration area:

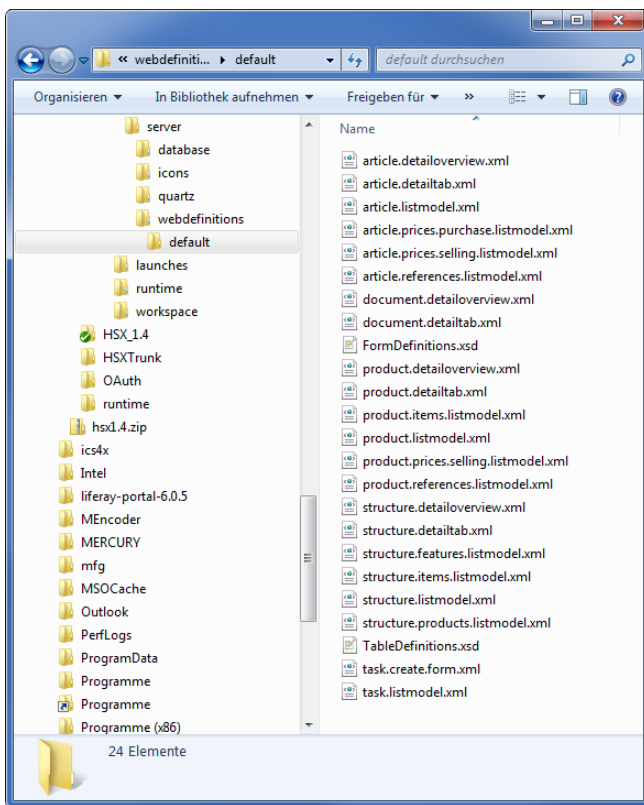


The directory /webdefinitions is the place where all customized definition files are loaded from. Initially, this folder only contains a readme file and XML schema files. The subdirectory /default contains all definition files. These files are updated on each server start.

To customize a list view or detail tab, copy the corresponding definition file from the /default subdirectory into the /webdefinition root directory. Then apply the desired changes to the copy of the file.

 Never change the content of the /default directory as all your changes will be lost after the next server restart.

A typical list of default definition files looks like this. (This may vary depending on your system setup, like 2pp/3pp and the repository configuration):

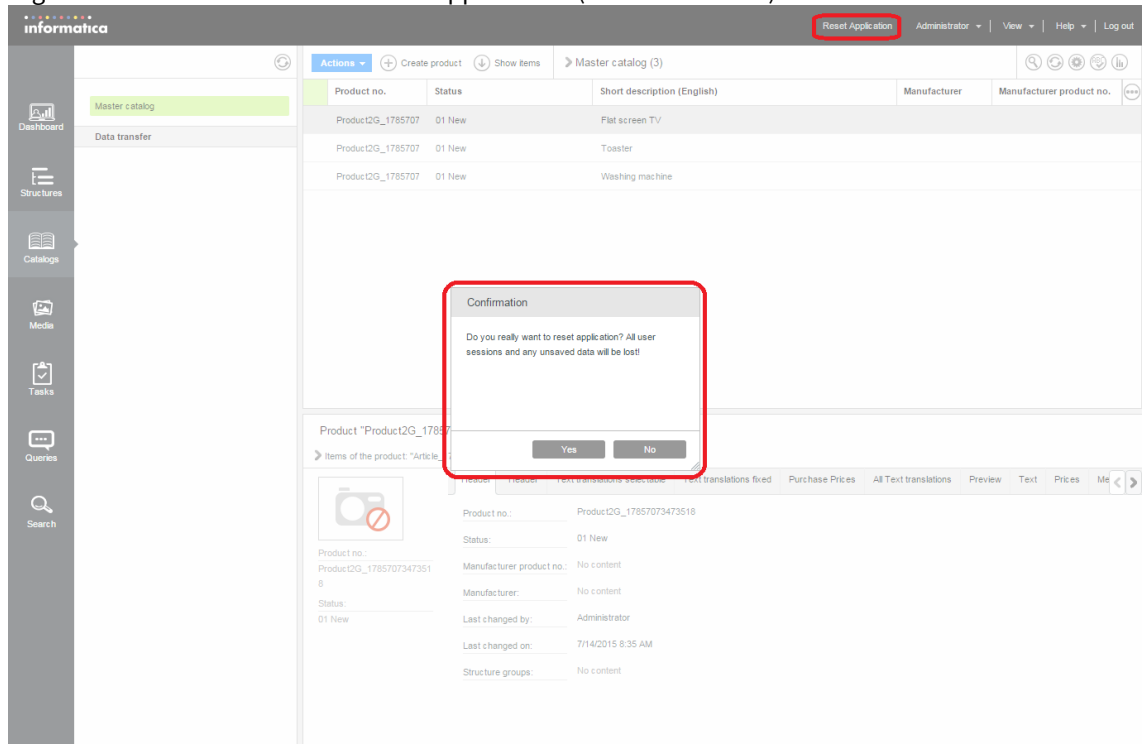


5.5.3 Make Changes to XML Configuration Files

To customize any of the default configuration files follow these steps:

1. Copy the file to be changed from /default into the upper /webdefinitions directory and open it using your favorite XML editor (XSD Schema support!). Please see table below to find the correct file.
2. Change the file, e.g. add another field, another field definition or change the order of definitions
3. Run **one** of the following actions to apply changes

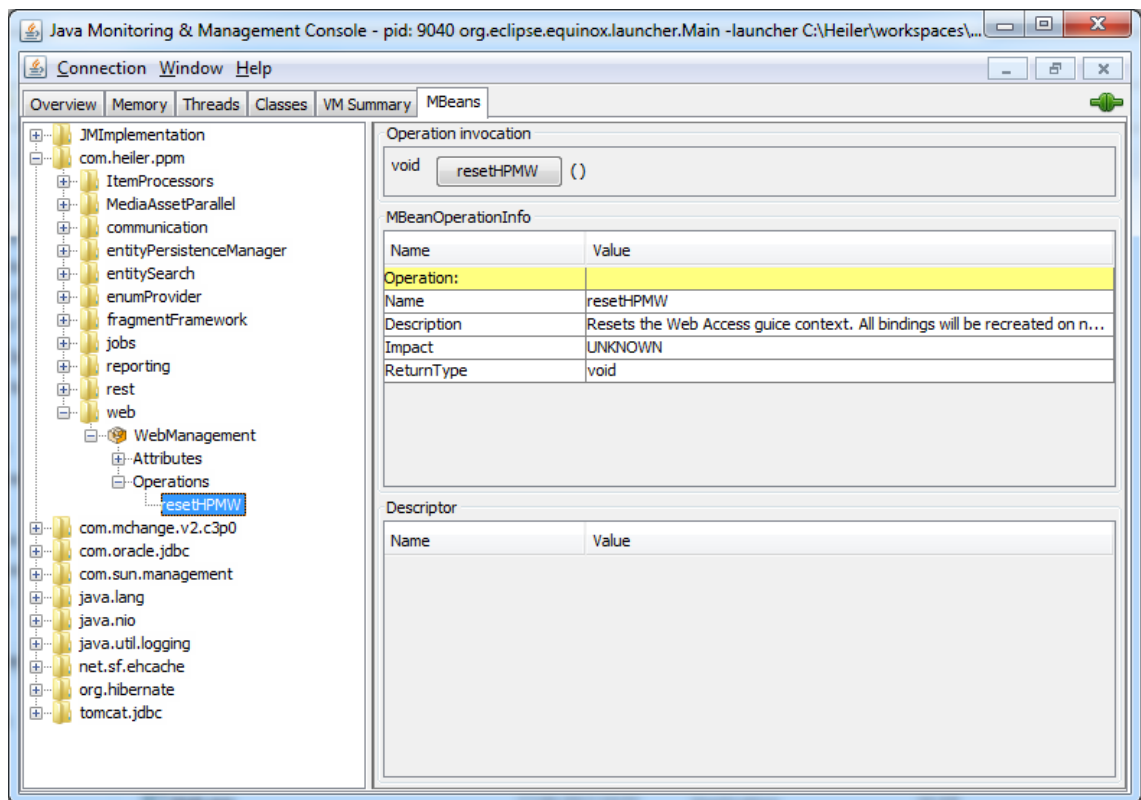
- a. Login as Administrator and call "Reset Application" (since version 7.1)



- b. When having access to the server console, run OSGi command "hpmwReset"

```
ProductManager Server [Eclipse Application] C:\Program Files (x86)\Java\jre7-32bit\bin\java.exe (11.07.2014 08:29:19)
08:30:31,035 INFO [main] [ServerContainer] Increase communication start level from ISOLATION to RUNNING completed (Duration: 0.1801 ms)
08:30:31,037 INFO [main] [ServerContainer] Start completed (Duration: 0:01:08.483)
08:30:31,038 INFO [main] [MainServerApplication] Server started.
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.dashboard.integration.DashboardModule@e0181a
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.export.preview.integration.MultichannelModule@44
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.article.integration.ArticleModule@145a80c
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.structure.integration.StructureModule@1bc0ff
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.common.integration.HpmStdModule@1bb3c3
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.multimedia.integration.MultimediaModule@b6f987
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.fulltextsearch.integration.FullTextSearchModule@
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.export.integration.ExportModule@c8f334
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.dataquality.integration.DataQualityModule@d6f3f
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.task.integration.TasksModule@2980c8
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.search.integration.SearchModule@5cea7
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.supplier.integration.HSXIntegrationModule@82658f
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.product.level2pp.integration.Product2PPModule@d
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.app.integration.WebApplicationModule@1fedaa1
08:31:06,517 INFO [qtp28919448-117] [ModuleContributionReaderImpl] Register standard module com.heiler.ppm.web.product.integration.ProductModule@c39591
08:31:11,609 WARN [qtp28919448-121] [SystemRestClientService] HPS Server is not running. ConnectException: Connection refused: connect
hpmwReset
09:04:35,057 INFO [Gogo shell] [GuiceUIProvider] Closed 1 contexts.
09:04:35,057 INFO [Gogo shell] [InjectorUtil] Resetting guice bindings...
Reset command initiated...
osgi>
```

- c. Connect to server via JMX (e.g. with jconsole from the Java-bin directory) and call the MBean hpmwReset in package com.heiler.ppm.web



d. Restart the server

After step 3 you'll have to relogin and the changes should be applied. In case of undesired behaviour please check the server log file.

5.5.4 Example Definitions

Please refer to the following pages for a comprehensive list of example definitions for list views and detail tabs

- [View Definition Examples](#)(see page 134)
- [Detail Tab Definition Examples](#)(see page 146)
- [Action menu definition examples](#)(see page 180)
- [Working With Focus Mode](#)(see page 185)
- [Detail Tabs Navigation and Configuration](#)(see page 186)

5.5.5 List of Customization Areas

Filename(s)	Version Info
-------------	--------------

Purpose**Products/Items/Variants**

article.detailoverview.xml, product.detailoverview.xml,
variant.detailoverview.xml

Detail preview next to thumbnail in detail form.

The screenshot shows the Informatica MDM Product 360 interface. The sidebar on the left contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Quizzes, and Search. The main content area displays a table of products. The table has columns: Product no., Status, Short description (English), Manufacturer, and Manufacturer product no. Below the table, there is a section for 'Product: Product2G_17857073473518 - Flat screen TV'. A red box highlights the thumbnail area, which shows a camera icon with a red 'X' over it, indicating a missing or broken image. To the right of the thumbnail, there is a detailed view of the product with fields for Product no., Status, Manufacturer product no., Manufacturer, Last changed by, and Last changed on.

article.detailtab.xml, product.detailtab.xml,
variant.detailtab.xml

All custom detail tabs, e.g. Header, Text, Prices.

The screenshot shows the Informatica MDM Product 360 interface. On the left is a navigation sidebar with icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main area is divided into two sections. The top section, titled 'Master catalog (3)', displays a table with the following data:

Product no.	Status	Short description (English)	Manufacturer	Manufacturer product no.
Product2G_1785707	01 New	Flat screen TV		
Product2G_1785707	01 New	Toaster		
Product2G_1785707	01 New	Washing machine		

The bottom section shows the details for 'Product "Product2G_17857073473520 - Washing machine"'. It includes a product image placeholder and a list of attributes:

- Product no.: Product2G_17857073473520
- Status: 01 New
- Manufacturer product no.: No content
- Manufacturer: No content
- Last changed by: Administrator
- Last changed on: 7/13/2015 1:25 PM

A red box highlights the 'Header' tab in the product detail view, which is the first tab in a sequence including Text translations selectable, Text translations fixed, Purchase Prices, All Text translations, Preview, Text, Prices, Media, and Class.

article.listmodel.xml, product.listmodel.xml, variant.listmodel.xml

The default list definitions for the master list view.

This screenshot is similar to the one above, showing the Master catalog and the product detail view for 'Product2G_17857073473520 - Washing machine'. The table in the Master catalog section is identical. The product detail view also shows the same attributes. A red box highlights the 'Default' tab in the product detail view, which is the first tab in a sequence including Short, Full (DE), Full (EH), Product list multi language, Transition fields, Quality Overview, and Field Selection.


article.prices.purchase.listmodel.xml

< 7.1.00

Purchase price list for price tab for items. Replaced with *.detailtab.xml with 7.1.00.

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)



Product no.:
Product2G_17857073473518
Status:
01 New

Header	Text translations selectable	Text translations fixed	Purchase Prices	All Text translations	Preview	Text	Prices	Media	Class
Net customer price EUR:			500.00	Net customer price USD:			552.74		
Non-binding price recom. EUR:			555.00	Non-binding price recom. USD:			613.55		


article.prices.selling.listmodel.xml,
product.prices.selling.listmodel.xml,
variant.prices.selling.listmodel.xml

< 7.1.00

Selling price list for price tab. Replaced with *.detailtab.xml with 7.1.00.

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)



Product no.:
Product2G_17857073473518
Status:
01 New

Header	Text translations selectable	Text translations fixed	Purchase Prices	All Text translations	Preview	Text	Prices	Media	Class																																			
Selling prices (4):																																												
<div> <div>+</div> <div>+</div> <div>+</div> </div> <table border="1"> <thead> <tr> <th>Price type</th> <th>Price (from 1)</th> <th>Currency</th> <th>Valid in region</th> <th>Valid from</th> <th>Valid until</th> <th>Customer</th> </tr> </thead> <tbody> <tr> <td>Net customer price</td> <td>552.74</td> <td>US Dollar</td> <td>Germany</td> <td>7/13/2015</td> <td>12/31/9999</td> <td><Public></td> </tr> <tr> <td>Net customer price</td> <td>500.00</td> <td>Euro</td> <td>Germany</td> <td>7/13/2015</td> <td>12/31/9999</td> <td><Public></td> </tr> <tr> <td>Non-binding price recommendation</td> <td>555.00</td> <td>Euro</td> <td>Germany</td> <td>7/13/2015</td> <td>12/31/9999</td> <td><Public></td> </tr> <tr> <td>Non-binding price recommendation</td> <td>613.55</td> <td>US Dollar</td> <td>Germany</td> <td>7/13/2015</td> <td>12/31/9999</td> <td><Public></td> </tr> </tbody> </table>										Price type	Price (from 1)	Currency	Valid in region	Valid from	Valid until	Customer	Net customer price	552.74	US Dollar	Germany	7/13/2015	12/31/9999	<Public>	Net customer price	500.00	Euro	Germany	7/13/2015	12/31/9999	<Public>	Non-binding price recommendation	555.00	Euro	Germany	7/13/2015	12/31/9999	<Public>	Non-binding price recommendation	613.55	US Dollar	Germany	7/13/2015	12/31/9999	<Public>
Price type	Price (from 1)	Currency	Valid in region	Valid from	Valid until	Customer																																						
Net customer price	552.74	US Dollar	Germany	7/13/2015	12/31/9999	<Public>																																						
Net customer price	500.00	Euro	Germany	7/13/2015	12/31/9999	<Public>																																						
Non-binding price recommendation	555.00	Euro	Germany	7/13/2015	12/31/9999	<Public>																																						
Non-binding price recommendation	613.55	US Dollar	Germany	7/13/2015	12/31/9999	<Public>																																						

article.reference.form.xml,
product.reference.form.xml,
variant.reference.form.xml

Popup form to create or edit references.

informatica

Reset Application Administrator View Help

Actions Create Item To higher-level ob... Master catalog (3) Product Product2G_17857073473518 (3)

Master catalog

Data transfer

Structures

Catalogs

Media

Tasks

Queries

Search

Create reference

Complete the fields required for reference creation or click [here](#)

Reference type: Accessories

Referenced object type: Item

Referenced object number:

Number: 1

Sequence:

OK Cancel

Create another reference

article.references.listmodel.xml,
product.references.listmodel.xml,
variant.references.listmodel.xml

List definitions to load references for reference tab. All definitions for products, items (and variants) references are merged into a single table.

informatica

Reset Application Administrator View Help Log out

Actions Create product Show Items Master catalog (3)

Product no.	Status	Short description (English)	Manufacturer	Manufacturer product no.
Product2G_1785707	01 New	Flat screen TV		
Product2G_1785707	01 New	Toaster		
Product2G_1785707	01 New	Washing machine		

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)

All Text translations Preview Text Prices Media Classification Attributes Items of the product References Quality status Chang

Reference type	Referenced object type	Referenced object number	Number	Sequence	Short description
Accessories	Product	100	1	5	
Accessories	Item	110	1	3	

article.quality.status.listmodel.xml,
product.quality.status.listmodel.xml,
variant.quality.status.listmodel.xml

> 7.1.00

List definition for quality status detail tab.

The screenshot shows the Informatica MDM Product 360 10.1 interface. The left sidebar contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main area displays a list of products under the 'Master catalog (7)' tab. Below this, the 'Product "Product2G_17857073473519 - Toaster"' is selected. The 'Quality status' tab is active, showing a table of quality rules. A red box highlights the table content.

Rule	Status	Message	Ignore	Ignored on	Ignored by
Check Short Description	OK		No		Web
check long desc	Failed	Input data value is blank or null	No		Mobile

```
product.items.listmodel.xml,
product.variants.listmodel.xml,
variant.items.listmodel.xml
```

List definition that shows the children ArticleType-based entities of the selected entity in a detail tab.

product.items.listmodel.xml only applies to 2pp mode.

product.variants.listmodel.xml and variants.items.listmodel.xml only apply to 3pp mode.

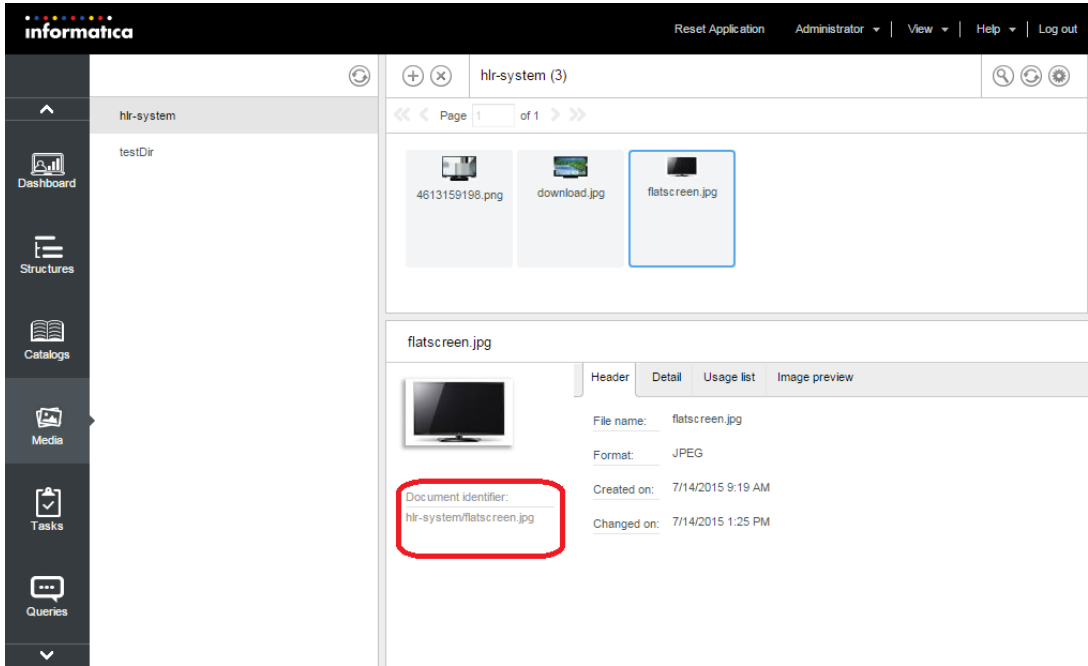
The screenshot shows the Informatica MDM Product 360 10.1 interface. The left sidebar contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main area displays a list of products under the 'Master catalog (3)' tab. Below this, the 'Product "Product2G_17857073473518 - Flat screen TV"' is selected. The 'Items of the product' tab is active, showing a table of items. A red box highlights the table content.

Item no.	Status	GTIN	Net customer price (from 1)	Net customer price: Current
Article_17857073473522	03 Selling prices OK		499.00	Euro
Article_17857073473523	01 New		555.00	Euro
Article_17857073473524	01 New		500.00	Euro

Media Assets

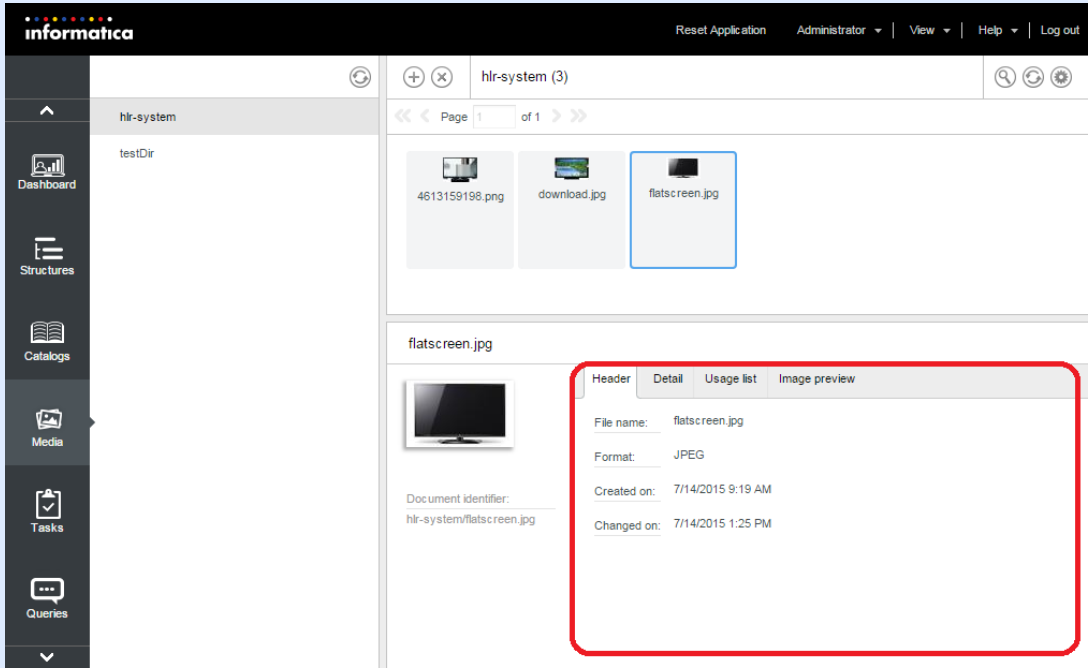
```
document.detailoverview.xml
```


Detail media asset preview next to thumbnail in detail form.



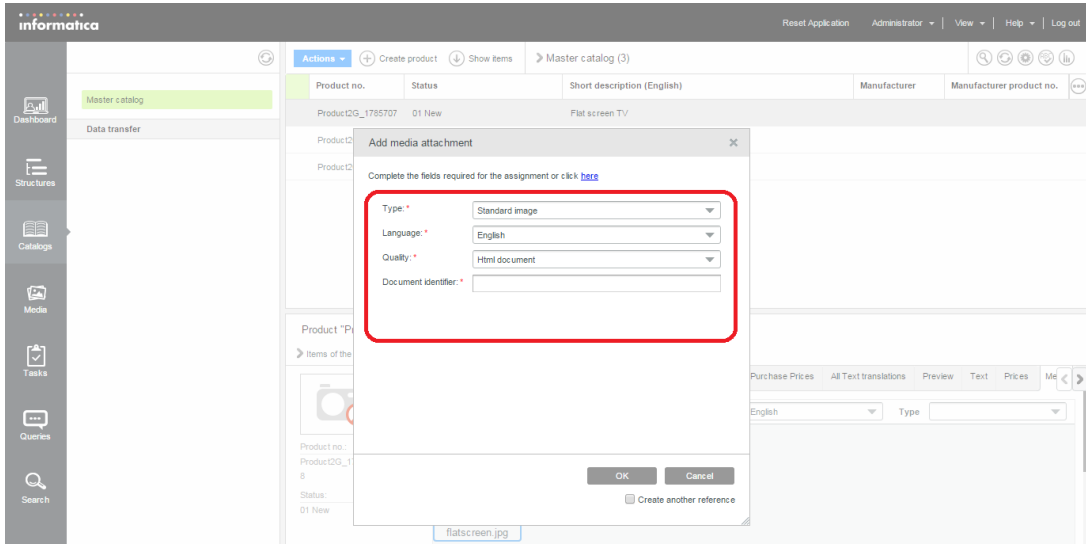
document.detailtab.xml

All custom detail tabs for media assets e.g. Header, Detail.



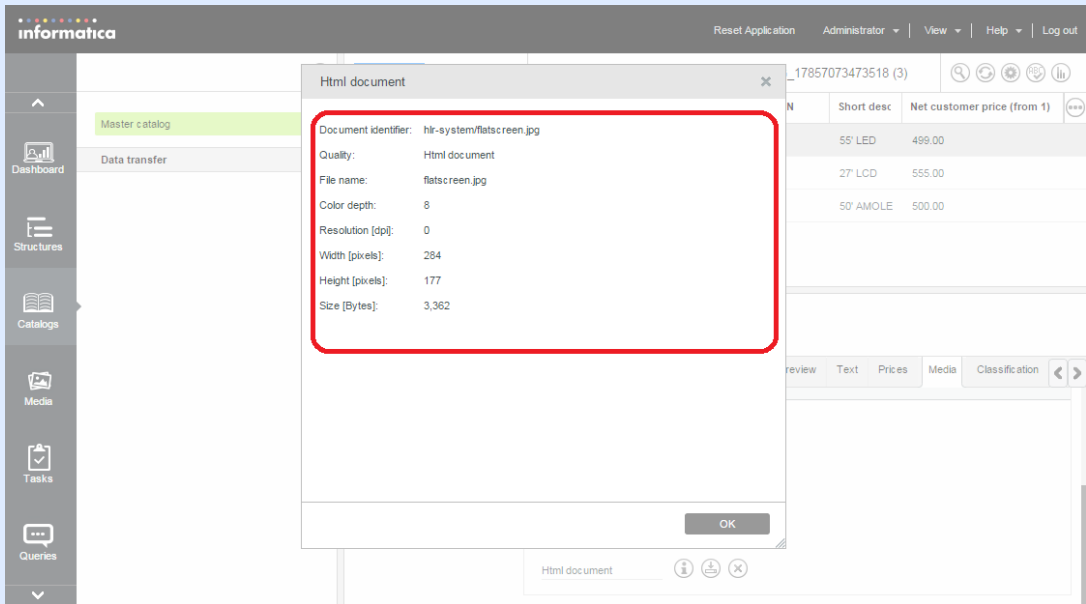
media.assignment.form.xml

Picker window to assign a media asset to an existing product/variant/item



media.hlr.details.xml

Media asset detail popup for Heiler Classic Provider (HLR)



media.hmm.details.xml

Media asset detail popup for Informatica Media Manager (HMM)

media.reference.form.xml

Picker window to assign an item/variant/product to a media asset.

informatica

Reset Application Administrator View Help Log out

hlr-system (3)

hlr-system

testDir

Create assignment

Complete the fields required for reference creation or click [here](#)

Referenced catalog: Master catalog

Referenced object type: Item

Referenced object number: 100

Type: Logo

Language: German

Quality: Internet image

OK Cancel

☐ Create another reference

Short description Manufacturer

Flat screen TV

media.variants.xml

Detail area under the media gallery on product/variant/item media tab.

informatica

Reset Application Administrator View Help Log out

Actions Create product Show items Master catalog (6)

Thumb	Product no.	Status	Manufacturer	Manufacturer product no.	Net customer price
	Product2G_1785707	01 New			500.00
	Product2G_1785707	01 New			
	Product2G_1785707	01 New			
	Product2G_9294080	01 New			
	Product2G_9294080	01 New			
	Product2G_9294080	01 New			

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED"; 2 more item(s)

Text translations fixed Purchase Prices All Text translations Preview Text Prices Media Classification

Language: English Type: Standard image

Standard image flatscreen.jpg

Name: No content

Type: Standard image

Description (English): No content

Alternative text (English): No content

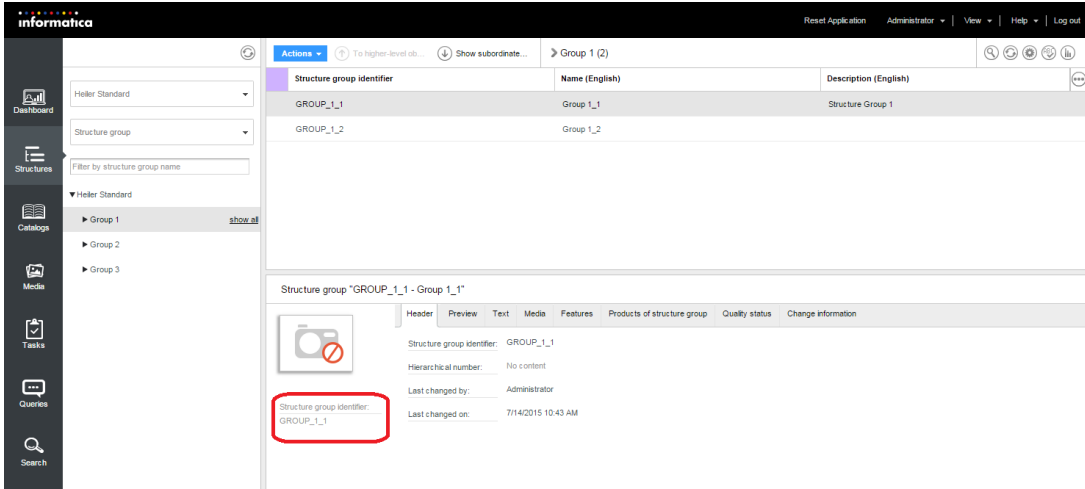
Multimedia documents:

Html document

Structures

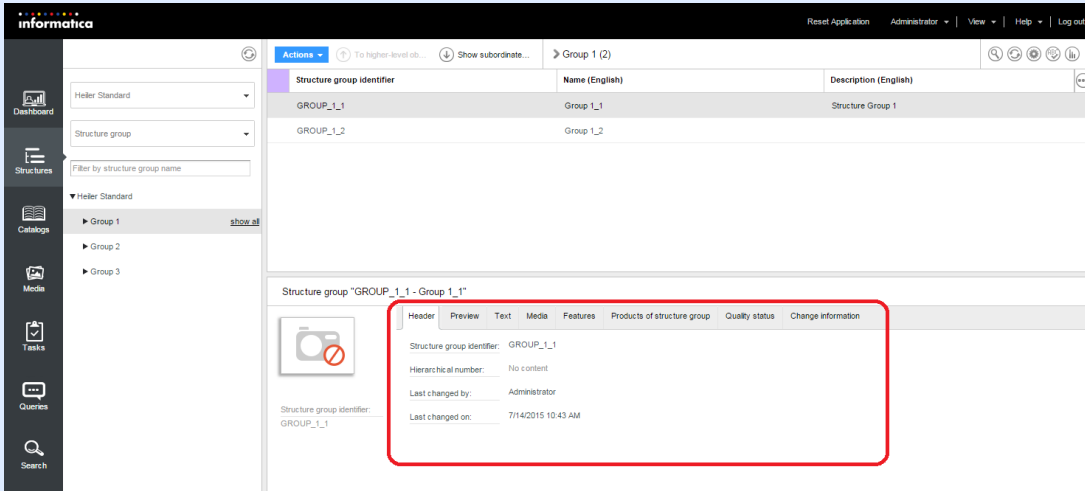
structure.detailoverview.xml

Detail preview next to thumbnail in detail form for structure groups.



structure.detailtab.xml

All custom detail tabs for structures, e.g. Header, Text.



structure.features.listmodel.xml

List definition of detail tab showing structure group's features.

The screenshot shows the Informatica MDM Product 360 interface. On the left is a navigation sidebar with icons for Dashboard, Structures, Catalogs, Media, Tasks, and Queries. The main area displays a list of structure groups under the 'Heier Standard' filter. The selected group is 'StructureGroup_334184090487 - Television'. Below the list, a detailed view for this group is shown, including a thumbnail image and a table of features. The 'Features' tab is selected, showing a table with columns: Name (English), Description (English), Preset values (English), and Purpose. The table lists features like Android TV, DVB-T, HDMI, and VideoOnDemand.

Name (English)	Description (English)	Preset values (English)	Purpose
Android TV	Android TV enabled		Descriptive
DVB-T		1	
HDMI	HDMI Input Slots	2	Defining; Webshop
VideoOnDemand		Yes	

structure.products.listmodel.xml

List definition for detail tab showing assigned products or items to a structure group.
structure.products.listmodel.xml only applies to 2/3-pp mode
structure.items.listmodel.xml only applies to 1pp mode

The screenshot shows the Informatica MDM Product 360 interface. The main area displays a list of structure groups. The selected group is 'GROUP_1_1 - Group 1_1'. Below the list, a detailed view for this group is shown, including a thumbnail image and a table of products. The 'Products of structure group' tab is selected, showing a table with columns: Product no., Status, and Short description (English). The table lists three products, all with a status of '01 New'.

Product no.	Status	Short description (English)
Product2G_92940804911119	01 New	
Product2G_92940804911121	01 New	
Product2G_92940804911122	01 New	

structure.quality.status.listmodel.xml

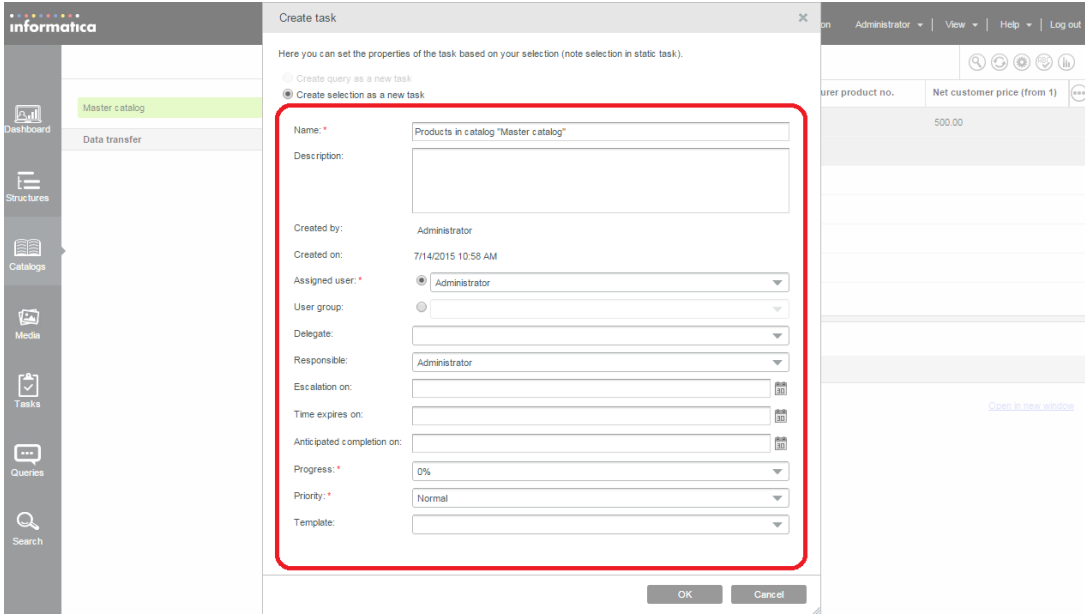
> 7.1.00

List definition for quality status detail tab for structures.

Tasks

task.create.form.xml

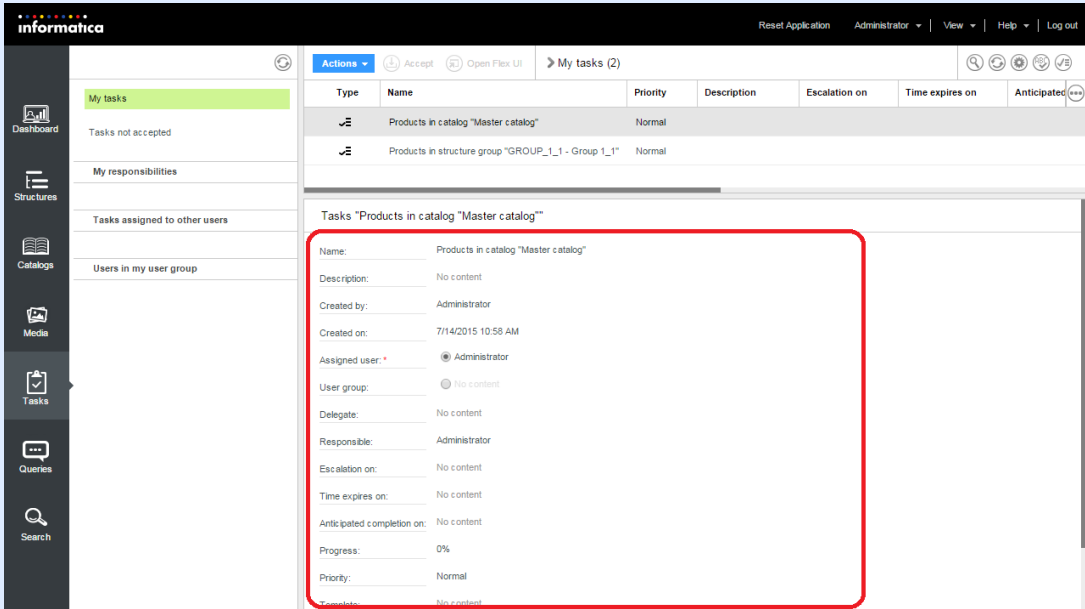
Detail form for task creation popup window.



task.edit.form.xml

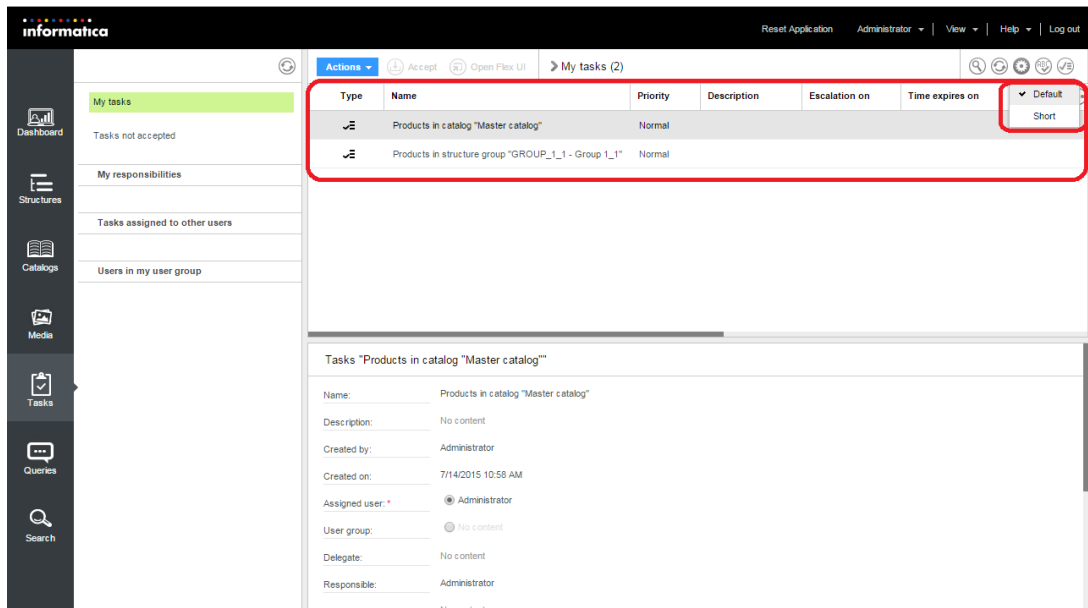
> 7.1.00

Detail form for edit task detail view.



task.listmodel.xml

List definitions for task main list.



Action menus

menu.actions.list.article.xml,
menu.actions.list.product.xml,
menu.actions.list.structure.xml,
menu.actions.list.task.xml,
menu.actions.list.variant.xml

>=8.0

Action menus for items, products, variants, tasks and structures lists.

The screenshot shows the 'Actions' menu in the SAP Fiori 'New Catalog' app. The menu is open, displaying a list of actions categorized into sections: Maintain, Tasks, Data, Navigation, More Actions, and Settings. The 'Thumbnail' column of the table is highlighted, and a mouse cursor is visible over the 'Arti' row.

Thumbnail	Item	Status
	Arti	01 N
	Arti	01 N

Actions

- Maintain**
 - Create item
 - Delete item
 - Clone item
 - Classify item
- Tasks**
 - Create task
 - Add to existing task
- Data**
 - Import Data
 - Export selected rows. ►
 - Execute data quality rules
- Navigation**
 - To higher-level object
- More Actions**
 - Search and Replace
- Settings**
 - Configure menu settings

Special

article.gdsn.hierarchy.listmodel.xml

Fields that are shown in GDSN hierarchy view for items. If multiple fields are specified, they are separated with a "-".

Actions

Create item

Delete item

Create

Summer 2015 Catalog Orion (1175)

Search and Replace

Clone item

Classify item

GDSN Packaging Hierarchy Navigation

Pallet (4039247469321)

Display shipper (4478247469321)

Pack or inner pack (9912346376123)

Base unit or each (9276547385643)

Base unit or each (9276547315643)

Pack or inner pack (8765546376123)

Base unit or each (8656547385643)

Base unit or each (1236547315643)

Pack or inner pack (9876546376123)

Base unit or each (8656547385643)

Base unit or each (1236547315643)

article.kits.listmodel.xml	
List definition for kits and components detail tab list.	

5.5.6 Q&A

Here are some hints based on common issues and provided feedback:

5.5.6.1 Debugging

In case of something doesn't work as expected please check the server log file .out.log. Also it might be helpful to enable DEBUG logs for everything related to parsing the XML files. This can be done in log4j.xml in server configuration folder by adding these lines:

```
<category name="com.heiler.ppm.web.common.definition">
  <priority value="DEBUG"/>
</category>
```

5.5.6.2 Referencing Fields and Logical Keys

When referencing a field or an entity type, always use the identifier from the **custom** section of Product 360 repository. Only for logical keys, the type name is needed.

Please also note, that logicalKey element is only needed if

- No default value is provided in repository
- A different value than the default value should be used

For example the following list definition references a price field:

```
<definition i18NKey="%table.config.full.en" identifier="article.table.config.full
.en" rootEntity="Article">
  <field identifier="Article.SupplierAID" sortable="true"/>
  <field align="e" identifier="ArticlePriceValueSales.Amount" sortable="true"/>
</definition>
```

Although the price field as multiple logical keys, this is a valid expression as all logical keys have a default in the repository. In this case, the net customer price for EUR with the validity of "now" will be displayed.

To display a price of another type, only the deviant logical key needs to be specified, e.g.


```

<definition i18NKey="%table.config.full.en" identifier="article.table.config.full
.en" rootEntity="Article">
  <field identifier="Article.SupplierAID" sortable="true"/>
  <field align="e" identifier="ArticlePriceValueSales.Amount" sortable="true">
    <logicalKey identifier="ArticlePriceType.LK.Type" value="5"/>
  </field>
</definition>

```

5.5.6.3 Display Media Asset Thumbnail in Table

The default installation contains the list definitions FULL (EN) and FULL (DE) where the first column displays a thumbnail of the item/product. If the thumbnail is not displayed as expected, please check the corresponding XML file `article.listmodel.xml` or `product.listmodel.xml`.

For the thumbnail column, all three logical keys (language, quality and media asset type) need to be set correctly. The default definition references only language and quality and uses the default media asset type from the repository. To specify an alternative media asset type, the field definition should look like this:

```

<field caption="%web.client.item.table.thumbnail" identifier="ArticleMediaAss
etDocument.ImageIdentifier" sortable="true" width="40">
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Language" value="
English"/>
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Quality" value="
Internet image"/>
  <logicalKey identifier="ArticleMediaAssetMapType.LK.MediaAssetType" value="
thumbnail"/>
</field>

```

5.5.6.4 Display Media Asset Thumbnail in Form

Entity thumbnail can be specified like this (possible logical keys same as in table definition):

```

<fieldGroup displaySectionWidget="true" subEntityId="ArticleMediaAssetDocument">
  <mediaField identifier="ArticleMediaAssetDocument.ImageIdentifier"
thumbnailType="original"/>
  <logicalKey identifier="ArticleMediaAssetMapType.LK.MediaAssetType"
value="Standard image"/>
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Quality" value="Html
document"/>
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Language"
value="Language independent"/>
</fieldGroup>

```

Possible values for `thumbnailType` attribute is small, normal, big, preview, original(default value).

5.5.6.5 Display tool-tip in Table

The default installation contains tool-tip enabled for the fields which have rich-text and/or multi-line enabled. For example, Long description fields.

The screenshot displays the Informatica MDM Product 360 interface. At the top, there are navigation links: "Actions", "Create product", "Show variants", and "Master catalog (2)". Below this is a filter bar with "Filter by Product no." and a "Filter" button. The main table lists products with columns: Thumbnail, Product no., Status, Short description (English), Manufacturer, Manufacturer product no., Net customer price (from 1), and Long description (English). Two rows are visible: Row 1 for Product2G_5272155076999 and Row 2 for Product2G_1. A tooltip is shown over the Long description field of Row 2, displaying a detailed description of the product. Below the table, there is a section for the selected product, "Product2G_5272155076999 - Lorem Ipsum", showing variants and items. The bottom part of the interface shows a detailed view of the product with tabs for Header, Preview, Text, Prices, Media, Classification, Attributes, Variants of the product, References, Quality status, Change information, Translation, and All texts. The Text tab is active, showing fields like Languages, Short description, Long description, Keywords, Product segment, and Other remarks.

Thumbnail	Product no.	Status	Short description (English)	Manufacturer	Manufacturer product no.	Net customer price (from 1)	Long description (English)
1	Product2G_5272155076999	01 New	Lorem Ipsum				Lorem ipsum dolor sit amet, in quo tota iusto saperet, pri harum utnam at. Reque dicit perfecto nec ex, pro ex dicam facilisis. Fali pulent prodesset et has, graece alterum nonumes quo ad, duo alterum albusius reprehendunt no. Facete vocent tincidunt cu eam, ali aliquid senerit ius at. Sit sale audiam aliquando et, vix te illum error deleniti. Mei te molestiae vulputate concludaturque.
2	Product2G_1	01 New					

Product "Product2G_5272155076999 - Lorem Ipsum"

➤ Variants of the product: "Variant_436626261779402"

➤ Items of the product: "Article_436626261779403 - Lorem Ipsum"

Product no.: Product2G_5272155076999
Status: 01 New

Short description: Lorem Ipsum

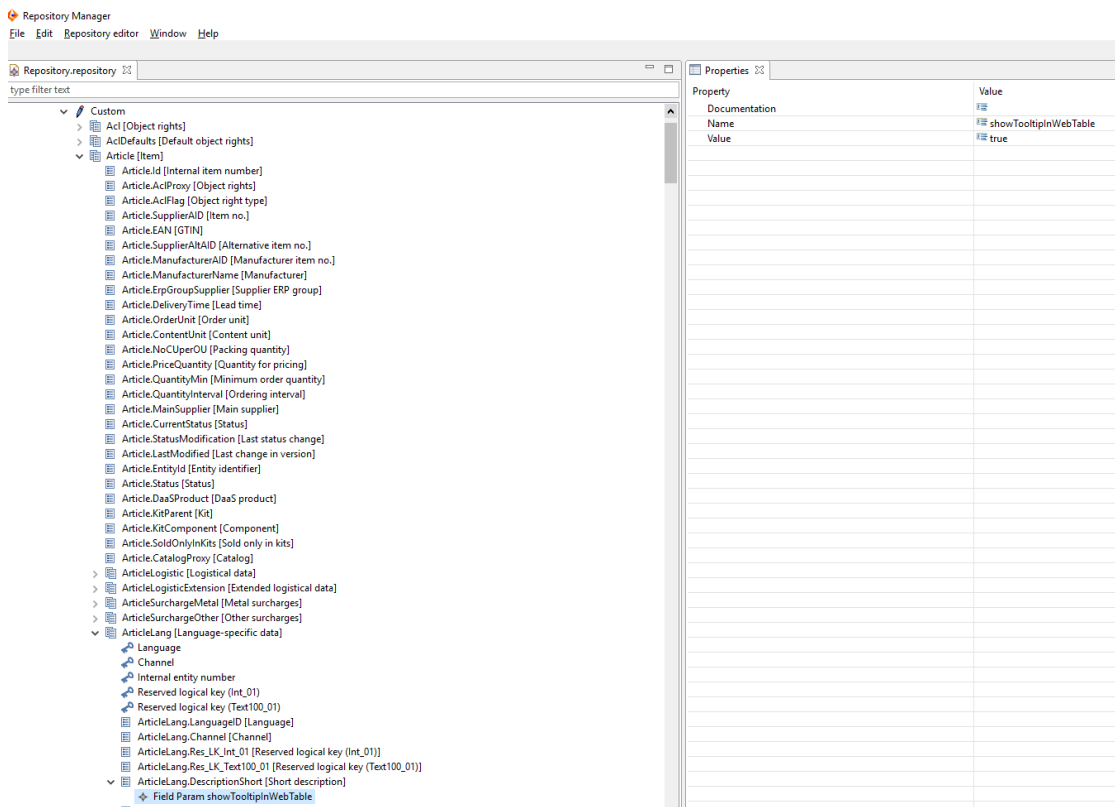
Long description: Lorem ipsum dolor sit amet, in quo tota iusto saperet, pri harum utnam at. Reque dicit perfecto nec ex, pro ex dicam facilisis. Fali pulent prodesset et has, graece alterum nonumes quo ad, duo alterum albusius reprehendunt no. Facete vocent tincidunt cu eam, ali aliquid senerit ius at. Sit sale audiam aliquando et, vix te illum error deleniti. Mei te molestiae vulputate concludaturque.

Keywords: No content

Product segment: No content

Other remarks: No content

It is also possible to enable or disable tool-tips for other fields. An optional Field Param can be added in the repository to enable or disable the tool-tip for a particular field. The Field Param name is **showTooltipInWebTable** and it can accept **true** or **false**.



5.5.6.6 Renaming the localization strings

In-order to rename Lists Views, Detail Tabs and Action Menus, it is important to understand the relationship between the Lists Views, Detail Tabs and Action Menus xml and their corresponding i18n properties file.

E.g. Detail Tabs

- product.detailtab.xml
 - ProductDetailtab.properties, ProductDetailtab_en.properties, ProductDetailtab_de.properties, etc
 - Such *.detailtab.xml holds any tab created using form definition, like "All texts", "Change information", etc.
 - Renaming of such tabs needs to be done in (*)Detailtab.properties and more language specific files
- product.detailtab.custom.xml
 - ProductDetailtabCustom.properties, ProductDetailtabCustom_en.properties, ProductDetailtabCustom_de.properties, etc
 - Such *.detailtab.custom.xml holds any tab created using custom tab definition, like "References", "Items of the product", etc.
 - Renaming of such tabs needs to be done in (*)DetailtabCustom.properties and more language specific files.
- product.detailtab.parameterized.xml
 - ProductDetailtabParameterized.properties, ProductDetailtabParameterized_en.properties, ProductDetailta

bParameterized_de.properties

- Such *.detailtab.parameterized.xml holds any tab created using parameterized tab definition, like "Characteristics", "Preview", etc.
- Renaming of such tabs needs to be done in (*)DetailtabParameterized.properties and more language specific files.

Similarly, the list views and action menus are also localized in similar naming convention.

5.5.6.7 Setting default 'Filter By' field to 'All Columns ' in the main table search of Web UI

In general, the default 'Filter By' field is selected as the field which is the first column of the List view.

There is also an option in 'Filter By' drop-down stating "All columns" which the users can select. It will run the search across all fields present in the List view.

In order to have "All columns" as the default on the web client, we have introduced new preferences quickSearch.allColumns.preSelected =false

By default, preference is set to false. In case the user wants to see the default as "All columns" then this preference needs to be set true.

You can change it by going into **plugin_customization.ini** and changing **com.heiler.ppm.web.common/quickSearch.allColumns.preSelected**

5.5.7 View Definition Examples

This pages provides example configuration for list view customizings.

- [List with texts in multiple languages](#)(see page 135)
- [Variables support for views](#)(see page 135)
- [List with attribute values and custom caption](#)(see page 136)
- [List with different price types](#)(see page 137)
- [List with Structure Group Name](#)(see page 138)
- [List of additional price tiers](#)(see page 139)
- [List of DQ Status per Channel \(Transition Fields\)](#)(see page 140)
- [List of DQ Rule Status and Message \(Transition Fields\)](#)(see page 141)
- [Use of "displaySectionWidget" attribute in detail tabs](#)(see page 142)



When referencing Product 360 Core repository fields, make sure to specify the field identifier from the **custom area** but not the field identifier from the types area.

5.5.7.1 List with texts in multiple languages

List format:

Product No.	Status	Short description (German)	Short description (English)	Short description (Spanish)	Short description (Finnish)	Short description (French)
-------------	--------	----------------------------	-----------------------------	-----------------------------	-----------------------------	----------------------------

Example screen:

<div> <div>Actions</div> <div> <div>Create product</div> <div>Show items</div> </div> <div>Master catalog (3)</div> </div>							
Product no.	Status	Short description (German)	Short description (English)	Short description (Spanish)	Short description (Finnish)	Short description (French)	
Product2G_1785707	01 New	Flachbildfernseher	Flat screen TV	Televisión de pantalla plana	Taulutelevisio	Téléviseur à écran plat	
Product2G_1785707	01 New	Toaster	Toaster	Tostadora	Leivänpaahdin	Grille-pain	
Product2G_1785707	01 New	Waschmaschine	Washing machine	Lavadora	Pesukone	Machine à laver	

Definition (product.listmodel.xml):

```

<definition defaultDefinition="false" i18NKey="Product list multi language"
rootEntity="Product2G">
  <field identifier="Product2G.ProductNo" sortable="true"/>
  <field identifier="Product2G.CurrentStatus" sortable="true"/>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="7"/>
  </field>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="9"/>
  </field>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="10"/>
  </field>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="11"/>
  </field>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="12"/>
  </field>
</definition>

```

5.5.7.2 Variables support for views

`${user.language}` variable could be used as logical key to specify UI language for views.

Definition (product.listmodel.xml):


```
<definition defaultDefinition="false" i18NKey="Product list multi language"
rootEntity="Product2G">
  <field identifier="Product2G.ProductNo" sortable="true"/>
  <field identifier="Product2G.CurrentStatus" sortable="true"/>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="$
{user.language}"/>
  </field>
</definition>
```

5.5.7.3 List with attribute values and custom caption

Optionally, a custom caption can be specified to replace the default generated column captions.

Example screen:

Actions		Create item		Master catalog (3) > Product Product2G_17857073473518 (3)			
Item no.	Status	Color (English)		Color (German)		...	
Article_17857073473522	01 New	black		schwarz			
Article_17857073473523	01 New	blue		blau			
Article_17857073473524	01 New	red		rot			

List format:

Item no.	Status	Color (English)	Color(German)
----------	--------	-----------------	---------------

Definition (article.listmodel.xml):


```
<definition defaultDefinition="false" i18NKey="Item list with colors"
rootEntity="Article">
  <field identifier="Article.SupplierAID" sortable="true"/>
  <field identifier="Article.CurrentStatus" sortable="true"/>
  <field identifier="ArticleAttributeValue.Value" sortable="true"
caption="Color (English)">
    <logicalKey identifier="ArticleAttributeValueType.LK.Language" value="9"/
  >
    <logicalKey identifier="ArticleAttributeType.LK.Name" value="Farbe"/>
  </field>
  <field identifier="ArticleAttributeValue.Value" sortable="true"
caption="Color (German)">
    <logicalKey identifier="ArticleAttributeValueType.LK.Language" value="7"/
  >
    <logicalKey identifier="ArticleAttributeType.LK.Name" value="Farbe"/>
  </field>
</definition>
```

5.5.7.4 List with different price types

Example screen:

<div> <div>Actions</div> <div> Create item </div> <div> Master catalog (3) Product Product2G_17857073473518 (3) </div> <div> </div> </div>			
Product no.	Net customer price (from 1)	Non-binding price recommendation (from 1)	
Article_17857073473522	499.00	499.50	
Article_17857073473523	555.00	555.55	
Article_17857073473524	500.00	505.00	

List format:

Product No.	Net customer price (from 1)	Non-binding price recommendation (from 1)
-------------	-----------------------------	---

Definition (article.listmodel.xml):


```
<definition defaultDefinition="false" i18NKey="Product list with prices"
rootEntity="Article">
  <field identifier="Product2G.ProductNo" sortable="true"/>
  <field identifier="Product2GPriceValueSales.Amount" sortable="true">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="1"/>
    <logicalKey identifier="ArticlePriceType.LK.PartyMS" value="1[[]]"/>
    <logicalKey identifier="ArticlePriceType.LK.Type" value="3"/>
    <logicalKey identifier="ArticlePriceType.LK.Currency" value="EUR"/>
    <logicalKey identifier="ArticlePriceType.LK.Territory" value="DE"/>
    <logicalKey identifier="ArticlePriceType.LK.ValidAt" value="now"/>
  </field>
  <field identifier="Product2GPriceValueSales.Amount" sortable="true">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="1"/>
    <logicalKey identifier="ArticlePriceType.LK.PartyMS" value="1[[]]"/>
    <logicalKey identifier="ArticlePriceType.LK.Type" value="5"/>
    <logicalKey identifier="ArticlePriceType.LK.Currency" value="EUR"/>
    <logicalKey identifier="ArticlePriceType.LK.Territory" value="DE"/>
    <logicalKey identifier="ArticlePriceType.LK.ValidAt" value="now"/>
  </field>
</definition>
```

5.5.7.5 List with Structure Group Name

Example screen:

Product "Product2G_92940804911119"

Items of the product: "Article_92940804911123", 2 more item(s)

Classification | Attributes | Items of the product | References | Quality status | Change information | Translation | All texts

Product no.:
Product2G_9294080491111
9

Status:
01 New

Name of structure system	Structure group path
Heiler Standard	Group 1 ➔ Group 1_1

Definition (product.listmodel.xml):


```
<definition defaultDefinition="false" i18NKey="Transition fields"
rootEntity="Product2G">
  <field identifier="Product2G.ProductNo" sortable="true" />
  <field identifier="Product2G.CurrentStatus" sortable="true" />
  <field identifier="Product2GStructureMap.StructureGroup" sortable="true">
    <logicalKey identifier="ArticleStructureMapType.LK.StructureId"
value="10000" />
  </field>
</definition>
```

5.5.7.6 List of additional price tiers

Item "Article_85164536007369"

Header Preview Text Prices Media Classification Attributes Kits and Components References Ordering information Logistics Surcharges Quality status Change information Translation All texts Customers Custom < >

Item no.: Article_85164536007369
Status: 01 New

Selling prices (0):

Price type	Price (from 1)	Currency	Valid in region	Valid from	Valid until	Customer
------------	----------------	----------	-----------------	------------	-------------	----------

Purchase prices (2):

Price type	Price (from 1)	Price (from 10.0000)	Price (from 100.0000)	Price (from 1.000.0000)	Currency	Valid in region	Valid from	Valid until	Supplier
Gross list price	50.00	48.00	44.00		Euro	Germany	12/30/1899	12/31/9999	Heiler Product Manager
Net list price	54.00		50.00		Euro	Germany	12/30/1899	12/31/9999	Heiler Product Manager

File: article.detailtab.xml, section detail_purchase_prices


```

<tableDefinition i18NKey="%web.client.article.tab.prices.purchase" identifier="detail
_purchase_prices" rootEntity="ArticlePricePurchase">
  <field identifier="ArticlePricePurchase.PriceType" sortable="false"/>
  <field align="e" identifier="ArticlePriceValuePurchase.Amount" sortable="fals
e">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="1"/>
  </field>
  <field align="e" identifier="ArticlePriceValuePurchase.Amount" sortable="fals
e">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="10"/>
  </field>
  <field align="e" identifier="ArticlePriceValuePurchase.Amount" sortable="fals
e">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="100"/
>
  </field>
  <field align="e" identifier="ArticlePriceValuePurchase.Amount" sortable="fals
e">
    <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" value="1000"
/>
  </field>
  <field identifier="ArticlePricePurchase.Currency" sortable="true"/>
  <field identifier="ArticlePricePurchase.Territory" sortable="true"/>
  <field identifier="ArticlePricePurchase.ValidFrom" sortable="true"/>
  <field identifier="ArticlePricePurchase.ValidTo" sortable="true"/>
  <field identifier="ArticlePricePurchase.Supplier" sortable="true"/>
</tableDefinition>

```

5.5.7.7 List of DQ Status per Channel (Transition Fields)

<div> <div>Actions</div> <div> <div>+</div> Create product <div>↓</div> Show items </div> <div>Master catalog (7)</div> </div> <div> <div>🔍</div> <div>🔄</div> <div>⚙️</div> <div>ABC</div> <div>📊</div> </div>					
Product no.	Status	Short description (English)	Status Mobile	Status Web Shop	
Product2G_1785707	01 New	Flat screen TV	● OK	● Unvalidated	
Product2G_1785707	01 New	Toaster	● Failed	● OK	
Product2G_1785707	01 New	Washing machine	● OK	● Unvalidated	
Product2G_9294080	01 New		● Failed	● Unvalidated	
Product2G_9294080	01 New		● Failed	● Unvalidated	

File: product.listmodel.xml


```

<definition defaultDefinition="true" i18NKey="Quality Overview" identifier="product.table.config.dq" rootEntity="Product2G">
  <field identifier="Product2G.ProductNo" sortable="true" width="100"/>
  <field identifier="Product2G.CurrentStatus" sortable="true" width="180"/>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="English"/>
  </field>

  <field identifier="Product2G.Status" sortable="true" caption="Status Mobile">
    <transitionField identifier="QualityStatusSummary.Status">
      <logicalKey identifier="StatusSummaryType.LK.Channel" value="Mobile"/>
    </transitionField>
  </field>
  <field identifier="Product2G.Status" sortable="true" caption="Status Web Shop">
    <transitionField identifier="QualityStatusSummary.Status">
      <logicalKey identifier="StatusSummaryType.LK.Channel" value="Web Shop"/>
    </transitionField>
  </field>
</definition>

```

5.5.7.8 List of DQ Rule Status and Message (Transition Fields)

<div> <div>Actions</div> <div> <div>+</div> Create product <div>↓</div> Show items </div> <div>Master catalog (7)</div> </div> <div> <div>🔍</div> <div>🔄</div> <div>⚙️</div> <div>🔒</div> <div>👤</div> </div>					
Product no.	Status	Short description (English)	Long Descr Status	Long Descr Message	
Product2G_1785707	01 New	Flat screen TV	OK	No Error	
Product2G_1785707	01 New	Toaster	Failed	Input data value is blank or null	
Product2G_1785707	01 New	Washing machine	OK	No Error	
Product2G_9294080	01 New		Failed	Input data value is blank or null	
Product2G_9294080	01 New		Failed	Input data value is blank or null	

File: product.listmodel.xml


```

<definition defaultDefinition="false" i18NKey="Quality Rule Status" identifier="product.table.config.dqrule" rootEntity="Product2G">
  <field identifier="Product2G.ProductNo" sortable="true" width="100"/>
  <field identifier="Product2G.CurrentStatus" sortable="true" width="180"/>
  <field identifier="Product2GLang.DescriptionShort" sortable="true">
    <logicalKey identifier="ArticleLangType.LK.Language" value="English"/>
  </field>

  <field identifier="Product2G.Status" sortable="true" caption="Long Descr Status">
    <transitionField identifier="QualityStatusEntry.Status">
      <logicalKey identifier="StatusEntryType.LK.ProcessIdentifier" value="Check long desc"/>
    </transitionField>
  </field>

  <field identifier="Product2G.Status" sortable="true" caption="Long Descr Message">
    <transitionField identifier="QualityStatusEntry.Message">
      <logicalKey identifier="StatusEntryType.LK.ProcessIdentifier" value="Check long desc"/>
    </transitionField>
  </field>
</definition>

```

5.5.7.9 Use of "displaySectionWidget" attribute in detail tabs

1. If the attribute "displaySectionWidget" is set to "true" for a sub-entity, then the Logical Keys with field 'Editable' set to "true" are displayed as
 - a. labels in the detail tabs by default.


```

<definition debugId="article_surcharges_tab" i18NKey="%web.article.detail.
tab.surcharges" id="web.article.detail.tab.surcharges" permissionId="web.a
rticle.detail.tabs.surcharges" position="100" rootEntity="Article">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="ArticleSurcha
rgeMetal">
      <field identifier="ArticleSurchargeMetal.Amount"/>
      <field identifier="ArticleSurchargeMetal.Weight"/>
      <field identifier="ArticleSurchargeMetal.Base"/>
      <field identifier="ArticleSurchargeMetal.Currency"/>
      <field identifier="ArticleSurchargeMetal.Step"/>
      <field identifier="ArticleSurchargeMetal.IsPercentage"/>
      <field identifier="ArticleSurchargeMetal.CalculateOnStepComple
te"/>
    </fieldGroup>
    <fieldGroup>
      <field identifier="ArticleSurchargeOther.Amount"/>
      <field identifier="ArticleSurchargeOther.Currency"/>
      <field identifier="ArticleSurchargeOther.Step"/>
      <field identifier="ArticleSurchargeOther.IsPercentage"/>
      <field identifier="ArticleSurchargeOther.CalculateOnStepComple
te"/>
    </fieldGroup>
  </column>
</definition>

```


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Repository Manager

File Edit Repository editor Window Help

Repository.repository

type filter text


- ArticleCatalogProxy [Catalog]
 - ArticleLogistic [Logistical data]
 - ArticleLogisticExtension [Extended logistical data]
 - ArticleSurchargeMetal [Metal surcharges]
 - Surcharge category**
 - ArticleSurchargeMetal.SurchargeType [Surcharge category]
 - ArticleSurchargeMetal.Amount [Surcharge]
 - ArticleSurchargeMetal.Weight [Weight (in grams)]
 - ArticleSurchargeMetal.WeightUnit [Unit (for weight)]
 - ArticleSurchargeMetal.BaseQuantity [Base quantity (in kg)]
 - ArticleSurchargeMetal.Base [Base]
 - ArticleSurchargeMetal.BaseUnit [Unit (base quantity)]
 - ArticleSurchargeMetal.Currency [Currency]
 - ArticleSurchargeMetal.Step [Size of jump]
 - ArticleSurchargeMetal.IsPercentage [In percent?]
 - ArticleSurchargeMetal.CalculateOnStepComplete [Calculate after price jump?]
 - ArticleSurchargeOther [Other surcharges]
 - ArticleLang [Language-specific data]
 - ArticlePricePurchase [Purchase price]
 - ArticlePurchase [Purchasing data]
 - ArticlePriceSales [Selling price]
 - ArticleSales [Selling data]
 - ArticleSupplierRelation [Supplier relationship]
 - ArticleComponent [Component]
 - ProductReference [Higher-level product]
 - VariantReference [Higher-level variant]
 - ArticleStructureMap [Structure assignments]
 - ArticleStructureGroupMap [Structure group assignment]
 - ArticleCatalogStructureMap [Catalog group assignments]
 - ArticleAttribute [Attributes]

Outline Properties

Property	Value
Application	1
Purpose	1
Constraints	<ul style="list-style-type: none"> Editable: true Enumeration: Enum.MetalSurchar...
Deprecated	Value Path
General	<ul style="list-style-type: none"> Logical Key: ArticleSurchargeTyp... Value: copper
Misc	<ul style="list-style-type: none"> Alias Document Identifier: ArticleSurchargeMet... Short Ident Supports is: true
Presentation	<ul style="list-style-type: none"> Description Name: %logical-key.Article... Proposal Er
Security	<ul style="list-style-type: none"> Qualificatio: surchargeType

Item "Article_1603274229725010 - fsdbvfsdb"

Cat4 tab Kits and Components References Ordering information Logistics **Surcharges** Quality status Change information



Surcharge category: Copper

Item no.: Article_1603274229725010

Status: 01 New

Surcharge:

Weight (in grams):

Base:

Currency:

Size of jump:

In percent?:

Calculate after price jump?:

Other surcharge: Amount:

No content

No content

No content

No content

No content

No content


No content

No content

- b. Combo box with a change in the configuration as shown below (selectable="true").

```
<definition debugId="article_texts_tab" i18NKey="%web.article.detail.tab.t
exts" id="web.article.detail.tab.texts" permissionId="web.article.detail.t
abs.texts" position="20" rootEntity="Article">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="ArticleLang">
      <field identifier="ArticleLang.DescriptionShort"/>
      <field identifier="ArticleLang.DescriptionLong"/>
      <field identifier="ArticleLang.Keyword"/>
      <field identifier="ArticleLang.Segment"/>
      <field identifier="ArticleLang.Remarks"/>
      <logicalKey identifier="ArticleLangType.LK.Language"
selectable="true" value="{user.language}"/>
    </fieldGroup>
  </column>
</definition>
```


Item "Article_1603274229725010 - fsdbvfsdb"



Product 360" view

Header

Preview

Text

Prices

Media

Classification

Attributes

cat1 tab

Cat4 tab

Kits

Languages

English

Item no.:

Article_1603274229725010

Status:

01 New

Short description:

fsdbvfsdb

Long description:

fbfdb

Keywords:

No content

Item segment:

No content


Other remarks:

No content

- If the attribute "displaySectionWidget" is set to "false" for a sub-entity, then the LogicalKeys are not displayed.

```
<definition debugId="article_texts_tab" i18NKey="%web.article.detail.tab.texts"
id="web.article.detail.tab.texts" permissionId="web.article.detail.tabs.texts"
position="20" rootEntity="Article">
  <column>
    <fieldGroup displaySectionWidget="false" subEntityId="ArticleLang">
      <field identifier="ArticleLang.DescriptionShort"/>
      <field identifier="ArticleLang.DescriptionLong"/>
      <field identifier="ArticleLang.Keyword"/>
      <field identifier="ArticleLang.Segment"/>
      <field identifier="ArticleLang.Remarks"/>
      <logicalKey identifier="ArticleLangType.LK.Language" selectable="true" value="{user.language}"/>
    </fieldGroup>
  </column>
</definition>
```

Item "Article_1603274229725010 - fsdbvfsdb"



Text

Prices

Media

Classification

Attributes

cat1 tab

Cat4 tab

Kits and Components

References

Item no.:

Article_1603274229725010

Status:

01 New

Short description:

fsdbvfsdb

Long description:

fbfdb

Keywords:

No content

Item segment:

No content

Other remarks:


No content

5.5.8 Detail Tab Definition Examples

This pages provides example configurations for detail tab customizings.

- [Change Detail Preview Area](#)(see page 146)
- [Two column layout with language picker](#)(see page 147)
- [Two column layout with fixed language](#)(see page 148)
- [Variables support for detail tabs](#)(see page 149)
- [Detail Tab with specific attributes](#)(see page 150)
- [Detail Tab and editing multi-value attribbte values](#)(see page 151)
- [Logical Keys exploded](#)(see page 153)
- [Logistic Extension Data with multiple Logical Keys](#)(see page 155)
- [Fullqualified Purchase Prices](#)(see page 156)
- [Editable Item Preview Panel](#)(see page 157)
- [Display Structure Group Assignment](#)(see page 159)
- [Editable List of Sub Entities](#)(see page 160)
- [Editable List of Retail Prices for Items](#)(see page 161)
- [Display Transition Fields in Detail Tab Lists, e.g. Short Description for References](#)(see page 163)
- [Single Logical Key Selector for Multiple Subentities](#)(see page 165)
- [List of all references to items, but not to other entities \(with optional filter\)](#)(see page 167)
- [Example for combination of and in one custom tab](#)(see page 170)

 The following examples are supported. Other combinations are not supported.

 When referencing Product 360 Core repository fields, make sure to specify the field identifier from the **custom area** but not the field identifier from the types area.

5.5.8.1 Change Detail Preview Area

The preview area next to the thumbnail can be changed. This example removes the status field and adds the last change user instead.

Example Screen:

Product no.:
Product2G_334184090493

Last changed by:
Administrator

Definition (product.detailoverview.xml)



```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<formDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="FormDefinitions.xsd">
  <definition position="2147483647" rootEntity="Product2G">
    <column>
      <fieldGroup displaySectionWidget="true" subEntityId="Product2GMediaAssetD
ocument">
        <field identifier="Product2GMediaAssetDocument.ImageIdentifier"/>
        <logicalKey identifier="ArticleMediaAssetMapType.LK.MediaAssetType"
value="Standard image"/>
        <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Quality"
value="Html document"/>
        <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Language"
value="Language independent"/>
      </fieldGroup>
      <fieldGroup>
        <field identifier="Product2G.ProductNo" readOnly="true"/>
      </fieldGroup>
      <fieldGroup subEntityId="Product2GLog">
        <field identifier="Product2GLog.ModificationUser"/>
      </fieldGroup>
    </column>
  </definition>
</formDefinitions>
```

5.5.8.2 Two column layout with language picker

Example screen:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)

Header	Text translations selectable	Preview	Text	Prices	Media	Classification	Attributes	Items of the product
 <p>Product no.: Product2G_17857073473518 Status: 01 New</p>	<p>Languages: English</p> <p>Short description: Flat screen TV</p> <p>Long description: High resolution display!</p> <p>Keywords: No content</p>							<p>Languages: German</p> <p>Short description: Flachbildfernseher</p> <p>Long description: Hochauflösendes Display!</p> <p>Keywords: No content</p>

Definition (product.detailtab.xml):


```
<definition debugId="" i18NKey="Text translations selectable"
id="sdk.textTranslations.selectable" permissionId="" rootEntity="Product2G"
position="11">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
      <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
      <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
      <field identifier="Product2GLang.Keyword" readOnly="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="true" value="9"/>
    </fieldGroup>
  </column>
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
      <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
      <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
      <field identifier="Product2GLang.Keyword" readOnly="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="true" value="7"/>
    </fieldGroup>
  </column>
</definition>
```

5.5.8.3 Two column layout with fixed language

Example screen:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)

Header	Text translations selectable	Text translations fixed	Preview	Text	Prices	Media	Classification	Attribut
 <p>Product no.: Product2G_17857073473518 Status: 01 New</p>	<p>Language: English</p> <p>Short description: Flat screen TV</p> <p>Long description: High resolution display!</p> <p>Keywords: No content</p>	<p>Language: Finnish</p> <p>Short description: Taulutelevisio</p> <p>Long description: No content</p> <p>Keywords: No content</p>						

Definition (product.detailtab.xml):


```

<definition debugId="" i18NKey="Text translations fixed"
id="sdk.textTranslations.fixed" permissionId="" rootEntity="Product2G" position="12">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
      <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
      <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
      <field identifier="Product2GLang.Keyword" readOnly="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="false" value="9"/>
    </fieldGroup>
  </column>
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
      <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
      <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
      <field identifier="Product2GLang.Keyword" readOnly="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="false" value="11"/>
    </fieldGroup>
  </column>
</definition>

```

5.5.8.4 Variables support for detail tabs

`${user.language}` variable could be used as logical key to specify UI language for details tabs.

Definition (product.detailtab.xml):


```

    <definition debugId="" i18NKey="Text translations fixed"
id="sdk.textTranslations.fixed" permissionId="" rootEntity="Product2G" position="12">
    <column>
        <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
            <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
            <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
            <field identifier="Product2GLang.Keyword" readOnly="false"/>
            <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="false" value="{user.language}"/
>
        </fieldGroup>
    </column>
    <column>
        <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
            <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
            <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
            <field identifier="Product2GLang.Keyword" readOnly="false"/>
            <logicalKey displayAllValues="false"
identifier="ArticleLangType.LK.Language" selectable="false" value="11"/>
        </fieldGroup>
    </column>
</definition>

```

5.5.8.5 Detail Tab with specific attributes

Instead of showing all attributes you can also add a fixed list of attributes to a tab. You can also mix attributes with normal fields by adding them to different field groups. If the attribute doesn't exist for the selected item or product, the widget is not rendered. That means, that users can create or edit attribute values but cannot create new attributes by themselves.

Example that shows the attributes Width and Height (product.detailtab.xml):


```

    <definition debugId="attr" i18NKey="Custom attributes" permissionId="" position="
1" rootEntity="Product2G">
      <column>
        <enumGrouping caption="%web.client.login.form.language" enumIdentifier="E
num.Language.WithLanguageIndependent" selectable="true" value="9"/>

        <fieldGroup subEntityId="Product2GAttributeValue" displaySectionWidget="f
alse">
          <field identifier="Product2GAttributeValue.Value"/>
          <logicalKey identifier="ArticleAttributeValueType.LK.Language" value="
9"/>

          <logicalKey identifier="ArticleAttributeType.LK.Name" value="Width"/>
        </fieldGroup>
        <fieldGroup subEntityId="Product2GAttributeValue" displaySectionWidget="f
alse">
          <field identifier="Product2GAttributeValue.Value"/>
          <logicalKey identifier="ArticleAttributeValueType.LK.Language" value="
9"/>

          <logicalKey identifier="ArticleAttributeType.LK.Name" value="Height"/
>
        </fieldGroup>
      </column>
    </definition>

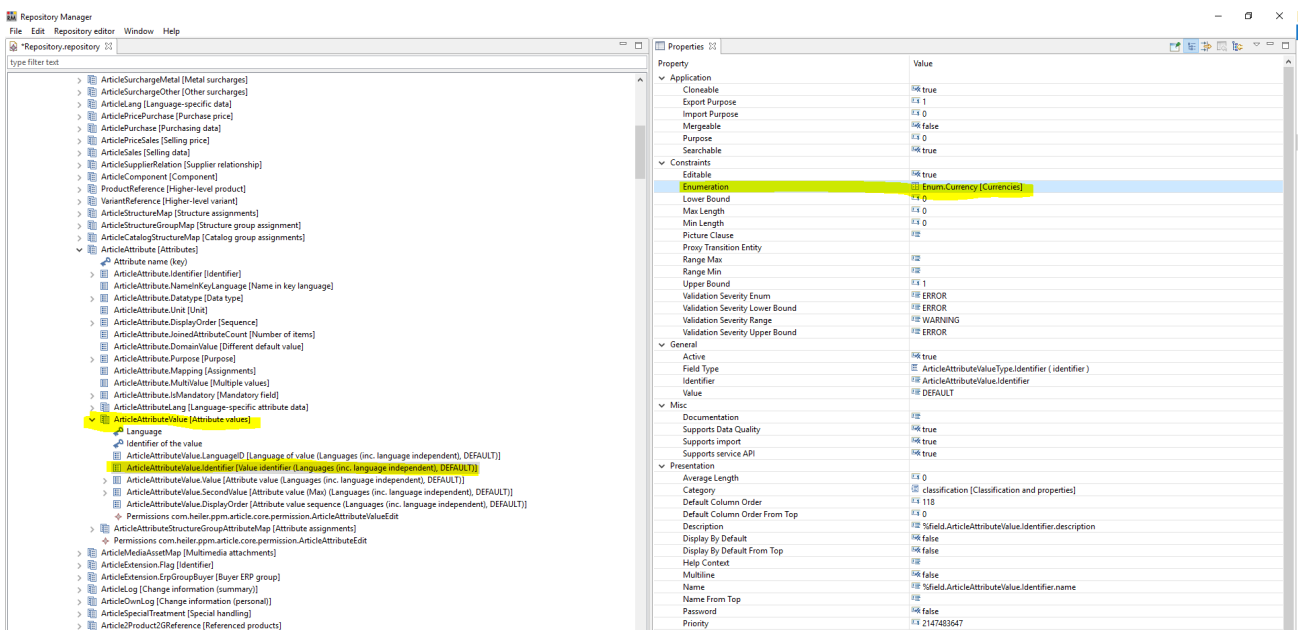
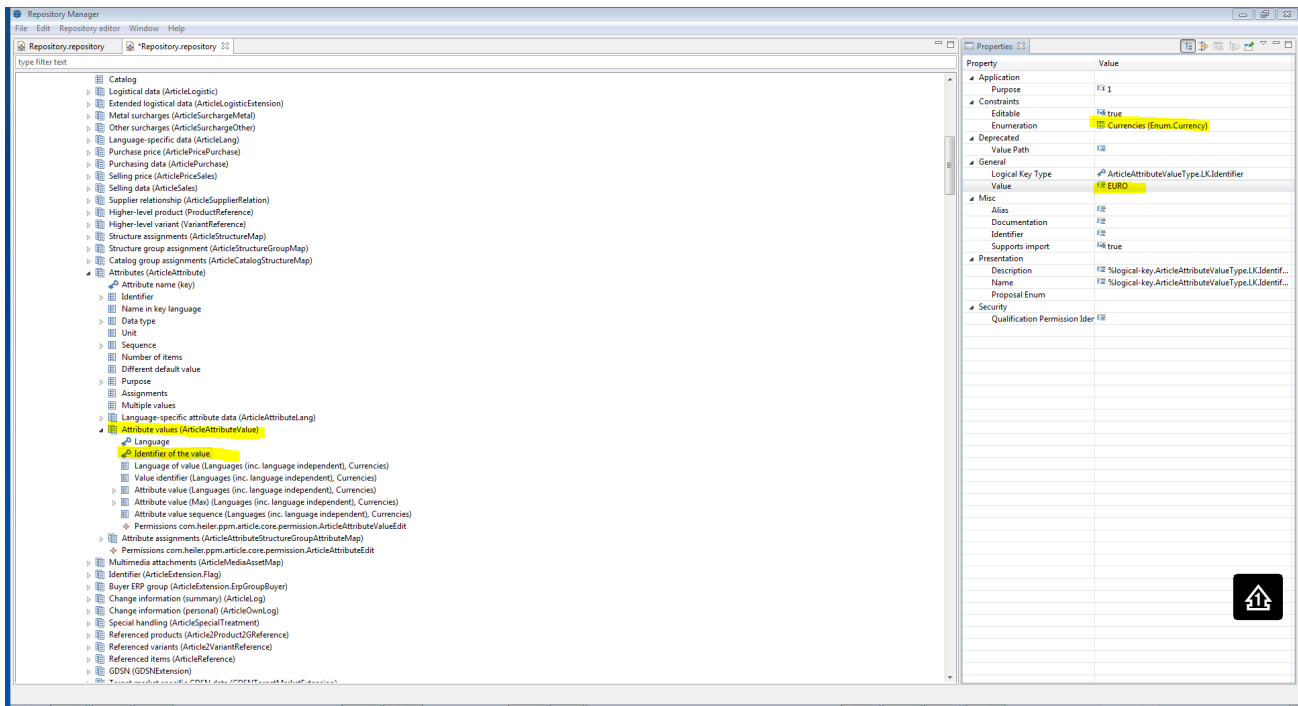
```

5.5.8.6 Detail Tab and editing multi-value attribute values

There is an "extra editing mode" for multi attribute values in web, which loads them in a single attribute editor to be able to edit a single value of the list of values identified over a logical key identifier enum. To trigger the new multi attribute in single editor mode, specify an identifier enum with the attributes values identifier logical key, this activates the new mode, if no enum is specified then the standard multi attribute editor in multi mode is used. Don't forget to change the default value of the logical key to a value from the enumeration.

Activating the multi-value attribute editor by specifying an identifier enum in the repository. In the example below the Currency enum was used.

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Additionally you need to specify a logical key combination to refer to an attribute value in the webs detail tab definition XML, this can be done by using an enum grouping for the identifier enumeration and set the identifier logical key to selectable="true". Another possible option is to specify each logical key combination as an extra field group.

Using an enum grouping to handle all combination of logical keys by an combobox.


```

<definition debugId="product_attributes_tab" i18NKey="%web.product.detail.tab.attributes" permissionId="web.product.detail.tabs.attributes" position="60" rootEntity="Product2G">
  <column>
    <enumGrouping caption="%web.client.login.form.language" enumIdentifier="Enum.Language.WithLanguageIndependent" selectable="true" value="English"/>
    <enumGrouping caption="Currency" enumIdentifier="Enum.Currency" selectable="true" value="EUR"/>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GAttributeValue">
      <field identifier="Product2GAttributeValue.Value"/>
      <logicalKey identifier="ArticleAttributeValueType.LK.Identifier" selectable="true" value="EUR"/>
      <logicalKey identifier="ArticleAttributeValueType.LK.Language" selectable="true" value="English"/>
      <logicalKey displayAllValues="true" hidden="true" identifier="ArticleAttributeType.LK.Name"/>
    </fieldGroup>
  </column>
</definition>

```

Alternatively using extra field group for each combination of logical keys.

```

<definition debugId="variant_attributes_tab1" i18NKey="attribute(Euro)" permissionId="web.variant.detail.tabs.attributes" position="61" rootEntity="Variant">
  <column>
    <enumGrouping caption="%web.client.login.form.language" enumIdentifier="Enum.Language.WithLanguageIndependent" selectable="true" value="9"/>
    <fieldGroup displaySectionWidget="true" subEntityId="VariantAttributeValue">
      <field identifier="VariantAttributeValue.Value"/>
      <logicalKey hidden="true" identifier="ArticleAttributeValueType.LK.Identifier" value="Euro"/>
      <logicalKey identifier="ArticleAttributeValueType.LK.Language" selectable="true" value="English"/>
      <logicalKey displayAllValues="true" hidden="true" identifier="ArticleAttributeType.LK.Name"/>
    </fieldGroup>
  </column>
</definition>
<definition debugId="variant_attributes_tab2" i18NKey="attribute(GBP)" permissionId="web.variant.detail.tabs.attributes" position="62" rootEntity="Variant">
  <column>
    <enumGrouping caption="%web.client.login.form.language" enumIdentifier="Enum.Language.WithLanguageIndependent" selectable="true" value="9"/>
    <fieldGroup displaySectionWidget="true" subEntityId="VariantAttributeValue">
      <field identifier="VariantAttributeValue.Value"/>
      <logicalKey hidden="true" identifier="ArticleAttributeValueType.LK.Identifier" value="GBP"/>
      <logicalKey identifier="ArticleAttributeValueType.LK.Language" selectable="true" value="English"/>
      <logicalKey displayAllValues="true" hidden="true" identifier="ArticleAttributeType.LK.Name"/>
    </fieldGroup>
  </column>
</definition>


```

5.5.8.7 Logical Keys exploded

Example screen:

Product "Product2G_17857073473518 - Flat screen TV"

> Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)



Product no.: Product2G_17857073473518

Status: 01 New

Header	Text translations selectable	Text translations fixed	All Text tran
Long description:			
Keywords:	No content		
Language	French		
Short description:	Téléviseur à écran plat		
Long description:	No content		
Keywords:	No content		
Language	German		
Short description:	Flachbildfernseher		
Long description:	Hochauflösendes Display!		
Keywords:	No content		
Language	Italian		
Short description:	No content		
Long description:	No content		

Definition (product.detailtab.xml):


```

<definition debugId="" i18NKey="All Text translations"
id="sdk.textTranslations.all" permissionId="" rootEntity="Product2G" position="13">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="Product2GLang">
      <field identifier="Product2GLang.DescriptionShort" readOnly="false"/>
      <field identifier="Product2GLang.DescriptionLong" readOnly="false"/>
      <field identifier="Product2GLang.Keyword" readOnly="false"/>
      <logicalKey displayAllValues="true"
identifier="ArticleLangType.LK.Language" selectable="false"/>
    </fieldGroup>
  </column>
</definition>

```

5.5.8.8 Logistic Extension Data with multiple Logical Keys


Use Case:

- Logistic Extension Data has 5 logical keys and can be used to store data to a (sub)set of these keys, e.g. language and customer specific.

Example Screen:

Item "Article_17857073473522 - 55" LED"

Parent product: "Product2G_17857073473518 - Flat screen TV"

Header	Logistic Extensions	Preview	Text	Prices	Media	Classification	Attributes	Kits and Components	Re
 <p>Item no.: Article_17857073473522</p> <p>Status: 01 New</p>	<p>Language: Language independent</p> <p>Units: <input type="text" value="ampere"/></p> <p>Suppliers (inc. main supplier): <input type="text" value="Heiler Product Manager"/></p> <p>Code128: 153</p> <p>GTIN-14: 864</p>								

Definition (article.detailtab.xml):


```

<definition debugId="" i18NKey="Logistic Extensions"
id="sdk.item.logisticExtensions" permissionId="" rootEntity="Article" position="14">
  <column>
    <fieldGroup displaySectionWidget="true"
subEntityId="ArticleLogisticExtension">
      <field identifier="ArticleLogisticExtension.Code128" readOnly="false"/>
    >
      <field identifier="ArticleLogisticExtension.Ean14" readOnly="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLogisticExtensionType.LK.Classifier"
value="ArticleLogisticExtension" selectable="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLogisticExtensionType.LK.Territory" value="WORLD"
selectable="false"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLogisticExtensionType.LK.PartyMS" value="3[]" selectable="true"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLogisticExtensionType.LK.PackagingUnit" value="134[]"
selectable="true"/>
      <logicalKey displayAllValues="false"
identifier="ArticleLogisticExtensionType.LK.Language" value="-1" selectable="false"/>
    </fieldGroup>
  </column>
</definition>

```

5.5.8.9 Fullqualified Purchase Prices

Use Case:

Allow viewing and editing of full qualified prices. Note: Listing of all available prices is not possible using XML definitions.

Example Screen:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)

Product no.:	!%web.client.product.tab.head.tabname!	Text translations selectable	Text translations fixed	Purchase Prices	All Text trans
Product2G_17857073473518	Net customer price EUR:	500.00	Net customer price USD:	552.74	
Status:	Non-binding price recom. EUR:	555.00	Non-binding price recom. USD:	613.55	
01 New					

Definition (product.detailtab.xml):


```

<definition debugId="" i18NKey="Purchase Prices" id="sdk.productprices"
  permissionId="" position="12" rootEntity="Product2G">
  <column>
    <fieldGroup subEntityId="Product2GPriceValueSales"
      displaySectionWidget="false">
      <field identifier="Product2GPriceValueSales.Amount" caption="Net customer
price EUR" />
      <logicalKey identifier="ArticlePriceType.LK.Type" value="3" />
      <logicalKey identifier="ArticlePriceType.LK.Currency"
        value="EUR" />
    </fieldGroup>
    <fieldGroup subEntityId="Product2GPriceValueSales"
      displaySectionWidget="false">
      <field identifier="Product2GPriceValueSales.Amount" caption="Non-binding
price recom. EUR" />
      <logicalKey identifier="ArticlePriceType.LK.Type" value="5" />
      <logicalKey identifier="ArticlePriceType.LK.Currency"
        value="EUR" />
    </fieldGroup>
  </column>
  <column>
    <fieldGroup subEntityId="Product2GPriceValueSales"
      displaySectionWidget="false">
      <field identifier="Product2GPriceValueSales.Amount" caption="Net customer
price USD" />
      <logicalKey identifier="ArticlePriceType.LK.Type" value="3" />
      <logicalKey identifier="ArticlePriceType.LK.Currency"
        value="USD" />
    </fieldGroup>
    <fieldGroup subEntityId="Product2GPriceValueSales"
      displaySectionWidget="false">
      <field identifier="Product2GPriceValueSales.Amount" caption="Non-binding
price recom. USD" />
      <logicalKey identifier="ArticlePriceType.LK.Type" value="5" />
      <logicalKey identifier="ArticlePriceType.LK.Currency"
        value="USD" />
    </fieldGroup>
  </column>
</definition>

```

5.5.8.10 Editable Item Preview Panel


Use Case:

Allow fast editing of very often needed fields without having to switch tabs, e.g. Status field.

Example Screen:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)



Product no.: Product2G_17857073473518

Status: 01 New

Header	Text translations selectable	Prices
Product no.:	Product2G_17857073473518	
Status:	01 New	
Manufacturer product no.:	No content	
Manufacturer:	No content	
Last changed by:	Administrator	
Last changed on:	7/13/2015 5:30	

01 New

02 Purchase prices OK

03 Selling prices OK

04 Commercial data OK

05 Initial classification OK

06 Long description OK

07 Attributes OK

08 Internet image OK

09 Print image OK

1-9/10

Definition (product.detailoverview.xml):


```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<formDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="FormDefinitions.xsd">
  <definition position="2147483647" rootEntity="Product2G">
    <column>
      <fieldGroup displaySectionWidget="true">
        <field identifier="Product2G.ProductNo" readOnly="true"/>
        <field identifier="Product2G.CurrentStatus" readOnly="false"/>
      </fieldGroup>
    </column>
  </definition>
</formDefinitions>
```


5.5.8.11 Display Structure Group Assignment

Use Case: Display the structure group assignment of a given structure system.

Example Screen:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)

Head 2	Header	Text translations selectable	Text translations fixed	Purchase Prices	All Text translations	Preview	Text	Prices	M
									
Product no.:		Product2G_17857073473518							
Status:		01 New							
Manufacturer product no.:		No content							
Manufacturer:		No content							
Last changed by:		Administrator							
Last changed on:		7/14/2015 1:26 PM							
Structure groups:		No content							

Definition (product.detailtab.xml):


```

<definition debugId="product_head_tab" i18NKey="Head 2" permissionId="com.heiler.
ppm.web.app.view.detail.product.tabs.HeadTab" position="10" rootEntity="Product2G">
  <column>
    <fieldGroup>
      <field identifier="Product2G.ProductNo"/>
      <field identifier="Product2G.CurrentStatus"/>
      <field identifier="Product2G.ManufacturerAID"/>
      <field identifier="Product2G.ManufacturerName"/>
      <field identifier="Product2GLog.ModificationUser"/>
      <field identifier="Product2GLog.ModificationDate"/>
    </fieldGroup>
    <fieldGroup subEntityId="Product2GStructureMap" displaySectionWidget="false">
      <field identifier="Product2GStructureMap.StructureGroup" readOnly="true"/>
      <!-- StructureId can be taken from url in Product 360 Web when
navigating to structure group. -->
      <logicalKey identifier="ArticleStructureMapType.LK.StructureId" value="
10000" />
    </fieldGroup>
  </column>
</definition>

```


5.5.8.12 Editable List of Sub Entities

Use Case: Show a list of all available subentities to an entity (e.g. item) and provide CRUD functionality.

Example Screen:

Item "Article_17857073473522 - 55" LED"

> Parent product: "Product2G_17857073473518 - Flat screen TV"



Item no.:
Article_17857073473522

Status:
01 New

Header
Article Logistic Extensions
Preview
Text
Prices
Media
Classification
Attributes
Kits and Components

Supplier/customer	Packing unit	Code39	GTIN-14
Heiler Product Manager	ampere		864
Heiler Product Manager	a millionth of a meter		

Definition (article.detailtab.xml)


```

<definition id="sdk.item.list.subentities.editable" rootEntity="Article" i18NKey="
Article Logistic Extensions" position="14">
  <column>
    <tableGroup>
      <actionPanel>
        <actionButton action="create"/>
        <actionButton action="delete"/>
        <actionButton action="edit"/>
        <fieldFormGroup>
          <field identifier="ArticleLogisticExtension.Party"/>
          <field identifier="ArticleLogisticExtension.PackagingUnit"/>
          <field identifier="ArticleLogisticExtension.Code39"/>
          <field identifier="ArticleLogisticExtension.Ean14"/>
        </fieldFormGroup>
      </actionPanel>
      <tableDefinition rootEntity="ArticleLogisticExtension">
        <field identifier="ArticleLogisticExtension.Party"/>
        <field identifier="ArticleLogisticExtension.PackagingUnit"/>
        <field identifier="ArticleLogisticExtension.Code39"/>
        <field identifier="ArticleLogisticExtension.Ean14"/>
      </tableDefinition>
    </tableGroup>
  </column>
</definition>

```

5.5.8.13 Editable List of Retail Prices for Items


Please note that only basic editing functionality for prices is supported. As of version 7.1, the following restrictions exist:

- Price tiers are not handled correctly, ie. price list doesn't automatically show all available price tiers as columns like in Product 360 Desktop. Hence, only a single price tier is supported.
- Custom fields cannot be edited due to a bug.

Example Screen:

Item "Article_92940804911123"

> Parent product: "Product2G_92940804911119"



Item no.:
Article_92940804911123

Status:
01 New

Header
Grouped Logical Keys
Logistic Extensions
Article Logistic Extensions
Preview
Article Retail Prices
Text
Prices
Media
C

Customer	Currency	Price type	Valid in region	Price
<Public>	Euro	Net customer price	Germany	500.00
<Public>	Euro	Non-binding price recommendation	Germany	222.00
Heiler Product Manager	Euro	Net customer price	Germany	753.00

Definition (article.detailtab.xml):

```

<definition id="sdk.salesPricesEditable" rootEntity="Article" i18NKey="Article Retail
Prices" position="15">
  <column>
    <tableGroup>
      <actionPanel>
        <actionButton action="create"/>
        <actionButton action="delete"/>
        <actionButton action="edit"/>
        <fieldFormGroup subEntityId="ArticlePriceValueSales">
          <field identifier="ArticlePriceSales.BuyerId"/>
          <field identifier="ArticlePriceSales.Currency"/>
          <field identifier="ArticlePriceSales.PriceType"/>
          <field identifier="ArticlePriceSales.Territory"/>
          <field identifier="ArticlePriceValueSales.Amount"/>
        </fieldFormGroup>
      </actionPanel>
      <tableDefinition rootEntity="ArticlePriceSales">
        <field identifier="ArticlePriceSales.BuyerId"/>
        <field identifier="ArticlePriceSales.Currency"/>
        <field identifier="ArticlePriceSales.PriceType"/>
        <field identifier="ArticlePriceSales.Territory"/>
        <field identifier="ArticlePriceValueSales.Amount" caption="Price"/>
      </tableDefinition>
    </tableGroup>
  </column>
</definition>

```


5.5.8.14 Display Transition Fields in Detail Tab Lists, e.g. Short Description for References

Lists within detail tabs also support transition fields. This is especially useful for the list of referenced items.

Example:

Product "Product2G_17857073473518 - Flat screen TV"

Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)

Purchase Prices All Text translations Preview Text Prices Media Classification Attributes Items of the product References

Product no.: Product2G_17857073473518
Status: 01 New

Reference type	Referenced object type	Referenced object number	Number	Sequence	Short description
Accessories	Product	100	1	5	
Accessories	Item	110	1	3	

This example requires to create two new transition fields in repository (3 in case of 3-tier product paradigm). Please see the screen for details.

Repository application

File Edit Repository editor Window Help

Repository.repository

type filter text

- P2I Ref Short Description
- P2P Ref Short Description
- P2V Ref Short Description
- Quality message (Rule selectable)
- Quality message (Rule selectable)
- Quality message (Rule selectable)

Selected object: P2I Ref Short Description

Properties

Property	Value
Active	true
Identifier	refShortDesc
Name	P2I Ref Short Description
Source Field	Product2G2ArticleReference.ReferencedArticle
Target Field	ArticleLang.DescriptionShort
Visible	true

Repository application

File Edit Repository editor Window Help

Repository.repository

type filter text

- P2I Ref Short Description
- P2P Ref Short Description
- P2V Ref Short Description
- Quality message (Rule selectable)
- Quality message (Rule selectable)
- Quality message (Rule selectable)

Selected object: P2P Ref Short Description

Properties

Property	Value
Active	true
Identifier	refShortDesc
Name	P2P Ref Short Description
Source Field	Product2GReference.ReferencedProduct2G
Target Field	Product2GLang.DescriptionShort
Visible	true

product.references.listmodel.xml

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tableDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="TableDefinitions.xsd">

  <definition rootEntity="Product2GReference">
    <field identifier="Product2GReference.Type"/>
    <field identifier="Product2GReference.ReferencedEntityId"/>
    <field identifier="Product2GReference.ReferencedProductNo"/>
    <field identifier="Product2GReference.Quantity"/>
    <field identifier="Product2GReference.DisplayOrder"/>

    <field identifier="Product2GReference.ReferencedProduct2G" >
      <transitionField identifier="Product2GLang.DescriptionShort" >
        <logicalKey identifier="ArticleLangType.LK.Language" value="9"/>
      </transitionField>
    </field>

  </definition>

  <definition rootEntity="Product2G2ArticleReference">
    <field identifier="Product2G2ArticleReference.Type"/>
    <field identifier="Product2G2ArticleReference.ReferencedEntityId"/>
    <field identifier="Product2G2ArticleReference.ReferencedProductNo"/>
    <field identifier="Product2G2ArticleReference.Quantity"/>
    <field identifier="Product2G2ArticleReference.DisplayOrder"/>

    <field identifier="Product2G2ArticleReference.ReferencedArticle" >
      <transitionField identifier="ArticleLang.DescriptionShort" >
        <logicalKey identifier="ArticleLangType.LK.Language" value="9"/>
      </transitionField>
    </field>

  </definition>

</tableDefinitions>

```

Magic around references

Please note that the handling of the listmodel definitions for references is special. In the Product 360 datamodel, links to each entity (Item, Product, Variant) are represented in a separate sub entity. Thus the file *.references.listmodel.xml contains 2 definitions (3 if variants are used, too). At runtime all these definitions are merged into a single table. That means, that the fields of the definitions must be matching (reference the same field type).

If you want to add another field, this needs to be done in all definitions at the same position. See DescriptionShort field in the above example.

5.5.8.15 Single Logical Key Selector for Multiple Subentities

Use Case:

In some cases, multiple fields from different sub entities should be displayed on a single detail tab. If these fields belong to the same entityType, the user wants to select the logical key only once instead of multiple times. This also makes sense, if different subentities share the same logical key, e.g. a qualification by language.


Per default, logical key selectors are generated per fieldFormGroup. Fields from different subEntities need to be grouped in separate fieldFormGroups. Using the syntax "enumGrouping" allows to extract the logical key selector from the fieldFormGroup level to the column level.

Example:

Two price values from ArticlePriceValuePurchase and ArticlePriceValueSales subentity with shared Currency selector:

Item "Article_17857073473522 - 55' LED"

> Parent product: "Product2G_17857073473518 - Flat screen TV"



Item no.: Article_17857073473522

Status: 03 Selling prices OK

Header

Grouped Logical Keys

Logistic Extensions

Article Logistic Extensions

Preview

Currencies

Euro

Net list Purchase Price:

450.00

Net Customer Selling Price:

499.00

article.detailtab.xml:


```

<definition debugId="sdk.enumGrouping" i18NKey="Grouped Logical Keys" rootEntity="
Article" position="11">
  <column>
    <enumGrouping enumIdentifier="Enum.Currency" selectable="true"/>
    <fieldGroup subEntityId="ArticlePriceValuePurchase" displaySectionWidget="
true">
      <field identifier="ArticlePriceValuePurchase.Amount" caption="Net
list Purchase Price" />

      <logicalKey identifier="ArticlePriceType.LK.PartyMS" hidden="true"
value="&lt;Main supplier&gt;"/>
      <logicalKey identifier="ArticlePriceType.LK.Territory" hidden="true"
value="Germany"/>
      <logicalKey identifier="ArticlePriceType.LK.ValidAt" hidden="true"
value="now"/>
      <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" hidden="
true" value="1"/>

      <logicalKey identifier="ArticlePriceType.LK.Type" value="1" hidden="t
rue"/>
      <logicalKey identifier="ArticlePriceType.LK.Currency" value="EUR"
selectable="true"/>
    </fieldGroup>
    <fieldGroup subEntityId="ArticlePriceValueSales" displaySectionWidget="tr
ue">
      <field identifier="ArticlePriceValueSales.Amount" caption="Net
Customer Selling Price" />

      <logicalKey identifier="ArticlePriceType.LK.PartyMS" hidden="true"
value="&lt;Public&gt;"/>
      <logicalKey identifier="ArticlePriceType.LK.Territory" hidden="true"
value="Germany"/>
      <logicalKey identifier="ArticlePriceType.LK.ValidAt" hidden="true"
value="now"/>
      <logicalKey identifier="ArticlePriceValueType.LK.LowerBound" hidden="
true" value="1"/>

      <logicalKey identifier="ArticlePriceType.LK.Type" value="3" hidden="t
rue"/>
      <logicalKey identifier="ArticlePriceType.LK.Currency" value="EUR"
selectable="true"/>
    </fieldGroup>
  </column>
</definition>

```


5.5.8.16 List of all references to items, but not to other entities (with optional filter)

Shows a list of all references to other items together with GTIN and ShortDescription using transition fields.

Example Screen:

Item "Article_17857073473522 - 55' LED"

Parent product: "Product2G_17857073473518 - Flat Screen TV"



Item no.:
Article_17857073473522
Status:
03 Selling prices OK

Header
Grouped Logical Keys
References to Items
Logistic Extensions
Article Logistic Extensions
Preview

Reference type	Referenced object number	Number	Sequence	GTIN	Short desc
Accessories	200	1	5		
Component	1000	1			
Other reference	1	1	10		

article.detailtab.xml:

```

<definition i18NKey="References to Items" position="11" rootEntity="Article">
  <column>
    <tableGroup>
      <actionPanel>
        <actionButton action="create" />
        <actionButton action="edit" />
        <actionButton action="delete" />
        <fieldFormGroup subEntityId="ArticleReference">
          <field identifier="ArticleReference.Type"/>
          <field identifier="ArticleReference.ReferencedSupplierAid" />
          <field identifier="ArticleReference.Quantity" />
          <field identifier="ArticleReference.DisplayOrder" />
        </fieldFormGroup>
      </actionPanel>
      <tableDefinition rootEntity="ArticleReference">
        <field identifier="ArticleReference.Type"/>
        <field identifier="ArticleReference.ReferencedSupplierAid" />
        <field identifier="ArticleReference.Quantity" />
        <field identifier="ArticleReference.DisplayOrder" />
        <field identifier="ArticleReference.ReferencedArticle">
          <transitionField identifier="Article.EAN" />
        </field>
        <field identifier="ArticleReference.ReferencedArticle">
          <transitionField identifier="ArticleLang.DescriptionShort" />
        </field>
      </tableDefinition>
    </tableGroup>
  </column>
</definition>

```

List of references to products, that is additionally filtered to show only references of type "accessories":

Example Screen:

Product "Product2G_17857073473518 - Flat Screen TV"

Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)

Thumbnail:
No content

Product no.:
Product2G_17857073473518
Last changed by:
Administrator

Text translations fixed
Purchase Prices
All Text translations
Accessories of the product
Preview
Text
Pr

Reference type ▲	Referenced object number	Number	Sequence	GTIN	Short desc
Accessories	100	1	5		

product.detailtab.xml:

```

<definition i18NKey="Accessories of the product" position="13" rootEntity="Article">
  <column>
    <tableGroup>
      <actionPanel>
        <actionButton action="create" />
        <actionButton action="edit" />
        <actionButton action="delete" />
        <fieldFormGroup subEntityId="Article2Product2GReference">
          <field identifier="Article2Product2GReference.Type"/>
          <field identifier="Article2Product2GReference.ReferencedSupplierAid"/>
          <field identifier="Article2Product2GReference.Quantity"/>
          <field identifier="Article2Product2GReference.DisplayOrder"/>
        </fieldFormGroup>
      </actionPanel>
      <tableDefinition rootEntity="Article2Product2GReference">
        <field identifier="Article2Product2GReference.Type"/>
        <field identifier="Article2Product2GReference.ReferencedSupplierAid"/>
        <field identifier="Article2Product2GReference.Quantity"/>
        <field identifier="Article2Product2GReference.DisplayOrder"/>
        <field identifier="ArticleReference.ReferencedArticle">
          <transitionField identifier="Article.EAN"/>
        </field>
        <field identifier="ArticleReference.ReferencedArticle">
          <transitionField identifier="ArticleLang.DescriptionShort"/>
        </field>
      </tableDefinition>
      <logicalKey identifier="ArticleReferenceType.LK.ReferenceType"
selectable="false" hidden="true" value="accessories"/>
    </tableGroup>
  </column>
</definition>

```


5.5.8.17 Example for combination of <fieldGroup> and <tableGroup> in one custom tab

In the case, that the page length of the defined table will be around 100 and you want to use fieldGroup and tableGroup as a combination in the same custom tab together a fetchSize should be defined for the table that roughly matches the table records. This will allow the table to grow to the max of records stored and up to the defined fetchSize number.

```
<definition debugId="example1" i18NKey="%example1" position="190" rootEntity="Article">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="ArticleLang">
      <field identifier="ArticleLang.DescriptionShort"/>
    </fieldGroup>
    <tableGroup>
      <tableDefinition rootEntity="ArticleReference" fetchSize="100">
        <field identifier="ArticleReference.ReferencedArticle" sortable="true"
          <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Language" value="{user.language}"/>
          <transitionField identifier="ArticleMediaAssetDocument.ImageIdentifier"/>
        </field>
        <field identifier="ArticleReference.Type" sortable="true"/>
        <field identifier="ArticleReference.ReferencedEntityId" sortable="true"/>
        <field identifier="ArticleReference.ReferencedSupplierAid" sortable="true"/>
        <field identifier="ArticleReference.Quantity" sortable="true"/>
        <field identifier="Article2Product2GReference.DisplayOrder" sortable="true"/>
        <field identifier="ArticleReference.ReferencedArticle" sortable="true"
          <transitionField identifier="Article.EAN"/>
        </field>
        <field identifier="ArticleReference.ReferencedArticle" sortable="true"
          <transitionField identifier="ArticleLang.DescriptionShort"/>
        </field>
      </tableDefinition>
    </tableGroup>
  </column>
</definition>
```


Item "Article_194881074008752"

Item no.: Article_194881074008752
Status: 01 New

Language: English
Short description: No content

Thumbnail	Reference type	Referenced object type	Referenced object number	Number	Sequence	GTIN	Short description
	Accessories	Item	Article_194881074008753	1			
	Accessories	Item	Article_194881074008754	1			
	Accessories	Item	Article_194881074008755	1			
	Accessories	Item	Article_194881074008756	1			
	Accessories	Item	Article_194881074008757	1			
	Accessories	Item	Article_194881074008758	1			
	Accessories	Item	Article_194881074008759	1			
	Accessories	Item	Article_194881074008760	1			
	Accessories	Item	Article_194881074008761	1			

5.5.8.18 Parameterized Detail Tab Definition Examples

This pages provides example configurations for providing multiple tabs of the same type of detail tab, based on different parameters.

- [Characteristics Detail Tab](#)(see page 172)
 - [Tab Attributes](#)(see page 172)
 - [Tab Parameters](#)(see page 172)
 - [Display all categories in a single tab](#)(see page 173)
 - [Display separate categories in separate tabs](#)(see page 173)
 - [Filter Behavior](#)(see page 175)
- [Preview Detail Tab](#)(see page 175)
 - [Tab Attributes](#)(see page 176)
 - [Tab Parameters](#)(see page 176)
 - [Display all preview templates in the drop-down in a single tab](#)(see page 177)
 - [For single entity selection](#)(see page 177)
 - [For multiple entity selection](#)(see page 177)
 - [Display separate templates in separate tabs](#)(see page 178)
 - [For single entity selection](#)(see page 178)
 - [For multiple entity selection](#)(see page 179)
 - [Filter Behavior](#)(see page 180)

The parameterized detail tabs allows to customize detail tabs based on some given parameters. Essentially it is used to restrict the amount of data being displayed in the tab and by having the ability to create multiple such parameterized detail tabs, users can control which is the essential data and how it needs to be viewed.

i As of now, only **Characteristics** and **Preview** detail tab can accept parameters and multiple **Characteristics** and **Preview** detail tabs can be rendered in the Detail View.

Characteristics Detail Tab

Tab Attributes

Name	M(andatory) O(ptional)	Example values	Description
id	M	e.g. "CharacteristicTab2"	Id of the tab
rootEntity	M	Article	The root entity associated with the tab
tabType	M	Characteristic	The type of tab that needs to be parameterized.
i18NKey	M	e.g. "CHAR_TAB2"	Tab name on the header of the tab
permissionId	M	e.g. "web.article.detail.tabs.characteristics2"	Permission to display the tab in the detail view
parameter	O	filterCategories filterType	Parameter used to display the required categories

Tab Parameters

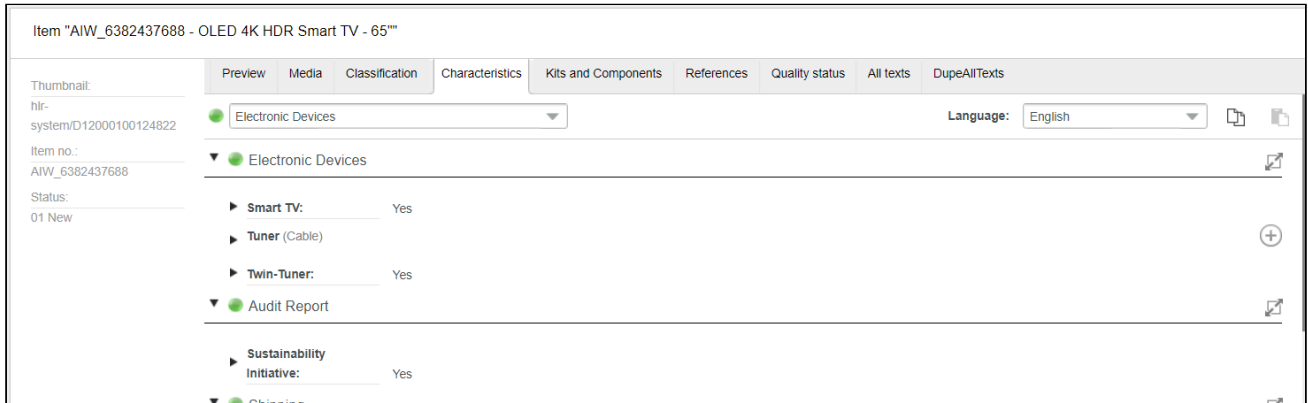
Parameter name	M(andatory) O(ptional)	Example values	Description
filterCategories	O	e.g. "Shipping" "CareInstructions, AuditReport" "ElectronicDevices"	Comma separated category codes which should be displayed or not displayed
filterType	O	include (default) exclude	Type of filter to be applied on the supplied category names

At max one pair of filterCategories and filterType is allowed per tab.

Display all categories in a single tab

This is the default behavior where all categories are displayed in a single tab.

Example screen:



Definition (article.detailtab.parameterized.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="Characteristics" id="articleCharacteristicDetailTab" permissionId="
web.article.detail.tabs.characteristics" position="61" rootEntity="Article" tabType="
Characteristic"/>
</tabDefinitions>
```

Display separate categories in separate tabs

Here we are displaying two tabs -

1. Tab named "Characteristics " is showing Characteristics belonging to all categories except "Electronic Devices"
2. Tab named "Electronic Devices" is showing Characteristics belonging to only "Electronic Devices"

Example screens:

Item "AIW_6382437688 - OLED 4K HDR Smart TV - 65"

Thumbnail:	Preview	Media	Classification	Characteristics	Electronic Devices	Kits and Components	References	Quality status	All texts	DupeAllTexts
hlr-system/D12000100124822	<div> <div></div> <div>Audit Report</div> </div>				Language: English					
Item no.: AIW_6382437688	<div> <div></div> <div>Audit Report</div> </div>									
Status: 01 New	<div> <div></div> <div> <div>Sustainability Initiative:</div> <div>Yes</div> </div> </div>									
	<div> <div></div> <div>Shipping</div> </div>									
	<div> <div></div> <div> <div>Channel (Internet; Store)</div> <div>Return Policy</div> </div> </div>									

Item "AIW_6382437688 - OLED 4K HDR Smart TV - 65"

Thumbnail:	Preview	Media	Classification	Characteristics	Electronic Devices	Kits and Components	References	Quality status	All texts	DupeAllTexts
hlr-system/D12000100124822	<div> <div></div> <div>Electronic Devices</div> </div>				Language: English					
Item no.: AIW_6382437688	<div> <div></div> <div>Electronic Devices</div> </div>									
Status: 01 New	<div> <div></div> <div> <div>Smart TV:</div> <div>Yes</div> </div> </div>									
	<div> <div></div> <div> <div>Tuner (Cable)</div> <div>Twin-Tuner:</div> <div>Yes</div> </div> </div>									

Definition (article.detailtab.parameterized.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="Characteristics" id="articleCharacteristicDetailTab" permissionId="
web.article.detail.tabs.characteristics" position="61" rootEntity="Article" tabType="
Characteristic">
    <parameter name="filterCategories" value="ElectronicDevices"/>
    <parameter name="filterType" value="exclude"/>
  </tab>
  <tab i18NKey="Electronic Devices" id="articleCharacteristicDetailTab2"
permissionId="web.article.detail.tabs.characteristics2" position="62" rootEntity="Art
icle" tabType="Characteristic">
    <parameter name="filterCategories" value="ElectronicDevices"/>
    <parameter name="filterType" value="include"/>
  </tab>
</tabDefinitions>
```


Filter Behavior

filterCategories	filterType	Tab Visibility	Categories displayed
parameter present - comma separated values	parameter present	Yes	Categories mentioned (include or exclude)
parameter present - comma separated values	parameter not present	Yes	Categories mentioned (include)
parameter present - empty value	parameter present - empty value	Yes	All Categories
parameter present - incorrect or empty value	parameter present or not present	No	-
parameter not present	parameter not present	Yes	All Categories
parameter not present	parameter present	No	-
parameter present or not present	parameter present - incorrect or empty value	No	-


 Invalid filterCategories or filterType will lead to a log entry.

NOTE

- If same parameter is mentioned multiple times in one tab, then values will be overwritten by the last one.
- The copy action on the top right corner of the component will filter down to the categories visible (and not all categories assigned to the item).

With 8.2. this functionality is also available for Products and Variants. To configure it the corresponding files product.detailtab.parameterized.xml and variant.detailtab.parameterized.xml have to be adjusted.

Preview Detail Tab

 Modification of **Preview** detail tab for single entity selection and multiple entity selection requires modifications in different XMLs. Just the tabType must be different in tab definitions in both the XMLs

Tab Attributes

Name	M(andatory) O(ptional)	Example values	Description
id	M	e.g. "ArticlePreviewTab4"	Id of the tab
rootEntity	M	Article Product Variant Structure	The root entity associated with the tab
tabType	M	Preview ListPreview	The type of tab that needs to be parameterized. Preview Tab for multi-selection of entities
i18NKey	M	e.g. "My_Preview4"	Tab name on the header of the tab
permissionId	M	e.g. "web.article.detail.tabs.preview4"	Permission to display the tab in the detail view
parameter	O	templateName hasOpenInNewWindow	Parameter used to display the required template Parameter used to hide "open in new window" link

Tab Parameters

Parameter name	M(andatory) O(ptional)	Example values	Description
templateName	O	e.g. "Product - Web, Comparison" "Item Hierarchy template"	Name of the template which user wants to display in preview tab
hasOpenInNewWindow	O	true (default) false	To hide the "open in new window" link in specific previews

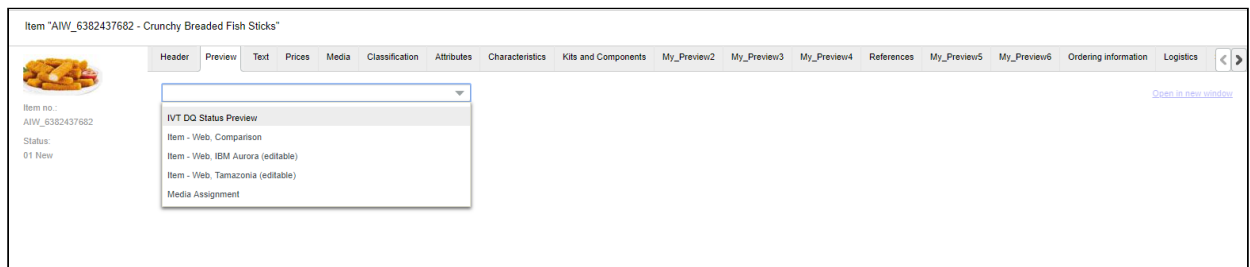
At max one pair of templateName and hasOpenInNewWindow is allowed per tab.

Display all preview templates in the drop-down in a single tab

- For single entity selection

This is the default behavior where all preview templates are in the drop-down to select from.

Example screen:



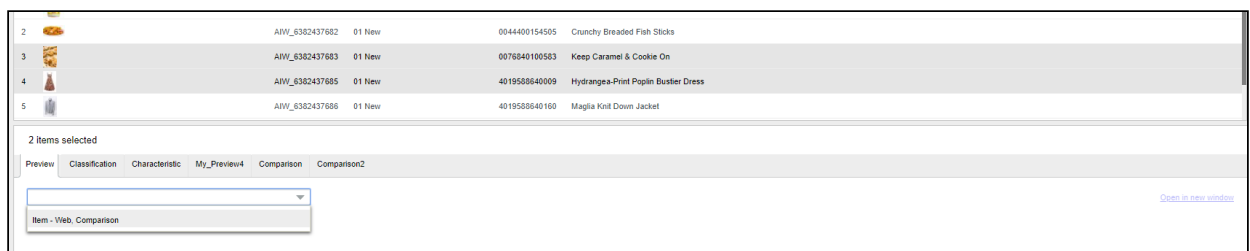
Definition (article.detailtab.parameterized.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="Preview" id="articlePreviewTab" permissionId="web.article.detail.ta
bs.multichannelpreview" position="15" rootEntity="Article" tabType="Preview"/>
</tabDefinitions>
```

- For multiple entity selection

This is the default behavior where all preview templates are in the drop-down to select from.

Example screen:



Definition (article.list.detailtab.parameterized.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="Preview" id="articlePreviewTab" permissionId="web.article.detail.ta
bs.multichannelpreview" position="15" rootEntity="Article" tabType="ListPreview"/>
</tabDefinitions>
```

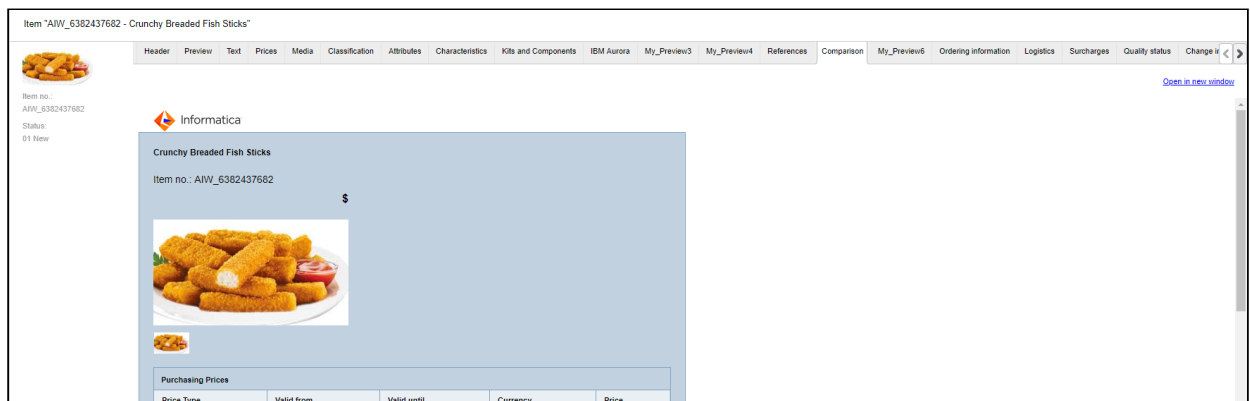
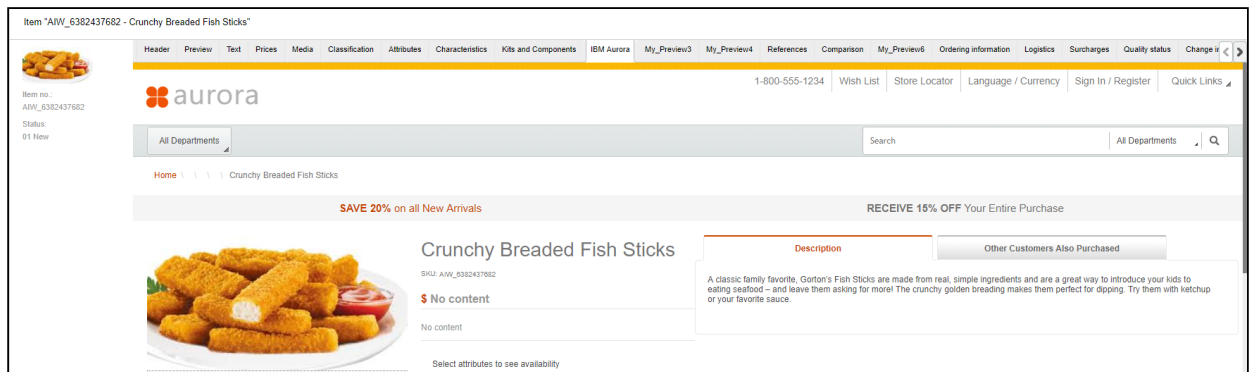

Display separate templates in separate tabs

- For single entity selection

Here we are displaying two tabs -

- Tab named "IBM Aurora" is showing "Item - Web, IBM Aurora (editable)" preview template opened in it with "open in new window" link hidden.
- Tab named "Comparison" is showing "Item - Web, Comparison" preview template opened in it with "open in new window" link visible by default.

Example screens:



Definition (article.detailtab.parameterized.xml)


```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="IBM Aurora" id="ArticlePreviewTab2" permissionId="web.article.detail.tabs.preview2" position="66" rootEntity="Article" tabType="Preview">
    <parameter name="templateName" value="Item - Web, IBM Aurora (editable)"/>
    <parameter name="hasOpenInNewWindow" value="false"/>
  </tab>
  <tab i18NKey="Comparison" id="ArticlePreviewTab5" permissionId="web.article.detail.tabs.preview5" position="71" rootEntity="Article" tabType="Preview">
    <parameter name="templateName" value="Item - Web, Comparison"/>
  </tab>
</tabDefinitions>
```

- For multiple entity selection

Here we are displaying one tab -

- Tab named "Comparison" is showing "Item - Web, Comparison" preview template opened in it with "open in new window" link visible by default for 2 item selection.

Example screen:

The screenshot displays the Informatica MDM Product 360 interface. At the top, there is a list of items with columns for item ID, status, and description. Below this, a navigation bar shows several tabs: 'Preview', 'Classification', 'Characteristic', 'My_Preview4', 'Comparison', and 'Comparison2'. The 'Comparison' tab is currently selected. The main content area is divided into two panels, each showing a different item. The left panel displays 'Keep Caramel & Cookie On' with item number AIW_6382437683. The right panel displays 'Hydrangea-Print Poplin Bustier Dress' with item number AIW_6382437685. Each panel includes an image of the item, a price tag, and a table for 'Purchasing Prices' and 'Selling Prices'. The 'Purchasing Prices' table has columns for 'Price Type', 'Valid from', 'Valid until', 'Currency', and 'Price'. The 'Selling Prices' table has columns for 'Price Type', 'Valid from', 'Valid until', 'Currency', and 'Price'. A link 'Open in new window' is visible in the top right corner of the comparison view.

Definition (article.list.detailtab.parameterized.xml)


```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="Comparison" id="ArticlePreviewTab5" permissionId="web.article.detail.tabs.preview5" position="71" rootEntity="Article" tabType="ListPreview">
    <parameter name="templateName" value="Item - Web, Comparison"/>
  </tab>
</tabDefinitions>
```

Filter Behavior

templateName	hasOpenInNew Window	Tab Visibility	Behaviour
Parameter not present	parameter present	Yes	Preview Tab with the template dropdown (Default)
Parameter present, Correct Value	parameter present	Yes	Preview Tab with only the supplied template and 'open in new window' (true or false)
Parameter present, Incorrect Value	parameter present	No	Hide Preview Tab
Parameter not present	parameter not present	Yes	Preview Tab with the template dropdown (Default)
Parameter present, Correct Value	parameter not present	Yes	Preview Tab with only the supplied template and 'open in new window' visible
Parameter present, Incorrect Value	parameter not present	No	Hide Preview Tab

 *Invalid templateName will lead to a log entry.*

NOTE

- If same parameter is mentioned multiple times in one tab, then values will be overwritten by the last one.

5.5.9 Action menu definition examples

- [Overview](#)(see page 181)
 - [Possible customization](#)(see page 182)
 - [Limitations](#)(see page 183)
 - [Example definition](#)(see page 184)

5.5.9.1 Overview

With XML configuration for action menus it is possible to specify the order and visibility of list action menus. This configuration is used as default for all users, however, users can override the configuration in Product 360 Web UI.

The following files define the menus for each root entity:

- article.list.actionmenu.xml
- product.list.actionmenu.xml
- variant.list.actionmenu.xml
- structure.list.actionmenu.xml
- task.list.actionmenu.xml

- article.fulltextsearch.list.actionmenu.xml
- variant.fulltextsearch.list.actionmenu.xml
- product.fulltextsearch.list.actionmenu.xml

Configure menu settings

Please select actions to be visible in the current menu and your favorite actions to be displayed to the left of the action menu button.

▼ Maintain

Create product

☒

☒

Delete product

☒

☐

Clone product

☒

☐

Classify product

☒

☐

▼ Tasks

Create task

☒

☐

Add to existing task

☒

☐

▼ Data

Import Data

☒

☐

Export selected rows

☒

☐

Execute data quality rules

☒

☐

▼ Navigation

To higher-level object

☒

☐

Show items

☒

☒

▼ More Actions

Search and Replace

☒

☐

Reset

OK

Cancel

Possible customization

1. Change groups order
2. Change items order inside group
3. Move items to other group
4. Move item inside other item

5. Remove item
6. Remove group
7. Create new group
8. Change default visibility of item
9. Change if item in favorite area by default
10. Change captions for groups and items (in resource bundle files or directly in xml by providing explicit value)

Limitations

Do not change menu item identifiers as by them system locates concrete classes. Obviously it's impossible to create new menu item by just adding new line in xml file. However you can contribute new menu items programatically using the SDK.

Some areas of the Web UI will only provide a limited set of action items to the user. This is mainly if the context of the objects presented in the table is not clearly defined.

I.e. if the "Search" using the index based SOLR implementation is being used. An index could span multiple catalogs and hence these actions among others are for example not available there:

- Create item: Only works in case you would have the data in the table from a specific catalog only
- Merge: You cannot merge from multiple catalogs simultaneously plus you cannot merge items inside the master catalog.

Example definition

product.list.actionmenu.xml

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<menuDefinition xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:noNamespaceSchemaLocation="MenuDefinition.xsd">
  <menuGroup identifier="menu.item.group.maintain"
i18NKey="%web.common.menu.item.group.maintain">
    <menuItem identifier="menu.item.product.action.clone"
i18NKey="%web.client.product.clone" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.delete"
i18NKey="%web.client.product.delete" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.create"
i18NKey="%web.client.product.create" favorite="true" visible="true"/>
    <menuItem identifier="menu.item.product.action.classify"
i18NKey="%web.product.classification.menu" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.task"
i18NKey="%web.task.menu.item.group.task">
    <menuItem identifier="menu.item.task.action.create"
i18NKey="%web.client.task.create" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.task.action.add"
i18NKey="%web.client.task.add" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.data"
i18NKey="%web.common.menu.item.group.data">
    <menuItem identifier="menu.item.product.dataquality.action.execute"
i18NKey="%web.quality.menu.execute" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.directexport"
i18NKey="%export.exportHint" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.import"
i18NKey="%web.import.list.menu" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.navigation"
i18NKey="%web.common.menu.item.group.navigation">
    <menuItem identifier="menu.item.product.back"
i18NKey="%web.client.button.back.parent" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.drilldown"
i18NKey="%web.client.product.item.drilldown" favorite="true" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.default"
i18NKey="%web.common.menu.item.group.default">
    <menuItem identifier="menu.item.product.action.findandreplace"
i18NKey="%web.client.findandreplace.dialog.title" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.actionconfig"
i18NKey="%web.client.actionconfig.menu.group">

```

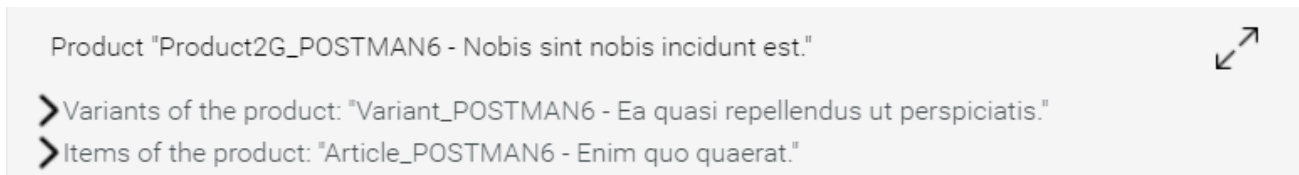


```
<menuItem identifier="menu.item.product.action.actionconfig" favorite="false"
visible="true"/>
</menuGroup>
</menuDefinition>
```

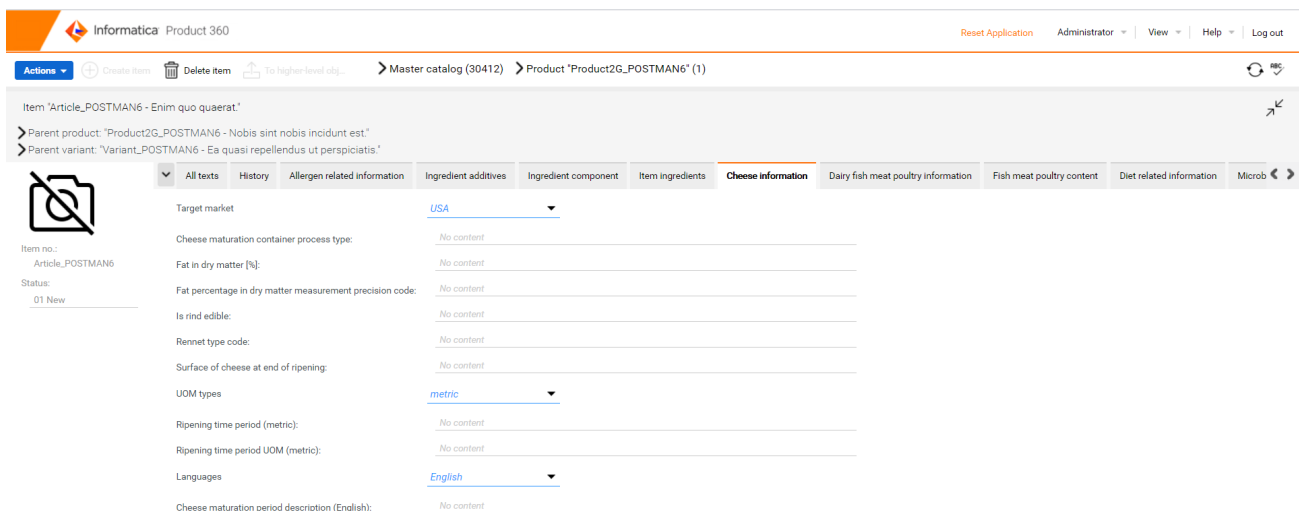
5.5.10 Working With Focus Mode

5.5.10.1 What is Focus Mode?

We have added this functionality to create a distraction-free working space when dealing with a singular item. When in **Focus Mode**, the *Detail View* takes up most of the available screen real-estate, hiding other views like the *Context View* and the *Master List View*. A button in the detail view is used to toggle between the focus mode and the default view.



The image below depicts how the application would look like in Focus mode:



5.5.10.2 Accessibility

The Focus Mode can be triggered using the following keyboard shortcut:

Keyboard Layout	Shortcut
English	Ctrl + Shift + F
German	Strg + Umschalt + F

5.5.10.3 Limitations

Please review the limitations of Focus Mode

To enhance the working space for an item, the Focus Mode trades some functionalities. Please review this list to understand what actions are not possible when in Focus Mode.

The following views are collapsed to give more space to the detail view:

- Context
- Master List
- GDSN
- DQ dashboard

When in focus mode, actions that might lead to a situation when the focus is lost are disabled. Some examples of such restricted operations in Focus Mode are:

- Show assortment content
- Show variants
- Show items
- Search and replace
- Reset sort order (lookup)
- Upload (media)
- Task content
- Assign task/workflow
- Accept task/workflow
- Mark task as completed

Focus mode will exit when deleting items in focus mode.

5.5.11 Detail Tabs Navigation and Configuration

- [Overview](#)(see page 187)
- [Tab list with filter](#)(see page 187)
- [Change tab positions by drag and drop](#)(see page 188)
- [Configure tab visibility](#)(see page 188)
- [Permission to control tab visibility configuration](#)(see page 189)
 - "Customize tabs" permission removed(see page 189)

5.5.11.1 Overview

- Easy navigation through a long list of detail tabs using tab list dropdown and integrated filter.
- Changing the tab positions by drag and drop of the tabs.
- Detail tab visibility configuration to hide detail tabs.

5.5.11.2 Tab list with filter

A dropdown button is situated in the top-left of the tab sheet for all the detail views. On clicking, it lists all the visible detail tabs in alphabetical order along with a filter to easily search and navigate to the required tab.








User can navigate through the tab list using the "**UP**" and "**DOWN**" arrow keys and close the dropdown by pressing "**Esc**".

Actions

Create item

To higher-level obj...

Mix Products (7)

	Thumbnail	Item no.	Status	GTIN	Short description (English)
1		AIW_6382437682	01 New	0044400154505	Crunchy Breaded Fish Sticks
2		AIW_6382437686	01 New	4019588640160	Maglia Knit Down Jacket
3		AIW_6382437683	01 New	0076840100583	Keep Caramel & Cookie On
4		AIW_6382437687	01 New	4019588543263	Painted Leather Biker Jacket
5		AIW_6382437688	01 New	0719192611016	OLED 4K HDR Smart TV - 65"
6		AIW_6382437684	01 New	0048001213470	Real Mayonnaise
7		AIW_6382437685	01 New	4019588640009	Hydrangea-Print Poplin Bustier Dress

Item "AIW_6382437683 - Keep Caramel & Cookie On"

Product 360* view

Header

Preview

Text

Prices


Media

Classification

Attributes

Characteristics

Kits and Components



Item no.:

AIW_6382437683

Status:

01 New

Filter

All texts

Allergen related information

Attributes

Canada-specific GDSN data

Change information

Configure tabs

Channel (Store)

Return Policy


5.5.11.3 Change tab positions by drag and drop

A more convenient way to change the tab position by just dragging it to the preferred location. Tab positions are stored in the browser local storage as well.



5.5.11.4 Configure tab visibility

A tab configuration popup that gets open when clicked on the last entry of the tab list drop down

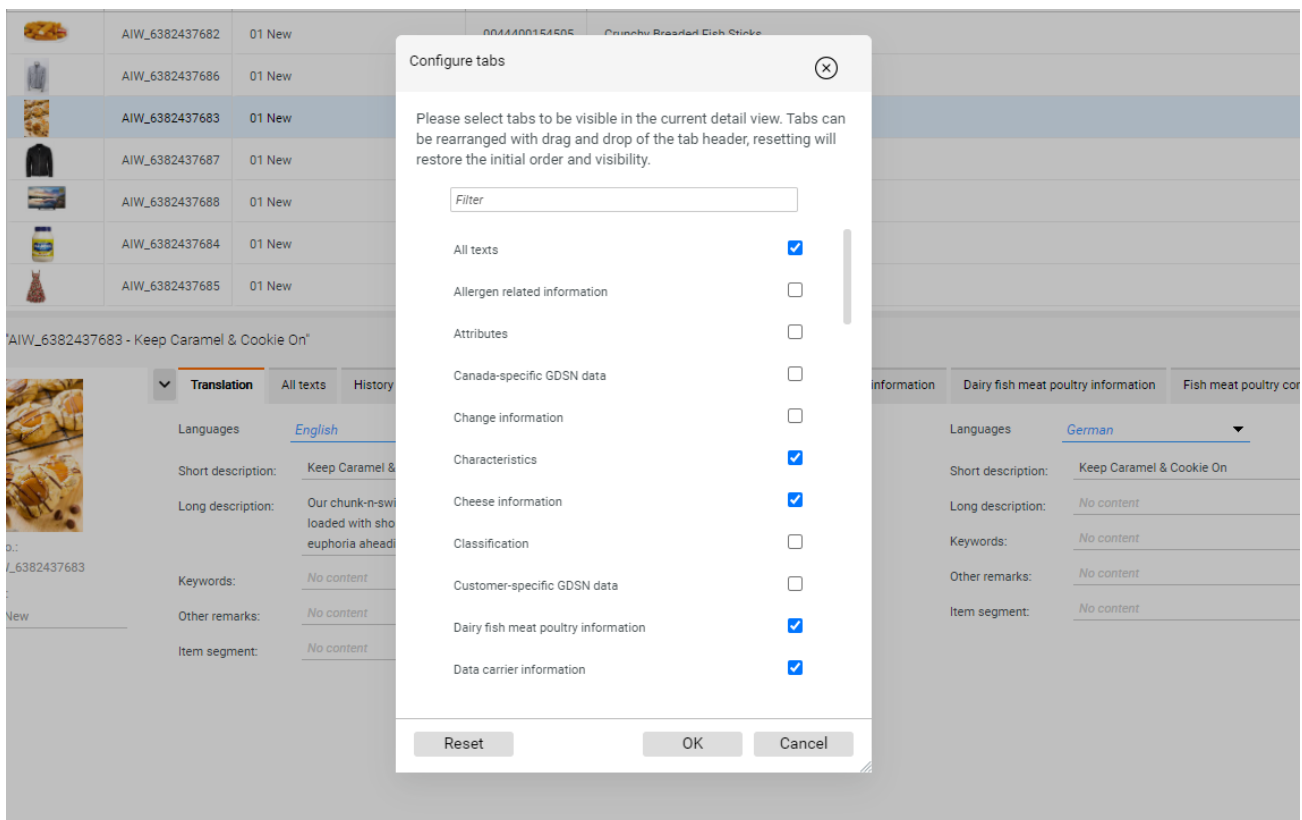
 **Configure tabs**. This popup lists all the detail tabs alphabetically with the corresponding checkbox for the tab visibility.

An integrated filter allows users to search for the required tab easily and modify visibility.

OK - Updates all the changes that were made after opening the "Configure tabs" popup.

CANCEL - Discard all the changes done after the last saved state.

RESET - Makes all the detail tabs visible and restores tab positions from the corresponding tab detail.tab.xml's



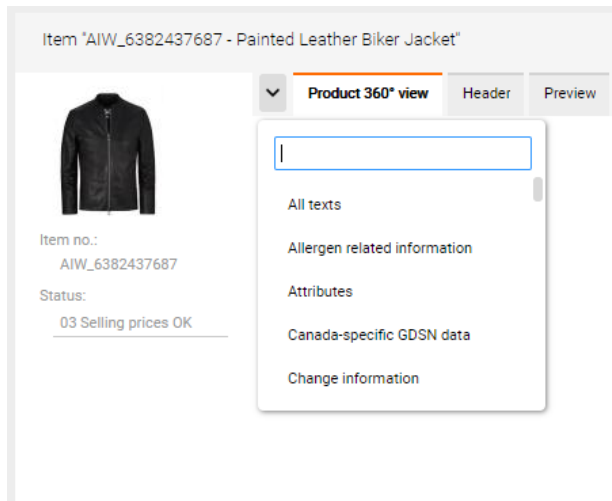
5.5.11.5 Permission to control tab visibility configuration

All action rights of user group "AllRights"					
	Allowed	Permission	Rights group	Description	Identifier
91	<input checked="" type="checkbox"/>	Create versions	Versions	Permission to create new data types o...	com.heiler.ppm.revision.core.permi
92	<input checked="" type="checkbox"/>	Customer management, general access	Customers		com.heiler.ppm.usermanagement.c
93	<input checked="" type="checkbox"/>	Customize tabs	Web Permissions	Customize tabs	Customize tabs
94	<input checked="" type="checkbox"/>	Data quality configuration, general ac...	Data quality	Data quality configuration, general ac...	com.heiler.ppm.dataquality.core.pe
95	<input checked="" type="checkbox"/>	Data quality scheduling, general access	Data quality	Data quality scheduling, general access	com.heiler.ppm.dataquality.core.pe
96	<input checked="" type="checkbox"/>	Delete Canada-specific GDSN data	GDSN data		com.heiler.ppm.gdsn.core.permission
97	<input checked="" type="checkbox"/>	Delete certification	Certification		com.heiler.ppm.certification.core.p
98	<input checked="" type="checkbox"/>	Delete channel	Channel		com.heiler.ppm.channel.core.permi
99	<input checked="" type="checkbox"/>	Delete characteristic	Characteristics		hlr.characteristic.permission.Charac
100	<input checked="" type="checkbox"/>	Delete components	Items		com.heiler.ppm.kit.core.permission

"Customize tabs" permission removed

Revoking the "Customize tabs" permission will change the following:

- "Configure Tabs" option in the tab list drop down will not be visible
- User can still drag and drop the tab positions
- Browser local storage will be ignored for the visible tabs
- Browser local storage will not be ignored for the reordering of tabs



i If a user-group had this right for some time and then got revoked, browser local storage will be cleared and further cookie storage will be ignored for the visible tabs.


5.5.11.6 Quality status rule navigation and configuration

- [Quality status rule navigation](#)(see page 190)
 - [Navigation button state](#)(see page 191)
 - [Navigate to the Detail tab](#)(see page 191)
 - [Navigate to Flex UI](#)(see page 191)
- [Quality status rule navigation configuration](#)(see page 191)
 - [Combine multiple Data Quality rules configuration](#)(see page 192)
 - [Configure the characteristic rules configuration](#)(see page 193)
 - [Where to get "tabId" and "flexTemplateName"](#)(see page 193)
 - ["tabId"](#)(see page 193)
 - ["flexTemplateName"](#)(see page 193)

Quality status rule navigation

Users can navigate to the configured detail tab and flex UI template related to a rule from the Quality status tab.

Buttons for navigation are:

- [Navigate to the tab](#) 

On clicking this button the user gets navigated to the configured detail tab.

- Navigate to Flex UI

On clicking this button the configured flex UI template is opened in the new browser tab.

Product 360° view	Preview	Text	Prices	Media	Quality status	Ordering information	Attributes	Kits and Components	Header	Classification
-------------------	---------	------	--------	-------	----------------	----------------------	------------	---------------------	--------	----------------

	<input type="text" value="All channels"/>
--	---

	Rule	Status	Message	Channels	Last execution
1	rule configured FlexUI template wit...	OK	No Error.		10/23/2020 2:36 PM
2	rule configured with both tab and fl...	OK	No Error.		10/23/2020 2:36 PM
3	rule configured with characteristic t...	OK	No Error.		10/23/2020 2:36 PM
4	rule configured with flex UI	OK	No Error.		10/23/2020 2:36 PM
5	rule configured with header as hidd...	Failed	Input data value is blank or null.		10/23/2020 2:36 PM
6	rule configured with text tab	OK	No Error.		10/23/2020 2:36 PM
7	rule configured with wrong detail ta...	OK	No Error.		10/23/2020 2:36 PM

Navigation button state

Navigate to the Detail tab

Disabled

1. When a rule is not selected.
2. When multiple rules are selected.
3. When a selected rule has no configuration for tab id.
4. When a tab id is not configured correctly.
5. When the tab is not visible.

Enabled

1. When a single rule is selected and it is configured with the correct tab id or flex UI template name.

Navigate to Flex UI

Disabled

- When a rule is not selected.
- When multiple rules are selected.
- When a selected rule has no configuration for flex UI template name.
- When a flex UI template name is not configured correctly.
- When a user does not have permission to see the flex UI template.

Enabled

- When a single rule is selected and it is configured with the correct tab id or flex UI template name.

Quality status rule navigation configuration

RuleNavigation Attributes

The 'id' is mandatory in "tabDefinitions", "definitions" in "formDefinitions".

Name	M(andatory) O(ptional)	Example values	Description
ruleName	M	e.g. "Short Description not empty"	Name of the rule (Case sensitive)
rootEntity	M	e.g. "Article"	The root entity associated with the tab
tabId	O	e.g. "web.article.detail.tabs.head"	Id of the detail tab
flexTemplateName	O	e.g. "Item approve UI"	Flex UI template name.

Definition (DQNavigationDefinition.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<RuleNavigations xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="DQNavigationDefinition.xsd">
  <ruleNavigation ruleName="Short Description not empty" rootEntity="Article" tabId="
web.article.detail.tabs.head" flexTemplateName="Item approve UI"/>
</RuleNavigations>
```

Combine multiple Data Quality rules configuration

The wildcard syntax ".*" can be used to configure multiple rules with similar names.

Example: If the user wants to combine the below rules

- Check long desc not empty
- Check long desc min length
- Check long desc max length

It can be configured as follows:

```
<ruleNavigation ruleName="Check long desc.*" rootEntity="Article"
tabId="web.article.detail.tabs.head" flexTemplateName="Item approve UI"/>
```

Note:

- If ".*" is used in the configured rule name make sure it does not contain any special character like "(),[],<,>,\$,&,[^],%...etc".
- If ".*" is used to combine multiple rules then make sure fields used in those rules must belong to the same detail tab and flex UI template.

Configure the characteristic rules configuration

Definition (DQNavigationDefinition.xml)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<RuleNavigations xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="DQNavigationDefinition.xsd">
  <ruleNavigation ruleName="CHARACT_CFG_Article_.*" rootEntity="Article" tabId="articleCharacteristicDetailTab" flexTemplateName=""/>
  <ruleNavigation ruleName="CHARACT_CFG_Product_.*" rootEntity="Product2G" tabId="productCharacteristicDetailTab" flexTemplateName=""/>
  <ruleNavigation ruleName="CHARACT_CFG_Variant_.*" rootEntity="Variant" tabId="variantCharacteristicDetailTab" flexTemplateName=""/>
</RuleNavigations>
```

Where to get "tabId" and "flexTemplateName"

"tabId"

We can set the "tabId" based on the "id" field of each tab provided in the various types of "Detail Tab Definitions XML's".

"flexTemplateName"

We can set the "flexTemplateName" based on the "name" of the flex UI template.

5.6 Task UI and Dashboard configuration

- [Introduction](#)(see page 194)
- [Layout](#)(see page 194)
 - [Grid layout](#)(see page 195)
 - [Collapsing components](#)(see page 196)
 - [Grouping components](#)(see page 198)
- [Data Sources](#)(see page 200)
 - [Report by alias](#)(see page 202)
 - [Report by ID](#)(see page 205)
 - [Saved searches](#)(see page 207)
- [Components](#)(see page 207)
- [Dashboard components](#)(see page 209)
 - [Message box component](#)(see page 209)
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5.6.1 Introduction

Flexible UIs are used in Product 360 for two purposes:

- Defining *dashboards* that offer a tailored overview of the Product 360 data from which the user can switch to relevant details easily.
- Defining *task UIs* which help the user to focus on just the data and actions that are needed to accomplish an assigned task.

Flexible UIs are defined in an XML based specification language. The root tag is `flexUi`. It has a single attribute: `version`. The version is currently fixed at `1.0.0`. It may be increased in future releases if/when substantial new features are added to the specification language.

The rest of this document describes the concepts and details used in flexible UI templates.

5.6.2 Layout

Flexible UIs consist of *components*. These components need to be arranged in a specific way which is the role of the `layout` tag. It is structured as follows:

- The layout type is specified as an attribute of the layout tag. Different layout types have different approaches for arranging the components. As of now only one layout type (grid) is supported.
- A layout type may support a number of parameters to fine tune its behavior. These parameters are supplied via parameter tags with key and value attributes, where the key specifies the parameter name.
- One or more components are specified next. They will be arranged on the screen per the rules of the layout type.
- Each component can carry additional parameters relating to the layout to further fine tune the appearance. These parameters are nested within a `layoutData` tag to differentiate them from parameters of the component itself.

Here is the definition of a simple flexible UI to show the basic structure:

Hello world

```

1  <flexUi version="1.0.0">
2    <layout type="grid">
3
4      <!-- these parameters specify the details for the "grid" layout
5      used here -->
6      <parameter key="columns" value="2"/>
7      <parameter key="rows" value="1"/>
8
9      <component type="messageBox" identifier="message1" i18NKey="Greetings">
10
11        <layoutData>
12          <!-- this area specifies layout details for this component
13          -->
14          <parameter key="colSpan" value="2"/>
15        </layoutData>
16        <!-- this is a parameter specific to the functionality of the
17        individual component -->
18        <parameter key="message" value="Hello, world!"/>
19      </component>
20    </layout>
21  </flexUi>

```

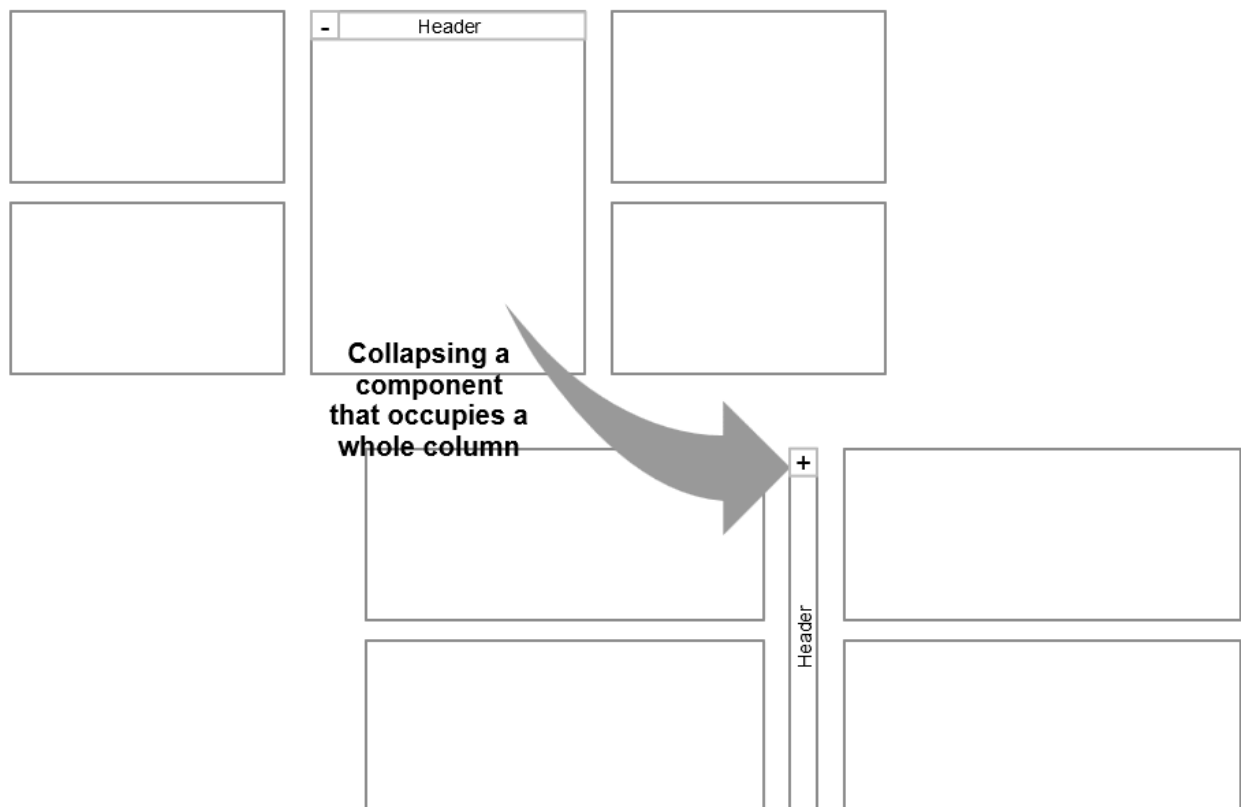
5.6.2.1 Grid layout

In this type of layout the available space for the UI is divided into cells of a grid. Similar to HTML tables, there are a number of columns and rows which are defined at the layout level. Each component can occupy several adjacent cells in this grid.

Components are added to the grid in the sequence they appear in the XML. For each component the layout algorithm looks for free space of the appropriate size, going from left to right and top to bottom, i.e. the first row is filled as much as possible, skipping to the next row when the next component would not fit any more in the current row. Cells that remain unoccupied may be filled with a subsequent component if it fits, meaning that the layout tries to fill out empty spots as soon as possible.

Collapsing components

With collapsible components the user can temporarily minimize information that is not needed and use the additional space to increase the size of other components. In general a component can only be collapsible if it occupies the full width or the full height of the UI. Through this restriction the collapsing behavior is working in a way that is intuitive for the user: a whole column (or a whole row) is collapsed and all other columns (rows) are proportionally increased in size. If it were possible to minimize a component that only occupies part of the width/height of the UI then the components would have to be rearranged on the fly to fill out the empty space, making it harder for the user to relocate any individual components.




Horizontal collapsing

When a component occupying a whole column is marked as collapsible it gets a button added in the top left of its header. Depending on the state the button displays a minus sign for collapsing or a plus sign for expanding the component. In collapsed mode the width of the component is reduced to the width of the button and the component title is displayed in a banner below the button rotated 90 degrees to the left.

Vertical collapsing

When a component occupying a whole row is marked as collapsible it gets a button added in the top left of its header. The button displays a triangle pointing right in collapsed state and pointing down in expanded state. When collapsed the component is reduced to its header.

For a finer control of the collapsed state of a subgroup of components see the `group` component below.

 Note that the goal of collapsing is to have more space for other components. Therefore a component can only be collapsed if some other component(s) remain visible. To enforce this, the button for collapsing a component is hidden if it is the only component to be fully visible currently.

Type: `grid`


Parameter name	M(andatory) O(ptional)	Layout parameter (LP) Component layout data parameter (CLP)	Example values	Description
<code>columns</code>	0	LP	1 (default)	Specifies the number of columns in the grid.
<code>rows</code>	0	LP	1 (default)	Specifies the number of rows in the grid.
<code>columnWidth</code>	0	LP	<i>css width in pixels (like "300px")</i>	Cell width. By default all available width is equally divided between all cells.
<code>rowHeight</code>	0	LP	<i>css height in pixels (like "300px")</i>	Cell height. By default all available height is equally divided between all cells.
<code>spacingSize</code>	0	LP	<i>css size in pixels (like "25px")</i>	If <code>columnWidth</code> or <code>rowHeight</code> are defined the desired spacing between cells needs to be specified as well (default 6px).
<code>colSpan</code>	0	CLP	1 (default)	Number of cells occupied by component in horizontal direction.
<code>rowSpan</code>	0	CLP	1 (default)	Number of cells occupied by component in vertical direction.
<code>collapsible</code>	0	CLP	<i>true</i> <i>false</i> (default)	Specifies whether the component should be collapsible in the UI.

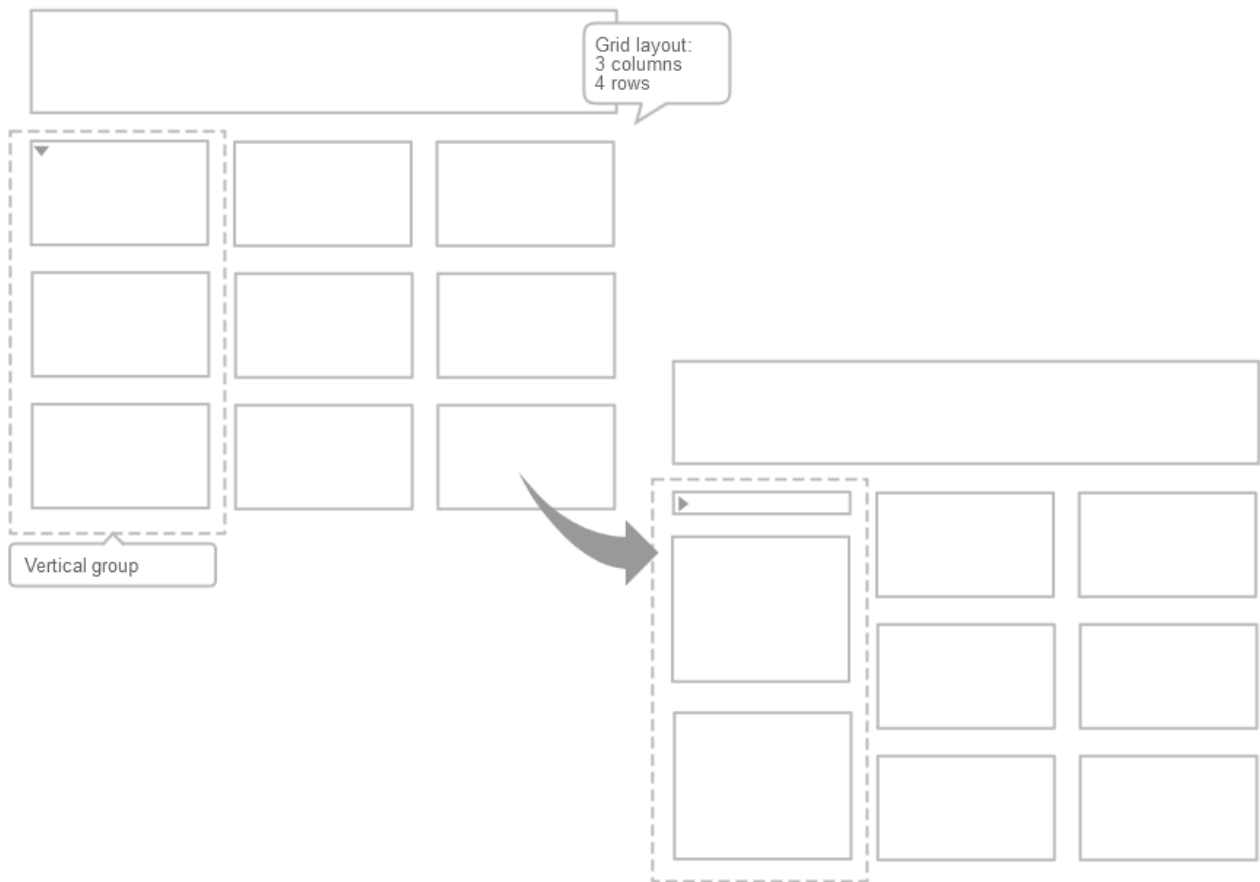
Parameter name	M(andatory) O(ptional)	Layout parameter (LP) Component layout data parameter (CLP)	Example values	Description
collapsed	O	CLP	<i>true</i> (default) <i>false</i>	Specifies whether the component should be collapsed initially. Only applies if collapsible is set to true.

5.6.2.2 Grouping components

With the `group` component it is possible to occupy an area in the layout and then place a number of nested components into this area. In this way it is possible to create layouts that break up the rigid structure of the grid. For example a group can occupy 4 columns and then place 5 components in this area that share this space equally. Using size ratios for the individual components the structure of the UI can deviate from the enclosing layout even more.

The second feature of groups is that they manage the collapsible behavior locally between the nested components.

 Use the flexibility of the group component carefully. The overall UI should still present a clear structure to the user.



From the perspective of the enclosing layout the group component acts like a single component and it carries the layout data for the whole group (however groups do not support the collapsible/collapsed parameters, i.e. a group as a whole cannot be collapsed within its layout). The layoutData parameters that can be set for each nested component are defined by the group component - see below.

Tag: group

Parameter name	M(andatory) O(ptional)	Group parameter (GP) Component layout data parameter (CLP)	Example values	Description
direction	O	GP	<i>horizontal</i> (default) <i>vertical</i>	Direction for placing the child components.

Parameter name	M(andatory) O(ptional)	Group parameter (GP) Component layout data parameter (CLP)	Example values	Description
collapsible	O	CLP	<i>true</i> (default) <i>false</i>	Specifies whether the component should be collapsible in the UI. The direction of collapsing is defined by the direction of the group.
collapsed	O	CLP	<i>true</i> (default) <i>false</i>	Specifies whether the component should be collapsed initially.
sizeRatio	O	CLP	1 (default)	Defines the relative amount of space (in the direction of the group) the component will be assigned. By default all components have ratio 1 and the space will be distributed equally. With three components and ratios set to 1, 2, and 1, the middle component will get half the space while the others get a quarter each. If the middle component is collapsed the available space is split equally between the other two as both have the same ratio.

5.6.3 Data Sources

A data source can be used to retrieve a set of entity items (e.g. articles or products). The underlying mechanism used for providing the data set is dependent on the data source type. Each data source is defined using a common XML structure. Data source definitions appear nested in component instance definitions. The respective component type specifies if and how many data sources it supports and what identifiers those data sources should have.

Explicit data sources are mostly used in dashboard components. Within the flexible task UI there is always an implicit data source consisting of the entity items attached to the task.

The most common starting points for specifying sets of entity items in Product 360 are:

- Catalogs - all the items of either the master catalog or a supplier catalog
- Assortments - all the items within an assortment
- Structures - items that have been classified in a specific structure system to any structure group or items classified to a specific structure group

=> these are covered by the entity report based data source types, see examples below


- User defined saved searches with flexible criteria for defining a set of items

=> there is a separate data source type for saved searches, see below

- Ad hoc searches using a detailed search expression

=> this is implemented by a special entity report called "bySearch" and is available through the "Report by alias" data source type, see example below. The expression syntax is documented under "REST Search Query Language".

Field / subelement	Description
type	This specifies the type of the data source. See the entries below for possible values.
identifier	Unique name within the scope of the data source definition. For example a specific component may support multiple data source definitions and the identifier can be used to select the right one.
ref	Reference that is used to identify the underlying instance that will provide the data. For example the unique identifier of an entity report if the underlying mechanism is report based.
entity	The entity of the items that are provided. This only needs to be specified for some data source types where the "ref" field on its own is not unique.

Field / subelement	Description
parameter	<p>Key / value pairs providing parameters for the underlying mechanism. For example in case of reports these pairs are matched to parameters defined in the actual report. The following entry specifies that the parameter "catalog" should be set to "Apparel":</p> <pre><parameter key="catalog" value="Apparel" /></pre> <p>Additionally a special suffix <code>.editable</code> is recognized in the parameter key. The value is expected to be a boolean (true/false) and it specifies whether the related parameter (same key without the suffix) is made available to the user so he/she can choose the actual value on the fly via a combo box. Here is an example:</p> <pre><parameter key="catalog" value="Apparel" /> <parameter key="catalog.editable" value="true" /></pre> <p> Note that not all components supporting data sources also support interactive choice of data source parameters. Also, the actual data source must provide an enumeration for the parameter to choose values from. The value provided in the XML ("Apparel") must be from this enumeration and will be pre-elected in the combo box. If it is not part of the enumeration it will be ignored and the selection will be empty initially.</p> <p>Finally, if the key/value pair for the parameter is omitted, i.e. only the <code>.editable</code> entry for it is present, then the parameter will be set to a default value provided by the underlying data source implementation (e.g. entity reports may have defaults for their parameters defined). If no such default value is provided then the selection is left empty initially.</p>

5.6.3.1 Report by alias

This type of data source represents an entity report that has been contributed to Product 360 via the extension mechanism and is available via the REST interface of the Product 360 server. The REST interface supports browsing for available reports and parameters. For example the available reports for returning a set of articles can be viewed at <http://<pim.server>:1501/rest/V1.0/list/Article/info>. Clicking on the report name provides the list of parameters that can be used.

Field/subelement	Value	Description
type	reportByAlias	
ref	<i>e.g. byStructureGroup</i>	Has to match the "alias" of an entity report that has been contributed to the Product 360 installation via the Eclipse extension point.

Field/subelement	Value	Description
entity	<i>e.g. Article</i>	Has to match the "item-entity" attribute of the same entity report.
parameter	<i>e.g. key="catalog" value="Apparel"</i>	Specifies a value that will be passed to the report before execution. The "key" has to match either the "id" or the "alias" field of a report parameter as defined in the Eclipse extension.

Report-by-alias data source examples

```

1  <!-- all products in the master catalog -->
2  <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
   entity="Product2G" />
3
4  <!-- all articles in a supplier catalog -->
5  <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
   entity="Article" >
6    <parameter key="catalog" value="Apparel"/>
7  </dataSource>
8
9  <!-- all articles in a supplier catalog - catalog can be selected
   interactively -->
10 <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
   entity="Article" >
11   <parameter key="catalog" value="Apparel"/>
12   <parameter key="catalog.editable" value="true"/>
13 </dataSource>
14
15 <!-- all articles in a catalog - catalog can be selected interactively and
   defaults to master catalog -->
16 <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
   entity="Article" >
17   <parameter key="catalog.editable" value="true"/>
18 </dataSource>
19
20 <!-- all articles in an assortment - note there is an issue currently for
   referencing assortments by name, -->
21 <!-- instead the internal ID has to be used
   -->
22 <dataSource identifier="dataSet" type="reportByAlias" ref="byAssortment"
   entity="Article" >
23   <parameter key="Assortment" value="33"/>
24 </dataSource>
25
26 <!-- all articles from master catalog classified in a structure system -->
27 <dataSource identifier="dataSet" type="reportByAlias" ref="classifiedBy"
   entity="Article" >
28   <parameter key="structure" value="Heiler Standard"/>
29 </dataSource>
30
31 <!-- all articles from supplier catalog classified in a structure system
   -->
32 <dataSource identifier="dataSet" type="reportByAlias" ref="classifiedBy"
   entity="Article" >
33   <parameter key="structure" value="Heiler Standard"/>
34   <parameter key="catalog" value="Apparel"/>
35 </dataSource>
36
37 <!-- all articles from master catalog classified in a structure group -->

```



```

38 <dataSource identifier="dataSet" type="reportByAlias" ref="byStructureGroup" entity="Article" >
39   <parameter key="structureGroup" value="'GROUP_1'@'HeilerStandard'"/>
40 </dataSource>
41
42 <!-- add hoc search - all articles in a specific segment and with a price
43    in a specific price range, -->
44 <!-- note that the 'less than' sign had to be encoded as it is not allowed
45    in XML attribute values -->
46 <!-- Note that most field qualifications use the default from the
47    repository. They could be of course -->
48 <!-- also specified directly here - e.g. looking at the segment in German
49    and comparing against the -->
50 <!-- prices in Euro in Germany, etc.
51 -->
52 <dataSource identifier="dataSet" type="reportByAlias" ref="bySearch"
53    entity="Article" >
54   <parameter key="query" value="ArticleLang.Segment(${Default}) =
55     Segment01 and ArticlePriceValuePurchase.Amount(${Default},${Default},${
56     Default},${Default},${Default},1.0) > 60 and
57     ArticlePriceValuePurchase.Amount(${Default},${Default},${Default},${
58     Default},${Default},1.0) < 90"/>
59 </dataSource>

```

5.6.3.2 Report by ID

This type of data source also represents an entity report that has been contributed to Product 360 via the extension mechanism. The only difference is that it can also be used to access reports that have not been made available via the REST interface.

Field/subelement	Value	Description
type	<i>reportById</i>	
ref	e.g. <i>com.heiler.ppm.article.core.ArticlesOfStructureGroup</i>	Has to match the "id" of an entity report that has been contributed to the Product 360 installation via the Eclipse extension point.
parameter	e.g. <i>key="catalog"</i> <i>value="Apparel"</i>	Specifies a value that will be passed to the report before execution. The "key" has to match either the "id" or the "alias" field of a report parameter as defined in the contribution to the Eclipse extension point.

Report-by-ID data source examples

```

1  <!-- ***** Simple data source without parameters -->
2  <!-- All articles in the master catalog -->
3  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
4  icle.core.ArticlesOfMasterCatalog" />
5
6  <!-- ***** Data sources with parameters -->
7
8  <!-- All articles of a supplier catalog -->
9  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
10  icle.core.ArticlesOfSupplierCatalog">
11    <parameter key="SupplierCatalog" value="Apparel" />
12  </dataSource>
13
14  <!-- All articles of an assortment -->
15  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
16  icle.assortment.core.ArticlesOfAssortment">
17    <parameter key="Assortment" value="MyAssortment" />
18  </dataSource>
19
20  <!-- All articles from master catalog classified within a structure system
21  -->
22  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
23  icle.core.SupplierArticlesClassifiedTo">
24    <parameter key="Structure" value="HeilerStandard" />
25  </dataSource>
26
27  <!-- All articles from master catalog classified to a specific structure
28  group -->
29  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
30  icle.core.ArticlesOfStrucureGroup">
31    <parameter key="StructureGroupID" value="'GROUP_1'@'HeilerStandard'" />
32  </dataSource>
33
34  <!-- ***** data source with multiple parameters -->
35
36  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
37  icle.core.MasterArticlesClassifiedTo">
38    <parameter key="Catalog" value="1" />
39    <parameter key="Structure" value="HeilerStandard" />
40  </dataSource>

```


5.6.3.3 Saved searches

Within the rich client users can build search expressions and store them as saved searches for later use in either the rich or the web client. This type of data source enables access to such saved searches in flexible UIs.

Note that neither specifying parameter values nor editing of parameter values is supported. Parameter values for a saved search should be provided in Product 360 Desktop when it is created.

Field/sublement	Value	Description
type	<i>savedSearch</i>	
ref	<i>e.g. SearchName</i>	Has to match the name of the saved search.
entity	<i>e.g. Article</i>	Has to match the "item-entity" attribute of the saved query.

Saved search data source example

```
1 <dataSource identifier="dataSet" type="savedSearch" ref="AllItemsEditedByMe" entity="Article" />
```

5.6.4 Components

A component displays some specific information within a flexible UI and may also offer some actions to work with the displayed data. Most components are defined using the `component` tag. In general the structure of a component definition is as follows.

Setting	Location	Description
type	attribute	Defines what type of component this is. The following chapters provide a list of all available component types.
identifier	attribute	Defines a unique name for the component in the scope of this flexible UI.
i18NKey	attribute	Provides the title for the component which will be displayed in its header.

Setting	Location	Description
layoutData	nested tag	Specifies any layout specific parameters for this component - see section on layout at the beginning of this page.
dataSource	nested tags	Specifies any data source parameters that are needed/supported by the component type. See section for specific component for details.
parameter	nested tags	Specifies any parameters that are needed/supported by the component type. See section for specific component for details.
i18N	nested tags	This label can be included in components to have localized translation for i18NKey in the Flex UI header.

There are a few exceptions to this:

- The group component has its own tag and is not really a component in its own right. As described [group\(see page 198\)](#) it combines multiple components for layout purposes. Groups only have their own tag so no type attribute is needed. There is also no identifier, no header and no nested data sources. Layout data and nested parameters are supported.
- The form component and the list component have specialized content defining in detail which Product 360 data fields are displayed.

Note that all following examples of component definitions omit the `layoutData` tag. See the [layout\(see page 194\)](#) on how to fine-tune the appearance of each component.

Translation By i18N:

Translation of header title for specific language and locale is done by i18N which is picked directly from XML. Translation takes place under certain conditions :

- If there is no i18N label in component then the Existing functionality for Flex UI header will work.
- If any i18N label is present in the component then the header string will be picked from the i18N label in the below manner for a Locale user is logged in
 - if there is the matching i18N label for locale(languageCode_countryCode), that will be picked
 - if the above not found, the matching i18N label with languageCode will be picked
 - if the above not found, the default i18N label value which is without locale will be picked

i18N example

```

1  <flexUi version="1.0.0">
2    <layout type="grid">
3      <parameter key="columns" value="5"/>
4      <parameter key="rows" value="9"/>
5      <group identifier="Detail">
6        ...
7        <form i18NKey="Detail" identifier="preview">
8          ...
9          <fieldFormDefinition position="2147483647"
rootEntity="Article">
10           ...
11           </fieldFormDefinition>
12           <i18n>Detail</i18n>
13           <i18n locale="en">Detail</i18n>
14           <i18n locale="en_US">Detail</i18n>
15           <i18n locale="de">Detail</i18n>
16           <i18n locale="ja_JP">詳細</i18n>
17         </form>
18       </group>
19     </layout>
20 </flexUi>

```

5.6.5 Dashboard components

Dashboards generally do not require any global data source in contrast to flexible task UI components which may rely on the data source implicitly defined by the task that is displayed. All dashboard components may also be used in task UI templates.

All components listed below support asynchronous loading on dashboards. Asynchronous loading is not supported in task UI templates.

For further technical limitations for the asynchronous loading feature, refer to sub chapter "Technical limitations" in the chapter "Asynchronous loading of custom dashboard components" of the customization manual.

5.6.5.1 Message box component

Displays a fixed message.

Type: `messageBox`

Parameter name	M(andatory) O(ptional)	Example values	Description
message	M	The quick brown fox jumps over the lazy dog.	Specifies the text that will be displayed.

Message box example

```

1 <component type="messageBox" identifier="message1" i18NKey="Greetings">
2   <parameter key="message" value="Hello, world!"/>
3 </component>

```

5.6.5.2 System message component

Displays active system messages. If the user has appropriate permissions it also supports adding new system messages.

Type: systemMessage

System message example

```

1 <component type="systemMessage" identifier="system1" i18NKey="System
2   messages">
3 </component>

```

5.6.5.3 iFrame component

Displays an external web page on the dashboard within a limited area occupied by the component. Note that no content will be displayed if the publisher of the external page does not allow it to be displayed in a frame.

Type: iframe

Parameter name	M(andatory) O(ptional)	Example values	Description
url	M	https:// www.google.com/ maps/embed?pb=! 1m18!1m12!1m3! 1d3164.8565...14244 https:// www.youtube.com/ embed/UJW0VDJoAas	Specifies the URL for the web page that will be displayed.

iFrame example

```

1  <component type="iframe" identifier="googlemaps" i18NKey="Informatica
    Headquarters">
2    <parameter key="url" value="https://www.google.com/maps/embed?pb=!1m14!
    1m8!1m3!1d12659.780154317712!2d-122.19728541031158!3d37.509214421263046!
    3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x808fa2f5dfdc5097%3A0xc479e59839708591!
    2sInformatica+Corporation!5e0!3m2!1sde!2sde!4v1427979234929" />
3  </component>

```

5.6.5.4 Bar chart component

Displays a horizontal bar chart that shows the distribution of values for a specified field in the specified set of data. The set is specified by an embedded data source. The field is specified using the Service API syntax for Product 360 fields and has to match the type of entity items that are provided by the data source (for instance it makes no sense to group the values of a product specific field when the underlying data is a set of articles).

Throughout the data set the occurrence of each value is counted and displayed as a bar with the bar label being the value and the bar length being in proportion to the number of occurrences of this value. For example if the field that is looked at is the "segment" and there are 255 articles in the data source that have "Consumer Electronics" as the value for the "segment field", then there will be a bar labelled "Consumer Electronics" and the size of the bar will reflect the number 255.


Regarding the bar sizes, the longest bar (i.e. largest occurrence count) will occupy the available space horizontally and the other bars will be drawn in proportion to it.



By clicking on a bar the user can switch to a table view of the items that are represented by that bar.

Type: barchart

Data source name	M(andatory) O(ptional)	Description
dataSet	M	Specifies the data set. The bar chart component supports combo boxes for editable data source parameters (see above).

Parameter name	M(andatory) O(ptional)	Example values	Description
groupingField	M	Article.CurrentStatus Product2GLang.Segment (de_DE) Article.Status-> QualityStatusSummary. Status({Default}) ArticleLog.ModificationDate("Web Shop");	<p>Specifies a Product 360 field in Service API syntax. The entity holding this field must match the entities provided by the dataSet data source.</p> <p>If the path to the sub-entity holding the field requires qualifications they are provided in a comma separated list at the end of the field name. If any of the qualifications have default definitions in the repository then those can be used by providing the special string "\${Default}" instead of an actual value for the qualification.</p> <p>If a qualification value starts with a number or contains white spaces, the value has to be quoted with html-encoded double-quotes: &#x22;</p>
groupingField.lkn.editable	O	true false (default)	<p>Specifies whether the nth (starting at 0) qualification of the field should be made available as a drop down box in the UI so the user can switch between e.g. the segment field in English or German on the fly. By default no combo boxes for qualifications are displayed.</p> <p> Note that for this to work the respective Product 360 qualification field has to have an enumeration assigned to it.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
numValueBuckets	0	10 5	<p>For some fields it does not make sense to count the appearance of each individual value as there would be too many bars (e.g. item prices). For such fields the values can be split into buckets and all values in a bucket are counted together (e.g. all item prices between 50 and 100).</p> <p>Currently this behavior is only available for all fields of type BigDecimal and Long. The buckets are defined by taking into account the minimum and maximum values of the data set. Furthermore the bucket boundaries are also aligned to a well readable raster e.g. 1, 2.5, 5, 7.5, 10, ... The granularity of the chosen raster depends on the distance between min and max and also on the number of buckets to create as specified by this parameter. The actual number of created buckets may be less than specified due to the imposed raster.</p> <p>The lowest bucket always contains the minimum and the highest always contains the maximum value.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
showBlankEntries	O	<i>true</i> (default) <i>false</i>	<p>Specifies whether there should also be bars of size zero for values that were not present in the data set but within the range of expected values. This of course only works if there is a set of expected values for the field specified as <i>groupingField</i> - which is the case if:</p> <ul style="list-style-type: none"> the field type is boolean (true, false) the field type is tri-state boolean (true, false, unknown) the field has an enumeration assigned to it in the Product 360 repository the field type is BigDecimal or Long and numValueBuckets has been specified the field includes the BPM workflow as one its qualifiers and it is marked in the Product 360 repository - as a result the possible status values of the respective workflow are then used as expected values
showNullValues	O	<i>true</i> (default) <i>false</i>	<p>Specifies whether the item count for items with missing/null values should be shown as a separate bar labelled "<No input>" or not.</p> <p>Note that pointers to deleted data are also considered to be null values. For instance an article keeps record of the user that created it. If that user has been marked as deleted in the meantime, this field will be treated as missing/null.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
barChartColor	O	red, blue, green, black #000000 (black), #399bf9 (blue) rgb(255, 0, 255) (magenta) Default color is the theme-based color described in dashboard.css in style class: .hpmw-horizontal-barchart-widget	Specifies the color of the bars. Valid values are either CSS standard color names like red, blue, green, black. The CSS standard colors are defined here: http://www.w3.org/TR/CSS21/syndata.html#value-def-color . Or CSS-style rgb(x,y,z) values, where x,y,z must be values between 0 . . 255 . Or hexcoded colors like #000000 for black or #399bf9 for blue can be used. The longest bar will use this color directly and shorter bars will be drawn with a lighter color - the shorter the bar, the lighter the color.
isCacheable	O	true false (default)	Enables the data cache for this dashboard component. See chapter "Data caching for dashboard components(see page 261)" for details.
timeToLiveSeconds	O	3600 (default)	Specifies in seconds how long a cache element resides in the cache before it is destroyed and loaded from the data source anew. Therefor the data cache has to be enabled for this component (isCacheable="true").
isRefreshable	O	true false (default)	Enables a button for this dashboard component which forces the reloading of the data from the data source (and thereby destroys the "old" cache element). Therefor the data cache has to be enabled for this component (isCacheable="true").
sortBy	O	sortByKey (default) sortByValue	Specifies which field (grouping field-sortByKey or grouping count-sortByValue) of the dashboard component to sort

Parameter name	M(andatory) O(ptional)	Example values	Description
sortOrder	O	asc (default) desc	Specifies sorting order (Ascending or Descending) of "sortBy" parameter

Barchart examples

```

1  <!-- mandatory parameters only -->
2  <component type="barchart" identifier="chart1" i18NKey="Product Status in
   Master Catalog">
3    <parameter key="groupingField" value="Product2G.CurrentStatus"/>
4    <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.p
   roduct2g.core.ProductsOfCatalog"/>
5  </component>
6
7  <!-- show bars of size 0 for the status values that are not used in any
   product; enabled data cache and refresh button -->
8  <component type="barchart" identifier="chart1" i18NKey="Product Status in
   Master Catalog">
9    <parameter key="groupingField" value="Product2G.CurrentStatus"/>
10   <parameter key="showBlankEntries" value="true"/>
11   <parameter key="isCacheable" value="true"/>
12   <parameter key="timeToLiveSeconds" value="1800"/>
13   <parameter key="isRefreshable" value="true"/>
14   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.p
   roduct2g.core.ProductsOfCatalog"/>
15 </component>
16
17 <!-- qualified grouping field with editable qualification specifying the
   language -->
18 <!-- show a bar with the count of all articles that do not have any short
   description in the given language -->
19 <component type="barchart" identifier="chart2" i18NKey="Article Short Desc
   in Master Catalog">
20   <parameter key="groupingField" value="ArticleLang.DescriptionShort($
   {Default})"/>
21   <parameter key="groupingField.lk0.editable" value="true" />
22   <parameter key="showNullValues" value="true"/>
23   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
   rticle.core.ArticlesOfMasterCatalog"/>
24 </component>
25
26 <!-- report with an editable parameter and a different color for the bars
   -->
27 <component type="barchart" identifier="chart3" i18NKey="Articles by
   Segment in specified catalog (default: Apparel)">
28   <parameter key="groupingField" value="ArticleLang.Segment(${Default})"/>
29   <parameter key="barChartColor" value="rgb(34,45,78)"/>
30   <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
   entity="Article" >
31     <parameter key="catalog" value="Apparel"/>
32     <parameter key="catalog.editable" value="true"/>
33   </dataSource>
34 </component>
35
36 <!-- display the distribution of article prices in buckets -->

```



```

37 <component type="barchart" identifier="chart3" i18NKey="Article Prices in
Master Catalog">
38   <parameter key="groupingField" value="ArticlePriceValuePurchase.Amount($
{Default},{Default},{Default},{Default},{Default},1.0)"/>
39   <parameter key="numValueBuckets" value="10"/>           <!-- maximum
number of buckets is 10 -->
40   <parameter key="showBlankEntries" value="true"/>         <!-- show all
buckets, even empty ones -->
41   <parameter key="showNullValues" value="true"/>           <!-- show a bar
with the articles that don't have a price set up -->
42   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
rticle.core.ArticlesOfMasterCatalog"/>
43 </component>
44
45 <!-- Barchart component sorting -->
46 <component i18NKey="BarChart Sorting Demo" identifier="grouped_chart2"
type="barchart">
47   <parameter key="groupingField" value="Article.CurrentStatus"/>
48   <parameter key="showBlankEntries" value="false"/>
49   <parameter key="sortBy" value="sortByValue"/>           <!-- sort by grouping
count -->
50   <parameter key="sortOrder" value="asc"/>                 <!-- sorting
descending order -->
51   <dataSource entity="Article" identifier="dataSet" ref="byCatalog" type="
reportByAlias">
52     <parameter key="catalog" value="Master"/>
53   </dataSource>
54 </component>

```

5.6.5.5 Piechart component

Displays a round pie chart that shows the distribution of values for a specified field in the specified set of data. The set is specified by an embedded data source. The semantics are very similar to the bar chart, just the presentation differs. Also, there are some additional options available as described below.

💡 As for the bar chart component, by clicking on a pie section the user can switch to a table view of the items that are represented by that section.

Type: piechart

Data source name	M(andatory) O(ptional)	Description
dataSet	M	Specifies the data set. The bar chart component supports combo boxes for editable data source parameters (see above).

Parameter name	M(andatory) O(ptional)	Example values	Description
groupingField	M	Article.CurrentStatus Product2GLang.Segment(de_DE) Article.Status->QualityStatusSummary.Status({Default}) ArticleLog.ModificationDate("WebShop");	<p>Specifies a Product 360 field in Service API syntax. The entity holding this field must match the entities provided by the dataSet data source.</p> <p>If the path to the sub-entity holding the field requires qualifications they are provided in a comma separated list at the end of the field name. If any of the qualifications have default definitions in the repository then those can be used by providing the special string "{Default}" instead of an actual value for the qualification.</p> <p>If a qualification value starts with a number or contains white spaces, the value has to be quoted with html-encoded double-quotes: &#x22;;</p>
groupingField.lkn.editable	O	true false (default)	<p>Specifies whether the nth (starting at 0) qualification of the field should be made available as a drop down box in the UI so the user can switch between e.g. the segment field in English or German on the fly. By default no combo boxes for qualifications are displayed.</p> <p>⚠ Note that for this to work the respective Product 360 qualification field has to have an enumeration assigned to it.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
numValueBuckets	0	10 5	<p>For some fields it does not make sense to count the appearance of each individual value as there would be too many sections (e.g. item prices). For such fields the values can be split into buckets and all values in a bucket are counted together (e.g. all item prices between 50 and 100).</p> <p>Currently this behavior is only available for all fields of type BigDecimal and Long. The buckets are defined by taking into account the minimum and maximum values of the data set. Furthermore the bucket boundaries are also aligned to a well readable raster e.g. 1, 2.5, 5, 7.5, 10, ... The granularity of the chosen raster depends on the distance between min and max and also on the number of buckets to create as specified by this parameter. The actual number of created buckets may be less than specified due to the imposed raster.</p> <p>The lowest bucket always contains the minimum and the highest always contains the maximum value.</p>
maxNumberOfEntries	0	10 (default)	Space is limited and rendering a pie chart with too many sections breaks up the layout. Hence, the maximum number of sections is limited.
showLegend	0	true false (default)	Toggles the visibility of a legend that lists all captions for each of the values.
showNullValues	0	true (default) false	<p>Specifies whether the item count for items with missing/null values should be shown as a separate bar labelled "<No input>" or not.</p> <p>Note that pointers to deleted data are also considered to be null values. For instance an article keeps record of the user that created it. If that user has been marked as deleted in the meantime, this field will be treated as missing/null.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
colors	O	red, blue, green, black #000000 (black), #399bf9 (blue) rbg(255, 0, 255) (magenta)	List of colors used for coloring the sections. Colors are separated by semicolon ";". Valid values are either CSS standard color names like red, blue, green, black. The CSS standard colors are defined here: http://www.w3.org/TR/CSS21/syndata.html#value-def-color . Or CSS-style rgb(x,y,z) values, where x,y,z must be values between 0 .. 255 . Or hexcoded colors like #000000 for black or #399bf9 for blue can be used.
isCacheable	O	true false (default)	Enables the data cache for this dashboard component. See chapter "Data caching for dashboard components(see page 261)" for details.
timeToLiveSeconds	O	3600 (default)	Specifies in seconds how long a cache element resides in the cache before it is destroyed and loaded from the data source anew. Therefor the data cache has to be enabled for this component (isCacheable="true").
isRefreshable	O	true false (default)	Enables a button for this dashboard component which forces the reloading of the data from the data source (and thereby destroys the "old" cache element). Therefor the data cache has to be enabled for this component (isCacheable="true").

Piechart examples


```

1  <!-- mandatory parameters only -->
2  <component type="piechart" identifier="chart1" i18NKey="Product Status in
   Master Catalog">
3    <parameter key="groupingField" value="Product2G.CurrentStatus"/>
4    <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.p
   roduct2g.core.ProductsOfCatalog"/>
5  </component>
6
7
8  <!-- pie chart with legend and custom colors; enabled data cache and
   refresh button -->
9  <component i18NKey="Product Status in Master Catalog" identifier="pie1"
   type="piechart">
10   <parameter key="groupingField" value="Product2G.CurrentStatus"/>
11   <parameter key="showLegend" value="true"/>
12   <parameter key="colors" value="red;blue;green;pink"/>
13   <parameter key="isCacheable" value="true"/>
14   <parameter key="timeToLiveSeconds" value="1800"/>
15   <parameter key="isRefreshable" value="true"/>
16   <dataSource identifier="dataSet" ref="com.heiler.ppm.product2g.core.Prod
   uctsOfCatalog" type="reportById"/>
17 </component>

```

5.6.5.6 Channel status component

Displays the result of Data Quality checks for the entity items specified by the `dataSet` data source. On the left hand side a list of channels (defined by the `channelIdentifiers` parameter) is displayed alongside the aggregated quality status counts across all rules of the respective channel, i.e. how many entity items were in status OK, Failed, Unchecked. When a channel is selected then on the right hand side the list of quality rules from that channel is displayed with the rule specific status counts.

 The number of passed/failed/unchecked of a channel or of a rule can be selected by clicking on it. If the component is configured accordingly (see below) the user can then create a task for the selected set of items (e.g. all items that failed a certain rule).

Type: `channelstatus`

Data source name	M(andatory) O(ptional)	Description
dataSet	M	Specifies the data set. The channelstatus component does not support editing of data source parameters.

Parameter name	M(andatory) O(ptional)	Example values	Description
channelIdentifiers	M	Mobile,Print Catalog,Web Shop,Amazon	Comma separated list of Product 360 channels to display. Nonexistent channels are ignored.
enableCreateTask	O	true false (default)	Specifies whether a button for creating a task is displayed whenever a category of items is selected from a channel or a rule. The task will have the respective set of items attached to it.
enableDrillDown	O	true false (default)	Specifies whether a button for showing the selected items is displayed whenever a category of items is selected from a channel or a rule. The view will show the respective set of items in a table.
isCacheable	O	true false (default)	Enables the data cache for this dashboard component. See chapter " Data caching for dashboard components (see page 261)" for details.
timeToLiveSeconds	O	3600 (default)	Specifies in seconds how long a cache element resides in the cache before it is destroyed and loaded from the data source anew. Therefor the data cache has to be enabled for this component (isCacheable="true").
isRefreshable	O	true false (default)	Enables a button for this dashboard component which forces the reloading of the data from the data source (and thereby destroys the "old" cache element). Therefor the data cache has to be enabled for this component (isCacheable="true").

Channel status example

```

1  <!-- Only display status, no possibility to create tasks -->
2  <component type="channelstatus" identifier="dqstatus1" i18NKey="Channel
3    Status Information">
4    <parameter key="channelIdentifiers" value="Mobile,Print Catalog,Web
5      Shop"/>
6    <parameter key="enableCreateTask" value="true"/>
7    <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
8      rticle.core.ArticlesOfMasterCatalog"/>
9  </component>
10 <!-- Display status and enable creating tasks; enabled data cache and
11     refresh button -->
12 <component type="channelstatus" identifier="dqstatus2" i18NKey="Channel
13     Status Information">
14   <parameter key="channelIdentifiers" value="Mobile,Print Catalog,Web
15     Shop"/>
16   <parameter key="enableCreateTask" value="true"/>
17   <parameter key="isCacheable" value="true"/>
18   <parameter key="timeToLiveSeconds" value="1800"/>
19   <parameter key="isRefreshable" value="true"/>
20   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
21     rticle.core.ArticlesOfMasterCatalog"/>
22 </component>

```

5.6.5.7 My tasks component

Displays information about tasks related to the current user. Three different sets of tasks can be selected:

- Tasks assigned to the user and already accepted by the user
- Tasks assigned to the user or one of his/her user groups that have not yet been accepted
- Tasks assigned to other users or user groups for which the current user is the "responsible" person.



The user can click on a task title which will either open the task UI of the task (if it is set), present the list of attached items of the task (if there are any) or just display the task details.



When displaying the tasks that the user is responsible for he/she can click on the envelope next to the assignee's name to open the local email client and send an email regarding the task to the assignee. The envelope is available if the assignee is a single user (not a group) and Product 360 has been set up with an email address for this user.

Type: mytasks

Parameter name	M(andatory) O(ptional)	Example values	Description
initialSet	O	accepted (default) notAccepted myResponsibilities	Specifies which set of tasks is initially displayed in the component. The value is case insensitive. Unknown values are ignored and the default is used instead.
mode	O	all (default) workflow allFixed workflowFixed	<p>Specifies in which mode the component should operate. There are two modes:</p> <ul style="list-style-type: none"> • Displaying both normal and workflow tasks. • Displaying only workflow tasks and offering additional filtering capabilities <p>If set to "all" or "workflow" the mode specifies the initial mode and the user still has the possibility to change it in the UI.</p> <p>If set to "allFixed" or "workflowFixed" the mode is set accordingly and the user cannot change it.</p> <p>⚠ If no BPM server is configured the default mode is allFixed and this will override any setting in the template.</p>
filterByName	O	true false (default)	If set to true a text field is added in the component header. If the user enters some text in this field the task list is filtered down to those tasks that include the text in their name.

MyTasks examples


```


1  <!-- all parameters are optional -->
2  <component type="mytasks" identifier="mytasks1" i18NKey="My Tasks" />
3
4  <component type="mytasks" identifier="mytasks2" i18NKey="My Tasks">
5    <parameter key="initialSet" value="notAccepted" />
6    <parameter key="mode" value="allFixed" />
7    <parameter key="filterByName" value="true" />
8  </component>

```



5.6.5.8 Team tasks component

Displays information about tasks related to members of the user's user groups. If the user has more than one user group assigned a combo box is displayed which can be used to filter the tasks so that only tasks for that group and its members are displayed.

 The user can click on a task title which will either open the task UI of the task (if it is set), present the list of attached items of the task (if there are any) or just display the task details.

 The user can click on the envelope next to the assignee's name to open the local email client and send an email regarding the task to the assigned. The envelope is available if the assignee is a single user (not a group) and Product 360 has been set up with an email address for this user.

Type: teamtasks

Parameter name	M(andatory) O(ptional)	Example values	Description
mode	O	all (default) workflow allFixed workflowFixed	<p>Specifies in which mode the component should operate. There are two modes:</p> <ul style="list-style-type: none"> • Displaying both normal and workflow tasks. • Displaying only workflow tasks and offering additional filtering capabilities <p>If set to "all" or "workflow" the mode specifies the initial mode and the user still has the possibility to change it in the UI.</p> <p>If set to "all_fixed" or "workflow_fixed" the mode is set accordingly and the user cannot change it.</p> <p> If no BPM server is configured the default mode is allFixed and this will override any setting in the template.</p>
includeGroups	O	<i>group1, group2</i>	<p>Comma separated list of user groups that should be considered when adding tasks to the table. By default all user groups of the current user are considered.</p> <p>The provided list is sanitized against the list of user groups of the current user. Unknown groups and groups that the user does not belong to are ignored.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
excludeGroups	O	<i>group1, group2</i>	<p>Comma separated list of user groups that should be ignored when adding tasks to the table. By default no user groups are ignored. If the <code>includeGroups</code> option is also present the <code>excludeGroups</code> are applied afterwards, i.e. if a group appears in both lists it will be ignored due to <code>excludeGroups</code> being applied at the end.</p> <p>The provided list is sanitized against the list of user groups of the current user. Unknown groups and groups that the user does not belong to are ignored.</p>
completedTasksDaysLimit	O	5 (default) 10 -1	<p>Completed tasks are also shown but only if they have been completed in the last couple of days. The actual number of days can be defined with this parameter. The number should be greater or equal to -1 - with -1 meaning "do not display completed tasks".</p>
filterByName	O	true false (default)	<p>If set to <code>true</code> a text field is added in the component header. If the user enters some text in this field the task list is filtered down to those tasks that include the text in their name.</p>
userAssignedTasks	O	true (default) false	<p>Indicates whether tasks assigned to users of the user groups should also be listed or if only tasks directly assigned to the user groups are taken into consideration.</p>

Team tasks examples

```

1  <!-- start in mode "all", show tasks for all user groups of the logged in
2  user, include completed tasks of the last 5 days -->
3  <component type="teamtasks" identifier="teamtasks1" i18NKey="Team Tasks">
4
5  <!-- restrict mode and only include the groups specified here, do not show
6  user assigned tasks, only user group assigned tasks -->
7  <component type="teamtasks" identifier="teamtasks2" i18NKey="Team Tasks">
8      <parameter key="groups" value="PriceMaintainers, SuperUsers" />
9      <parameter key="mode" value="allFixed" />
10     <parameter key="userAssignedTasks" value="false" />
11 </component>
12
13 <!-- only include all user groups of the logged in user that are not
14 listed here, extend time window for completed tasks and add a filter by
15 name field -->
16 <component type="teamtasks" identifier="teamtasks3" i18NKey="Team Tasks">
17     <parameter key="excludeGroups" value="DashboardAdmins" />
18     <parameter key="completedTasksDaysLimit" value="10" />
19     <parameter key="filterByName" value="true" />
20 </component>

```

5.6.5.9 Supplier Portal Timeline component

Displays an the Product 360 Supplier Portal timeline as widget. Can be used for supplier communication and to get an overview on recent supplier activities.

Type: timeline

Parameter name	M(andatory) O(ptional)	Example values	Description
hsxWebappUrl	M	<i>http://localhost: 9090/hsx</i>	Root url pointing to a running Supplier Portal application. If application runs behind a load balancer/reverse proxy, use externally visible url. Technically this component uses an iFrame to display the Timeline.

Supplier portal timeline example

```

1 <component type="timeline" identifier="spTimeline" i18NKey="Supplier
2   Portal Timeline">
3   <parameter key="hsxWebappUrl" value="http://portalserver:9090/hsx"/>
  </component>

```

5.6.5.10 Workflow KPI component

Displays persisted KPI values that are the result a KPI calculation as described in the Knowledge Base documentation for the Standard KPI 'Average Time Spent In Workflow States'.

In order to show the calculated KPI values in the Web UI, the customer has to add a dashboard component of the type "workflowProcessKPI".

The component displays KPI values for certain parameters. The tool tip of the KPI value bar chart shows the corresponding object count.

Parameters which are selectable via Combobox are:

- KPI Identifier of the desired Workflow Process KPI
- Catalog filter (All or specific catalog)
- Time period (see preSelectionCurrentTimePeriod parameter in table below for possible values)
- Comparison time period dependent of the previously selected time period (see preSelectionPreviousTimePeriod parameter for possible values)

The WorkflowProcessCalculationConfig.xml configuration file mentioned in the Knowledge Base documentation for Standard KPI 'Average Time Spent In Workflow States' also has to be configured furthermore to show the KPI values in the Web UI:


- Each kpi element must have a sub element displayName with a particular display name in order to be clearly recognizable in the UI by the customer.
- The state element can have a sub element 'allowedValue' which helps the customer to compare the calculated KPI Values with the corresponding allowed value. This allowed value provides useful information to interpret the calculated KPI values and to identify possible problems within the workflow.

There are several component parameters to define the pre-selection value of the combo box parameters.


Parameter name	M(andatory) O(ptional)	Example values	Description
preSelectionKPI	0		Specifies the preselected value of Workflow Process KPI combobox. Valid values are the KPI identifier or its displayName which is defined in the above mentioned configuration xml file.

Parameter name	M(andatory) O(ptional)	Example values	Description
preSelectionCatalog	O	MASTER MySupplierCatalogIdentifier	Specifies the preselected value of catalog combobox. Valid values are the catalog identifier of a supplier catalog, or "MASTER" for master catalog.

Parameter name	M(andatory) O(ptional)	Example values	Description										
preSelectionCurrentTimePeriod	O	CurrentDay	<p>Specifies the preselected value of current time period combobox. Valid values are the following identifiers or its language specified display name:</p> <table><tr><th>identifier</th><th>display name (in english)</th></tr><tr><td>Current Day</td><td>Current day</td></tr><tr><td>Current Week</td><td>Current month</td></tr><tr><td>Current Month</td><td>Current week</td></tr><tr><td>Current Year</td><td>Current year</td></tr></table>	identifier	display name (in english)	Current Day	Current day	Current Week	Current month	Current Month	Current week	Current Year	Current year
identifier	display name (in english)												
Current Day	Current day												
Current Week	Current month												
Current Month	Current week												
Current Year	Current year												

Parameter name	M(andatory) O(ptional)	Example values	Description
			<div><div></div><div>The language dependent display name should only be used, if all users login with the same language, since preselection then only works with this specific language. Therefore the identifier is recommended to be used.</div></div>

Parameter name	M(andatory) O(ptional)	Example values	Description																
preSelectionPreviousTimePeriod	0	PreviousDay	<div>Specifies the preselected value of previous time period combobox. Valid values are a PreviousTimePeriod identifier or its language specified displayName.</div> <table><tr><th>identifier</th><th>display name (in english)</th></tr><tr><td>NoComparisonPeriod</td><td>No comparison period</td></tr><tr><td>PreviousDay</td><td>Previous day</td></tr><tr><td>PreviousWeek</td><td>Previous week</td></tr><tr><td>SameWeekOfPreviousYear</td><td>Same week of previous year</td></tr><tr><td>PreviousMonth</td><td>Previous month</td></tr><tr><td>SameMonthOfPreviousYear</td><td>Same month of previous year</td></tr><tr><td>PreviousYear</td><td>Previous year</td></tr></table>	identifier	display name (in english)	NoComparisonPeriod	No comparison period	PreviousDay	Previous day	PreviousWeek	Previous week	SameWeekOfPreviousYear	Same week of previous year	PreviousMonth	Previous month	SameMonthOfPreviousYear	Same month of previous year	PreviousYear	Previous year
identifier	display name (in english)																		
NoComparisonPeriod	No comparison period																		
PreviousDay	Previous day																		
PreviousWeek	Previous week																		
SameWeekOfPreviousYear	Same week of previous year																		
PreviousMonth	Previous month																		
SameMonthOfPreviousYear	Same month of previous year																		
PreviousYear	Previous year																		

Parameter name	M(andatory) O(ptional)	Example values	Description
			<div>  <p>The language dependent display name should only be used, if all users login with the same language, since preselection then only works with this specific language. Therefore the identifier is recommended to be used.</p> </div>
allowedTimeBarChartColor	O	red, blue, green, black #000000 (black), #399bf9(blue) rgb(255, 0, 255) (magenta)	<p>Specifies the color of the allowed time bar chart. Valid values are either CSS standard color names like red, blue, green, black. The CSS standard colors are defined here: http://www.w3.org/TR/CSS21/syndata.html#value-def-color.</p> <p>Or CSS-style rgb(x,y,z) values, where x,y,z must be values between 0 . . 255 .</p> <p>Or hexcoded colors like #000000 for black or #399bf9 for blue can be used.</p> <p>If no value is defined, the default color #6AA84F will be used.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
currentTimeBarChartColor	0	red, blue, green, black #000000 (black), #399bf9(blue) rbg(255, 0, 255) (magenta)	Specifies the color of the current average completion time bar chart. Valid values are either CSS standard color names like red, blue, green, black. The CSS standard colors are defined here: http://www.w3.org/TR/CSS21/syndata.html#value-def-color . Or CSS-style rgb(x,y,z) values, where x,y,z must be values between 0 . . 255 . Or hexcoded colors like #000000 for black or #399bf9 for blue can be used. If no value is defined, the default color #1155CC will be used.
previousTimeBarChartColor	0	red, blue, green, black #000000 (black), #399bf9(blue) rbg(255, 0, 255) (magenta)	Specifies the color of the previous average completion time bar chart. Valid values are either CSS standard color names like red, blue, green, black. The CSS standard colors are defined here: http://www.w3.org/TR/CSS21/syndata.html#value-def-color . Or CSS-style rgb(x,y,z) values, where x,y,z must be values between 0 . . 255 . Or hexcoded colors like #000000 for black or #399bf9 for blue can be used. If no value is defined, the default color #00FFFF will be used.

Example dashboard template

Example dashboard template

```
<flexUi name="Default" version="1.0.0" >
  <layout type="grid">
    <!-- Specify default parameters of the grid, like number of columns
and rows -->
    <parameter key="columns" value="2"/>
    <parameter key="rows" value="2"/>
    <parameter key="rowHeight" value="350px"/>
    <parameter key="spacingSize" value="20px"/>

    <!-- Display a workflowProcessKPI component -->
    <component type="workflowProcessKPI" identifier="WorkflowProceesKPI1
" >
      <parameter key="preSelectionKPI" value="kpi 2"/>
      <parameter key="preSelectionCatalog" value="All catalogs"/>
      <parameter key="preSelectionCurrentTimePeriod" value="Current
year"/>
      <parameter key="preSelectionPreviousTimePeriod" value="Previous
year"/>
      <parameter key="allowedTimeBarChartColor" value="green"/>
      <parameter key="currentTimeBarChartColor" value="blue"/>
      <parameter key="previousTimeBarChartColor" value="yellow"/>
    </component>
  </layout>
</flexUi>
```

5.6.6

Flexible task UI components

5.6.6.1 Data provisioning in task UIs

In contrast to dashboard components the data provisioning of task UI components is driven by the task to which the task UI template is applied. Three different aspects play a role here:

- Is the component simply displaying data for a "certain item" or is it displaying a table or list of "child items of a certain item" ?
 - General components and forms display data for a certain item
 - List/table components display child items of a certain item

The definition of child items is rather broad in this context:

- A task usually has a set of items attached to it - in this context for example some "Article" items can be the children of a "Task" item.
- A product may have variant children or article children (depending on the product paradigm in use) underneath.
- A structure group may have a mixture of product, variant and article children assigned to it which maps to three distinct sets of child items.

- What entity does the "certain item" need to belong to in order to be suitable as input for a component ?
 - General components specify the applicable entity via the attribute `rootEntity` in the component tag. Leaving this out means the component can handle any entity.
 - Form components specify the applicable entity through the `rootEntity` attribute of the nested `fieldFormDefinition` (see below for details).
 - List/table components specify the entity of the child items through the `rootEntity` attribute of the nested `listModelDefinition` (see below for details).
Whether or not a "certain item" is suitable as input for the component depends on whether it can provide child items matching this entity.
For example a task item can be fed into a component displaying an article list only if the task has a set of child items with entity "Article".
- How is the "certain item" specified for a component ?
 - Statically through a parameter of the component in the XML
(e.g. a component displaying the structure groups of a structure system, with the actual structure system defined in the XML)
 - At runtime through the task for which the task UI is displayed
(e.g. a form displaying fields of the task)
 - Dynamically through selections in other components
(e.g. a form with details for an article listening to selection events in an article list)

So how does this all play together ?

- a. Each component gets initialized with its parameters. If this is all that a specific component needs, it's done
(e.g. a structure tree component with structure system as parameter)
- b. Next the central task item that is currently displayed is forwarded to all components that indicate that they can handle it.
 - i. all components with `rootEntity = Task`
 - ii. list based components with a `rootEntity` for which the task can provide a list of matching child items
- c. Whenever a user selects one or more items in a list based component the selected item(s) is/are forwarded to all components that can handle the respective entity
 - i. all components with `rootEntity` set to the entity of the selected item
 - ii. list based components with `rootEntity` for the selected item can provide a list of matching child items
(e.g. a list components displaying variants can be fed with a product item because the product can have variant child items)

Here is an example illustrating the data provisioning within a task UI. Details are omitted and the featured component types are fully documented further below.

Task UI data provisioning

```

1  <flexUi version="1.0.0">
2    <layout type="grid">
3      ...
4
5      <!-- This form will receive the currently displayed task as input
6      -->
7      <form identifier="taskForm" i18NKey="Task: ">
8        <fieldFormDefinition rootEntity="Task">
9          ...
10         </fieldFormDefinition>
11       </form>
12
13       <!-- List also receives the id of the task as it has listenFor
14       Task inside it -->
15       <!-- and displays the attached items of the task.
16       -->
17       <!-- The rootEntity attribute specifies what kind of items this
18       table can display. -->
19       <!-- User selecting an article in the table will trigger a
20       selection event -->
21       <list i18NKey="Items">
22         <listenFor source="Task" type="initialEvent" />
23         <listModelDefinition rootEntity="Article">
24           ...
25         </listModelDefinition>
26       </list>
27
28       <!-- This component will be updated with the selection events for
29       Article -->
30       <component identifier="preview1" type="preview" i18NKey="Detail"
31       rootEntity="Article">
32         ...
33       </component>
34
35       <!-- This form will also be updated with the selection events for
36       Article -->
37       <form identifier="translationForm" i18NKey="Translate">
38         <fieldFormDefinition rootEntity="Article">
39           ...
40         </fieldFormDefinition>
41       </form>
42
43       ...
44     </layout>
45   </flexUi>

```


Filtering

While the rules described so far cover most cases, it can be necessary to restrict the selection events that a component listens for. This can be achieved with the `listenFor` tag. Filtering can be set up regarding the source of events (component identifier) and/or the type of event. For now only one type of event (`selectionEvent`) is supported.

Multiple filters can be set up for a single component, so it is still possible to listen for selections in more than one source component.

Event filtering example

```

1      <!-- table showing the products attached to the task -->
2      <list identifier="TaskProducts" i18NKey="Products">
3          <listenFor source="Task" type="initialEvent" />
4          <listModelDefinition rootEntity="Product2G">
5              ...
6          </listModelDefinition>
7      </list>
8
9      <!-- this preview is tied to the table above -->
10     <component identifier="productPreview" type="preview" i18NKey="Detail
11     (Product)" rootEntity="Product2G">
12         <listenFor source="TaskProducts" type="selectionEvent" />
13         ...
14     </component>
15
16     <!-- displaying a structure tree based on configuration parameter -->
17     <component identifier="structure" type="structureTree" i18NKey="My
18     structure" >
19         ...
20         <parameter key="structure" value="MyStructure" />
21     </component>
22
23     <!-- the selected structure can be used to derive a set of product
24     child items ! -->
25     <list identifier="StructureProducts" pageSize="20" i18NKey="Classified
26     in Structure">
27         <listenFor source="structure" type="selectionEvent"/>
28         <listModelDefinition rootEntity="Product2G">
29             ...
30         </listModelDefinition>
31     </list>
32
33     <!-- this preview is tied to the list above, ignores selections in
34     TaskProducts table -->
35     <component identifier="productPreviewFromStructure" type="preview"
36     i18NKey="Detail (Product)" rootEntity="Product2G">
37         <listenFor source="StructureProducts" type="selectionEvent" />
38         ...
39     </component>

```

5.6.6.2 Header strategy

It is possible to change component header via the headerStrategy tag. By this header implementation may be changed and additional information or controls displayed. For the moment the following values are possible:

- "defaultHeader",

- "defaultEntityHeader"
- "taskActionsHeader".

defaultHeader

The "defaultHeader" is used in all components not related to entity information (e. g. message component of iframe component) and information from components i18NKey attribute. Translation of header title for specific language and locale is done by i18N .

defaultEntityHeader

The "defaultEntityHeader" is used in components which shows information from given entity (form, table, etc.) and provides entity name information in header.

taskActionsHeader

The "taskActionsHeader" is currently used for:

- **Standard tasks** (non-workflow tasks):
In case of unaccepted standard tasks, the header adds a toggle button for accepting the current task in the form that displays the task details.
In case of accepted standard tasks, the header adds a toggle button for marking the current task as completed.
- **Workflow tasks:**
In case of unaccepted workflow tasks, the header adds a buttons for accepting or directly finishing the work the selected entities(items, products or variants) in the entity table that displays the attached entities of the workflow task.
In case of accepted workflow tasks, the header adds a buttons for finishing or cancelling the work on the selected entities in the entity table that displays the attached items of the workflow task.
In case of accepted "approval workflow tasks" , the header adds buttons for approving, rejecting (with comment) or cancelling the work on the selected entities in the entity table that displays the attached items of the workflow task.
In order to have convenient way to toggle between unaccepted workflow tasks and accepted workflow tasks, we have provided navigation buttons. The navigation buttons are available only if the tasks are associated with the current logged in user or the tasks are associated with user groups where the current user is a part of.

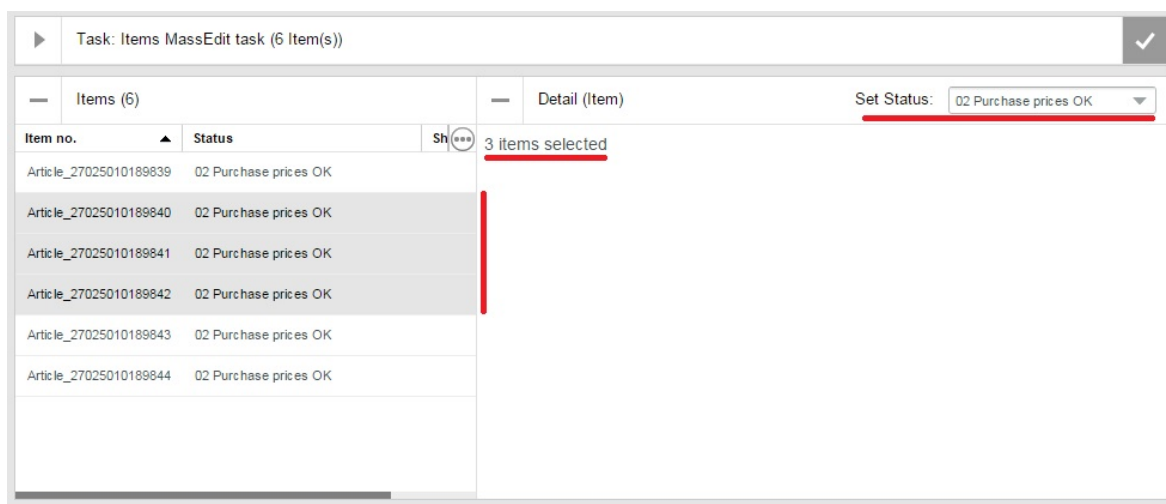


The current "taskActionsHeader" implementation does not add a toggle button for terminating the current workflow for entities of a workflow task. Furthermore, a click on the buttons for accepting, finishing and approving does not open a dialog for entering comments.

Mass-edit header

massEditHeader is used as a form header that listens for selection events in an item list component. It allows to edit any entity field specified in the header parameters. If there are several items selected, the header will update field values for all of them.

The header looks as the default header with an additional field editor at the right.



Note following:

- Only one field can be set as editable in the header. For example, it is not possible to have Status and Short Description fields in the header simultaneously.
- The header works only for a component that listens for selection events with `listenFor` tag
- The field to edit is specified through the header parameters
- If all the selected items have the same field value, the mass-edit field shows the value. If not, the mass-edit field is empty
- If just one item is selected, the mass-edit field shows its field value
- If user changes the value in the mass-edit field, the value is applied immediately to the selected items

Configuration

A mass-edit field is configured in the flex template XML as following:

Mass-edit field configuration in the template XML

```
<header headerStrategy="massEditHeader">
  <parameter key="fieldIdentifier" value="Article.CurrentStatus" />
  <parameter key="fieldCaption" value="Set Status" />
</header>
```

The example has two parameters:

- Mandatory `fieldIdentifier` parameter
- Optional `fieldCaption` parameter. Field caption could be a i18n key if it starts with % symbol.

If the specified field cannot be determined because of a configuration error, the default header strategy is used and the configuration errors are logged.

Mass-edit field with logical keys

Let's consider a more complex example:

Configuration of a mass-edit field with logical keys

```

<header headerStrategy="massEditHeader">
  <parameter key="fieldIdentifier" value="Product2GPriceValueSales.Amount" />
  <parameter key="logicalKeyIdentifier1" value="ArticlePriceType.LK.PartyMS" />
  <parameter key="logicalKeyValue1" value="&lt;Public&gt;" />
  <parameter key="logicalKeyIdentifier2" value="ArticlePriceType.LK.Territory" />
  <parameter key="logicalKeyValue2" value="USA" />
  <parameter key="logicalKeyIdentifier3" value="ArticlePriceType.LK.ValidAt" />
  <parameter key="logicalKeyValue3" value="now" />
  <parameter key="logicalKeyIdentifier4" value="ArticlePriceValueType.LK.LowerBound
" />
  <parameter key="logicalKeyValue4" value="1" />
  <parameter key="logicalKeyIdentifier5" value="ArticlePriceType.LK.Type" />
  <parameter key="logicalKeyValue5" value="3" />
  <parameter key="logicalKeyIdentifier6" value="ArticlePriceType.LK.Currency" />
  <parameter key="logicalKeyValue6" value="USD" />
</header>

```

Two parameters are necessary to specify a logical key: `logicalKeyIdentifierXXX` and `logicalKeyValueXXX` where XXX is some suffix (it could be empty) that should be the same for both parameters. This approach allows specifying any number of logical keys.

If the field has no all required logical keys defined, no field fill be shown (the default header will be used) and all the detected errors will be written in the server log.

5.6.6.3 Task UI specific syntax summary

Task UI components deviate from the standard component syntax as follows:


- Several components have their own tags: `form`, `list`, `mediaDetail` - see the respective section for details.
- Specification of the applicable entity via the `rootEntity` attribute of the component tag or a nested tag in case of `form`, `list`.
- Filtering of events via the nested `listenFor` tag.
- Specification of the applicable for initialization entity for `list` tag via the nested `listenFor` tag.
- Activation of task actions via the nested `headerStrategy` tag.

5.6.6.4 Form

Displays a set of fields for a single item in a form. Due to its rather specific content it has its own tag.

Tag: `form`

Setting	Location	Description
fieldFormDefinition	Nested tag	<p>For the actual form definition the syntax is the same as for defining detail tabs in the Product 360 web application as described in "Customizing Lists Views, Detail Tabs and Action Menus".</p> <p>Note that the <code>fieldFormDefinition</code> tag used in this component corresponds to the <code>definition</code> tag used in detail tab XML files.</p>
rootEntity	Attribute of fieldFormDefinition	Specifies what kind of items this component can display.
i18N	Nested tag	contains translation of i18NKey for different languages and locales

 Note that in this context the other attributes of the `fieldFormDefinition` tag are not applicable and should not be used (e.g. `permissionId`, `position`, `id`, `i18NKey`)

Parameter name	M(andatory) O(ptional)	Example values	Description
inlineLabels	O	<i>true</i> (default) <i>false</i>	Should field label be in one line with value or above it.
enableRefresh Button	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

Form example


```

1  <form identifier="taskForm" i18NKey="Task: ">
2    <parameter key="enableRefreshButton" value="true"/>
3    <parameter key="inlineLabels" value="true"/>
4    <header headerStrategy="taskActionsHeader" />
5    <fieldFormDefinition rootEntity="Task">
6      <column>
7        <fieldGroup>
8          <field identifier="Task.Name" />
9          <field identifier="Task.Description" />
10         <field identifier="Task.CreationUser" />
11         <field identifier="Task.CreationDate" />
12       </fieldGroup>
13     </column>
14     <column>
15       <fieldGroup>
16         <field identifier="Task.User" />
17         <field identifier="Task.UserGroup" />
18         <field identifier="Task.Substitute" />
19         <field identifier="Task.Responsible" />
20       </fieldGroup>
21     </column>
22   </fieldFormDefinition>
23   <i18n>task</i18n>
24   <i18n locale="de">Aufgabe</i18n>
25   <i18n locale="ja_JP">仕事</i18n>
26 </form>

```

5.6.6.5 List

Displays a set of items in a table. Due to its rather specific content it has its own tag.

 Selections within the table are forwarded to matching components.

Tag: list

Setting	Location	Description
listModelDefinition	Nested tag	<p>For the definition of fields that are displayed in the table the syntax is the same as for defining list models in the Product 360 web application as described in "Customizing Lists Views, Detail Tabs and Action Menus".</p> <p>Note that the listModelDefinition tag used in this component corresponds to the definition tag used in list model XML files.</p>

Setting	Location	Description
rootEntity	Attribute of listModelDefinition	Specifies what kind of items this component can display. It will accept an item (e.g. through selection events) only if a list of child items can derived from it with this entity.
identifier	Attribute of listModelDefinition	Defines a unique name for the listModelDefinition in the scope of this list component.
pageSize	Attribute of list tag	Specifies page size of underlying table. It defines amount of rows loaded from server each time during scrolling. Default is 20.
i18N	Nested tag	contains translation of i18NKey for different languages and locales

⚠ Note that if identifier is not provided in listModelDefinition then flexUI table layout (column orders, sorting, width, visibility) will not be stored in browser cookie

⚠ Note that in this context the other attributes of the listModelDefinition tag are not applicable and should not be used (i18NKey)

Parameter name	M(andatory) O(ptional)	Example values	Description
forceShowContentFromMaster	O	<i>true</i> <i>false</i> (default)	For the case when data source for list is structure group, information about catalog can be obtained from task context (default behaviour) or master catalog can be used forcibly.
enableRefreshButton	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

List example

```

1  <list identifier="StructureProducts" pageSize="20" i18NKey="Classified in
2    <listModelDefinition rootEntity="Product2G" identifier="ProductListMod
3      <field caption="%web.client.product.table.thumbnail" identifier="P
4        <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Langu
5          <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Quali
6            </field>
7          <field identifier="Product2G.ProductNo" sortable="true" />
8          <field identifier="Product2G.Lang.DescriptionShort" sortable="true">
9            <logicalKey identifier="ArticleLangType.LK.Language" value="En
10           </field>
11         </listModelDefinition>
12         <i18n>Classified in Structure</i18n>
13         <i18n locale="de">Klassifiziert in Struktur</i18n>
14         <i18n locale="ja_JP">構造で分類される</i18n>
15       </list>

```

⚠ Note that if list have to be populated by task content instead of listening selection events listenFor tag should be used:

Task content list example

```

1  <list identifier="TaskProducts" i18NKey="Products" pageSize="20">
2    <listenFor source="Task" type="initialEvent" />
3    <parameter key="enableRefreshButton" value="true"/>
4    <listModelDefinition rootEntity="Product2G" identifier="TaskListModel">
5      <field identifier="Product2G.ProductNo" sortable="true" />
6      <field identifier="Product2G.CurrentStatus" sortable="true" width="
7      180" />
8      <field identifier="Product2G.Lang.DescriptionShort" sortable="true">
9        <logicalKey identifier="ArticleLangType.LK.Language" value="Eng
10       </field>
11     </listModelDefinition>
12     <i18n>Products</i18n>
13     <i18n locale="de">Produkte</i18n>
14     <i18n locale="ja_JP">製品</i18n>
15   </list>

```


5.6.6.6 Preview

Displays a preview template.

Type: preview

Parameter name	M(andatory) O(ptional)	Example values	Description
previewTemplate	M	<i>WebShopPreview</i>	The name of the preview template to display.
enableAutoRefresh	O	<i>true</i> <i>false</i> (default)	Specifies whether the component is refreshed on edit events.
enableRefreshButton	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

Preview example

```

1 <component type="preview" identifier="preview" i18NKey="Detail (Product)"
2   rootEntity="Product2G">
3   <parameter key="enableRefreshButton" value="true"/>
4   <parameter key="enableAutoRefresh" value="true"/>
5   <parameter key="previewTemplate" value="Product - Web, Flexible UI,
   Translation"/>
6 </component>

```

5.6.6.7 Audit Trail History

Displays a audittrail-based history component.

Type: history

Parameter name	M(andatory) O(ptional)	Example values	Description
enableAutoRefresh	O	<i>true</i> <i>false</i> (default)	Specifies whether the component is refreshed on edit events.

Parameter name	M(andatory) O(ptional)	Example values	Description
enableRefreshButton	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.
filterUsers	O	Administrator;rest;someUserName	Specifies which user changes should be filtered by default
filterFields	O	<i>Article.EAN;ArticleLang.DescriptionLong({Empty})</i>	Specifies which field changes should be filtered by default
filterDate	O	<i>2020-10-07T11:59</i>	Specifies up to which date the changes should be displayed to by default.

History example


```

1 <component type="history" identifier="history" i18NKey="Detail (Product)"
2   rootEntity="Product2G">
3   <parameter key="enableRefreshButton" value="true"/>
4   <parameter key="enableAutoRefresh" value="true"/>
5   <parameter key="filterUsers" value="Administrator;rest;someUserName"/>
6   <parameter key="filterFields" value="Article.EAN;ArticleLang.Description
7   Long({Empty})"/>
8   <parameter key="filterDate" value="2020-10-07T11:59"/>
9 </component>

```

5.6.6.8 Structure tree

Displays the structure tree with the structure groups of the specified structure system.

 Selections in the tree are forwarded to matching components.

Type: structureTree

Parameter name	M(andatory) O(ptional)	Example values	Description
structureSystem	M	<i>HeilerStandard</i>	External identifier for the structure system that will be displayed.

Structure tree example

```

1  <component identifier="structure" type="structureTree" i18NKey="Structure"
2    >
3      <parameter key="structureSystem" value="HeilerStandard" />
    </component>

```

5.6.6.9 Media Document Details

Displays information about selected media document (event forwarded from another component) in one or more detail tabs defined by a set of nested form definitions.

The form definitions are specified in definition tags within a formDefinitions tag, each definition represents one section.

Tag: mediaDetail

Parameter name	M(andatory) O(ptional)	Example values	Description
embeddedMetaDataTab Visible	O	true (default) <i>false</i>	Defines whether the embedded metadata tab is shown for the HMM provider.
embeddedMetadataTab Position	O	30 (default)	Defines the position of the embedded metadata tab for the HMM provider.
i18N	O		contains translation of i18NKey for different languages and locales

Media document details examples

```

1  <mediaDetail identifier="mediaDocumentDetailsId" i18NKey="Details">
2    <parameter key="embeddedMetaDataTabVisible" value="true" />
3    <parameter key="embeddedMetadataTabPosition" value="30" />
4    <formDefinitions>
5      <definition i18NKey="%web.multimedia.detail.tab.technical.informat
6        ion" rootEntity="MediaAsset">
7        <column>
8          <fieldGroup displaySectionWidget="false" subEntityId="Media
9            AssetDocumentAttributes">
10             <field identifier="MediaAssetDocumentAttributes.FileName
11               meHMM" readOnly="true"/>
12             <field identifier="MediaAssetDocumentAttributes.TypeHMM"
13               readOnly="true"/>
14             <field identifier="MediaAssetDocumentAttributes.ColorD
15               epthHMM" readOnly="true"/>
16             <field identifier="MediaAssetDocumentAttributes.ColorS
17               paceHMM" readOnly="true"/>
18           </fieldGroup>
19         </column>
20       </definition>
21       <definition i18NKey="%web.multimedia.detail.tab.general.informatio
22         n" rootEntity="MediaAssetFile">
23         <column>
24           <fieldGroup displaySectionWidget="true" subEntityId="Media
25             AssetFileAttributeLang">
26             <field identifier="MediaAssetFileAttributeLang.Name"/>
27             <field identifier="MediaAssetFileAttributeLang.Memo"/>
28             <logicalKey identifier="MediaAssetFileAttributeLangType
29               e.LK.Language" selectable="true" value="English"/>
30           </fieldGroup>
31           <fieldGroup displaySectionWidget="false" subEntityId="Media
32             AssetFileAttribute">
33             <field identifier="MediaAssetFileAttribute.Level"/>
34             <field identifier="MediaAssetFileAttribute.State"/>
35             <field identifier="MediaAssetFileAttribute.Status"/>
36             <field identifier="MediaAssetFileAttribute.InProgress"
37               />
38           </fieldGroup>
39         </column>
40       </definition>
41     </formDefinitions>
42     <i18n>Detail (Product)</i18n>
43     <i18n locale="de">Detail (Produkt)</i18n>
44     <i18n locale="ja_JP">詳細 (製品)</i18n>
45   </mediaDetail>

```


5.6.6.10 Media documents list

Displays list of media documents in the selected category. Has ability to filter documents. Reacts on category selection events from other components to determine the list of media documents to show.

Selections in the list are forwarded to any components that can handle a media document selection.

Type: `documentsList`

Parameter name	M(andatory) O(ptional)	Example values	Description
<code>dragEnabled</code>	0	<i>true</i> (default) <i>false</i>	Defines whether the drag from list operation enabled.
<code>selectionMode</code>	0	<i>none</i> <i>single</i> (default) <i>multiple</i>	Defines if the user can select (one or more) media documents.
<code>enableRefreshButton</code>	0	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

Media documents examples

```

1  <component identifier="documentsListId" type="documentsList" i18NKey="Images" >
2    <parameter key="enableRefreshButton" value="true"/>
3    <parameter key="selectionMode" value="single" />
4  </component>

```

5.6.6.11 Media categories tree

Displays tree of media categories for a specified root category. Selecting a category is forwarded to any components that can handle a category selection.

Type: `multimediaTree`

Parameter name	M(andatory) O(ptional)	Example values	Description
category	O	<i>h1r-system</i>	Root category name which children to display. By default shows all.

Media tree examples

```


1 <component identifier="multimediaTreeId" type="multimediaTree" i18NKey="Mu
2   ltimedia attachments" >
   </component>

```

5.6.6.12 Dynamic Web page

Displays an external web page with a URL that can contain a parameter. For task attached articles/variants/products this is useful to preview it e.g. in a live web shop using its identifier.

Without using parameter *valueField*, this component can be used to simply display an external web page.

 Note that no content will be displayed if the publisher of the external page does not allow it to be displayed in a frame.

Type: dynamicWebPage

Parameter name	M(andatory) O(ptional)	Example values	Description
urlPattern	M	<i>http:// yourshop.com/ display?itemid={0}</i>	URL that will be used. {0} is the placeholder.

Parameter name	M(andatory) O(optional)	Example values	Description
valueField	O	Product2G.Id	<p>The value of this Product 360 Field will be used to replace the placeholder. See the groupingField parameter of the bar chart component for examples regarding logical key qualification of this field.</p> <p>If not set, placeholder will not be used, and external web page won't be refreshed on selection change.</p>
enableRefreshButton	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

Dynamic web page example

```

1 <component type="dynamicWebPage" identifier="websearch" i18NKey="Search
2   results for short description" rootEntity="Product2G">
3   <parameter key="enableRefreshButton" value="true"/>
4   <parameter key="urlPattern" value="http://www.searchsite.com/search?
5   q={0}"/>
6   <parameter key="valueField" value="Product2GLang.DescriptionShort(de)"/>
7 </component>

```

5.6.6.13 Characteristic values form

Displays a form to maintain characteristic values of products/variants/items selected in a list. This is a great way to have a full page form based data entry flow on items with categories assigned and their characteristics inside.

Type: characteristicrecordset

Parameter name	M(andatory) O(ptional)	Example values	Description
filterCategories	0	<code><filterCategories>Shipping</filterCategories></code> <code><filterCategories>CareInstructions,AuditReport</filterCategories></code>	Characteristics will be filtered based on category Code. Multiple category Code can be supplied by comma separating.
filterType	0	<code><filterType>include</filterType></code> <code><filterType>exclude</filterType></code>	Type of filter to be applied on the supplied category codes.
enableRefreshButton	0	<code>true</code> <code>false</code> (default)	Specifies whether the component has a manual refresh button in the header.

Characteristic values form example

```

1  <component i18NKey="Characteristics" identifier="characteristicsDetails"
2    rootEntity="Article" type="characteristicrecordset">
3    <listenFor source="TaskItems" type="selectionEvent"/>
4    <parameter key="enableRefreshButton" value="true"/>
5    <header headerStrategy="characteristicsHeader"/>
6  </component>

```

The component allows to also include a filter that will define which individual categories of characteristics should be shown in it. This helps to create UIs that are tailored to individual use cases and user persona needs. Therefore the following optional elements have been added:

`<filterCategories>{category_code}</filterCategories>` and `<filterType>{include_or_exclude}</filterType>`. These element tags have root tag `<component>` and should be defined after the `<header>` tag as shown in the following code block example where the component would only show the category "Shipping" for example.

Category Filter

```

1  <component i18NKey="Characteristics" identifier="characteristicsDetails"
2    rootEntity="Article" type="characteristicrecordset">
3    <layoutData>
4      <parameter key="collapsible" value="true"/>
5      <parameter key="collapsed" value="false"/>
6      <parameter key="sizeRatio" value="3"/>
7    </layoutData>
8    <listenFor source="TaskItems" type="selectionEvent"/>
9    <parameter key="enableRefreshButton" value="true"/>
10   <header headerStrategy="characteristicsHeader"/>
11   <filterCategories>Shipping</filterCategories>
12   <filterType>include</filterType>
  </component>

```

Filter Behavior

filterCategories	filterType	Categories displayed
tag present - comma separated values	tag present	Categories mentioned (include or exclude)
tag present - comma separated values	tag not present	Categories mentioned (include)
tag present - empty value	tag present - empty value	All Categories
tag present - incorrect or empty value	tag present or not present	All Categories
tag not present	tag not present	All Categories
tag not present	tag present	All Categories
tag present or not present	tag present - incorrect or empty value	All Categories

 Invalid filterCategories or filterType will lead to a log entry.

NOTE

- The copy action on the top right corner of the component will filter down to the categories visible (and not all categories assigned to the item).

5.6.6.14 Compare View

Displays a comparison view which shows the selected object in one column, and the compare objects/ revisions in other columns

Compare with each other			
	AIW_6382437686 (base)	AIW_6382437687	AIW_6382437685
▼ Header data			
🔗 Catalog	Characteristics Sample Data	Characteristics Sample Data	Characteristics Sample Data
🔗 Item no.	AIW_6382437686	AIW_6382437687	AIW_6382437685
Alternative item no.			
Component	No	No	No
GTIN	4019558640160	4019558643263	4019558640009
Kit	No	No	No
Last status change	The user pim set the status "01 New" on 12/12/2017 2:21 AM.	The user pim set the status "01 New" on 12/12/2017 2:21 AM.	The user pim set the status "01 New" on 12/12/2017 2:21 AM.
Manufacturer	Moncler	Dolce&Gabbana	Dolce&Gabbana
Manufacturer item no.	353432345	659887366	384738468
Object right type			
Object rights			
Sold only in kits	No	No	No
Status	01 New	01 New	01 New
Supplier ERP group			
▼ Language-specific data (English, Default Ch:			
Manufacturer type designation			
Short description	Maglia Knit Down Jacket	Painted Leather Biker Jacket	Hydrangea-Print Poplin Bustier Dress
▼ Language-specific data (German, Default Ch			
Manufacturer type designation			
Short description	Maglia Strick Daunenjacke	Biker Lederjacke	Hydrangea-Druck Poplin Bustier Kleid
► Texts			

Type: compare

Parameter name	M(andatory) O(ptional)	Example values	Description
i18NKey	M	"Compare with" %compareView.name	The name of the compare view. With a leading % it's the key of the name in the i18n properties file

Parameter name	M(andatory) O(ptional)	Example values	Description
mode	M	EACH_OTHER, REVISION, MASTER_ITEM, SUPPLIER_ITEM, MERGE_PREVIEW	To compare two or more different items/products/variants with each other To compare a single item with all it's revisions To compare a supplier catalog item, with it's corresponding master catalog item To compare a master catalog item with it's corresponding supplier catalog items (might be multiple!) To compare the supplier catalog item, with the master catalog item as it would look like after the merge
rootEntity	M	Article, Product2G, Variant	The root entity of the objects which should be compared (make sure that the entity of the task UI matches!)
enableRefreshButton	O	<i>true</i> <i>false</i> (default)	Specifies whether the component has a manual refresh button in the header.

5.6.6.15 Example

The following xml example code must be added within the <layout> of the Task UI configuration:

```
<component i18NKey="Compare with Master" identifier="compareWithEachOther"
  rootEntity="Article" type="compare">
  <listenFor source="TaskItems" type="selectionEvent"/>
  <parameter key="enableRefreshButton" value="true"/>
  <parameter key="mode" value="EACH_OTHER"/>
  <header headerStrategy="compareHeader"/>
</component>
```

5.6.6.16 Drag & Drop

Some components used in Task UIs support drag and drop. For now this includes the classification and media attachment use cases. In the classification scenario the user can drag a single or multiple items from the items list and drop them on structure tree node similarly as in the existing structure context of the web client. For multimedia assignment the media document can be dragged from media documents list

component and dropped on a row in task item list. If the target item is part of a current multi-selection in that list then the whole selection acts as drop target and the media document will be attached to all selected items.

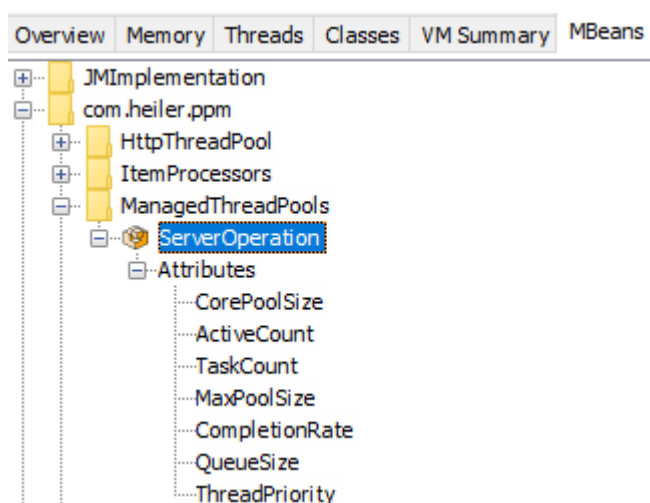
5.7 Asynchronous loading thread pool configuration

5.7.1 Purpose of the asynchronous loading thread pool

The asynchronous thread pool is utilized by dashboard components that load their data in the background. How to build a dashboard component that utilizes the thread pool is described in the chapter 'Asynchronous loading of custom dashboard components' of the Customizing chapter of the Technical Documentation.

The actual computations for fetching the data are done within a thread executor provided by a thread pool. Note that the thread pool is created only on the first usage of the asynchronous server operations. With our standard solution, this only happens on first loading of the web dashboard. The thread pool discussed here is configurable in order to tweak performance for dashboard operation for the customer's business needs as described in the following.

5.7.2 Asynchronous loading thread pool configuration




The thread pool executing asynchronous server operations in the background has several configuration parameters.

The mentioned parameters directly reflect parameters and attributes of the Java class `java.util.concurrent.ThreadPoolExecutor`. Two of them are configurable as preference in the `plugin_customization.ini`. The other parameters are registered as MBean attributes in `com.heiler.ppm - ManagedThreadPools - ServerOperation` and thereby can only be viewed and managed during runtime (e.g. via the Product 360 Control Center or any other JMX browser).

Memory consumption

When changing the parameters they have to be viewed in context of the sizing of the system on which the Product 360 Server is running, also considering that there are already other Product 360 Server thread pools for other purposes which affect the global performance of the system. Please keep in mind that dashboard components usually aggregate data for a lot of items, products or variants and thus consume a considerable amount of memory.

5.7.2.1 Parameters

Parameter	Description	MBean name	Preference in plugin_customization.ini
Thread pool core size	<p>Per default the core size of the thread pool is thrice the number of available processors.</p> <p>The number of threads held by the thread pool will never drop below this number, even if the threads are idle.</p> <p>If the thread pool core size is reduced while every thread is running the reduction will take time until ample threads have finished their processing current method stack.</p>	CorePoolSize	serverOperation.threadPool.corePoolSize
Thread pool maximum size	Per default the maximum size of the thread pool is thrice the number of available processors.	MaxPoolSize	serverOperation.threadPool.maxPoolSize
Thread priority	<p>Priority of threads in the pool. Possible values are:</p> <ul style="list-style-type: none"> ▪ 1: minimum ▪ 5: normal (default) ▪ 10: maximum 	ThreadPriority	

5.7.2.2 Attributes

Parameter	Description	MBean name
Active threads count	Number of threads that are actively executing tasks.	ActiveCount
Scheduled task count	Total number of scheduled tasks.	TaskCount

Parameter	Description	MBean name
Task completion rate	The number of completed tasks per second.	CompletionRate
Task queue size	Size of the task queue.	QueueSize

5.8 Data caching for dashboard components

For specific dashboard components it is possible to cache the data, which is loaded from the data source and then presented to the dashboard user. This is particularly useful when the query (=Entity Report) behind the data source is very complex and time consuming. When using the data cache, the data is only loaded once from the data source and the result is stored in the cache. For further presentations of the same dashboard component the cached data source result is used, which is then very fast.

Currently this feature is available for the Bar Chart, Pie Chart and Channel Status component.

In Product 360 Server the "ehcache" third-party library is used for caching (see <https://www.ehcache.org/>). The data cache for dashboard components is a cache instance of "ehcache". A cache element within this cache equals to an entity item list of one dashboard component instance of one dashboard. A new cache element is also created if the already cached entity item list was loaded by a user with a different ACL combination than the current user, because then the content of the entity item list might differ. For different data source parameter combination also different cache elements are created, e.g. a selected catalog or a selected time range.

For example:

- One dashboard is configured, containing a bar chart component with a editable catalog parameter and a pie chart component. For both components the data cache is enabled.
- Two user groups are defined with different object rights and therefore different ACLs.
- A user of the first user group accesses the dashboard. Thereby the data is loaded from the data source for the two dashboard components (with the object rights of the first user group), and two cache elements are created.
- The same user selects another catalog for the bar chart component. Thereby the data is loaded anew from the data source for the bar chart component and stored as a new cache element.
- Then a user of the second group accesses the same dashboard. Thereby the data is loaded from the data source for the two dashboard components again (with the object rights of the second user group), and two separate cache elements are created.
- Now, when users of the first or second user group access the dashboard, the data is not loaded from the data source again, but rather the corresponding cache element is used. Also when the first user selects a catalog, which was already selected once before, the data is also loaded from the cache.

5.8.1 Enable caching for a specific dashboard component

In order to enable and configure the cache for a specific dashboard component, the following parameters can be added to the <component> tag within the dashboard XML configuration:

Parameter name	Example values	Description
isCacheable	true false (default)	Enables the data cache for this dashboard component.
timeToLiveSeconds	3600 (default)	Specifies in seconds how long a cache element resides in the cache before it is destroyed and loaded from the data source anew. Therefor the data cache has to be enabled for this component (isCacheable="true"). This parameter is optional.
isRefreshable	true false (default)	Enables a button for this dashboard component which forces the reloading of the data from the data source (and thereby destroys the "old" cache element). Therefor the data cache has to be enabled for this component (isCacheable="true"). This parameter is optional.

Barchart example with cache

```

<!-- show bars of size 0 for the status values that are not used in any product;
enabled data cache and refresh button -->
<component type="barchart" identifier="chart1" i18NKey="Product Status in Master
Catalog">
  <parameter key="groupingField" value="Product2G.CurrentStatus"/>
  <parameter key="showBlankEntries" value="true"/>
  <parameter key="isCacheable" value="true"/>
  <parameter key="timeToLiveSeconds" value="1800"/>
  <parameter key="isRefreshable" value="true"/>
  <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.product2g.co
re.ProductsOfCatalog"/>
</component>

```


5.8.2 Configure the cache itself

The data cache for dashboard components itself can be configured globally for a Product 360 Server in the ehcache.xml file, which resides in the server's configuration folder. In order to configure the dashboard component data cache, change the following part of the ehcache.xml (or add it, if it doesn't exist yet):


```
<!-- Data cache for Dashboard Components -->
<cache
  name="web.dashboards.entityItemList"
  maxElementsInMemory="20"
/>
```

The attribute `maxElementsInMemory` specifies how many elements the cache can contain at the maximum. In order to find an appropriate value for `maxElementsInMemory`, consider the amount of dashboard component instances (across all dashboards), the average amount of parameter combinations of all dashboard components and the amount of different ACL combinations (simply spoken, user groups) that are configured. Also consider the heap memory usage of the cache, see chapter "Sizing considerations" below.

5.8.3 Sizing considerations

 It is very important to consider the memory usage of the data cache for dashboard components. **Misconfiguration** can lead to **OutOfMemoryExceptions** and therefore to **instability** or **crashes** of the **Product 360 Server**.

Per default, the Product 360 Server's heap memory is used for ehcache cache instances. The heap memory usage of a cache element scales with the number of entity items in a linear way. The following table shows some typical values:

Number of entity items in a cache element	Heap memory usage of a cache element
10.000	0.52 MB
100.000	5.2 MB
1.000.000	52 MB
10.000.000	520 MB
100.000.000	5.2 GB

Furthermore this means that the overall maximum heap memory usage of the data cache for dashboard components is the configured "`maxElementsInMemory`" in `ehcache.xml` (see chapter above) multiplied with the maximum number of entity items of dashboard component's data source (=Entity Report).

For example:

If `maxElementsInMemory` is configured as **20** (which is the default) and the maximum number of entity items of a data source is **1.000.000**, then the maximum heap memory usage is:

$20 * 52 \text{ MB} = \mathbf{1040 \text{ MB}}$

This memory usage has to be considered when sizing the Product 360 Server.

5.9 Product 360° View Configuration

5.9.1 Topics covered in this pages are mentioned below.

1. How to configure Product 360 view tab in Detail tab?
2. How to configure styles of Nodes and Edges?
3. How to configure Information on Node popup?
4. Configuration of Node labels

5.9.2 1. How to configure Product 360 view tab in Detail tabs?

To remove/to add Product 360 view from/to detail view, you need to create ***.detailtab.parameterized.xml** file inside webdefinitions folder (aka customization area) respective to entities. Also you can move the respective ***.detailtab.parameterized.xml** files from default folder to webdefinitions folder and modify it accordingly. You need to define a tab entry with id, permissionId, position, rootEntity and tabType inside the customized xml file.

Name	Date modified	Type	Size
default	3/9/2020 1:46 PM	File folder	
article.detailtab.parameterized	3/9/2020 1:46 PM	XML Document	1 KB
article.detailtab	1/22/2019 6:52 PM	XML Document	21 KB
CustomDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
FlexibleUi	3/9/2020 1:46 PM	XML Schema File	7 KB
FormDefinitions	3/9/2020 1:46 PM	XML Schema File	10 KB
GraphDefinition	2/11/2020 1:07 PM	XML Document	33 KB
GraphLayoutDefinition	3/9/2020 1:46 PM	XML Schema File	2 KB
MenuDefinition	3/9/2020 1:46 PM	XML Schema File	3 KB
NodeDetailPopupDefinitions	2/11/2020 11:29 AM	XML Document	8 KB
ParameterizedDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
readme	3/9/2020 1:46 PM	Text Document	1 KB
TableDefinitions	3/9/2020 1:46 PM	XML Schema File	4 KB

Here, This is example of article.detailtab.parameterized.xml. User can customize detail tab for product, variant, structure and item detail tab.



- If user do not want to remove any existing tab from the UI, then do not remove any **<tab>** entry from the file moved from default folder to webdefintion folder (corresponding ***.detailtab.parameterized.xml** files for different entities like(* =) product, article, variant, structure).

article.detailtab.parameterized.xml


```

1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-
3 instance" xsi:noNamespaceSchemaLocation=
4 "ParameterizedDetailTabs.xsd">
5 <tab i18NKey="%web.article.detail.tab.graph" id=
6 "articleGraphDetailTab" permissionId=
  "web.article.detail.tabs.graph" position="5" rootEntity=
  "Article" tabType="Graph"/>
  <tab i18NKey="%web.article.detail.tab.characteristic" id=
  "articleCharacteristicDetailTab" permissionId=
  "web.article.detail.tabs.characteristics" position="61"
  rootEntity="Article" tabType="Characteristic"/>
  <tab i18NKey="%web.article.detail.tab.preview" id=
  "articlePreviewTab" permissionId=
  "web.article.detail.tabs.multichannelpreview" position="15"
  rootEntity="Article" tabType="Preview"/>
</tabDefinitions>

```

5.9.3 2. How to configure styles of Nodes and Edges?

User can configure nodes and edges styles by defining GraphDefinition.xml inside webdefinitions customization area or copying the file from default to webdefinitions folder and modifying it..

default	3/9/2020 1:46 PM	File folder	
article.detailtab.parameterized	3/9/2020 1:46 PM	XML Document	1 KB
article.detailtab	1/22/2019 6:52 PM	XML Document	21 KB
CustomDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
FlexibleUi	3/9/2020 1:46 PM	XML Schema File	7 KB
FormDefinitions	3/9/2020 1:46 PM	XML Schema File	10 KB
GraphDefinition	2/11/2020 1:07 PM	XML Document	33 KB
GraphLayoutDefinition	3/9/2020 1:46 PM	XML Schema File	2 KB
MenuDefinition	3/9/2020 1:46 PM	XML Schema File	3 KB
NodeDetailPopupDefinitions	2/11/2020 11:29 AM	XML Document	8 KB
ParameterizedDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
readme	3/9/2020 1:46 PM	Text Document	1 KB
TableDefinitions	3/9/2020 1:46 PM	XML Schema File	4 KB

In the graph feature, you can define customized styles for particular node type and edges.

For that, you have to customize XML file. The following attributes and elements have to be defined in XML.

Edge Attributes

Attribute name	Attribute Value	Optional/ Mandatory	Description
id	Any entity type	M	This attribute is used to identify on which type of particular styles should apply to the edge

Attribute name	Attribute Value	Optional/ Mandatory	Description
sourceNodeid	id of source node	M	This attribute is used to identify edge style for source node id
targetNodeid	id of target node	M	This attribute is used to identify edge style for edge node id

Edge Style

Style Name	Optional/ Mandatory	Possible Style Value	Description
sourceArrow	O	NONE, SIMPLE, SHORT, DEFAULT, DELTA	Style defines arrow of edge at source node side
targetArrow	O	NONE, SIMPLE, SHORT, DEFAULT, DELTA	Style defines arrow of edge at target node side
fill	O	Any hex-code of color	Gives background color of graph node

Label Style for Edge

Style Name	Optional/ Mandatory	Possible Style Value	Description
fontFamily	O	Any font family for e.g., Times New Roman, Arial, etc.	To give customize font type to label of the node/edge
fontSize	O	Any size in pixel	To give customize size to label of the node/edge

Style Name	Optional/Mandatory	Possible Style Value	Description
textFill	O	Any hex-code of color	Gives background color of graph node/edge
display	O	true/false	If display=true set by user then label of the edge will be displayed to user

Node Attributes

Attribute name	Attribute Value	Optional/Mandatory	Description
id	Any entity type	M	This attribute is used to identify on which type of particular styles should apply to the node

Node Style

Style Name	Optional/Mandatory	Possible Style Value	Description
width	O	any size in pixel	Defines width of graph node
height	O	any size in pixel	Defines width of graph node
stroke	O	5px dotted #000000	Defines border thickness, border style and border color
fill	O	Any hex-code of color	Gives background color of graph node

Label Style for Edges/Nodes

Style Name	Optional/Mandatory	Possible Style Value	Description
fontFamily	O	Any font family for e.g., Times New Roman, Arial, etc.	To give customize font type to label of the node/edge
fontSize	O	Any size in pixel	To give customize size to label of the node/edge


Style Name	Optional/ Mandatory	Possible Style Value	Description
textFill	0	Any hex-code of color	Gives background color of graph node/edge
display	0	true/false	If display=true set by user then label of the edge/node will be displayed to user For edges, display=false by default For nodes, display=true by default

Note

- Default style for node has to be configured by the user as per his styling requirements for default node and default edge as shown in below example. If user doesn't provide default styling for a node/edge then it will not be displayed.
- Label Style is also optional for edges
- User can change GraphDefinition.xml file according to their requirement.

5.9.4

3. How to configure Information on Node popup?

You can also configure details you want to see after clicking on  button inside Popup. For this you have to define the customized NodeDetailPopupDefinitions.xml.

Name	Date modified	Type	Size
default	3/9/2020 1:46 PM	File folder	
article.detailtab.parameterized	3/9/2020 1:46 PM	XML Document	1 KB
article.detailtab	1/22/2019 6:52 PM	XML Document	21 KB
CustomDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
FlexibleUi	3/9/2020 1:46 PM	XML Schema File	7 KB
FormDefinitions	3/9/2020 1:46 PM	XML Schema File	10 KB
GraphDefinition	2/11/2020 1:07 PM	XML Document	33 KB
GraphLayoutDefinition	3/9/2020 1:46 PM	XML Schema File	2 KB
MenuDefinition	3/9/2020 1:46 PM	XML Schema File	3 KB
NodeDetailPopupDefinitions	2/11/2020 11:29 AM	XML Document	8 KB
ParameterizedDetailTabs	3/9/2020 1:46 PM	XML Schema File	2 KB
readme	3/9/2020 1:46 PM	Text Document	1 KB
TableDefinitions	3/9/2020 1:46 PM	XML Schema File	4 KB

Here find attached sample NodeDetailPopupDefinitions.xml file. In this file you can add or remove fields, fieldGroups and columns related to the entity as per requirements for particular entity.

5.9.5 4. Configuration of Node labels preferences

User can change Node label's preferences inside **plugin_customization.ini** file inside configuration folder as shown below.

Node labels configuration	
1	# ----- -
2	# Relationship node label preferences
3	# ----- -
4	# Label Type for node in relationship graph can be SHORT/LONG/DESCRIPTION
5	# com.heiler.ppm.relationship.server/nodeLabelType.Article = DESCRIPTION
6	# com.heiler.ppm.relationship.server/nodeLabelType.Product2G = DESCRIPTION
7	# com.heiler.ppm.relationship.server/nodeLabelType.Variant = DESCRIPTION
8	# com.heiler.ppm.relationship.server/nodeLabelType.StructureGroup = SHORT

Above mentioned, the default configuration for particular type of node. User can choose from SHORT, LONG or DESCRIPTION type for specific node as per requirement.

- **SHORT** - Short description will be displayed on Node as label
- **LONG** - Long description will be displayed on Node as label
- **DESCRIPTION** - Item no. will be displayed in absence of short description

These relate to the repository label settings, and can be tweaked even further directly on the respective entities within the repository.

5.9.6 5. Permissions

5.9.6.1 "Items of the product" or "Variants of the product" or "Items of the variant"

Users can control the visibility of "Items of the product" or "Variants of the product" or "Items of the variant" node in Product 360 view via a combination of Action Rights and Qualified field rights.

Both conditions should be true for the node to be displayed in Product 360° View.

Node	Action Right	Qualified field rights
Items of the product	Items, general access	Product reference types → Product reference

Node	Action Right	Qualified field rights
Variants of the product	Variant management, general access	Variant reference types → Product reference
Items of the variant	Items, general access	Variant reference types → Variant reference


All action rights of user group "Admin"				
	Allo...	Permission	Rights group	Description
1	<input type="checkbox"/>	Product management, general access	Products	com.heiler.ppm.product2g.core.perm...
2	<input type="checkbox"/>	Variant management, general access	Variants	com.heiler.ppm.variant.core.permissi...
3	<input type="checkbox"/>	Items, general access	Items	com.heiler.ppm.article.core.permissio...

All qualified field rights of the user group "Admin"				
Qualification key Product reference types				
	Visible	Editable	Value	
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Spare part	
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Similar item	
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Successor item	
4	<input type="checkbox"/>	<input type="checkbox"/>	Product reference	
5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Essential spare part	
6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Optional spare part	
7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Accessories	
8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Other reference	
9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Alternative order unit	
10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Component	
11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cross selling	
12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Up selling	

All qualified field rights of the user group "Admin"				
Qualification key Variant reference types				
	Visible	Editable	Value	
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Spare part	
2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Similar item	
3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Successor item	
4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Essential spare part	
5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Optional spare part	
6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Accessories	
7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Other reference	
8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Alternative order unit	
9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Component	
10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Cross selling	
11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Up selling	
12	<input type="checkbox"/>	<input type="checkbox"/>	Product reference	
13	<input type="checkbox"/>	<input type="checkbox"/>	Variant reference	

6 Media Manager Configuration

These sections provide assistance with installing the individual components of Product 360 - Media Manager and corresponding third-party software.

 Note that the information in the following sections is intended for Informatica system partners and trained administrators. End users should contact their administrator with any problems in this area, as improper handling and operation of the software and procedures described can cause damage and data losses.

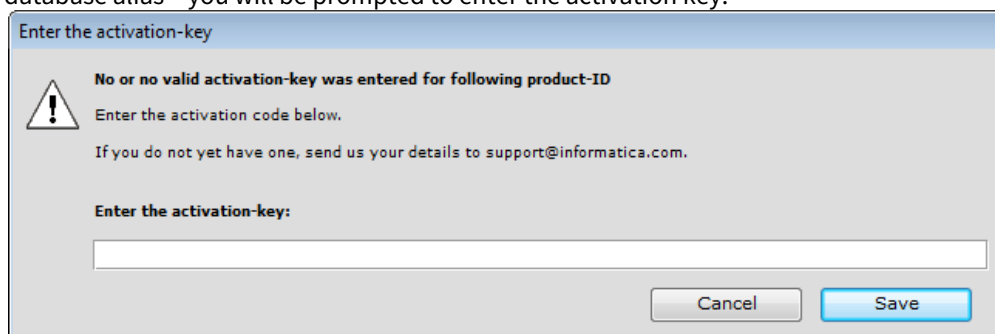
6.1 Activating PIM - Media Manager, defining volumes & setting up Funcd

- [Activating Product 360 - Media Manager](#)(see page 271)
- [Defining Volumes](#)(see page 271)
- [Setting up Funcd](#)(see page 272)

6.1.1 Activating Product 360 - Media Manager

After installing or upgrading Product 360 - Media Manager you must activate the system before you can use it. The procedure is as follows:

1. Start the **Administration** module.
2. If you have entered your station data when starting the module – i.e. the station number, location and database alias – you will be prompted to enter the activation key.



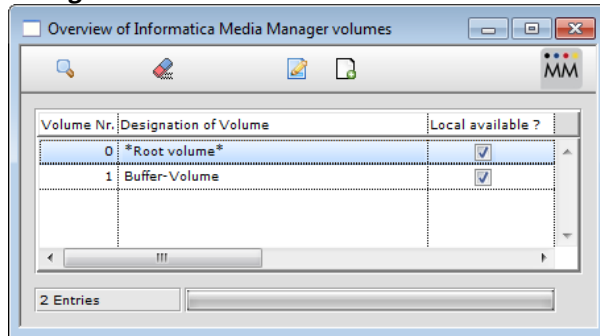
3. Contact Informatica Support to receive an activation key.
4. Enter the activation key in the **Enter activation key:** field and click on **Save**.
5. Restart the **Administration** module so that your changes will take effect.

6.1.2 Defining Volumes

On each workstation you have to define the available Product 360 - Media Manager volumes. To do so the desired volumes have to be mounted on the respective volumes on the machine and the logged on user must

have read and write permission on them. After mounting the volumes they are defined in Product 360 - Media Manager as follows:

1. Start the **Administration** module.
2. Select **System > Volumes of Product 360 - Media Manager** to open the **Overview of Product 360 - Media Manager volumes** window.



3. Double-click an existing volume to modify it or click on the **New** button to create a new one.
4. The settings in the **Global Volume data** area are system wide. You have to define them only once.

i Keep in mind to use the right path separators for the respective machines, e.g. like the file server or the database server.

5. Now tell the Product 360 - Media Manager workstation where it can find the current volume. You can do this in the **Local assignment** area.

i UNC paths

We recommend using UNC paths instead of locally mapped network shares.

6. Repeat the steps 3 to 5 for each volume.
7. Repeat the steps 1 to 6 for each Product 360 - Media Manager workstation.

6.1.3 Setting up Funcd

In the **Administration** module, select **System > System parameters** to open the **Modify system data** window. Go to the **Network** tab and enter the values for the Funcd IP addresses and ports for your Product 360 -

Media Manager system.

Modify system data

Activation-key Workstation: 227 Entries of system data

Standard Network Medias Production Archiv/Pipe Planning Messages

Network settings

File Server Type Used ☐ Unix/HELIOS ☒ Windows

Database Server Type Used ☐ Unix ☒ Windows

IP Address FUNC 10.10.11.185 Port FUNC 11100

IP Address FUNCPIP1 Port FUNCPIP1 0

OPI settings

Type of Layout Generation ☒ Layout-images are made in subdirectory
☐ Layout-files are made with extension

☐ Delete layout images of orders/jobs after archiving?

☐ Delete Medias Layout Images after Archiving?
(Must not be deleted in the case of an external call (Internet/ISDN))

Name of Layout-directory/ of extension according to type

Conventions for file names

☐ Restrict characters allowed in file names

Allowed characters Bâöüqwertyuiopasdfghjklxcvbnm ÄÖÜQWERTZUIOPASDFGHJKLYXCvBNM1234567890!\$

Replacement character for an unallowed character #

Maximum length of a file name 128

☒ Should special characters such as \ and / be converted to # (important for common Mac/PC connection)?

☐ Should special characters ä, ö, ß, etc. be converted to ae, oe, ss, etc. (important for common Mac/PC connection)?

☐ Files that are added must have a file extension ☐ File extension must be in the MEDIAS list of file types

Cancel Save

6.2 External preview generation

- [External preview generation](#)(see page 273)
 - [Example of the file datatypes.xml](#)(see page 274)
 - [Example of a shell script](#)(see page 275)

6.2.1 External preview generation

External preview generation enables you to create the previews of your media objects using a separate application or with adapted options and not using ImageMagick, as is normally the case in Product 360 - Media Manager.

⚠ This function should only be used and configured by administrators. A very thorough knowledge of the system is required to perform the steps described below. We strongly recommend that you do not use external preview generation if you do not possess the requisite technical knowledge.

External preview generation can be used to manage the creation of preview images for any file format for specific customers or all customers.

The formats to be delegated to external preview generation and for which customer(s) are defined in the **datatypes.xml** file in the directory **[Volume0]/opasdata/conf**. This directory also includes the file **example_datatypes.xml**, which contains some sample definitions.

In the file **datatypes.xml**, you specify which Funcd is to be used to call up an external command for a customer and data format. The value **1** indicates that the Funcd on the file server is used. The file server can be running under Unix or Windows. The value **2** indicates that the Funcd on the second pipeline computer is used. The 2nd pipeline computer runs under Windows.

The external command itself must be specified as a file path from the calling Funcd. This path must not contain any blank spaces or special characters. The command receives three command line parameters from the Funcd.

- The first parameter is the path from Funcd to the original file. The previews are to be generated from this file. The command called must generate three JPG files from the original file. The first file may be a maximum of 25 x 25 pixels. The second file may be a maximum of 100 x 100 pixels. The third file should be larger than the second file by the factor defined in the Medias settings in the Administration module.
- The second parameter is the basic name of the files generated.
- The third path is the absolute path from the Funcd to the directory in which the generated files are stored. The third parameter is specified without a separator at the end.

The Funcd then executes the command, for example: `/export/db-main/opastool/TransScript01.sh ' /export/buffer/buffer/s79/test.eps' 041109123456 '/export/buffer/buffer/s80'`

The shell script TranScript01.sh must generate the files:

1. **/export/buffer/buffer/s80/041109123456_1.jpg** with a maximum size of 25x25 pixels
2. **/export/buffer/buffer/s80/041109123456_2.jpg** with a maximum size of 100x100 pixels
3. **/export/buffer/buffer/s80/041109123456_3.jpg** with a size corresponding to the factor set in the Medias settings in the Administration module


Of course, instead of using a shell script you can also call up a special program or delegate the parameters within a shell script to other programs.

 The file paths for the original file and the generated files are case-sensitive.

If Product 360 - Media Manager cannot find one of the three expected files, the corresponding internal preview generation function is used.

6.2.1.1 Example of the file datatypes.xml

Here is an example of a possible configuration and structure of the file **datatypes.xml** in the directory **[Volume0]/opasdata/conf**.

 The file **datatypes.xml** may not contain any comments because the parser used cannot process them.

datatypes.xml

```

1  <DEFINITION>
2    <ENTRY>
3      <CUSTOMER>D049999</CUSTOMER>
4      <DATATYPE>.eps</DATATYPE>
5      <FUNCD>1</FUNCD>
6      <PROGRAM>/export/opas/buffer_volume/TransScript01.sh</PROGRAM>
7    </ENTRY>
8    <ENTRY>
9      <CUSTOMER>D049999</CUSTOMER>
10     <DATATYPE>epsf</DATATYPE>
11     <FUNCD>1</FUNCD>
12     <PROGRAM>/export/opas/buffer_volume/TranScript01.sh</PROGRAM>
13   </ENTRY>
14   <ENTRY>
15     <CUSTOMER>D049999</CUSTOMER>
16     <DATATYPE>.tif</DATATYPE>
17     <FUNCD>2</FUNCD>
18     <PROGRAM>X:\opas\buffer_volume\TranScript02.bat</PROGRAM>
19   </ENTRY>
20   <ENTRY>
21     <CUSTOMER>D049999</CUSTOMER>
22     <DATATYPE>tiff</DATATYPE>
23     <FUNCD>2</FUNCD>
24     <PROGRAM>X:\opas\buffer_volume\TranScript02.bat</PROGRAM>
25   </ENTRY>
26 </DEFINITION>

```

6.2.1.2 Example of a shell script

Here is an example of a shell script for external preview generation. This shell script is also located in the file **TranScript01.sh** in the directory **[Volume0]/opasdata/conf**.

TranScript01.sh

```

1  #!/bin/bash
2  # Enter the absolute path to the ImageMagick convert command here.
3  CONV_PATH=/export/opus/volume0/db-main/opastool/funcd/tools/convert
4  # You can use this value to control the preview quality.
5  # The default value is 72.
6  # Lower values generate lower quality previews.
7  # Higher values generate better quality previews.
8  CONV_DENS=200
9  # You can set the width x height size of the small preview in pixels here.
10 # You should only modify this value slightly, if at all.
11 SMALL_SIZE=25x25
12 You can set the width x height size of the medium preview in pixels here.
13 # You should only modify this value slightly, if at all.
14 MEDIUM_SIZE=100x100
15 You can set the width x height size of the large preview in pixels here.
16 # You should adjust this value to match your settings. Refer to the file
   example_datatypes.xml.
17 BIG_SIZE=400x400
18 # From this point onwards, you do not need to change anything.
19 SRC=$1
20 TMP=$3/$2_4.tif
21 DST1=$3/$2_1.jpg
22 DST2=$3/$2_2.jpg
23 DST3=$3/$2_3.jpg
24 $CONV_PATH -density $CONV_DENS "$SRC" "$TMP[0]"
25 $CONV_PATH -geometry $SMALL_SIZE "$TMP" "$DST1"
26 $CONV_PATH -geometry $MEDIUM_SIZE "$TMP" "$DST2"
27 $CONV_PATH -geometry $BIG_SIZE "$TMP" "$DST3"
28 rm -f "$TMP"

```

6.3 Setting up web front end

- [Setting up the Internet module \(Internet Administration Console\) \(Obsolete since Product 360 8.0\)](#)(see page 276)
- [Setting up the Session Manager \(Obsolete since Product 360 8.0\)](#)(see page 278)

6.3.1 Setting up the Internet module (Internet Administration Console) (Obsolete since Product 360 8.0)

This chapter is obsolete since Product 360 8.0. For reasons of compatibility to Product 360 versions < 8.0 this chapter is still remaining in Product 360 version 8.0 documentation.

The procedure for setting up the Internet module is as follows:

1. Start the Tomcat server if it is not already running.
2. Start the Internet module using the **OPAS_xob.exe** program from the **oxobjsrv** directory in your local Product 360 - Media Manager installation.
3. Navigate to **Presettings > Presettings** and, in the subsequent window, go to the **Master 1** tab. Make the following settings on this tab:

- **Should a log be kept?**
- **Time contingent for user in minutes** controls the timeout for users who are logged into the Internet module.

 A value of **30** minutes is recommended.


- **Max. number of displayed records per search** defines the number of hits a search will return.

 A value of **500** is recommended.


- **Max. data quantity in MB that may be transmitted via the module** defines how many Megabytes of data can be downloaded using the Internet module. Downloading of larger volumes of data terminates with an error message.

 A value of **100** is recommended.


- **Should the e-mails be sent with the Pipeline module?:** If you activate this setting, e-mails are sent using the Pipeline module rather than the Internet module.
- **URL of dindex page for workflow e-mail processing:** In some e-mails, paths to the dindex page are specified in order to enable direct access to the web application.

 This setting should only be made after the Tomcat server has been configured. There you can copy the path to the page from the web browser and enter the prefix **d** before **index**.


- **Should previews of job components be generated via the pipeline?**

 To relieve the load on Internet module you can use the Pipeline module to generate previews.

- **Should MEDIAS previews be cached?:** If you activate this option, previews of MEDIAS objects are buffered, which means that they do not have to be retrieved from the content and media database each time they are called up.

 This speeds up the page layout process in the web application.

5. Go to the **Master 2** tab:
 - **Under Station number of this computer**, enter the local Product 360 - Media Manager workstation number.
 - It is recommended that you enable communication with the Session Manager.
 - Enter the **IP address of this computer**.
 - Under **Port of this computer**, define a port range, e.g. **85-94**.
 - Specify a port to communicate with the Session Manager (default **81**).
 - **Path to the working directories of this computer:** Click on the relevant button to select the directory. It is recommended to use UNC paths.

 The directory is part of the Web application (Windows: **C:\OpasGWebServer\workdir**). If necessary, enable this directory in the network.

- **Max. time limit for a TCP/IP packet (in seconds)** is set to **5** seconds by default.
- **Sleep time between the individual requests (in ms)** is set to **10** milliseconds by default.
- **Integrate watermark starting from which pixel dimension** is set to **150** by default.


 This setting determines the image size in pixels above which a watermark will be integrated.

6. Click on **Save** to save your entries.
7. You have to restart the Product 360 - Media Manager Internet module.


You can call up the Product 360 - Media Manager web front end using **http://<IP address of Tomcat computer>:8080/opas/index.jsp**.

6.3.2 Setting up the Session Manager (Obsolete since Product 360 8.0)

This chapter is obsolete since Product 360 8.0. For reasons of compatibility to Product 360 versions < 8.0 this chapter is still remaining in Product 360 version 8.0 documentation.

 The Session Manager is part of the Web application and, after installation, is located in the directory e.g. **C:\OpasGWebServer\XOBSessionManager**.

1. In the file **server.xml** in the directory **[XOBSessionManager]\conf**, adapt the following values:
 1. **<ServerPort value="81"/>**: Depending on the free port or the port to be used.
 2. **<WebPort value="8089"/>**
 3. **<LogLevel value="7"/>**
 4. **<server IP="192.168.25.170" Port="82" Prio="5" Active="Y"/>**
 5. **<server IP="192.168.25.215" Port="86" Prio="2" Active="N"/>**

 The priority **Prio** allows more powerful computers to be utilized more intensively. **1** is the highest priority, **20** the lowest.

The Internet module can be activated and deactivated using **Active**.

Under **IP** enter the IP address of the computer on which you want to install the Internet module.

- Save all your entries.
- Start the Session Manager using **startup.bat**.

You can also start the Session Manager as a Windows service; refer to [Run Product 360 - Media Manager server modules as a Windows service](#)(see page 283).

You can query the status of the Session Manager under **http://localhost:[Port(see page 276) for info page]/** in your browser.

 Adapt the file **Base.cfg** so that the Web application submits your queries via the Session Manager.


6.4 Connecting the LDAP directory service

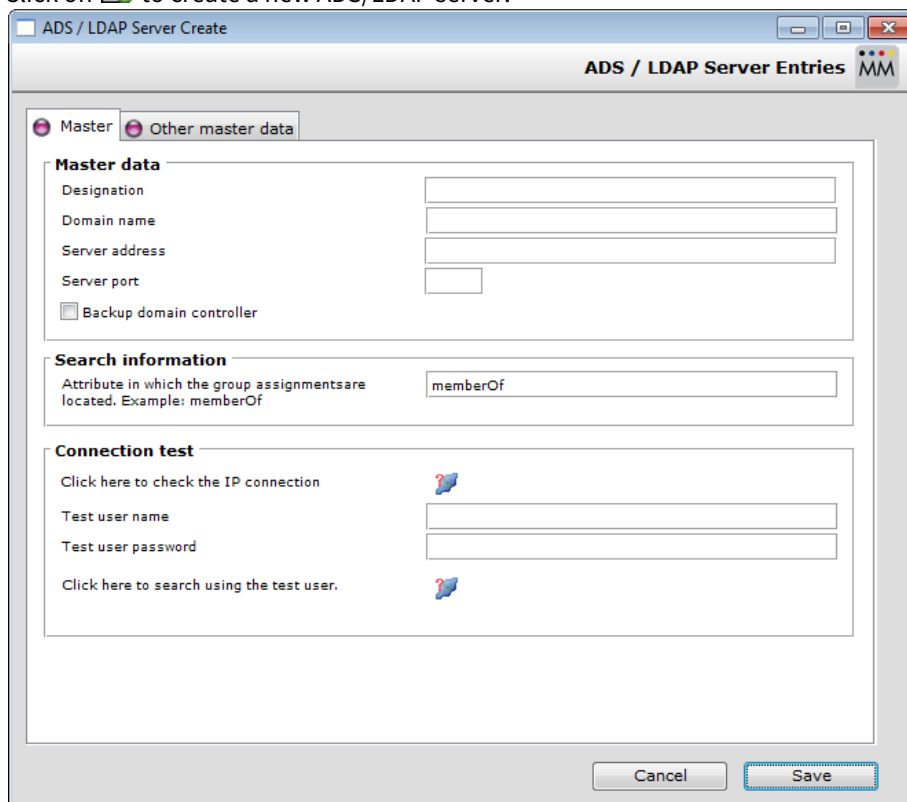
The LDAP option provides an interface between the Product 360 - Media Manager system and an ADS server, to reduce the amount of administration work for users in the two systems and eliminate redundancy.

It is implemented in every module, which forwards login requests from Product 360 - Media Manager to a directory service, synchronizes the data in this service with the Product 360 - Media Manager system and ensures that access to and rights in Product 360 - Media Manager are in line with your requirements.

LDAP stands for **L**ightweight **D**irectory **A**ccess **P**rotocol and represents a method of mapping structured directories, e.g. for employees or customers. **ADS** from Microsoft stands for **A**ctive **D**irectory **S**ervice and is an implementation of LDAP, which is very similar to LDAP but differs from it on certain points. ADS is mostly used in Windows networks with domains.

i ADS and LDAP provide extremely versatile configuration options. As a result, it is not possible to make a general statement about what extensions are necessary for the interface to the LDAP module. Further information can be found in the license conditions.

1. Start the Administration module.
2. Select the menu **System > System parameters** and enable **Activation of LDAP Login** (If this option was disabled a restart is needed)
3. Select the menu **ADS/LDAP > LDAP server settings** to open the overview list of ADS/LDAP servers.
4. Click on  to create a new ADS/LDAP server.



5. Adapt the following settings on the **Master** tab:

- Under **Designation** you enter the designation of your choice for your server. The designation has no influence on the operation of the module or the directory service server.
- Under **Domain name** you need to enter the name of your domain (e.g. mycompany.com).
- Under **Server address** you need to enter the name (or the IP address) at which your directory service server can be contacted.
- Under **Server port** you need to enter the port at which your directory service server can be contacted (default: **389**).
- Attribute of group assignments, default is **memberOf**
- When you have finished entering your settings, click on **Save**.

Now you have to create the mapping between the Product 360 - Media Manager user groups and the ADS user groups:

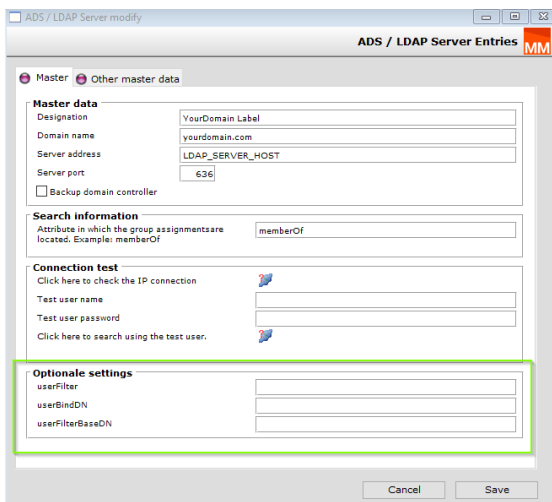
1. Select the menu **ADS/LDAP > LDAP group settings**.to open the overview list for group assignments.
2. Create new group assignments, e.g. LDAP group:
CN=companyname,OU=groups,OU=mycity,DC=mycompany,DC=com
3. Select the corresponding Product 360 - Media Manager user group.
4. Click on **Save**.

6.4.1 Advanced LDAP configuration

 Available since 8.0.5.03, 8.0.6.01 and all 8.1.x versions

It is possible to define the LDAP server queries within the native Media Manager administration. This is necessary if the connected LDAP server do not accept the default settings used by the Media Manager.

Enter the LDAP filter queries here



userFilter	LDAP filter to find the user based on the successful login with 'userBindDN'. E.g. (&((CN={userName},OU=yourOrg,DC=myDomain,DC=com) (objectClass=user))
userBindDN	LDAP filter to authenticate against the LDAP server. E.g. CN={userName},OU=yourOrg,DC=myDomain,DC=com
userFilterBaseDN	LDAP filter to limit the search with 'userFilter'. E.g. OU=yourOrg,DC=myDomain,DC=com

All these filters could be used with variables 'domain' and 'userName'. 'domain' gets replaced with the given domain and 'userName' gets replaced with the given login name.

To verify the LDAP filters are correct it is recommended to test the filter with an external LDAP browser. If the filters are working in these external tool it will work in Media Manager also.



All 3 filters have to be filled to activate the advanced LDAP mode. If just 1 field is not filled the simple mode is used.

6.5 Setting up Media Publisher

- [Presettings window](#)(see page 281)
 - ["Standard" tab](#)(see page 282)
 - ["Internal" tab](#)(see page 282)
 - ["Orders" tab](#)(see page 283)
 - ["Additional parameters" tab](#)(see page 283)

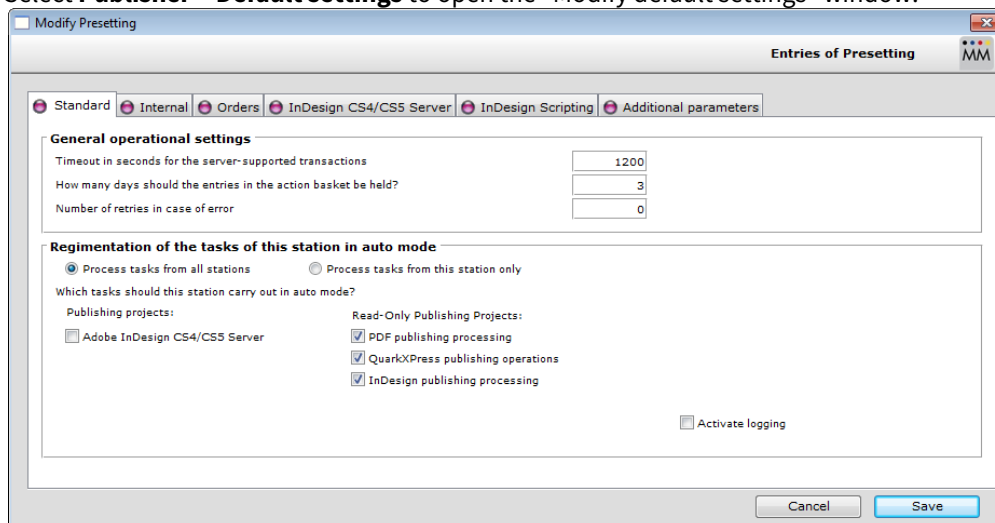
6.5.1 Presettings window



To edit the default settings for the Media Publisher module, you need to log in as a user with "Media Publisher administration" rights. You will find more information about user rights in the documentation for the Administration module.

1. Open the Media Publisher module. The module is pre-configured in such a way that it does not automatically start in automatic mode.
2. Close the message about missing default settings by clicking on **OK**.

3. Select **Publisher > Default settings** to open the "Modify default settings" window.



6.5.1.1 "Standard" tab

1. The options in the **General operational settings** section apply to all projects and tasks processed on the local workstation by the Media Publisher module.
 - **Timeout in seconds for server-supported transactions** defines how many seconds the Media Publisher module waits for responses from Funcc or Scripting Servers.
 - **How many days should the entries in the action basket be held?** defines how long logs of executed actions remain in the action basket.
 - **Number of retries following error** controls how often an action is repeated in case of an error before the module cancels processing of the action.
2. In the **Regulate tasks of this station in automatic mode** section, you can specify how you want the Media Publisher module to process everything on this workstation.
 - **Process tasks from all stations** and **Process tasks from this station only** defines whether jobs in the action basket will only be processed if they were created locally or also if they come from other workstations. If you want the Media Publisher module to run in automatic mode on this workstation and to execute corresponding actions for all users, set **Process tasks from all stations** here.
 - You can also specify which project types will be processed.
Grayed out fields cannot be selected as the corresponding scripting engines are not licensed. It can be useful to restrict the project types, for example if you are running different scripting engines on different workstations and you want to improve the communication speed between the relevant module of Media Publisher and the associated local scripting engine. This can also reduce network traffic.

6.5.1.2 "Internal" tab


1. You can **Activate automatic mode for processing action basket**.
2. You can specify whether you want it to be processed at a fixed time or at a defined interval. Depending on your selection, enter the appropriate values in the relevant fields.
3. Required data can also be restored automatically if it is archived.

6.5.1.3 "Orders" tab

1. You can **Activate automatic mode for processing action basket**.
2. You can specify whether you want it to be processed at a fixed time or at a defined interval. Depending on your selection, enter the appropriate values in the relevant fields.
3. Required data can also be restored automatically if it is archived.


6.5.1.4 "Additional parameters" tab

Here, you can specify additional parameters for the Media Publisher module.


 These settings affect all Media Publisher modules in your Product 360 - Media Manager system.

6.6 Run Product 360 - Media Manager server modules as a Windows service

- [Run the native modules as services](#)(see page 283)
- [Run Tomcat as a service](#)(see page 284)
- [Run Session Manager as service](#)(see page 285)

 All non-local paths must be UNC paths on the workstation where the services are running. The user account for the service must have read and write permissions on these UNC paths:

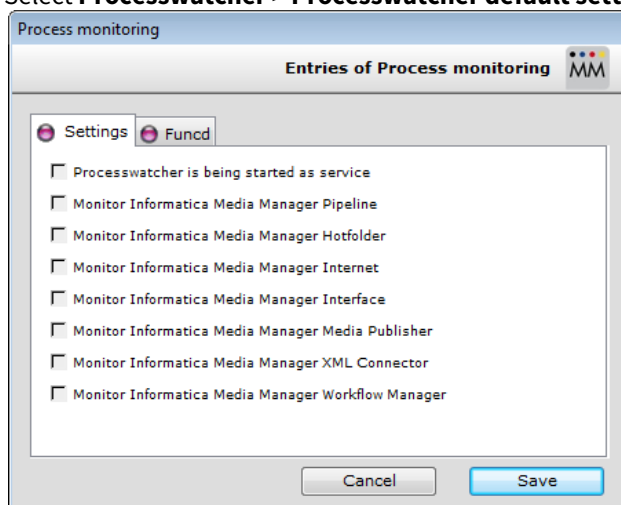
- Administration module: locale volume assignments
- Internet module: path to the working directories of this computer
- *Funcd working directories*

 When logging on to a machine where Product 360 - Media Manager programs run as service avoid using the account under which the services are executed. When you log off a machine all running services of the currently used account are stopped.

6.6.1 Run the native modules as services

1. Open the Process Watcher module.

2. Select **Processwatcher > Processwatcher default settings**.



3. Activate the **Processwatcher is being started as service** option.
4. Activate the modules to be monitored.
5. Click on **Save**.
6. Start the automatic mode for the Process Watcher module to check the settings.
7. Stop the automatic mode of Process Watcher.
8. Quit the application.
9. Quit all monitored modules.
10. Navigate to the directory where the Process Watcher module is installed, e.g. **C:\Program Files (x86)\Informatica Media Manager\opwatcher**.
11. Double-click on **MakeService.bat**.
12. Open the Microsoft service administration.
13. Open the properties of the **Infomatica Media Manager Process Watcher** service.
14. On the **General** tab set the startup type to **Automatic (delayed)**.
15. Switch to the **Log On** tab.
16. Activate **This account**.
17. Enter the user name and password.
18. Click on **OK**.
19. Start the service.

The settings of these automatic modules can be controlled in the Administration module with the control center.

 With **RemoveService.bat** the service can be deleted.

6.6.2 Run Tomcat as a service

1. Change **installService.bat** in folder **[YourWebServerInstallation]** with your used paths, e.g. set **OpasGWebServerPath=C:\OpasGWebServer**.
2. Open the command line (for Windows 7 or 2008 R2 server open in administrative mode).
3. Call **installService.bat** e.g. in the directory **C:\OpasGWebServer**.
4. Open the Microsoft service administration.
5. Open the properties of the **Informatica Media Manager Apache Tomcat** service.
6. On the **General** tab set the startup type to **Automatic (delayed)**.

7. Switch to the **Log On** tab.
8. Activate **This account**.
9. Enter the user name and password.
10. Click on **OK**.
11. Start the service.

 With **removeService.bat** the service can be deleted.

6.6.3 Run Session Manager as service

1. Open the command line (for Windows 7 or 2008 R2 server open in administrative mode).
2. Call **InstallApp-NT.bat** in directory **[YourWebServerInstallation]\XOBSessionManager\bin**, e.g. **C:\OpasGWebServer\XOBSessionManager\bin**.
3. Open the Microsoft service administration.
4. Open the properties of the **Informatica Media Manager Session Manager** service.
5. On the **General** tab set the startup type to **Automatic (delayed)**.
6. Switch to the **Log On** tab.
7. Activate **This account**.
8. Enter the user name and password.
9. Click on **OK**.
10. Start the service.

 With **UninstallApp-NT.bat** the service can be deleted.

6.7 Product 360 Core and PIM - Media Manager Configuration

- [Product 360 - Server](#)(see page 286)
 - [Integrating Product 360 - Media Manager](#)(see page 286)
 - [Switching default media asset provider to Product 360 - Media Manager](#)(see page 286)
 - [Configuring Product 360 - Media Manager](#)(see page 286)
 - [Connection data](#)(see page 287)
 - [Shares](#)(see page 288)
 - [Notification queue](#)(see page 289)
 - [Write access](#)(see page 290)
 - [Additional language packages](#)(see page 290)
 - [Miscellaneous](#)(see page 291)
 - [Auto Assignment](#)(see page 292)
 - [Configuration example of Product 360 - Media Manager](#)(see page 293)
 - [Using Product 360 - Media Manager with master assets and derivatives](#)(see page 295)
 - [Adding new media asset attribute\(property field\) to the repository](#)(see page 297)
 - [Add new media asset attribute\(property field\) for media asset file](#)(see page 297)
 - [Add new media asset attribute\(property field\) for media asset document](#)(see page 297)
- [Product 360 - Desktop Client](#)(see page 298)

6.7.1 Product 360 - Server

6.7.1.1 Integrating Product 360 - Media Manager

The usage of Product 360 - Media Manager as media asset provider for Product 360 - Server presumes that Product 360 - Media Manager version 8.0.5 has been installed. Please refer to the Product 360 - Media Manager installation manual for such an installation.

Product 360 - Media Manager is integrated into the Product 360 - Server by means of a plug-in. This plug-in is default installed and must be configured afterwards. The following chapters will explain this in detail.

Switching default media asset provider to Product 360 - Media Manager

In order that Product 360 - Server uses Product 360 - Media Manager as media asset provider, you have to switch the default media asset provider to Product 360 - Media Manager. This is performed in the C:\Informatica\server\configuration\HPM\server.properties file by setting the "mime.defaultProvider" parameter in the "Media Asset Server (MAS) Settings" section to "HMM":

```
#####
### Media Asset Server (MAS) Settings
# Defines the default provider for media assets which defines the source where to
# obtain the multimedia documents from(e.g. HLR, HMM).
# MediaAssets are administered by a provider. A implement of provider is already
# included by standard HPM(Identifier=HLR).
# The identifier of provider is defined in its plugin.xml, see the Extension point
# com.heiler.ppm.mediaasset.server.mediaAssetProvider.
# If no provider is explicit specified, then the here defined default provider will
# be used.
mime.defaultProvider = HMM
```

Configuring Product 360 - Media Manager

After the integration of the Product 360 - Media Manager plug-in, you have to configure the plug-in to your needs. The configuration should be performed in the C:\Informatica\server\configuration\HPM\hmm.properties file.

The parameters concerning the Product 360 - Media Manager configuration can be found in the "connection settings for the application server" section.

The following sections describe the configuration parameters.

Special characters

If a value contains unicode characters store them using escape sequences, e.g. \u00C4 for the German umlaut Ä.



Connection data

In order that Product 360 server can connect to Product 360 Media Manager, you have to specify the corresponding settings for Product 360 - Media Manager and it's database.

The following table lists the connection parameters:

MSSQL - Integrated security


If your security guidelines do not allow passwords in configuration files you can use integrated authentication on Windows operating systems. (MSSQL only)


Property	Description
<code>hmm.login.supervisor.userName</code>	Login name of the supervisor user at Media Manager who has all rights and will be mapped to the Product 360 administrator.
<code>hmm.login.supervisor.password</code>	Password of the supervisor user at Media Manager who has all rights . <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<code>hmm.login.customer</code>	Customer ID for the authentication at Product 360 - Media Manager.
<code>hmm.db.url</code>	Url of the Media Manager database which can be reached by Product 360. <div>  It is possible to use an encrypted connection to the Media Manager database (MSSQL only). Append '<code>ssl=request</code>' to your url. The url would look like <div> <code>jdbc:sqlserver://localhost:1433;databaseName=opasdb;ssl=request</code> </div> </div>

Property	Description
hmm.db.user	Login name at the Media Manager database which can be reached by Product 360. Might be empty if integrated authentication with MSSQL is used.
hmm.db.password	Password for the above mentioned user at the Media Manager database which can be reached by Product 360. Might be empty if integrated authentication with MSSQL is used.
hmm.db.type	Supported Product 360 - Media Manager database type. It must be one integer of the following values: 1: ORACLE 11g R2 and above; 2: MSSQL SERVER 2008 R2; 3: MSSQL SERVER 2012 and above
hmm.db.allowAutomaticMigration	Specifies whether the Informatica Media Manager database gets updated automatically during the P360 starts up a connection with it. Default is true.
hmm.connection.poolsize	Size of connections pool per Product 360 user to Media Manager, default value is 10.
hmm.connection.timeoutSEC	Time out setting(in seconds) for each connection to Media Manager. The connection will be deleted after this period. Default value is 1800.

Shares

Product 360 - Server uses one share within the Product 360 - Media Manager system for accessing exported media assets. In order that Product 360 - Server can access this share, its path must be declared.


Property	Description
hmm.share.export	Path to the share containing the temporary exported zip file for images. This share must provide read-write access to application server.
<div>  Removed since Product 360_8.0.03 </div>	

 Please note that the local directories of the shares might not (yet) exist. Usually the Product 360 - Server creates these directories on the first start, but for this configuration step you would need to do this manually to be able to create the share on them.

Notification queue



If Product 360 - Server should use the master asset functionality of Product 360 - Media Manager, Product 360 - Server must keep itself informed about asset changes in Product 360 - Media Manager by listening to corresponding notification queues.

In order that this mechanism works, the following parameters have to be configured:

Property	Description
hmm.jms.connection.url	<p>Connection URL to Media Manager JMS server which replaces the old settings for notification queue.</p> <p>An error message for unreachable JMS server is only ensured with the transport options "initialReconnectDelay" and "maxReconnectAttempts".</p> <div>  Example hmm.jms.connection.url = failover:(tcp://JMSServer:61616?wireFormat.maxInactivityDuration=0)?initialReconnectDelay=2000&maxReconnectAttempts=2 </div>
hmm.jms.connection.username	<p>Optional property as the name for the authentication user during connection to the Media Manager JMS server. They are only necessary if the user should be authorized to connect to the Media Manager JMS server.</p> <div>  This property is introduced only for the cloud solution, therefore it is currently not available since the media manager still connects to JMS server without authorization mechanism. </div>
hmm.jms.connection.password	<p>Optional property as the password for the authentication user during connection to the Media Manager JMS server. They are only necessary if the user should be authorized to connect to the Media Manager JMS server.</p> <div>  This property is introduced only for the cloud solution, therefore it is currently not available since the media manager still connects to JMS server without authorization mechanism. </div>

Write access

If Product 360 - Server should be supported with the write access of Product 360 - Media Manager, the following parameters have to be configured:

Property	Description
hmm.supportsWrite	<p>Set this to false, If the write access of media manager Provider should not be supported.</p> <p>Please note, that there is not granular distinction. Either the Provider supports FULL write support (Upload, Removing files and categories...) or doesn't support write at all.</p> <div>  Default value true </div>
hmm.defaultCategoryId	<p>The identifier of default category(usually names "Unassigned") which stores all images that are not assigned to other categories.</p> <div>  The default category id can be fetched by calling the following sql statement from the Media Manager database: <pre>select IHIE_ID from F_IMGHIER where IHIE_NAME = 'Unassigned'</pre> </div>

Additional language packages

If you have installed additional language packages (refer to appendix "i18n language packages" for more information), you will have to add respective mappings into the hmm.properties file. This is due to the fact that Product 360 -Server works with locales and Product 360 - Media Manager with language numbers.

The mapping entries must look like this:

```
# Mapping from Locales to Media Manager language numbers
hmm.locale.en_US=0
```





- A setting with false value can cause fatal error by fetching asset information from Media Manager!
- locale must be an enum entry defined in the enumeration "Enum.Language".

Tip: The language numbers are defined in the "Informatica Product 360 Media Manager Administration". You can retrieve a list of the language numbers from by selecting "System" -> "Manage languages" in the native application "Informatica Product 360 Media Manager Administration"

Miscellaneous

The following table lists all other parameters for the configuration of the Product 360 - Media Manager plug-in:

Property	Description	Default value
<code>hmm.maxCountOfIdsInOneThread</code>	Maximum count of ids which are sent as parameter to corresponding connector API call that can be run with multi-threading. This value can be adjusted in real time for a better performance. For more detailed information please visit the section "Media Asset Parallel Management" of chapter "Tuning advisory" in [OperationManual].	1000
<code>hmm.numberOfThread.initValue</code>	This setting defines the initial value for the number of threads which are used for calling media asset parallel operations. Default value is 1, therefore this initial value should be adjusted according to the corresponding hardware and media manager configuration(e.g. number of hmm port). After start of the Product 360 - Server, the value of <code>numberOfThread</code> can be also changed by JMX tooling in real time.	1
<code>hmm.maxNumberOfDisplayableObjects</code>	Maximum number of the from Product 360 - Media Manager loadable media objects pro search, no matter what default value in the Product 360 - Media Manager system parameters.	10000
<code>defaultquality</code>	The default image quality. This parameter is only needed when using the master asset functionality of Product 360 - Media Manager.	originalimage

Property	Description	Default value
<hmm.exportmediaasset.defaultwithloggedinuser< h1=""> <div>  available since 8.0.01.04, 8.0.03.00 </div> </hmm.exportmediaasset.defaultwithloggedinuser<>	<p>Specifies whether the logged in user will be used as default while exporting media asset information from the Media Manager.</p> <p>If it is set as true, then only the media assets will be exported, which can be accessed by the logged in user who runs the export job. Otherwise the media assets will be exported, which can be accessed by the defined system user(system user has the access level of the Media Manager user defined with the "hmm.login.supervisor.userName").</p>	true
<hmm.exportmediaasset.uncpath.separator< h1=""> <div>  available since 8.0.03.01 (Version 8.0 Update 3 Hotfix 01) </div> </hmm.exportmediaasset.uncpath.separator<>	<p>Specifies which separator should be used in the unc path returned from the corresponding methods of Media Manager provider for export. Default is the backslash("\\"), if you want to use the unc path directly under Unix system, please set it with the slash("/")</p>	\\

Auto Assignment

All settings for Auto Assignment and Auto path resolution please visit the page: Configurations for Auto Assignment

Configuration example of Product 360 - Media Manager

Example for hmm.properties(without auto assignment configurations)

```
#####
### connection settings for the application server
### -----
### Connection data
#
# supervisor user in media manager with all rights
# hmm.login.supervisor.userName=<ENTER SUPERVISOR USERNAME HERE>
# hmm.login.supervisor.password=<ENTER SUPERVISOR PASSWORD HERE>
hmm.login.supervisor.userName=toto
hmm.login.supervisor.password=toto
#
# Identical customer ID which is defined in Media manager for all media manager users
who will be mapped to corresponding Product 360 user.
# hmm.login.customer=<ENTER MEDIA MANAGER CUSTOMER NUMBER HERE, e. g. D120001>
hmm.login.customer=D080001
#
# hmm.db.url=<ENTER MEDIA PORTAL DATABASE CONNECTION URL HERE, e. g.
jdbc:<server_type>://<server>[:<port>][;<databaseName=<database>]>
# hmm.db.user=<ENTER MEDIA PORTAL DATABASE USERNAME HERE>
# hmm.db.password=<ENTER MEDIA PORTAL DATABASE PASSWORD HERE>
# supported database type: 1 = ORACLE 11g R2 and above
#                             2 = MSSQL SERVER 2008 R2
#                             3 = MSSQL SERVER 2012 and above
# hmm.db.type=<ENTER MEDIA PORTAL DATABASE TYPE HERE, e. g. 2>
hmm.db.url=jdbc:sqlserver://10.10.11.198:1433;databaseName=opasdb
hmm.db.user=totoUser
hmm.db.password=totoPassword
hmm.db.type=2
#
# size of connections pool per HPM user to Media Portal
hmm.connection.poolsize=10
# time out setting(in seconds) for each connection, the connection will be deteled
after this period
hmm.connection.timeoutSEC=1800
#
### -----
### Notification queue
#
# Connection URL to Media Manager JMS server
# Default protocol prefix is 'failover:' to ensure a robust connection, and the
default transport Options are initialReconnectDelay=2000&maxReconnectAttempts=2,
# so that after 2 attempts at connecting an exception will be shown to user who
decides reconnection again or restart the Product 360 server after correcting this
url.
```


[illegible]



```
# This properties defines the maximum number of the from HMM server loadable media
objects pro search, no matter what default value in the HMM system parameters.
hmm.maxNumberOfDisplayableObjects = 10000
#
# The default quality(master asset) of the provider
defaultquality=originalimage
#
# Specifies whether the logged in user will be used as default while exporting media
asset information from the Media Manager.
# false - the media assets will be exported, which can be accessed by the defined
system user(system user has the access level of the Media Manager user defined with
the "hmm.login.supervisor.userName").
# true - default / only the media assets will be exported, which can be accessed by
the logged in user who runs the export job.
hmm.exportMediaAsset.defaultWithLoggedInUser=true
#
# Specifies which separator should be used in the unc path returned from the
corresponding methods of Media Manager provider for export.
# Default is the backslash("\\"), if you want to use the unc path directly under Unix
system, please set it with the slash("/")
hmm.exportMediaasset.uncpath.separator = \\\
```

Using Product 360 - Media Manager with master assets and derivatives

Product 360 supports the master asset business logic provided by Product 360 - Media Manager.

This implies that Product 360 - Server must be informed about new derivative schemas or changes in existing derivative schemas performed in the integrated Product 360 - Media Manager. Product 360 - Media Manager keeps Product 360 - Server informed about such changes by putting respective notifications into its notification queues.

Product 360 - Server can obtain these notifications by means of a listener listening to this notification queue. In order that this mechanism works, the notification queue parameters as well as the `defaultquality` parameter must be correctly set in the `hmm.properties` file.

 After Product 360 - Server has collected or successfully consumed a notification, the notification is removed from the notification queue.

There are several notifications which can currently be processed by the Product 360 - Server. It is necessary that you check that the following notification queue events are configured in the workflow manager of Product 360 - Media Manager:

- **Notifications from the queue "heiler.hmm.backend.event"**
 - **Changed derivative schema (name)** The listener listens to the notification queue on the topic "ModifyDerivativeSchema" for a "F_DERIVATE.DEV_ID" which has to be a number (the number of the changed derivative schema id). The listener triggers only a change of the derivative schema name in the "MediaAssetQualityEnumeration".
 - **New derivative schema** The listener listens to the notification queue on the topic "NewDerivativeSchema" for a "F_DERIVATE.DEV_ID" which has to be a number (the number of the new created derivative schema id). The listener triggers a creation of new media asset documents on a media asset if this media asset has a mapped master asset and the derivative of this asset is just

calculated by the pipeline. Furthermore, the listener triggers an update of the "MediaAssetQualityEnumeration".

- **Delete derivative** The listener listens to the notification queue on the topic "DeleteDerivative" for a "F_DERIVATE.DEV_ID" which has to be a number (the number of a derivative schema id) and for the "F_IMGKOMP.PKOM_PNR" (the master asset identifier). The listener triggers a deletion of all to Product 360 object assigned media asset document for the corresponding master asset identifier and quality(derivative schema id). Typically this notification is sent if the pipeline has deleted a derivative.
- **Notifications from the queue "heiler.hmm.backend.event.assignment"**
 - **Assign document** The server job "AssignDocumentJob" picks the next message up from the notification queue, if it has the topic "AssignDocument" with a property "F_IMGKOMP.PKOM_PNR" which has to be a string(the identifier of the media asset), a "F_IMGKOMP.PIMG_SOURCE_FILENAME" which has to be a string(the name of the media asset), and a "F_IMGKOMP.PIMG_CATALOG_ID" which has to be a string(the identifier of the catalog), the the server job triggers an assignment of corresponding media asset document to a Product 360 catalog object.
 - **New derivative of a media asset** The server job "AssignDocumentJob" picks the next message up from the notification queue, if it has the topic "NewDerivative" with a property "F_DERIVATE.DEV_ID" which has to be a number (the number of a derivative schema id) and a "F_IMGKOMP.PKOM_PNR" which has to be a string(the master asset identifier). The server job triggers a creation of a new media asset document on the media assets which contain the master asset identifier in a media asset document which has the master asset quality (e.g. originalimage). Typically this notification is sent if the pipeline has rendered a derivative quality.
- **Notifications from the queue "heiler.hmm.backend.event.assetModified"**
 - **Asset modified** The server job "UpdateModifiedAssetJob" picks the next message up from the notification queue, if it has the topic "AssetModified" with a property "F_IMGKOMP.PKOM_PNR" which has to be a string(the identifier of the changed media asset), the server job triggers the update of the "modificationTimestamp" for the corresponding media asset documents, meida assets and assinged objects(item, product and structure group).

There are example workflows existing which can be imported into the Product 360 - Media Manager workflow manager.

- i** The corresponding example workflows contains also another useful workflows which should be adjusted and imported into the Product 360 - Media Manager workflow manager. Especially the workflow "Automatic group assignment" should be actived to automatically assign all unassigned images(images which are not assigned to any other category) to the default category. For more details information please visit the page [Media Manager Workflows\(see page 300\)](#).


How to work with workflows and how to change and modify workflows inside the workflow manager is described in the Product 360 - Media Manager manual and is only supported by the Product 360 - Media Manager consulting and support teams.

- i** To enable the message queue on the Product 360 - Media Manager side you have to start the activemq script on the Product 360 - Media Manager server by executing the startup.bat.

Adding new media asset attribute(property field) to the repository

The Product 360 - Server has read/write access to the media asset attributes of Product 360 - Media Manager.

Since the configuration of the Product 360 - Server repository is adjusted to the current state of supported media asset attributes, it might be necessary to add some (user defined) attributes.

 Only the property field(meta data definition) of Product 360 - Media Manager can be added in Product 360 core in this way!

This chapter describes how you can do this. It is assumed that you have installed the repository editor from the setup archive

PIM_<Version>_Rev-<Revision>_repoEdit_<OS>.zip, e.g.
PIM_8.0.00.00_Rev-12345_repoEdit_win32.zip


To add new media asset attributes to the Product 360 - Server repository, perform the following steps:

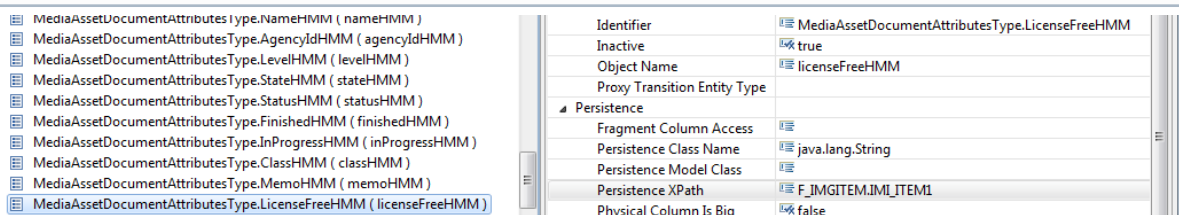
Add new media asset attribute(property field) for media asset file

Please visit the following page for detailed information: Bring Media Manager property field in media asset file views of PIM desktop.

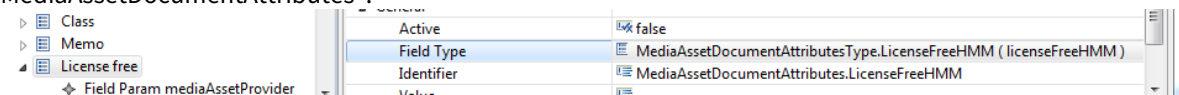
Add new media asset attribute(property field) for media asset document

1. Open the C:\Informatica\server\configuration\HPM\Repository.repository file in the repository editor.
2. In the "types" area, add a new field type under the entity type "MediaAssetDocumentAttributesType".

 Note: The value of "Persistence XPath" is the identifier of corresponding Product 360 - Media Manager field, e.g. "F_IMGITEM.IMI_ITEM1" is the identifier for the first meta data value of asset, and so on.



3. In the "custom" area, add a new field of the defined field type under the entity "MediaAssetDocumentAttributes".



❗ Currently only read access is supported for the fields under the entity "MediaAssetDocumentAttributes", therefore the corresponding "Editable" property has to be set with "false".

ℹ Note: Add a field parameter under the field which has as key "mediaAssetProvider" and as value: "HMM" (this is necessary for the automatic detection of the necessary fields by the Product 360 - Server)

<ul style="list-style-type: none"> Currently being edited Class Memo License free Field Param mediaAssetProvider 	<table> <tr> <th>Property</th><th>Value</th></tr> <tr> <td>Documentation</td><td></td></tr> <tr> <td>Name</td><td>mediaAssetProvider</td></tr> <tr> <td>Value</td><td>HMM</td></tr> </table>	Property	Value	Documentation		Name	mediaAssetProvider	Value	HMM
Property	Value								
Documentation									
Name	mediaAssetProvider								
Value	HMM								

4. Add the respective field identifier with the language dependent name for each added field to the C: \Informatica\server\configuration\HPM\Repository.properties_[language key] (e.g. C: \Informatica\server\configuration\HPM\Repository.properties_en) files.

ℹ Note: Since Product 360 version 7.0.03 the media asset attribute with type "multiple selection list" can be also shown in Product 360 - Desktop client, for that the "Upper Bound" of the corresponding field type in repository must be set as "-1".

6.7.2 Product 360 - Desktop Client

The respective plug-in on the client side which integrates the Media Manager web view in Product 360 Desktop, is not supported in standard Product 360 solution any more. If any regular customer has always such request, please contact your administrator or our support.

6.8 Prevent deletion of assets used in Product 360

- [Installing the master asset support web services](#)(see page 298)
- [Media Manager Web](#)(see page 299)

6.8.1 Installing the master asset support web services

Product 360 - Server provides two web services used by Product 360 - Media Manager, "isDerivationDefinitionInUse" and "isMediaAssetInUse".

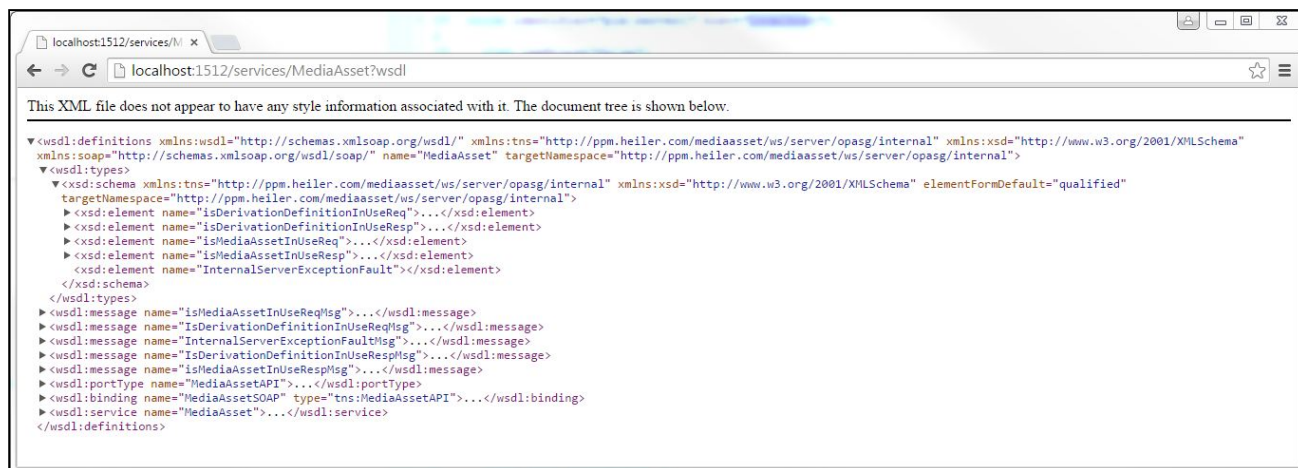
To ensure that these are activated in Product 360, you have to check that the plugin com.heiler.ppm.mediaasset.ws.server.opasg is located in the C:\Informatica\server\plugins folder.

To check if the web services are available after the Product 360 - Server starts, enter the corresponding URL in your browser:

http://{host}:{port}/services/MediaAsset?wsdl

The value of the {host} and {port} are defined in NetworkConfig.xml. E.g. if the server node has a "host" attribute with "localhost" and the "http port" is set as 1512, then the URL will be http://localhost:1512/services/MediaAsset?wsdl

And the result should be:



The URL called to check the usage of an asset looks like

http://{host}:{port}/services/MediaAsset/isMediaAssetInUse?mediaAssetId=D12341234

6.8.2 Media Manager Web

Enable the connection between the Media Manager Web application and Product 360 Server in the config file OpasGWebServer\Tomcat\webapps\opas\conf\HPMConfig.xml

Setup

<HPM_REST_active input="ON" />

to enable the REST service check.

The following values are required in addition


```
<HPM_REST_SERVER input="http://P360_SERVER:P360_REST_PORT/" />
<HPM_REST_USER input="restUser" />
<HPM_REST_PASSWORD input="restUserPassword" />
```

The REST Service returns the used Product 360 objects for a asset. If the asset if used in Product 360 the web application do not allows to delete the asset.

6.8.3 Required active logical keys for master asset support web services

The rest service to return the assigned objects for an asset requires several logical keys active in the Product 360 repository.

The following keys are required

- ArticleLang.Channel
- ArticleLang.Res_LK_Int_01
- ArticleLang.Res_LK_Text100_01
- Product2GLang.Channel
- Product2GLang.Res_LK_Int_01
- Product2GLang.Res_LK_Text100_01
- VariantLang.Channel
- VariantLang.Res_LK_Int_01
- VariantLang.Res_LK_Text100_01
- StructureGroupLang.Channel
- StructureGroupLang.Res_LK_Int_01
- StructureGroupLang.Res_LK_Text100_01
- EGDLang.Channel
- EGDLang.Res_LK_Int_01
- EGDLang.Res_LK_Text100_01

If one of the keys is set to inactive in the repository the rest service return HTTP status 500 and a error will rise up in the Product 360 server log.

6.9 Media Manager Workflows

6.9.1 Content

This chapter describes how you can import and configure the different workflow examples into the workflow module of the Media Manager. These workflows are needed for the communication between the Product 360 server and the Media Manager.

The example files are located in the folder **WorkflowExamples** of the file PIM_<Version>_MediaManager.zip from your Product 360 distribution.

6.9.2 Import

- Start the application "Workflow Manager - Informatica Media Manager" and activate the administration mode.
- Select the menu entry "Management of Workflows" in the menu "Master data".
- Click on the button "Import Workflow".
- Select a xml file and click ok.

6.9.3 Workflow: MessageQueue Asset created (AssignDocs)

Filename	Location
MessageQueue_Asset_created_(AssignDocs).xml\Examples\Workflow (Media Manager)

This workflow listens on the event asset created. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to create (or update) an assignment.

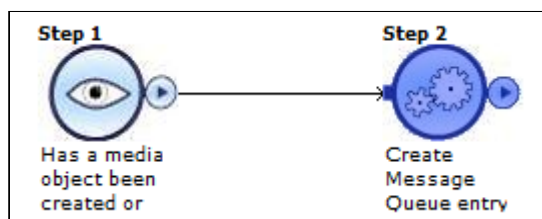


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event AssignDocument F_IMGKOMP.PKOM_PNR	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.4 Workflow: MessageQueue Asset modified

Filename	Location
MessageQueue_Asset_modified.xml\Examples\Workflow (Media Manager)

This workflow listens on the event asset modified or created. After one of those events an entry in the message queue will be created, which will be consumed from the Product 360 server to update the assigned asset informations.

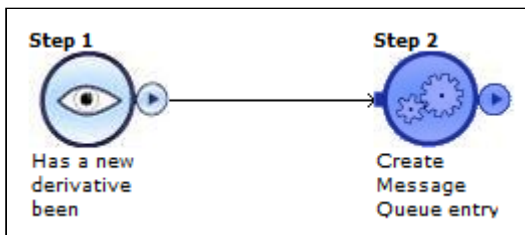


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event AssetModified F_IMGKOMP.PKOM_PNR	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.5 Workflow: MessageQueue Derivative created

Filename	Location
MessageQueue_Derivative_created.xml\Examples\Workflow (Media Manager)

This workflow listens on the event derivative created. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to add the derivatives to the assigned documents.

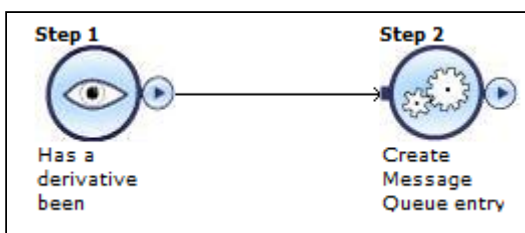


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event NewDerivative F_IMGKOMP.PKOM_PNR F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.6 Workflow: MessageQueue Derivative deleted

Filename	Location
MessageQueue_Derivative_deleted.xml\Examples\Workflow (Media Manager)

This workflow listens on the event derivative deleted. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to delete this derivative from the assigned documents.



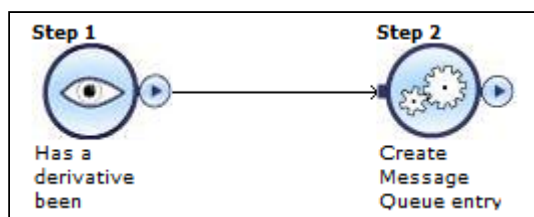
Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.

Step	Value(s)	Change Value(s)	Comment
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event DeleteDerivative F_IMGKOMP.PKOM_PNR F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.7 Workflow: MessageQueue Derivative modified

Filename	Location
MessageQueue Derivative modified\Examples\Workflow (Media Manager)

This workflow listens on the event derivative modified. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to modify this derivative at the assigned documents.

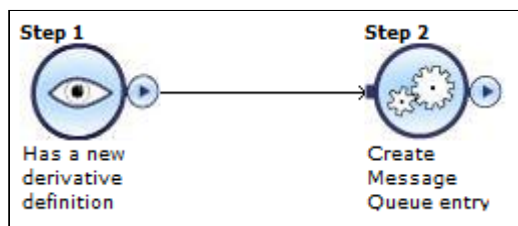


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event NewDerivative F_IMGKOMP.PKOM_PNR F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.8 Workflow: MessageQueue Derivative definition created

Filename	Location
MessageQueue_Derivative_definition_created.xml\Examples\Workflow (Media Manager)

This workflow listens on the event derivative definition created. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to register this new definition..

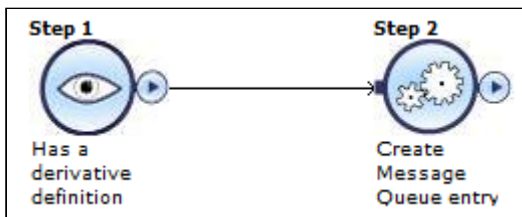


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event NewDerivativeSchema F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.9 Workflow: MessageQueue Derivative definition deleted

Filename	Location
MessageQueue_Derivative_definition_deleted.xml\Examples\Workflow (Media Manager)

This workflow listens on the event derivative definition deleted. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to unregister this definition..

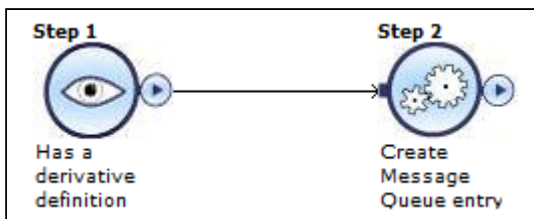


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event DeleteDerivativeSchema F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.10 Workflow: MessageQueue Derivative definition modified

Filename	Location
MessageQueue_Derivative_definition_modified.xml\Examples\Workflow (Media Manager)

This workflow listens on the event derivative definition modified. After this event an entry in the message queue will be created, which will be consumed from the Product 360 server to modify this definition..



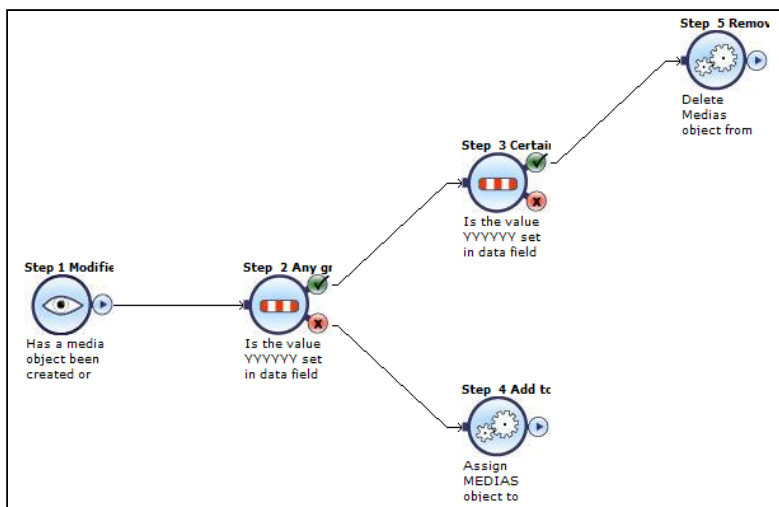
Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.

Step	Value(s)	Change Value(s)	Comment
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event ModifyDerivativeSchema F_DERIVATE.DEV_ID	YES NO NO NO	Replace the computer name localhost with the name of the computer where the MessageQueue is running.

6.9.11 Workflow: Automatic group assignment

Filename	Location
Automatic_group_assignment.xml\Examples\Workflow (Media Manager)

This workflow listens on the event asset modified or created. After that event it will be checked whether it is assigned to any group. If not it is added to the group "Unassigned" otherwise it is removed from the group "Unassigned".



Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.

Step	Value(s)	Change Value(s)	Comment
Step 2	'1' 1 F_IMGKOMP, F_IMGKOH F_IMGKOH.IMHI_PNR = F_IMGKOMP.PKOM_PNR	NO NO NO NO	Sql statement to check if there is any group assignment for this asset.
Step 3	'1' 1 F_IMGKOMP, F_IMGKOH F_IMGKOH.IMHI_PNR = F_IMGKOMP.PKOM_PNR and not(F_IMGKOH.IMHI_IHIE_ID like '006400000000%')	NO NO NO YES	Sql statement to check if there is a group assignment for this asset, but not group with the id; 006400000000..... The string 006400000000 has to be adapted to your system group id,
Step 4	006400000000.....	YES	Remove assignment from the unassigned group, This group id has to be changed.
Step 5	006400000000.....	YES	Assignment the asset to the unassigned group, This group id has to be changed.

7 Supplier Portal Configuration

In this manual, configuration settings for Product 360 - Supplier Portal are described.

- [Configuration Setup and General Description](#)(see page 309)
 - [Property Description](#)(see page 309)
- [Item Editor configuration](#)(see page 336)
- [Setup Post Export Step](#)(see page 343)
- [Network setup](#)(see page 344)
 - [Setup HTTPS/SSL Security](#)(see page 344)
 - [Setup a Reverse Proxy](#)(see page 344)
 - [Configure Support for X-Forward-* headers](#)(see page 345)
 - [Install SSL certificates on Supplier Portal Server directly](#)(see page 346)
 - [Setup Secure Connection between Supplier Portal and Product 360 Server](#)(see page 346)
- [Multiserver Setup](#)(see page 347)
 - [Property configuration](#)(see page 348)
 - [Setup Reverse Proxy and Load Balancer](#)(see page 348)
- [Start Supplier Portal with additional Spring Profiles](#)(see page 349)

7.1 Configuration Setup and General Description

All configuration properties can be defined in a single property file - the path of the configuration file is defined in the settings of your application server and is passed as argument to the Product 360 - Supplier Portal war file. The default is <P360_SUPPLIER_PORTAL_INSTALLATION_ROOT>/configuration directory in the Product 360 - Supplier Portal installation package.

⚠ Please keep in mind, that every 'properties' file (ending with *.properties) will be read and all contained properties will be imported (e.g. if you have a copy of the **configuration.properties** file which also ends with *.properties and its properties are changed, this could lead to unpredictable property values of the Product 360 - Supplier Portal system). Therefore it is highly recommended to have only one properties file in the configuration folder.

The application has to be restarted on the application server in order to have changes take effect. It is recommended to always restart the Tomcat instead of restarting the webapp only. This is to avoid PermGen Out of Memory errors.

The configuration file itself contains properties following the standard "key: value" pattern.



If a configuration property is not set in the configuration properties file, the default value from the war file is taken.

7.1.1 Property Description

The following tables contain a complete list of all properties available in Product 360 - Supplier Portal, grouped by functionality. Each property is described with further explanation and examples.

If a property uses cron expressions, you can have a look at <http://www.quartz-scheduler.org/documentation/quartz-1.x/tutorials/crontrigger> for further information.

Database settings	
database.type	<p>Database type, see http://activiti.org/userguide/#supporteddatabases</p> <p>Mainly used for Activiti and Database creation:</p> <p>oracle</p> <p>mssql</p> <p>h2</p> <p>Default: mssql</p>

database.name	<p>MSSQL: Name of the created database e.g. database.name=hsx_1.4</p> <p>Oracle: SID or ServiceName of the Oracle DB e.g. database.name=XE</p> <div>  If you want to use the ServiceName it is required to adjust the database.url.oracle parameter as well. </div> <p>Default: database.name=hsx_1.4</p>
database.server	<p>Hostname of the database server</p> <p>Default: database.server=localhost</p>
database.port	<p>Port number of the database server</p> <p>Default: MSSQL default is database.port=1433</p> <div>  If you want to connect P360 Supplier Portal to an Oracle Database via TCPS, please refer to chapter "How to configure a secure database connection for Product 360 Supplier Portal(see page 378)" in the "Supplier Portal Configuration(see page 308)" manual. </div>
database.username	<p>User name for the database connection CAUTION: Oracle needs the username in uppercase letters.</p>
database.password	<p>Password for the database connection</p>
database.systemUser	<p>Only for ORACLE Database Installation.</p> <p>User which has the permission to create other users/ tablespaces, is needed only to run the database creation script, feel free to remove this property after successfull script execution.</p> <p>e.g. database.systemUser=SYSTEM</p>
database.systemUser	<p>Only for ORACLE Database Installation.</p> <p>password for the above specified database system user</p>
database.data.dir	<p>Specifies the operating-system path to the database data file.</p>

database.data.size	<p>Oracle:</p> <p>Specify the size of the database data tablespace file in bytes. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>MSSQL:</p> <p>Is the initial size of the database data file. The kilobyte (KB), megabyte (MB), gigabyte (GB), or terabyte (TB) suffixes can be used. The default is MB. Specify a whole number; do not include a decimal. The minimum value for <i>size</i> is 512 KB.</p> <p>Default:</p> <p>database.data.size=128MB</p>
database.data.size.growth	<p>Oracle:</p> <p>specify the size in bytes of the next increment of disk space to be allocated automatically when more extents are required. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>MSSQL:</p> <p>Specifies the growth increment of the databases data file. It is the amount of space added to the database data file each time new space is needed. Specify a whole number; do not include a decimal. A value of 0 indicates no growth. The value can be specified in MB, KB, GB, TB, or percent (%). If a number is specified without an MB, KB, or % suffix, the default is MB. When % is specified, the growth increment size is the specified percentage of the size of the database data file at the time the increment occurs.</p> <p>Default:</p> <p>database.data.size.growth=64MB</p>
database.log.dir	<p>Only for MSSQL Database Installation.</p> <p>Specifies the operating-system path to the database log file.</p>

database.log.size	<p>Only for MSSQL Database Installation.</p> <p>Is the initial size of the database log file. The kilobyte (KB), megabyte (MB), gigabyte (GB), or terabyte (TB) suffixes can be used. The default is MB. Specify a whole number; do not include a decimal. The minimum value for <i>size</i> is 512 KB.</p> <p>Default:</p> <p>database.log.size=128MB</p>
database.log.size.growth	<p>Only for MSSQL Database Installation.</p> <p>Specifies the growth increment of the databases log file. It is the amount of space added to the database log file each time new space is needed. Specify a whole number; do not include a decimal. A value of 0 indicates no growth. The value can be specified in MB, KB, GB, TB, or percent (%). If a number is specified without an MB, KB, or % suffix, the default is MB. When % is specified, the growth increment size is the specified percentage of the size of the database log file at the time the increment occurs.</p> <p>Default:</p> <p>database.log.size.growth=64MB</p>
database.temp.dir	<p>Only for ORACLE Database Installation.</p> <p>Specifies the operating-system path to the database temporary tablespace file.</p>
database.temp.size	<p>Only for ORACLE Database Installation.</p> <p>Specify the size of the database temporary tablespace file in bytes. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>Default:</p> <p>database.temp.size=128MB</p>

database.temp.size.growth	<p>Only for ORACLE Database Installation.</p> <p>specify the size in bytes of the next increment of disk space to be allocated automatically when more extents are required. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>Default:</p> <p>database.temp.size.growth=64MB</p>
database.index.dir	<p>Only for ORACLE Database Installation.</p> <p>Specifies the operating-system path to the database index tablespace data file.</p>
database.index.size	<p>Only for ORACLE Database Installation.</p> <p>Specify the size of the database index tablespace data file in bytes. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>Default:</p> <p>database.data.size=128MB</p>
database.index.size.growth	<p>Only for ORACLE Database Installation.</p> <p>specify the size in bytes of the next increment of disk space to be allocated automatically when more extents are required. Use K, M, G, or T to specify the size in kilobytes, megabytes, gigabytes, or terabytes. Specify a whole number; do not include a decimal.</p> <p>Default:</p> <p>database.data.size.growth=64MB</p>

database.url	<p>JDBC database URL connection string. Generally starts with "jdbc:". Examples:</p> <pre>jdbc:oracle:thin:@databaseServer:1521:sid</pre> <pre>jdbc:jtds:sqlserver://databaseServer:1433;DatabaseName=HENRI</pre> <pre>jdbc:h2:~/ .hsp/database/dev;FILE_LOCK=NO'</pre> <p>Default: automatically set though database.type declaration. \${database.url}.\${database.type}}</p>
database.url.oracle	<p>If you want to use Oracle's ServiceName please adjust this setting to</p> <pre>jdbc:oracle:thin:@\${database.server}:\${database.port}/\${database.name}</pre> <p>Default: jdbc:oracle:thin:@\${database.server}:\${database.port}:\${database.name}</p>
database.driverClassName	<p>Java class name of the JDBC driver to use. See the JDBC driver manual for details. Supported values are:</p> <pre>oracle.jdbc.driver.OracleDriver</pre> <pre>net.sourceforge.jtds.jdbc.Driver</pre> <pre>org.h2.Driver</pre> <p>Default: automatically set though database.type declaration. database.driverClassName=\${database.driverClassName}.\${database.type}}</p>

persistence.xmlLocation	<p>Location pointing to the Hibernate XML configuration file. This is a SPRING resource path, more information: http://static.springsource.org/spring/docs/current/spring-framework-reference/html/resources.html</p> <p>Example:</p> <p>file:///C:/Informatica/SupplierPortal/configuration/persistence-mssql.xml</p> <p>Default:</p> <p>persistence.xmlLocation=file:///\${hsx.configurationArea}/persistence-\${database.type}.xml(see page 308)</p> <p>where \${hsx.configurationArea} and \${database.type} are variables which get replaced on runtime.</p>
persistence.unitName	<p>Name of the Hibernate persistence unit. Same as defined in persistence.xml. Example</p> <p>default</p> <p>Default: default</p>

<p>Database connection pool settings (since 8.0.6.02)</p>	<p>Settings for the database connection pool. Typically, Supplier Portal doesn't execute expensive and long lasting operations on database level (import jobs are handled in Product 360 server).</p> <p>However, for high load scenarios with many concurrent users, the defaults should be updated.</p> <p>Detailed explanation of the ObjectPool parameters: https://commons.apache.org/proper/commons-pool/api-1.6/org/apache/commons/pool/impl/GenericObjectPool.html</p> <p># Maximum number of active connections that can be allocated at the same time database.pool.maxActive=8</p> <p># Maximum number of connections that can remain idle database.pool.maxIdle=8</p> <p># Minimum number of idle connections in the pool database.pool.minIdle=0</p> <p># Maximum amount of time (in milliseconds) the borrowObject method should block before throwing an exception when the pool is exhausted. Use -1 to make the pool wait indefinitely. database.pool.maxWait=-1</p> <p># Whether or not the pool will validate objects before they are borrowed from the pool database.pool.testOnBorrow=true</p> <p># Whether or not the pool will validate objects before they are returned to the pool database.pool.testOnReturn=false</p> <p># The SQL query that will be used to validate connections from this pool before returning them to the caller.</p> <p># MSSQL Server database.pool.validationQuery=select 1</p> <p># H2 #database.pool.validationQuery=select 1</p> <p># Oracle #database.pool.validationQuery=select 1 from dual</p>
<p>Import settings</p>	


import.autoImportDefault	<p>Configures the default auto import policy. New suppliers (invited or registered) get this value as default. It can be changed in the UI by the portal administrator.</p> <p>Options are</p> <ul style="list-style-type: none"> • MANUAL_IMPORT • AUTO_IMPORT_NO_ERRORS • AUTO_IMPORT_NO_WARNINGS <p>Default:</p> <p>MANUAL_IMPORT</p>
import.automaticImportExecutionDelay	<p>Can be configured at supplier level to trigger an import after a successful test run.</p> <p>The execution is delayed by the given number of milliseconds.</p>
restartUploadWizardWhenFinished	<p>Configures what happens to suppliers once they finished uploading their data.</p> <p>If set to false, user will be brought to the timeline after clicking through the upload wizard.</p> <p>if set to true, the wizard will start from the beginning with the same catalog context.</p>
HPM settings	
hpm.restUri	<p>REST base URL to Product 360 - Server. For host name and web server port see your Product 360 - Server configuration. Example:</p> <p>http://hpmServer:1501/rest</p>
hpm.systemUserName	<p>Internal HPM user name that is used to trigger Product 360 - Server communication (e.g. start a test run) for supplier users.</p> <p>For all communication triggered by portal admins the corresponding Product 360 - Server credentials are being used.</p>
hpm.systemUserPassword	<p>Internal Product 360 - Server user password</p>

hpm.requestChunkSizeInBytes	<p>Chunk size in bytes for HTTP file transfer to Product 360 - Server.</p> <p>Example value: 1048576</p> <p>Default:</p> <p>1048576</p>
hpm.webClientUri	<p>Base URL of the Product 360 - Web. Only used if permission.itemeditor is true. Example:</p> <p>http://hpmserver:1501/pim/webaccess</p>
hpm.embedded.itemeditor	<p>Global switch to enable/disable embedded item editor view.</p> <p>Options are TRUE and FALSE:</p> <ul style="list-style-type: none"> - TRUE: item editor for supplier users appears embedded within Supplier Portal - FALSE: items editor for supplier users appears in a separate browser tab
HMM settings	
hmm.restUri	<p>REST base URL to Product 360 - Media Manager. For host name and web server port see your Product 360 - Media Manager configuration.</p> <p>Example: http://hmmServer:8080/rest/rest</p>
hmm.requestChunkSizeInBytes	<p>Chunk size in bytes for HTTP file transfer to Product 360 - Media Manager.</p> <p>Example value: 1048576</p> <p>Default: 1048576</p>
Mail settings	
mail.enabled	<p>Global switch to enable/disable mail functionality (boolean value).</p> <p>If true, the following parameters need to be used for mail server configuration.</p> <p>(It does not make much sense to use Product 360 - Supplier Portal without a mail server.)</p> <p>Default: false</p>

mail.protocol	Mail protocol as passed to javax.mail. Example value: smtp Default: smtp
mail.serverHost	Mail server host. Example value: smtp.company.com
mail.serverPort	Mail server port. Example: 25 Default: 25
mail.senderAddressDefault	The default sender address for mails. Will be used and displayed as mail sender. Has to follow a valid email pattern. Example value: admin@company.com
mail.username	User name if the mail server demands authentication. Can be empty otherwise.
mail.password	User password for mail server authentication.
mail.templateFolderPath	Directory which contains mail templates that overwrite the default templates provided within the war file. You can also download the default templates using this link. Default: file:///\${hsx.configurationArea}/mailTemplates/(see page 308)
Filestorage settings	
fileStorageService.rootDirectory	Folder pointing to the root directory for all binary files. Make sure that the folder exists and that there is enough space available. In production environments this directory should point to a fail-safe volume (e.g. RAID). Default: C:/Informatica/PIM/SupplierPortal/filestorage

FileShareAdapter settings	<p>These settings are only needed if no Product 360 - Media Manager is available. Instead, a file based file share adapter can be configured that puts all uploaded media files in a single directory. If Product 360 - Media Manager is used, no values need to be configured.</p> <p>To enable the FileShare Adapter it is necessary to start Supplier Portal with the profile <code>fileshareAdapter</code>. See chapter 'Start Supplier Portal with additional Spring Profiles' below.</p>
<code>fileshare.adapter.home.dir</code>	<p>Path to the Digital Asset Management System (DAM) home folder where the media assets from Product 360 - Supplier Portal shall be sent to.</p> <p>The user running the Tomcat server for Product 360 - Supplier Portal needs to have read/write access to that folder.</p> <p>Existing files will be overwritten. Links are not supported as part of the directory.</p> <p>Examples:</p> <p><code>C:/Informatica/PIM/SupplierPortal/DAM</code> <code>//ServerName/ShareFolder</code></p> <p>Default: <code>C:/Informatica/PIM/SupplierPortal/DAM</code></p>
<code>fileshare.adapter.supplier.subfolder</code>	<p>Create a supplier sub-folder. If true, a sub-folder for the specific supplier (if not already existing) will be created in the DAM home folder.</p> <p>The name of the folder is the supplier identifier. If false, the DAM home folder root is used.</p> <p>Default: <code>true</code></p>
<code>fileshare.adapter.catalog.subfolder</code>	<p>Create a catalog sub-folder. If true, a sub-folder of the supplier folder (if not already existing) will be created.</p> <p>The name of the folder is the catalog identifier.</p> <p>If supplier sub-folder is false and catalog sub-folder is true, it will be implicitly assumed that supplier sub-folder is true.</p> <p>Default: <code>true</code></p>
<code>fileshare.adapter.unzip.images</code>	<p>If true, the media archive will be unzipped before it is uploaded to the specific folder.</p> <p>Otherwise the zipped file is placed at the specific folder.</p> <p>Default: <code>false</code></p>

fileshare.adapter.post.copy.step	<p>If defined, a batch script is called after the previous upload steps are completed.</p> <p>This property defines the batch script (including path) or is empty if no post copy step is needed. Examples:</p> <pre>C:/Informatica/PIM/SupplierPortal/bin/MyBatchScript.bat //ServerName/ShareFolder/BIN/MyBatchScript.bat</pre>
Media Asset settings (MAM)	These settings apply to both Product 360 - Supplier Portal and FileShareAdapter.
mam.mapping.available	<p>Allows to hide the special MAM mapping to upload images. If false, this mapping will not be shown, e.g. Product 360 - Supplier Portal can be used without any MAM system as back-end.</p> <p>Default: true</p>
mam.mapping.name	<p>The name of the MAM mapping. This is displayed to the supplier user in the first step of the upload process. As mappings from Product 360 - Server cannot be shown in more than one language, the name of the MAM mapping is unique too.</p> <p>Default: Media Assets</p>
mam.mapping.text	<p>A longer description text for the MAM mapping.</p> <p>Default: Use this mapping to provide your media files.</p>
mam.mapping.datasource.name	<p>The name of the first and only mapping datasource.</p> <p>Default: Zipped media files</p>
mam.mapping.datasource.text	<p>A longer description text for the mapping datasource.</p> <p>Default: A zip archive containing all media assets.</p>
Internationalization / UI language settings	

i18n.defaultUiLocale	<p>Default locale of the system in JAVA syntax. This value is used as default for new users.</p> <p>Example value: en_US</p> <p>Default: en_US</p>
i18n.availableUiLocales	<p> Property is not used in Product 360 7.0.04</p> <p>List of all available locales in JAVA syntax, separated by comma.</p> <p>Example value: de_DE,en_US</p> <p>Default: de_DE,en_US</p>
i18n.defaultDataLocale	<p>The default language (locale) that is used for language specific data, f.e. catalog names.</p> <p>The format is ISO 3166-1 alpha-2.</p> <p>Default: en_US</p>
i18n.availableDataLocales	<p>The languages (locales) that are used for language specific data, f.e. all languages for which catalog names are maintained.</p> <p>The format is ISO 3166-1 alpha-2.</p> <p>Default: de_DE,en_US,fr_FR,ru_RU,nl_NL,sv_SE,fi_FI,es_ES,no_NO</p>
Dataload job settings	
synchronizePendingImportRunJob.trigger.cronExpression	<p>Timer settings for the Product 360 - Server sync job following the cron expression pattern.</p> <p>This job polls Product 360 - Server for updates of running test runs / import runs.</p> <p>If such a run is finished, the Product 360 - Supplier Portal workflowmail continues.</p> <p>Example value to run every 10 seconds:</p> <p>0,10,20,30,40,50 * * * * ?</p> <p>Default:</p> <p># Run every 10 seconds</p> <p>0,10,20,30,40,50 * * * * ?</p>

synchronizePendingImportRunJob.lockAtMost (since 8.1.1)	<p>Defines how long (in ms) the job lock should be kept in case the machine which obtained the lock died before releasing it.</p> <p>This is just a fallback, under normal circumstances the lock is released as soon the tasks finishes.</p> <p>Negative value means default (1 hour)</p> <p>Default: 9000 (ms) = 9s</p>
removeOldImportFiles.trigger.cronExpression	<p>Timer settings for the old import files cleanup job following the cron expression pattern.</p> <p>This job removes product data and media data import files which overpass a specific amount of days.</p> <p>Example value to run every 10 seconds:</p> <p>0,10,20,30,40,50 * * * * ?</p> <p>Default:</p> <p># run every night at 01:00 a.m.</p> <p>0 0 1 * * ?</p>
removeOldImportFiles.lockAtMost (since 8.1.1)	<p>Defines how long (in ms) the job lock should be kept in case the machine which obtained the lock died before releasing it.</p> <p>This is just a fallback, under normal circumstances the lock is released as soon the tasks finishes.</p> <p>Negative value means default (1 hour)</p> <p>Default: 3600000 (ms) = 1h</p>
removeOldImportFiles.productFiles.olderThan	<p>Configuration of the import files cleanup job</p> <p>Remove all product data import files older than x days</p> <p>Default: 365</p>
removeOldImportFiles.mediaFiles.olderThan	<p>Configuration of the import files cleanup job</p> <p>Remove all media data import files older than x days</p> <p>Default: 365</p>
Url settings	

<p>hostAdressWithAppRoot</p>	<p>An URL pointing to the root of the web app. This URL is used in mails that contain a link to the application. Normally contains the absolute path including context path plus the suffix "/html/".</p> <p>If you are using <i>SAML authentication</i> and the property: <code>saml.supplierCreationStrategy</code> is set to <code>APPROVAL_WORKFLOW</code>, this url is also used in mails that contain a link to the application.</p> <p>Example value:</p> <p><code>http://hsxServer:9090/hsx/html/</code></p> <p>Default: <code>http://127.0.0.1:9090/hsx/html</code></p>
<p>resetPasswordRedirectTargetUrl (since 8.1.0.01)</p>	<p>Defines a destination URL to which a user gets redirected after resetting a password. It's an optional setting and in default its left EMPTY so that users get logged-in with the new password and redirected onto the Supplier Portal dashboard.</p> <p>In case of a customized "reset password" workflow this could be changed and the confirmation button after setting a new password redirects to a different URL. In this case the user is NOT logged in automatically and instead redirected to the configured URL.</p> <p>Example value:</p> <p><code>http://example:8080/landingPage.html</code></p> <p>Default: <code><empty></code></p>
<p>logoutUrl (since 8.1.0.02)</p>	<p>Defines a destination URL to which a user gets redirected after logout and timeout. It's an optional setting and in default its left EMPTY. By default the user gets redirected to the Supplier Portal login page.</p> <p>It is possible to enable the logout URL only for specific user roles. The logout redirect is only active if the current user matches at least one of the defined user roles of property <code>logoutUrlActiveRoles</code>.</p> <div data-bbox="655 1570 1425 1742" style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> If Supplier Portal runs with SAML active and user is also logged in via SAML authentication, this property is not used. The <code>logoutUrl</code> defined in the <code>SamlConfig.xml</code> is used for SAML logged in users.</p> </div> <p>Example value:</p> <p><code>http://www.informatica.com</code></p> <p>Default: <code><empty></code></p>

logoutUrlActiveRoles (since 8.1.0.02)	<p>Defines a list of user roles to enable the logout redirect defined in property logoutUrl.</p> <p>Property is only relevant if logoutUrl is defined and Supplier Portal runs without SAML.</p> <p>Example value:</p> <p>ROLE_SUPPLIER_USER,ROLE_SUPPLIER_ADMIN,ROLE_BROKER_USER,ROLE_PORTAL_ADMIN</p> <p>Default: ROLE_SUPPLIER_USER,ROLE_SUPPLIER_ADMIN,ROLE_BROKER_USER</p>
File upload content filter settings	
content.filter.enabled	<p>Global switch to enable/disable content filtering of all uploaded files.</p> <p>If enabled, the parameter content.filter.accepted.mime.types provides a white list of all accepted file types.</p> <p>Default: true</p>
content.filter.accepted.mime.type	<p>List of accepted mime types for content filtering of uploaded files.</p> <p>All other files will be rejected during upload.</p> <p>A list of valid mime types can be found here: http://www.iana.org/assignments/media-types/media-types.xhtml</p> <p>Default:</p> <p>application/xml, text/csv, application/vnd.ms-excel, application/vnd.openxmlformats-officedocument.spreadsheetml.sheet, application/vnd.ms-excel.sheet.macroenabled.12, image/png, image/jpeg, image/gif, application/pdf, application/gzip, application/zip</p>
Image resizing settings	

image.resize	The width uploaded user avatar images will be resized to. Default: 256
image.resize.height	The height uploaded user avatar images will be resized to. Default: 256
Timeline / notification settings	
Default values for mail notifications of new feed messages (can be individually changed per user in personal settings) Supplier:	
feednotification.supplier.USER_REQUEST	Notify if new user message has been committed to the timeline that is visible for that supplier (boolean value).
feednotification.supplier.USER_REGISTRATION	Notify if a new user has registered for that supplier (boolean value).
feednotification.supplier.TEST_RUN_COMPLETE	Notify if a test run has been completed for that supplier (boolean value).
feednotification.supplier.IMPORT_RUN_COMPLETE	Notify if an import run has been completed for that supplier (boolean value).
Default values for mail notifications of new feed messages (can be individually changed per user in personal settings) Portal Administrator:	
feednotification.portal.USER_REQUEST	Notify if a new user message has been committed to the timeline (boolean value).
feednotification.portal.USER_REGISTRATION	Notify if a new user has registered to the portal (boolean value).
feednotification.portal.TEST_RUN_COMPLETE	Notify if a test run has been completed (boolean value).
feednotification.portal.IMPORT_RUN_COMPLETE	Notify if an import run has been completed (boolean value).

feedfilter.type	Default filter settings for all users. Use one or more of the FeedTypes comma separated (USER_REQUEST, USER_REGISTRATION, etc.) or leave it empty for all.
Timeline removal job settings	
remove.feeds.older.than	Configuration of the timeline cleanup job. Remove all feeds older than x days. Example value for 1 year: 356 Default: 365
removeOlderFeedsJob.trigger.cronExpression	Cron trigger when this job should run following the cron expression pattern. Example value for every night at 2 a.m.: 0 0 2 * * ? Default: # run every night at 02:00 a.m. 0 0 2 * * ?
removeOlderFeedsJob.lockAtMost (since 8.1.1)	Defines how long (in ms) the job lock should be kept in case the machine which obtained the lock died before releasing it. This is just a fallback, under normal circumstances the lock is released as soon the tasks finishes. Negative value means default (1 hour) Default: 60000(ms) = 1min
Workflow cleanup job settings	
workflowCleanupJob.maxAgeInWeeks	Configuration of the workflow cleanup job. This job removes old workflow instances that have not been changed in the defined period of time. Remove workflows older than x weeks. Example value for 2 weeks: 2 Default: 2

workflowCleanupJob.trigger.cronExpression	<p>Cron trigger when this job should run following the cron expression pattern.</p> <p>Example value to run every night at 3 a.m.:</p> <p>0 0 3 * * ?</p> <p>Default:</p> <p># run every night at 03:00 a.m.</p> <p>0 0 2 * * ?</p>
workflowCleanupJob.lockAtMost (since 8.1.1)	<p>Defines how long (in ms) the job lock should be kept in case the machine which obtained the lock died before releasing it.</p> <p>This is just a fallback, under normal circumstances the lock is released as soon the tasks finishes.</p> <p>Negative value means default (1 hour)</p> <p>Default: 60000(ms) = 1min</p>
workflowCleanupJob.processDefinitionKeys	<p>The workflow names that should be considered when searching for unfinished running workflow instances. Normally the workflow name (sometimes called processDefinitionKey or processDefinitionId) can be found in the following line of the workflow bpmn xml:</p> <pre><process id="invitation" name="invitation"></pre> <p>If you add new workflows and want unfinished instances to be cleaned up, add the workflow name to this list.</p> <p>Default: invitation,importIntoHpm</p>
Permission settings	

global.permission.itemeditor	<p>Global switch to enable/disable item editor functionality. New suppliers (invited or registered) get this value as default. It can be changed in the UI for each supplier separately by the portal administrator. Please check for communication settings Supplier Portal => Product 360 Server Possible values:</p> <ul style="list-style-type: none"> • EDIT: items can be edited via item editor • READ: items can be viewed read only via item editor • RESTRICTED: items cannot be viewed and edited. Only portal admin can do any permission changes for a supplier. • DISABLED: items cannot be seen. An item editor does not exist at all. <p>Default: RESTRICTED</p>
global.permission.supliertasks	<p>Global switch to enable/disable the access to tasks assigned to Supplier Organization from Supplier Portal. Possible values:</p> <ul style="list-style-type: none"> • ENABLED: access to supplier tasks is enabled for the whole Supplier portal. • DISABLED: access to supplier tasks is disabled for the whole Supplier portal. <p>Default: DISABLED</p>
permissions.portalAdmin	<p>Defines a comma separated list of permissions which will be assigned to the portal admin role on startup. Possible values are:</p> <ul style="list-style-type: none"> • INVITE_SUPPLIER • VIEW_IMPORT_MANAGER • MANAGE_SUPPLIER_USER • MANAGE_SUPPLIER • START_DRY_RUN • MANAGE_BROKER_USER <p>Default:</p> <p>INVITE_SUPPLIER,VIEW_IMPORT_MANAGER,MANAGE_SUPPLIER_USER,MANAGE_SUPPLIER,START_DRY_RUN,MANAGE_BROKER_USER</p> <p>To get more detailed information on how to handle role permissions see the Customize User Interface.</p>

permissions.supplierAdmin	<p>Defines a comma separated list of permissions which will be assigned to the portal admin role on startup. Possible values are:</p> <ul style="list-style-type: none"> START_DRY_RUN MANAGE_SUPPLIER_USER <p>Default: START_DRY_RUN,MANAGE_SUPPLIER_USER</p> <p>To get more detailed information on how to handle role permissions see the Customize User Interface.</p>
permissions.broker	<p>Defines a list of permissions which will be assigned to the broker role on startup. Possible values are:</p> <ul style="list-style-type: none"> START_DRY_RUN <p>Default: START_DRY_RUN</p>
invitation.link.hash.validity.duration.hour	<p>Defines expiration time of (re)set password link in hours. Default is two hours.</p>
urlToken.maxAge	<p>For url token authentication. Defines the time slot after that an issued token expires. Expired tokens cannot be used for authentication anymore. Value is in seconds.</p> <p>Default: 60</p>
License control settings	
license.maximumActiveUsers	<p>The number of total active supplier users allowed. If more users are created (e.g. during invitation or registration), a warning will be displayed in the UI and written in the log file.</p> <p>Default: 50</p>
Customization settings	

uiCustomizatn.file	<p>Defines the location ui customization file that allows to contribute new ui elements. An example and further details can be found in the Accelerators package under "Customize_User_Interface.html".</p> <p>Default: file:///\$(hsx.configurationArea)/uiCustomization.json</p>
dataModelCustomization.file	<p>Defines the location of the custom fields file that allows to contribute additional data model fields. An example and further details can be found in the Accelerators package under "Customized_Data_Model_for_Supplier_Data.html".</p> <p>Default: file:///\$(hsx.configurationArea)/dataModelCustomization.json</p>
registrationCustomization.defaultCatalogName	<p>Defines the name of the default catalog which is created while activating a supplier over Supplier Hub. The pattern {SupplierName} is going to be replaced by the supplier's name on runtime.</p> <p>Default: {SupplierName} - default Catalog</p>
workflows.customizationFolderPath	<p>Location of the folder containing customized workflows.</p> <p>Default: file:///\$(hsx.configurationArea)/workflows/</p>
Other Security Related Settings	
keystore.location	Defines the file location of the keystore to use
keystore.password	Defines the password of the keystore defined via \${keystore.location} property
wrongLogin.maxAttempts (since 8.2)	<p>Maximum number of wrong logins are that allowed per Supplier Portal server.If the number is reached the user gets locked for the duration specified by the property wrongLogin.lockDuration. This affects all types of users. After restarting the server the user is unlocked again.Please note that the login attempts are not synced between multiple Supplier Portal servers. If the login requests are distributed to different Supplier Portal servers it is possible that a the user gets locked after (wrongLogin.maxAttempts * number of servers) attempts.</p> <p>Default value: 10</p>

wrongLogin.lockDuration (since 8.2)	Defines the duration in minutes how long the user gets locked after user reaches the defined maximum number of wrong logins (wrongLogin.maxAttempts). After restarting the server the user is unlocked again. Default value: 30
Load Balancer Settings for SAML setup	
loadbalancer.schema	Defines the file http transport protocol schema, either http or https
loadbalancer.contextPath	The supplier portal context path must be set and start with a forward slash Default: /hsx
loadbalancer.serverName	The load balancer server name
loadbalancer.port	The load balancer server port
saml.supplierCreationStrategy	Define the strategy how to create suppliers, if SAML authentication is used. Possible values are: <ul style="list-style-type: none"> AUTOMATIC: Supplier and supplier users will be created automatically. APPROVAL_WORKFLOW: Supplier and supplier users will be created with the registration workflow. Default value is AUTOMATIC
Misc Settings	

global.permission.ECCnetAccess (since 8.0.6.01)	<p>Global switch to enable/disable the ECCnet access from Supplier Portal.</p> <p>Possible values:</p> <ul style="list-style-type: none"> ENABLED: ECCnet access is enabled. Means that by default ECCnet access is enabled for newly created suppliers. However, the portal administrator can revoke ECCnet access from the supplier. RESTRICTED: ECCnet access is available, but by default ECCnet access is disabled for newly created suppliers. However, the portal administrator can give ECCnet access to the supplier. DISABLED: ECCnet access is disabled for the whole Supplier portal. <p>Default: DISABLED</p>
atmosphere.enabled	<p>Can be used to turn push notifications off. Turn it off in case of issues in the network infrastructure, like proxies which are not deal with long running requests correctly.</p> <p>If set to false, users will not get notifications about new timeline messages unless refreshing the page explicitly or during navigation.</p> <p>Default value: true</p>
atmosphere.defaultTransport	<p>Default transport mode for server-side push notifications. Only applies, if atmosphere.enabled is true.</p> <p>Details: https://github.com/Atmosphere/atmosphere/wiki/atmosphere.js-API</p> <p>Possible values: long-polling, streaming, jsonp, sse, websocket</p> <p>Default value: streaming</p>
atmosphere.fallbackTransport	<p>Fallback transport mode for server-side push notifications. Only applies, if atmosphere.enabled is true.</p> <p>Fallback is used where there's an issue when establishing a connection to the server using the default mode.</p> <p>Details: https://github.com/Atmosphere/atmosphere/wiki/atmosphere.js-API</p> <p>Possible values: long-polling, streaming, jsonp, sse, websocket</p> <p>Default value: long-polling</p>
Job Framework Settings (since 8.1.1)	
job.threadPoolSize	<p>Set the Job Frameworks thread pool size.</p> <p>Default: 10</p>

job.threadNamePrefix	<p>Set the job frameworks thread name prefix.</p> <p>Default: JobThread</p>
job.defaultLockAtMostFor	<p>Scheduled (like import job synchronization,etc) jobs get locked to be sure to execute them only once at the same time. By setting defaultLockAtMostFor you make sure that the lock is released even if the node dies and make sure it's not executed more than once in the configured time duration (in minutes). Please note that if the job takes longer than the configured time duration, it will be executed again.</p> <p>Default: 15</p>

Security HTTP response headers	
security.httpHeaders.xframeoptions	<p>If set, an X-Frame-Options response header will be set in all http responses to prevent the application being embedded in other sites for security reasons.</p> <p>Please note, that this will break existing functionality in Supplier 360.</p> <p>Details: https://tools.ietf.org/html/rfc7034</p> <p>Supported values: DENY, SAMEORIGIN, ALLOW-FROM</p> <p>Default: <empty></p>
security.httpHeaders.Strict-Transport-Security	<p>If set, an HTTP Strict Transport Security (HSTS) response header will be set in all http responses. HTTP Strict Transport Security defines a mechanism enabling web sites to declare themselves accessible only via secure connections and/or for users to be able to direct their user agent(s) to interact with given sites only over secure connections.</p> <p>Details: https://tools.ietf.org/html/rfc6797</p> <p>Default: <empty></p>

Security HTTP response headers	
security.httpHeaders.Content-Security-Policy	<p>If set, an Content Security Policy (CSP) response HTTP header will be set in all http responses. Content Security Policy (CSP) is an added layer of security that helps to detect and mitigate certain types of attacks, including Cross Site Scripting (XSS) and data injection attacks.</p> <p>Please note, that using the 'script-src' directive will break existing functionality in Product 360 Supplier Portal.</p> <p>Details: https://tools.ietf.org/html/rfc7762</p> <p>Default: <empty></p>
security.httpHeaders.X-Content-Type-Options	<p>If set, an X-Content-Type-Options response HTTP header will be set in all http responses. The X-Content-Type-Options response HTTP header is a marker used by the server to indicate that the MIME types advertised in the Content-Type headers should not be changed and be followed.</p> <p>Details: https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-Content-Type-Options</p> <p>Supported values: nosniff</p> <p>Default: <empty></p>
security.httpHeaders.X-XSS-Protection	<p>If set, an X-XSS-Protection response HTTP header will be set in all http responses. The HTTP X-XSS-Protection response header is a feature of Internet Explorer, Chrome and Safari that stops pages from loading when they detect reflected cross-site scripting (XSS) attacks.</p> <p>Details: https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/X-XSS-Protection</p> <p>Default: <empty></p>
security.httpHeaders.Referrer-Policy	<p>If set, an referrer policy response HTTP header will be set in all http responses.</p> <p>Please note, that this could break existing functionality in Product 360 Supplier Portal.</p> <p>Details: https://www.w3.org/TR/referrer-policy/</p> <p>Supported values: no-referrer, no-referrer-when-downgrade, same-origin, origin, strict-origin, origin-when-cross-origin, strict-origin-when-cross-origin, unsafe-url</p> <p>Default: <empty></p>

7.2 Item Editor configuration

To use the Product 360 Web Item Editor functionality as Product 360 Supplier Portal Item Editor you need to setup special Product 360 Core users which handle the item editor scenario.

Follow the next subsections how to create these item editor users and appropriate user groups which include the minimal set of action rights that are needed for the Product 360 Supplier Portal Item Editor use case.

There are 3 different kinds of **Product 360 Core Users** for different Product 360 - Supplier Portal use cases:

- **Product 360 Supplier Portal System User**
 - This system user is used to authenticate REST requests at Product 360 - Server which are triggered by suppliers (or Product 360 - Supplier Portal background jobs).
- **Product 360 Supplier Portal Administrator Users**
 - For all actions in Product 360 - Supplier Portal triggered by a portal administrator, the corresponding credentials of the named user are used at the REST interface.

i In order to have an easily maintainable system, it is recommended to create a user group (with the minimal set of common rights) and to assign it to the **Product 360 Supplier Portal System User** and **Product 360 Supplier Portal Administrator Users**.

If object rights are used for an object, please keep in mind that all other users implicitly don't have any rights for it. Thus if an object like a supplier, catalog or mapping shall be used in Product 360 - Supplier Portal context (e.g. for the supplier list, to perform uploads, etc.) the corresponding user group for Product 360 - Supplier Portal **MUST** have full object rights on that object as well.

7.2.1 Create required Users and Groups within Product 360 - Desktop

7.2.1.1 Create Product 360 Supplier Portal Administrator Users Group

- The Product 360 Supplier Portal Users Group needs at least the following action rights to perform the basic actions in Supplier Portal web application:

Rights group	Permission	Mandatory	Note
Catalogs	Supplier catalogs, general access	Yes	
General	Service Login	Yes	
Company Management	Company Management, general access	Yes	

Rights group	Permission	Mandatory	Note
Items	Items, general access	Yes	
Items	Create Items	Yes	
Items	Create Prices	Yes	
Items	Create Prices (in the past)	Yes	
Items	Delete item	Yes	
Items	Delete prices	Yes	
Items	Delete prices (in the past)	Yes	
Items	Edit items	Yes	
Items	Edit prices	Yes	
Items	Edit prices (in the past)	Yes	
Items	View prices	Yes	
Import	Perform import	Yes	
Suppliers	Supplier Management, general access	Yes	
Suppliers	Edit suppliers	Yes	
Structures	Structures, general access	Yes	
Structure groups	Structure groups, general access	Yes	
Users	Users, general access	Yes	

7.2.1.2 Create Product 360 - Supplier Portal Item Editor User Group

1. If not already exists, create a new Product 360 Core User Group, which manages the Product 360 Supplier Portal Item Editor permission within Product 360 Core.
2. The Product 360 Supplier Portal Item Editor Users Group needs the following rights:

Action rights			
Rights group	Permission	Mandatory	Note
Web Permissions	Log in (Web)	Yes	
Web Permissions	Classify objects (Web)	No	
Catalogs	Supplier catalogs, general access	Yes	
Structures	Structures, general access	Yes	
Structure groups	Structure groups, general access	Yes	
Items	Items, general access	Yes	
Items	Edit items	Yes	
Item search	Item search management, general access	Yes	
Products	Product management, general access	Yes	
Products	Edit products	Yes	
Variants	Variant management, general access	Yes	Only in 3 tier product paradigm to classify in structure tree.
Variants	Edit variants	Yes	Only in 3 tier product paradigm to classify in structure tree.
Tasks	Task management, general access	Yes	
Tasks	Edit tasks	No	
Document management	Document management, general access	No	Only for assignment and upload of media attachments
Document management	Create documents	No	Only for assignment and upload of media attachments

Action rights			
Rights group	Permission	Mandatory	Note
Document management	Create document categories	No	Only for assignment and upload of media attachments
Document management	Edit document categories	No	Only for assignment and upload of media attachments
Multimedia attachments	Add multimedia attachments	No	Only for assignment and upload of media attachments
Merge	Merge, general access	No	
Merge	Perform Merge	No	

Since Product 360 8.1 it is possible to allow the assignment of Supplier Organizations to tasks setup in the system.

The Supplier Organizations that are configured to work with tasks can access them similarly as their general catalog data by the item editor integration.


For this setup at least the field rights for the 'Tasks' data range have to be considered.

Field rights			
Data range	Field	Mandatory	Note
Tasks	Start date (visible + editable)	Yes	
Tasks	Estimated start date (visible + editable)	Yes	
Tasks	Anticipated completion on (visible + editable)	Yes	
Tasks	Progress (visible + editable)	Yes	
Tasks	Completed on (visible + editable)	Yes	
Item	Item no. (visible + editable)	Yes	
Item	GTIN (visible + editable)	Yes	
Item	Status (visible + editable)	Yes	Field group "Header data"

Interface visibility			
Category	Name	Mandatory	Note
Item	Select the tabs you want to show	optional	

3. Following permissions and interface visibility MUST be REVOKED:

Interface visibility		
Category	Name	Note
Context	Context visibility: Entire Context selection area	
Field rights		
Data range	Field	Note
Tasks	Revoke all Tasks related field rights NOT listed as mandatory in the previous section.	

 All other Action rights, field rights and all Interface visibility of type 'Web List Definition' and 'Web Tab' not mentioned above have to be defined individually depending on the scenario and requirements of the project and the individual use case scenarios. Here detail tabs, displayed columns and other UI elements needed for the business use case are to be considered. For example, if you want to display the short description in the item list view, you have to check the box in the field permissions of the short description for visible.

7.2.1.3 Create Product 360 - Supplier Portal Item Viewer User Group

1. If not already exists, create a new Product 360 Core User Group, which manages the Product 360 Supplier Portal Item Viewer permission within Product 360 Core.
2. The Product 360 Supplier Portal Item Viewer Users Group needs the following rights:

Action rights			
Rights group	Permission	Mandatory	Note
Web Permissions	Log in (Web)	Yes	
Catalogs	Supplier catalogs, general access	Yes	
Structures	Structures, general access	Yes	

Action rights			
Rights group	Permission	Mandatory	Note
Structure groups	Structure groups, general access	Yes	
Items	Items, general access	Yes	
Item search	Item search management, general access	Yes	
Products	Product management, general access	Yes	
Variants	Variant management, general access	Yes	Only in 3 tier product paradigm to classify in structure tree.

Since Product 360 8.1 it is possible to allow the assignment of Supplier Organizations to tasks setup in the system.

The Supplier Organizations that are configured to work with tasks can access them similarly as their general catalog data by the item editor integration.


For this setup at least the field rights for the 'Tasks' data range have to be considered.

Field rights			
Data range	Field	Mandatory	Note
Tasks	Start date (visible)	Yes	
Tasks	Estimated start date (visible)	Yes	
Tasks	Anticipated completion on (visible)	Yes	
Tasks	Progress (visible)	Yes	
Tasks	Completed on (visible)	Yes	
Item	Item no. (visible)	Yes	
Item	GTIN (visible)	Yes	
Item	Status (visible)	Yes	Field group "Header data"

Interface visibility			
Category	Name	Mandatory	Note
Item	Select the tabs you want to show	optional	

- Following permissions and interface visibility MUST be REVOKED:

Interface visibility		
Category	Name	Note
Context	Context visibility: Entire Context selection area	
Field rights		
Data range	Field	Note
Tasks	Revoke all Tasks related field rights NOT listed as mandatory in the previous section.	

 All other Action rights, field rights and all Interface visibility of type 'Web List Definition' and 'Web Tab' not mentioned above have to be defined individually depending on the scenario and requirements of the project and the individual use case scenarios. Here detail tabs, displayed columns and other UI elements needed for the business use case are to be considered. For example, if you want to display the short description in the item list view, you have to check the box in the field permissions of the short description for visible.

7.2.1.4 Create Product 360 Supplier Portal System User

1. Fill in the user details, keep attention to the following details:
 - the **Active** checkbox must be checked.
 - **Authentication mode** has to be set to "**Internal**"
2. Add User to the created **Product 360 Supplier Portal Administrators User Group**

7.2.1.5 Add Product 360 Core Users as Product 360 Supplier Portal Administrator

1. Create a new Product 360 Core user or choose an existing Product 360 Core user to add to the Product 360 Supplier Portal Administrator User Group
2. Fill in the user details, keep attention to the following details:
 - the **Active** check-box must be checked.
 - Add User to the created **Product 360 Supplier Portal Administrators User Group**.

7.2.2 Setup Product 360 - Web Users and Permissions for Product 360 Supplier Portal Item Editor/Viewer

The item management within Product 360 - Supplier Portal uses the Product 360 - Web functionality. There are two different use cases within Product 360 - Supplier Portal to take into account.

Product 360 Supplier Portal Item Editor:

which means, suppliers are able to edit items within the Product 360 - Supplier Portal.

Product 360 Supplier Portal Item Viewer:

which means, suppliers don't have the ability to edit item data within the Product 360 - Supplier Portal.

i Both users need to be referenced by the webfrontend.properties file of the Product 360 server in order to be used by the system as default system users for Item Editor access through the Supplier Portal.

7.2.2.1 Create Product 360 Supplier Portal Item Editor System User

1. Fill in the user details, keep attention to the following details:
 - the **Active** checkbox must be checked.
 - **Authentication mode** has to be set to **"Internal"**
- Add User to the created **Product 360 Supplier Portal Item Editor User Group**.

7.2.2.2 Create Product 360 Supplier Portal Item Viewer System User

1. Fill in the user details, keep attention to the following details:
 - the **Active** checkbox must be checked.
 - **Authentication mode** has to be set to **"Internal"**
- Add User to the created **Product 360 Supplier Portal Item Viewer User Group**

7.3 Setup Post Export Step

The Product 360 Supplier Portal Post Export Step introduces the possibility for Product 360 Core users to send selected catalog data to a specific supplier within Product 360 Supplier Portal. For more information about the Product 360 Supplier Portal Post Export Step see this page.

To configure the communication from Product 360 - Server to Product 360 Supplier Portal just make sure you set the following properties in the

<P360_SERVER_INSTALLATION_ROOT>\server\configuration\HPM\hsx.properties

Database Settings	
hsx.enabled	Enable the Product 360 - Server-> Product 360 - Supplier Portal communication hsx.enabled=true
hsx.server	The Product 360 - Supplier Portal tomcat application server host name. e.g. hsx.server=localhost

hsx.port	Port of the Product 360 - Supplier Portal application. e.g. <code>hsx.port=9090</code>
hsx.login.name	e.g. <code>hsx.login.name=hsx</code>
hsx.login.password	Password of the above portal administrator. e.g. <code>hsx.login.password=pass</code>
hsx.rest.uri	e.g. <code>hsx.rest.uri=http://localhost:9090/hsx/rest/</code>


7.4 Network setup

7.4.1 Setup HTTPS/SSL Security

When configuring Product 360 Supplier Portal for production usage, setting up https security is **mandatory**. Otherwise all user credentials will be send as plain text through the internet. There are two scenarios, how security can be ensured:

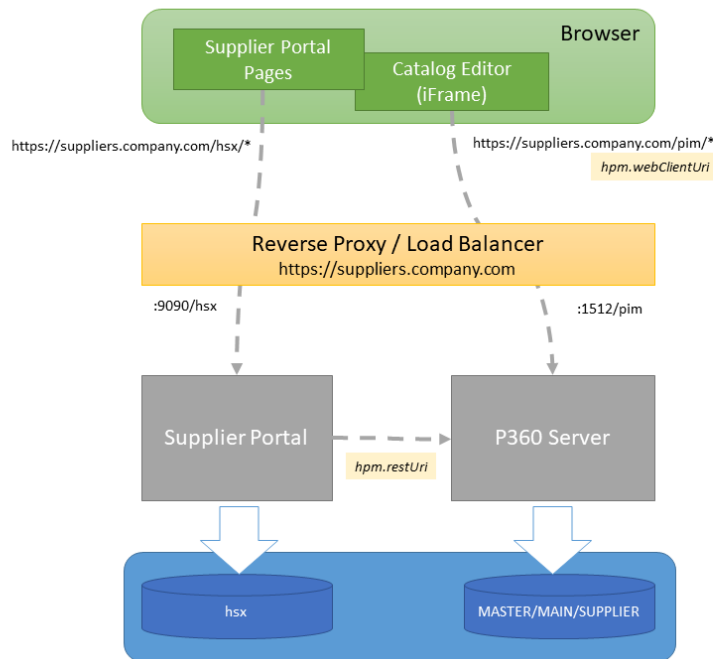
- Setup a Reverse Proxy that transparently forwards all requests to the Supplier Portal server. SSL certificates are installed on the Reverse Proxy.
- Install SSL certificates directly on Supplier Portal Server.

A combination of both is possible, too.

 When using a proxy don't forget to configure the externally visible URLs in the [configuration file](#)(see [page 323](#)). This URL is used in emails that are sent by the application.

7.4.2 Setup a Reverse Proxy

A proxy may optionally be used to handle incoming requests from outside and redirect them into the internal network. Please note, that the Product 360 server needs to be configured at the same proxy to enable the catalog editor functionality (suppliers that can view/edit their catalog data directly). The catalog editor is a stripped down Product 360 web interface that is loaded within an iFrame at the supplier users Browser. The property `hpm.webClientUri` needs to be adjusted to point to the externally visible Product 360 Web UI endpoint.



Product 360 - Supplier Portal has been tested together with Apache HTTP 2.2. The Apache can be used as:

- Reverse proxy that transparently handles incoming requests and redirects them into the internal network
- Load balancer to distribute requests to multiple Product 360 - Supplier Portal installations
- Storage for SSL certificates

Configuring a reverse proxy is as simple as open the `httpd.conf` of the Apache installation and add the following lines:

```
# Load the needed mod_proxy modules
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so
LoadModule proxy_http_module modules/mod_proxy_http.so

#Reverse Proxy Supplier Portal
ProxyPass /hsx http://<balancerhost>:<port>/hsx
ProxyPassReverse /hsx http://<balancerhost>:<balancerport>/hsx
```

7.4.3 Configure Support for X-Forward-* headers

When acting as a reverse proxy, Apache http and IIS automatically rewrite both incoming and outgoing urls. However, some Load Balancers like Amazon ELB cannot rewrite all outgoing urls (see <https://aws.amazon.com/de/premiumsupport/knowledge-center/redirect-http-https-elb/>). The latter is needed for redirecting the user to the main page after successful login (app server sends a 302 redirect to Browser). In this case, the url is returned as Location header in the http response. If the app server is accessed with http only and the proxy uses https the Browser will not redirect to a http address for security reasons.

In case the proxy sets X-Forward-* headers in the requests to the app-server (like Amazon ELB), Apache Tomcat needs to be configured to process these headers. This can be done by extending the server.xml configuration file and adding the **RemoteIpValve**. Example:

```
<Valve className="org.apache.catalina.valves.RemoteIpValve"
    internalProxies="192\.168\.1\.\d{1,3}"
    remoteIpHeader="x-forwarded-for"
    remoteIpProxiesHeader="x-forwarded-by"
    protocolHeader="x-forwarded-proto"
/>
```

Note: internalProxies is the IP address of the Load Balancer as seen by the Tomcat. The value should be in the form of a regular expression (in the syntax supported by `java.util.regex`)

More information: <http://stackoverflow.com/questions/5741210/handling-x-forwarded-proto-in-java-apache-tomcat> and <https://tomcat.apache.org/tomcat-9.0-doc/api/org/apache/catalina/valves/RemoteIpValve.html>.

7.4.4 Install SSL certificates on Supplier Portal Server directly

It is possible to setup SSL security on the Supplier Portal server, too. This is useful, if the connection between the Reverse Proxy and the Supplier Portal should be encrypted and secured, too. However, when using a Load Balancer, SSL certificates need to be installed and maintained on all machines.

To enable https, open the file `<HSX_Install>\tomcat\conf\server.xml`. Please find or extend a block similar to this one:

```
<Connector port="9443" protocol="org.apache.coyote.http11.Http11NioProtocol"
    SSLEnabled="true"
    maxThreads="150" scheme="https" secure="true"
    clientAuth="false" sslProtocol="TLS" URIEncoding="UTF-8"
    keystoreFile="C:/Users/sroeck/.keystore" keystorePass="password"
/>
```

The specified port is the one that needs to be configured within the Reverse Proxy/Load Balancer. KeystoreFile is pointing to the location of the SSL certificate.

Please refer to the Tomcat documentation for more information about available options.

7.4.5 Setup Secure Connection between Supplier Portal and Product 360 Server

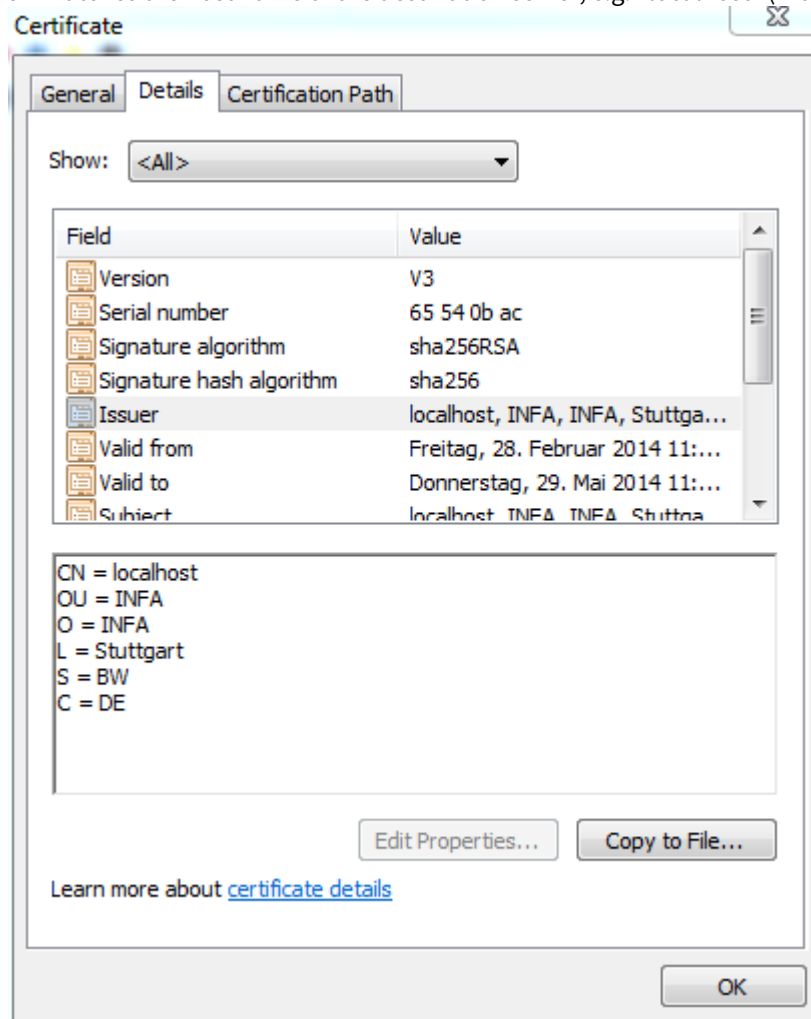
Customers sometimes require to not only encrypt http traffic between Browser and Application Server but also all internal http messages, e.g. between Supplier Portal and Product 360 Server. To implement this:

1. Configure https on the Product 360 Server as described [here](#)(see page 95)
2. Specify the configured https url within Supplier Portal, e.g.


```
hpm.restUri=https://localhost:8443/rest
```

Some notes on testing with self-created SSL certificates:

- SSL handshake checks the server's identity. If the identity cannot be matched, you'll receive the following exception: *java.security.cert.CertificateException: No name matching*. To fix this, make sure the certificate's CN matches the host name of the destination server, e.g. "localhost" (more info).



- Self-Created certificates are not trusted by default. To make your local keystore trusted, start Supplier Portal with the following JVM arguments (more info):

```
-Djavax.net.ssl.trustStore=C:/Users/sroeck/.keystore // path to keystore
-Djavax.net.ssl.trustStorePassword=password // keystore password
```

7.5 Multiserver Setup

Supplier Portal may be setup as a multiserver system including load balancing. There are some things to consider concerning configuration of the servers and the loadbalancers.

7.5.1 Property configuration

Also for all properties that define access to files make sure that the same folder is used across all servers. This is generally done by using shared folders and UNC path as in this example:

```
fileStorageService.rootDirectory=//ServerName/ShareFolder
```

If there is a load balancer setup for several Product 360 servers, the url for the service api requests and the web client have to be set to the loadbalancer as well:

```
hpm.restUri=http://pimLoadbalancer/rest
hpm.webClientUri=http://pimLoadbalancer/pim/webaccess
```

7.5.2 Setup Reverse Proxy and Load Balancer

When using Apache HTTP 2.2 as reverse proxy and load balancer for multiserver scenarios, the httpd.conf file must be additionally modified for load balancing purposes:

```
# Load the needed mod_proxy modules
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so
LoadModule proxy_http_module modules/mod_proxy_http.so

<IfModule log_config_module>
...
LogFormat "%h %l %u %t %s" "%r" "%s %b \"%{JSESSIONID}e\"" combined
...
</IfModule>
#Reverse Proxy Supplier Portal
ProxyPass /hsx http://<balancerhost>:<port>/hsx stickysession=JSESSIONID|jsessionid
ProxyPassReverse /hsx http://<balancerhost>:<balancerport>/hsx
stickysession=JSESSIONID|jsessionid
#Use sticky sessions, identify servers via route parameter
<Proxy balancer://<balancerhost>>
    BalancerMember http://<supplierserver1>:<server1port> route=server1
    stickysession=JSESSIONID|jsessionid
    BalancerMember http://<supplierserver2>:<server2port> route=server2
    stickysession=JSESSIONID|jsessionid
    ProxySet stickysession=JSESSIONID|jsessionid
</Proxy>
```

The route parameter also requires to setup the tomcat servers accordingly. That means using the same route id in the engine parameter in the server.xml of the respective Tomcat configuration. This would be an example configuration for the server <supplierserver1>:


```
<Engine name="Catalina" defaultHost="localhost" jvmRoute="server1">
```

For further information consider the Apache web server documentation.

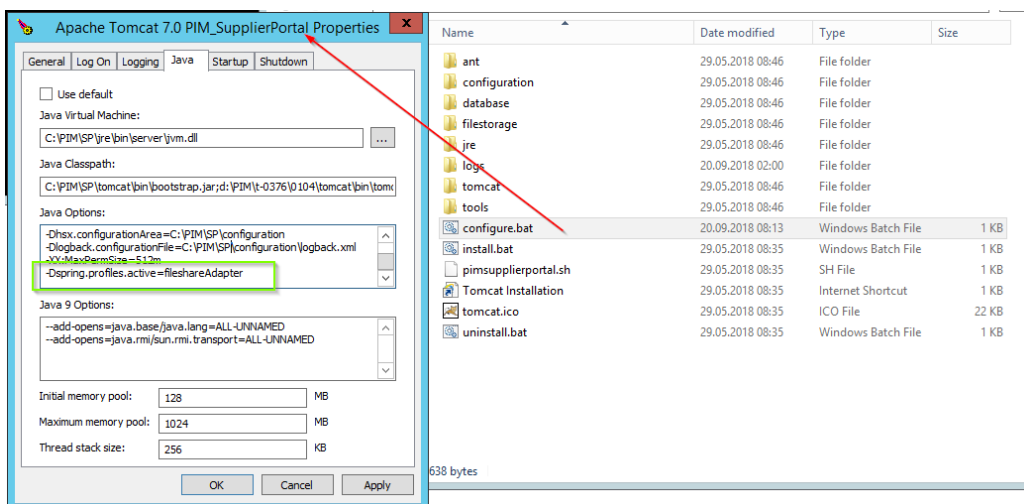
```
<Valve className="org.apache.catalina.valves.RemoteIpValve" internalProxies="192.168.1.XXX"
  remoteIpHeader="x-forwarded-for" remoteIpProxiesHeader="x-forwarded-by" protocolHeader="x-forwarded-proto" />
```

7.6 Start Supplier Portal with additional Spring Profiles

To enable some additional functions it is necessary to launch Supplier Portal with an additional Java Option. This Java Option is called `-Dspring.profiles.active`

It is necessary to add the Java Option to the Tomcat Properties. You can open the Tomcat Properties via the `<P360_SUPPLIER_PORTAL_INSTALLATION_ROOT>/configure.bat`.

The following sample enables the fileshare adapter.



If you want to use more than 1 profile please use comma (,) to separate them. Please be aware that the profiles are case sensitive.

7.7 SAML Configuration

This guide describes the necessary steps to configure Product 360 Supplier Portal for usage with SAML Single Sign On.

7.7.1 Overview

7.7.1.1 SAML Roles

The SAML specification defines three roles:

- the Principal (typically a user)
- the Identity Provider (IdP) e.g. Active Directory Federation Services (AD FS), OKTA or Shibboleth
- and the Service Provider (SP), in our case the Product 360 Supplier Portal

This section describes all steps necessary to setup Single Sign On (in short SSO) via SAML for the Product 360 Supplier Portal.

If you want to know more about what SAML is, documentation can be found on the official SAML documentation pages provided by the OASIS consortium.

In general, the term "Service Provider" can be replaced with "Product 360 Supplier Portal" and the term "User agent" can be replaced with "Browser" in case of web based SSO scenarios.

7.7.1.2 Single Sign On flow

Product 360 Supplier Portal supports two general ways for Single Sign On: Service Provider initiated and Identity Provider initiated Single Sign On.

In addition to that, Supplier Portal also supports Single Sign On for all user roles: Supplier users or Broker users maintained only in Supplier Portal and Portal administrators that are maintained in the Product 360 Server.

Single Sign On Initiation

Service Provider initiated

In this scenario

1. the principal requests a service from the service provider (e.g. access to a web resource within the Product 360 Supplier Portal).
2. Before providing this resource to the principal the service provider redirects user authentication (AuthRequest) to the identity provider.
3. In case the user is not yet authenticated at the Identity Provider, the IdP requests credentials from the user, e.g. by presenting a login form for the username and password.
4. Once the authentication has been finished, the IdP provides an identity assertion (SAML assertion) for the principal.
5. On basis of this assertion, the service provider can make a decision to provide the resource to the principal or not, i.e. checking authorization of the principal for the resource.
6. If the authorization check passes, the SP then provides the initially requested resource.

Identity Provider initiated

In this scenario, there is no initial authentication request from the SP. Instead, the IdP provides links to certain SP resources. IdP initiated Single Sign On is started when the user clicks on such a link.

1. The user has already accessed the IdP's web user interface and is authenticated.
2. In that interface the user clicks on a link to access a resource of the SP.
3. The SP directly receives an identity assertion for the principal and information about the requested resource.
4. On basis of this assertion, the service provider can make a decision to provide the resource to the principal or not, i.e. checking authorization of the principal for the resource.
5. If the authorization check passes, the SP then provides the initially requested resource.

Role specific process

In Product 360 Supplier Portal it is possible to activate Single Sign On only for Supplier/Broker users or only for Portal administrators or for all roles. This may require specific configuration preparations for user or supplier creation. For details about this see section 'Automatic user and supplier creation on successful authentication' below.

7.7.1.3 System architecture



Gliffy Macro Error

You do not have permission to view this diagram.

Product 360 Supplier Portal acts as two relying parties (service providers): A Supplier User SSO relying party (for Supplier/Broker users) and a Portal Administrator SSO relying party (respectively service provider and entityID).

In the case of Portal Administrator SSO also Product 360 Server acts as a relying party resp. service provider (for more information on SAML configuration for Product 360 Server see chapter "Server Configuration" of the Installation and Configuration guide and there [".Copy of SAML Configuration 1 v8.1.1\(see page 349\)"](#)). In this scenario the authenticated portal administrator not only has to be logged into the Product 360 Supplier Portal, but also into the Product 360 Server, in order to be able to authenticate when executing REST calls (e.g. for syncing catalog/supplier information from Product 360 Server). Therefor Product 360 Supplier Portal sends the SAML Response (initially created by the IdP for Portal Administrator SSO) to the Product 360 Server and receives an access token for authentication against Product 360 Server in further REST calls.



For Portal Administrator SSO it is mandatory, that the relying party for Product 360 Supplier Portal Portal Administrator SSO and the relying party for Product 360 Server are configured on the same IdP.

Also the same certificates and keys have to be used for these two relying parties, so that Product 360 Server is also able to validate the SAML Response, which was initially created for the relying party of Product 360 Supplier Portal Portal Administrator SSO.

This also means that Saml must be set tot active and keystore properly defined on the Product360 Server.

The relying party for Supplier Portal Supplier User SSO can either be configured on the same IdP as the relying party for Supplier Portal Portal Administrator SSO, or on a different IdP.


Product 360 Supplier Portal has two different login and consumer urls, one for Supplier User SSO and one for Portal Administrator SSO. Also the SAML configuration for these two cases are located in different XML files (SamlConfig.xml and SamlConfigPortalAdmin.xml).

7.7.1.4 Security in Product 360 Supplier Portal SAML support

- HTTP communication security is ensured by using SSL for the communication between the IdP and SP (Tomcat https support)
- Messages can be signed and encrypted to ensure message-level security. This includes:
 - signing of AuthRequest message by the SP
 - signing of SAML Assertions by the IdP
 - encryption of SAML Assertions by the IdP
- When the IdP is signing the assertion, the Product 360 Supplier Portal can verify that it was issued by exactly this IdP using the IdP's public X509 certificate.
- Optionally supplying Product 360 Supplier Portal with a public X509 certificate and private key allows Product 360 Supplier Portal, as the SP, to sign outgoing AuthRequests to the IdP, as well as decrypt assertions from the IdP.
- Product 360 Supplier Portal signs outgoing messages to the IdP with the SHA1 hashing algorithm. Product 360 Supplier Portal supports incoming messages from the IdP signed with the SHA1 or SHA256 hashing algorithms.
- Product 360 Supplier Portal can decrypt assertions from IdP, encrypted with AES-128, AES-256, or Triple DES encryption algorithms.
- Passwords are never transmitted as part of a SAML authentication request or response. Responses only contain the username and (optionally) any additional metadata (username, domain, email, etc.) that was configured by the IdP administrator. The optional information can be used for automatic user creation.

7.7.2 Preparation steps

7.7.2.1 Certificate keystores

 For AD FS, it is necessary to have HTTPS enabled. Therefore you need a keystore file, which has to be provided for each node.

Product 360 Supplier Portal currently operates only on JKS format keystores. The JKS format is Java's standard "Java KeyStore" format, and is the format created by the `keytool` command-line utility. This tool is included in the JDK.

Each entry in a keystore is identified by an alias string. In order to avoid issues related to the case sensitivity of aliases, it is not recommended to use aliases that only differ in the use of small and capital letters.

To setup SAML support in Product 360 Supplier Portal we will need to start with creating the keystores for the different X509 certificates which will be needed for transport and message level security. If there is no SSL connection used within your Product 360 Supplier Portal yet, you will need to setup an initial keystore.

Create new certificate and keystore

To create a new JKS keystore from scratch, containing a single self-signed Certificate, execute the following command from a terminal command line:

Create new certificate and keystore

```
keytool -genkey -alias [your alias] -keyalg RSA -keystore c:\path\to\your\desired\.keystore -keysize 2048
```

This command will create a new file under the specified (`-keystore` parameter) location. You will also need to reflect this new location in the Product 360 tomcat `server.xml` file in the `<Connector>` element.

After executing this command, you will be prompted for the keystore password. You will also need to specify the keystore password in the `server.xml` file in the `<Connector>` element, as described in the Setup HTTPS/SSL.

Sample HTTPS Connector Definition in server.xml

```
1 <Connector port="9443"
2     protocol="org.apache.coyote.http11.Http11NioProtocol"
3     maxThreads="150" SSLEnabled="true" scheme="https" secure="true"
4     clientAuth="false" sslProtocol="TLS" URIEncoding="UTF-8"
5     keyAlias="tomcat"
6     keypass="secret"
7     keystoreFile="C:\PIM\SP\configuration\.keystore"
8     keystorePass="heiler"
9 />
```

Next, you will be prompted for general information about this certificate, such as company, contact name, and so on. This information will be displayed to users who attempt to access a secure page in your application, so make sure that the information provided here matches with what they will expect.

Finally, you will be prompted for the *key password*, which is the specific password for this certificate (as opposed to any other certificates stored in the same keystore file). You need to specify the key password as well as the specified alias (`-alias` parameter) in the appropriate use case (HTTPS, SAML signing, SAML encryption) and their configuration files (e.g. `server.xml`, see above).

If everything was successful, you now have a keystore file with a certificate that can be used by your Product 360 Supplier Portal.

Import existing certificate into keystore

If you already have a CA certificate (=certificate obtained by a Certificate Authority), you can import it into your local keystore. First of all you have to import a so called Chain Certificate or Root Certificate into your keystore. After that you can proceed with importing your CA certificate.

Download a Chain Certificate from the Certificate Authority you obtained the certificate from.

- For Verisign.com commercial certificates go to: <http://www.verisign.com/support/install/intermediate.html>
- For Verisign.com trial certificates go to: http://www.verisign.com/support/verisign-intermediate-ca/Trial_Secure_Server_Root/index.html
- For Trustcenter.de go to: <http://www.trustcenter.de/certservices/cacerts/en/en.htm#server>
- For Thawte.com go to: <http://www.thawte.com/certs/trustmap.html>

Import the Chain Certificate into your keystore:

Import the Chain Certificate into your keystore

```
keytool -import -alias root -keystore c:\path\to\your\desired\keystore -trustcacerts
-file c:\path\to\your\trustcacertFileName
```

Finally you can import the CA certificate:

Import the CA certificate

```
keytool -import -alias https -keystore c:\path\to\your\desired\keystore -file c:
\path\to\your\certificateFileName
```

Export existing certificate's public keys for metadata usage

For the SAML metadatas you will need the public keys in a readable format. In order to get them execute the following commands from command line:

Export existing certificates

```
keytool -export -file c:\mycertificate.cert -alias samlEncryptionCert -keystore c:
\path\to\your\desired\keystore
```

Convert certificate to readable format

```
keytool -printcert -rfc -file c:\mycertificate.cert > c:\mycertificate.txt
```


Import of Single Sign On relevant keystore entries from Product 360 Server


- ❗ When activating Single Sign on for Portal administrators, please keep in mind that Product 360 Supplier Portal also authenticates against the same IdP which is used for Single Sign On. Since Product 360 Supplier Portal does not have access to the keystore of Product 360 Server it is required to reuse those keystore entries from Product 360 Server in the keystore used for Product 360 Supplier Portal.

7.7.2.2 IdP Configuration

The concrete configuration steps for the IdP highly depend on the IdP implementation (like AD FS, OpenAM or Shibboleth). But in general the following points have to be considered here:

- Create relying party(s) representing Product 360 Supplier Portal. For Supplier User SSO and Portal administrator SSO separate relying parties are needed.
- Define unique entityID(s), for Supplier User SSO and Portal administrator SSO, which you then use in the Product 360 Supplier Portal Configuration files (see chapter "Add SAML relevant configuration files")
- The assertion consumer service location in the IdP corresponds to the `assertionConsumerServiceLocation` defined in `SamLConfig.xml` resp. `SamLConfigPortalAdmin.xml` **plus** `<applicationRoot>/saml/supplierSSO` (for Supplier user SSO) resp. `<applicationRoot>/saml/supplierSSO/alias/portalAdmin` (for Portal Administrator SSO),
 - e.g. for Supplier User SSO: <https://pim.informatica.com/hsx/saml/supplierSSO>
 - e.g. for Portal administrator SSO: <https://pim.informatica.com/hsx/saml/supplierSSO/alias/portalAdmin>
 - please keep in mind that the `assertionConsumerServiceLocation` in both config files `SamLConfig.xml` resp. `SamLConfigPortalAdmin.xml` is still only the base app url, e.g. <https://pim.informatica.com/hsx>.
- Use or create public certificates and private keys appropriate to them used in the Product 360 Supplier Portal keystore.

 For Portal Administrator SSO it is mandatory to use the same certificates for the Portal Administrator relying party of Product 360 Supplier Portal as used for the relying party of Product 360 Server (see chapter "Server Configuration" of the Installation and Configuration guide and there "[Copy of SAML Configuration 1 v8.1.1](#)(see page 349)").

 If you use Active Directory Federation Services (AD FS), you might have to explicitly enable the usage of one certificate for multiple relying parties. Here you can find more information about this: <https://support.microsoft.com/en-us/help/2877424/update-enables-you-to-use-one-certificate-for-multiple-relying-party-trusts-in-an-ad-fs-2.1-farm>

- If possible, use the URL-provided SP metadata of Product 360 Supplier Portal, in order to retrieve SAML metadata information of Product 360 Supplier Portal (configuration, certificates etc...):
 - e.g. for Supplier User SSO: <https://pim.informatica.com/hsx/saml/metadata>
 - e.g. for Portal administrator SSO: <https://pim.informatica.com/hsx/saml/metadata/alias/portalAdmin>
 - As an alternative you can generate your metadata file with the following online tool: https://www.samltool.com/sp_metadata.php
- Ensure that SAML assertions contain the mandatory SAML attributes defined in the chapter "SAML attributes". Optionally map also the not-mandatory SAML attributes.

7.7.3 Configuring SAML for Product 360 Supplier Portal

7.7.3.1 Activate SAML

Activate SAML for Product 360 Supplier Portal by adding the `samlSSO` spring profile to the JVM arguments list.

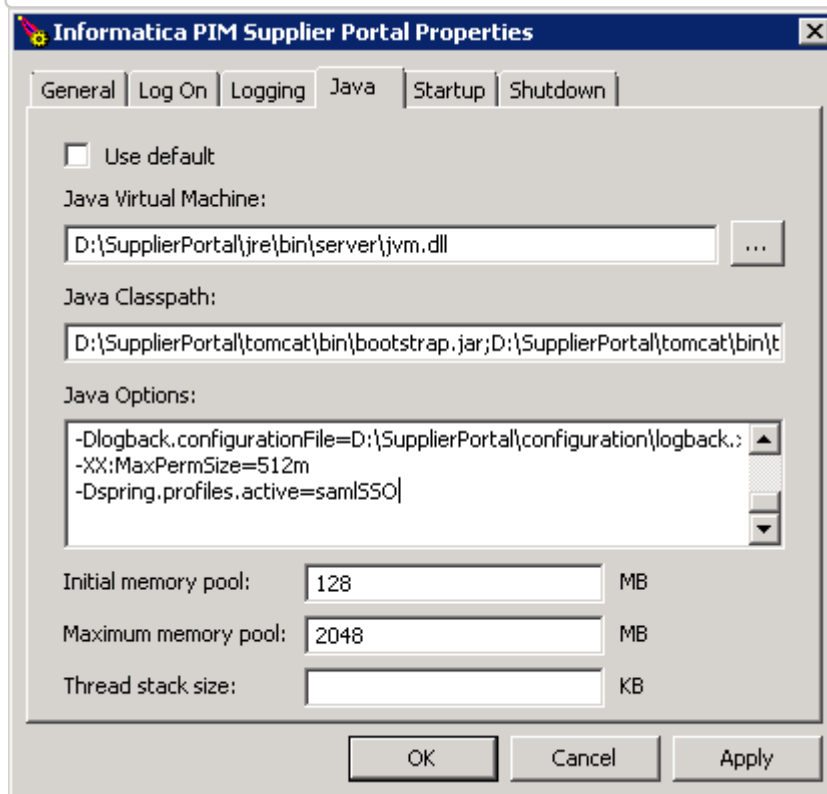
Windows

1. Call the configure script:

```
<SUPPLIER PORTAL INSTALLATION ROOT>/configure.bat
```

2. Add `samlSSO` spring profile to the `spring.profiles.active` argument:

```
-Dspring.profiles.active=samlSSO
```



Linux

1. Edit your `tomcat.sh` shell script:


```
<SUPPLIER PORTAL INSTALLATION ROOT>/tomcat/bin/tomcat.sh
```

2. Add the `spring.profiles.active` argument with the `samlSSO` profile included (see line 11 below as an example):

```

1      ....
2      export CATALINA_OPTS="-Dcatalina.home=$CATALINA_HOME
3      -Dcatalina.base=$CATALINA_HOME
4      -Djava.endorsed.dirs=$CATALINA_HOME/endorsed
5      -Djava.io.tmpdir=$CATALINA_HOME/temp
6      -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
7      -Djava.util.logging.config.file=$CATALINA_HOME/conf/
      logging.properties
8      -Dhsx.configurationArea=$HSX_CONFIG_AREA
9      -Dlogback.configurationFile=$HSX_CONFIG_AREA/logback.xml
10
11     -Dspring.profiles.active=samlSSO
12
13     -XX:MaxPermSize=512m"
14     .....
```


7.7.3.2 Configure keystore settings in configuration.properties

Edit your `configuration.properties` to conform to your created [Keystore Settings](#) (see page 0):

```

1      #####
2      #####
3      ### Keystore settings
4
5      # Defines the file location of the keystore to use
6      keystore.location = file:c:/temp/.keystore
7      # Defines the password of the keystore defined via ${keystore.location}
      property
      keystore.password = heiler
```

7.7.3.3 Add SAML relevant configuration files

 The current SAML implementation requires the IdP to deliver the username (without domain or email extension) in the **NameID** attribute.

After having https enabled and a keystore configured, the `SamlConfig.xml` resp. the `SamlConfigPortalAdmin.xml` have to be configured.

Both xml files have the same schema, but their values differ to reflect the different SSO scenarios for the different user roles.

- If Single Sign On for Supplier users is desired, configuring the SamlConfig.xml in Supplier Portal file is mandatory.
- If Single Sign On for Portal administrators is desired, configuring the SamlConfigPortalAdmin.xml file in Supplier Portal is mandatory. Here it is also mandatory to activate SSO in Product 360 Server and adjust the SamlConfig.xml file in Product 360 Server. See chapter "Server Configuration" of the Installation and Configuration guide and there "[.Copy of SAML Configuration 1 v8.1.1\(see page 349\)](#)".

SamlConfig.xml and SamlConfigPortalAdmin.xml

Create a new SamlConfig.xml respectively SamlConfigPortalAdmin.xml file in your configuration folder. Adapt it to fit to your needs, add the alias and password of your key and enable SAML.

If you want to use different keys for signing and encryption, you have to create multiple keys in the keystore. The following example assumes the use of the same keys for signing and encryption.

Sample SamlConfig.xml

```

1  <samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2    xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
3    <logoutUrl>https://idpserver/login.html</logoutUrl>
4    <active>true</active>
5    <idpMetadata>
6      <metadataLocation forceAuthRequestsSigned="false"
7        disregardSslCertificate="false">idp-metadata.xml</metadataLocation>
8    </idpMetadata>
9    <spMetadata>
10     <assertionConsumerServiceLocation>https://
11       supplierPortal.informatica.com</assertionConsumerServiceLocation>
12     <signingKey password="secret" alias="localhost"/>
13     <encryptionKey password="secret" alias="localhost"/>
14     <entityId>spEntityID</entityId>
15     <wantAssertionsSigned>true</wantAssertionsSigned>
16   </spMetadata>
17 </samlConfig>

```

Active

Defines whether SAML shall be used to initiate automated SAML Single Sign On if the user is not logged in yet.

Type	Required	Default
Boolean	yes	false

LogoutUrl

Defines the URL which the user will be redirected to after logout. Most typically this is an URL where a user may login to the application IdP initiated.

In case the element does not exist or the value is empty, the user is redirected to the default Product 360 Supplier Portal login page.

Type	Required	Default
String or URL	no	Product 360 Supplier Portal login page

DefaultUserGroup

This element is only meaningful for portal admin user SSO.


When a portal admin user has been authenticated via SAML and there is no matching user with the same name in Product 360 Server the user will be created on the fly. In this case it is mandatory to provide a default user group here, which the newly created portal admin user will be assigned to in Product 360 Server. A matching user group with this name has to exist in Product 360 Server.




A guideline which user rights requirements the user group for Portal Admin Users has to fulfill can be found in the chapter "Item Editor Configuration" in the general documentation "Supplier Portal Configuration".

Type	Required	Default
String	not required as per schema definition, but required in SamlConfigPortalAdmin.xml, in case Portal administrator SSO is active	-

SpMetadata

Required element defining all Service Provider relevant settings.

Sub element/Attribute	Type	Required	Default	Description
entityId	String	yes	-	<p>An entity ID is a globally unique name for a SAML entity, in this case a Service Provider (SP), in concrete the Supplier Portal. The entityId defined will be used for communication between IdP and SP.</p> <div>  In case the SamlConfigPortalAdmin.xml is configured for Portal administrator SSO, then the entityId must differ from the entityId in the SamlConfig.xml of Product 360 Server and also from the entityId in the SamlConfig.xml of Product 360 Supplier Portal. </div>

assertionConsumerServiceLocation	URL	yes	-	<p>Describes the endpoint to which SAML responses are sent by the IdP.</p> <div>  Add only your Supplier Portal URL for example: https://localhost:9443/hsx. SAML relevant url path extensions are added by internal framework. </div>
signingKey	-	yes	-	<p>The signing key is used to establish a trusted handshake between SP and IdP (authentication).</p> <div>  In case the SamlConfigPortalAdmin.xml is configured for Portal administrator SSO, the same signing key as defined in the SamlConfig.xml in Product 360 Server must be used. </div>
alias	String	yes	-	Alias for the key used for signing.
password	String	yes	-	Password for accessing the key defined by the alias.
encryptionKey	String	yes	-	<p>The encryption key is used to decrypt data received by IdP (data was encrypted by the SPs corresponding public key).</p> <div>  In case the SamlConfigPortalAdmin.xml is configured for Portal administrator SSO, the same encryption key as defined in the SamlConfig.xml in Product 360 Server must be used. </div>
alias	String	yes	-	Alias for the key used for signing.

password	String	yes	-	Password for accessing the key defined by the alias.
wantAssertionsSigned	Boolean	yes	true	Flag indicating (to the IdP) whether Product 360 Supplier Portal requires signed assertions. As signing of assertions is the recommended option, the default value is true.

IdpMetadata

Required element defining all Identity Provider relevant settings.

Sub element/ Attribute	Type	Required	Default	Description
metadataLocation	URL or relative path in configuration folder	yes	idp- metadata.xml	<p>Provides information about the IdP. The element value itself defines the location of the metadata file. Currently two types of locations are supported:</p> <ul style="list-style-type: none"> • URL based (http and https), e.g. "https://idpserver/metadata/idp-metadata.xml" or "http://idpserver/metadata/idp-metadata.xml". (this is the recommended way) • If neither a URL with http or https is provided, it is assumed that the file is located relatively to the Product 360 Supplier Portal configuration folder. E.g. "idp-metadata.xml" would be valid. <div> <p>Please note that if an URL with https is used and "disregardSslCertificate" is set to false, you have to ensure that the certificate presented by the IdP to access the metadata is trusted by Product 360 Supplier Portal. This is done by adding the certificate to the Product 360 Supplier Portal keystore (see above how to add trusted certificates).</p> </div>

⚠ In case the SamlConfigPortalAdmin.xml is configured for Portal administrator SSO, the same metadata location as defined in the SamlConfig.xml in Product 360 Server must be used.

disregardSslCertificate


Booleannofalse

Indicating whether the servers SSL certificate should always be accepted regardless of whether it is valid.
This flag is only relevant if the element value contains a https URL.

`forceAuthRequestsSigned`

Booleanno-

You can force your Product 360 Supplier Portal to add a signature to the AuthRequest by adding the `forceAuthRequestsSigned` flag to true.

 In case the `SamlConfigPortalAdmin.xml` is configured for Portal administrator SSO, the same setting as defined in the `SamlConfig.xml` in Product 360 Server must be used.

7.7.3.4 Identity Provider metadata

The IdP metadata usually can be received over an URL provided by the IdP, which already contains all necessary information you need to know about your IdP. This includes certification information as well as endpoints etc.

The following URL fragments show the metadata URL patterns for the most common IdP implementations:

Microsoft AD FS

<https://idpserver/FederationMetadata/2007-06/FederationMetadata.xml>

Shibboleth

<https://idpserver/idp/shibboleth>

OpenAM

<http://openamserver/openam/saml2/jsp/exportmetadata.jsp?entityid=entityID>

Place your `idp-metadata.xml` into the the Product 360 Supplier Portal configuration folder or the defined location within your `SamlConfig.xml`.

In case your IdP does not provide any metadata you need to generate the `idp-metadata.xml` file, the relevant information can be generated with the help of https://www.samltool.com/idp_metadata.php.

Within the metadata file you need to provide the URL to your IdPs SingleSignOnService location which accepts POST requests. (The example URL schema matches Shibboleth IdP.)

Sample idp-metadata.xml

```

1  <?xml version="1.0"?>
2  <md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata"
3    entityID="idpEntityID">
4    <md:IDPSSODescriptor WantAuthnRequestsSigned="false"
5      protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
6      <md:SingleSignOnService
7        Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST"
8        Location="https://idpserver/idp/profile/SAML2/POST/SSO" />
9    </md:IDPSSODescriptor>
10 </md:EntityDescriptor>

```

7.7.3.5 Information security**Signing of AuthRequest (SP -> IdP)**

If your IdP requires signed AuthRequest you need to enable this within Product 360 Supplier Portal. Therefore you have different options.

If your idp-metadata.xml is located in the local configuration folder of Supplier Portal, the WantAuthRequestsSigned parameter can be set to true:

Enable signing of SAML request

```
<md:IDPSSODescriptor WantAuthnRequestsSigned="true" ...>
```

If you use the URL based metadata provider for referencing the IdP metadata, you can force your Product 360 Supplier Portal to add a signature to the AuthRequest by adding the forceAuthRequestsSigned flag to true:

Force Signed Auth Requests in SamlConfig.xml

```

1  <?xml version="1.0" encoding="UTF-8"?>
2  <samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3    xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
4    ...
5    <idpMetadata>
6      <metadataLocation forceAuthRequestsSigned="true">https://idpserver/
7        metadata/idp-metadata.xml</metadataLocation>
8    </idpMetadata>
9    ...
10 </samlConfig>

```


Additionally you need to provide an X509 certificate in your keystore and refer to it over the alias and password attribute in the `<signingKey>` element within the `spMetadata` section of your `SamlConfig.xml`.

i While the SAML metadata specification does not require the `wantAuthRequestSigned` parameter within the `IDPSSODescriptor`, some IdP Implementations might not set it explicitly, but nevertheless require a signature.

Signing of SAML Assertions (IdP -> SP)

The SAML metadata specification defines a parameter for requesting an IdP to sign the SAML Assertions. To enable Product 360 Supplier Portal to require signature validation on assertion level, you need to set the `wantAssertionsSigned` parameter in `SamlConfig.xml` (resp. `SamlConfigPortalAdmin.xml`) to `true`.

Enable signing of SAML response

```

1  <samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
2    xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
3    ...
4    <spMetadata>
5      ...
6      <wantAssertionsSigned>true</wantAssertionsSigned>
7      ...
8    </spMetadata>
9  </samlConfig>
```

The signature of the assertion will be verified by Product 360 Supplier Portal against the public key of the X509 certificate within your `idp-metadata.xml`.

Signing public key in idp-metadata.xml

```

1  <?xml version="1.0"?>
2  <md:EntityDescriptor xmlns:md="urn:oasis:names:tc:SAML:2.0:metadata"
3    entityID="idpEntityID">
4    <md:IDPSSODescriptor WantAuthnRequestsSigned="false"
5      protocolSupportEnumeration="urn:oasis:names:tc:SAML:2.0:protocol">
6      ...
7      <md:KeyDescriptor use="signing">
8        <ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
9          <ds:X509Data>
10             <ds:X509Certificate>MIIDZzCCAk+gAwIBAgIEFuHJDDANBgqhkiG9w0
11             BAQsFADBKMQswCQYDVQQGEWJE
12             RTEQMA4GA1UECBMHR2VybWFueTENMASGA1UEBxMEU3RndDERMA8GA1UEChMIV2lu
13             ZG93czcxDTALBgNVBAsTBFBPSU0xEjAQBgNVBAMTCWxvY2FsaG9zdDAeFw0xNTEw
14             MDIxMjA2NDFaFw0xNjA5MjYxMjA2NDFaMGQxCzAJBgNVBAYTAkRFMRAwDgYDVQQI
15             ...
16             </ds:X509Certificate>
17             </ds:X509Data>
18             </ds:KeyInfo>
19             </md:KeyDescriptor>
20             ...
21       </md:IDPSSODescriptor>
22     </md:EntityDescriptor>

```

Encryption of SAML Assertions (IdP -> SP)**❗ JCE issues with strong cryptographic algorithms**

Due to import control restrictions of some countries, the version of the JCE policy files that are bundled in the Java Runtime Environment, or JRE(TM), 8 environment allow "strong" but limited cryptography to be used. This means, if your IdP uses a strong cryptographic algorithm like AES-256, you will need to replace your Java Runtime's JCE policy files. Otherwise you will run into errors in SAML message decryption, saying you are using an illegal key size.

See <http://www.oracle.com/technetwork/java/javase/downloads/jce8-download-2133166.html> for details.

If your IdP supports assertion level encryption and the encryption is active, you must provide your encryption public key X509 certificate within the metadata, that is provided to the IdP. The IdP will use this public key to encrypt the SAML assertion and only the owner of the corresponding private key can decrypt the assertion.

If Product 360 Supplier Portal receives an encrypted assertion, it will try to decrypt the assertion with the configured private key which is referenced by the <encryptionKey> in the SamlConfig.xml resp. SamlConfigPortalAdmin.xml.

encryptionKey in SamlConfig.xml

```

1  <?xml version="1.0" encoding="UTF-8"?>
2  <samlConfig xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3      xsi:noNamespaceSchemaLocation="SamlConfig.xsd">
4      ...
5      <encryptionKey password="secret" alias="encryption"/>
6      ...
7  </samlConfig>

```

Signing of Provider Metadata

It is possible to sign the metadata itself to verify its validity. For that a

```
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
```

element is used. It contains information typically needed for signatures like digest and signature value, used algorithm and a certificate.

See <https://www.w3.org/TR/xmldsig-core2/> for further detailed information.

In order for Supplier Portal to verify the signature of IdP metadata, the corresponding certificate has to be

- provided by the IdP team
- added to the cacerts file of the Java used by Supplier Portal.

```
keytool.exe -importcert -file "{cert}" -keystore "<JAVA_HOME>/jre/lib/security/
cacerts" -alias "{alias}" -storepass {keystorePassword}
```

If during startup of the Supplier Portal server an error occurs while reading the metadata the cause can be outdated data inside the <ds:Signature> element or a wrong signature.
So ensure to get updated idp metadata and certificate from the IdP team.

In case the metadata is for an IdP and the IdP metadata is maintained as local metadata file on the Supplier Portal server, then the <ds:Signature> element provided by the IdP team can be completely commented out if not needed.

The local metadata file is unlikely to be tampered with and commenting out might come in handy in case of signature deployment problems that could lead to errors mentioned before.

7.7.3.6 Automatic user and supplier creation on successful authentication

When the user authentication is successful, but the authenticated user and/or supplier does not exist yet in Product 360 Supplier Portal and/or Product 360 Server, a new user and/or supplier must be created with the credential information provided by the SAML response.

Automatic user/supplier creation differs for the particular user roles in Product 360 Supplier Portal.

Portal administrator

On successful authentication, a Portal administrator will be automatically created in Product 360 Supplier Portal and Product 360 Server if not yet existent. Therefore the unique user name from the SAML assertion subject element "NameID" is used. In Product 360 Server the user will be created as external user and will be assigned to the user group in Product 360 Server, which is defined by the element `defaultUserGroup` in the Supplier Portal's `SamlConfigPortalAdmin.xml` file.

The user creation also takes additional optional attributes from the Assertions in the SAML Authentication Response (see chapter "SAML attributes" for more details). The synchronization of the attributes will be done only for the creation process and they will not be updated in case if the user already exists.

Broker

Broker users are also able to logon via SAML. Precondition is an existing broker user in the Supplier Portal. New brokers have to be created manually by a Portal administrator.

Supplier user

There are two supplier creation modes "Automatic" and "Manual" creation. In both cases the email address is mandatory. The user will be identified and created with the attribute value from the attribute "NameID", which must be a unique value to identify the user.

Automatic supplier creation

To activate the "Automatic" supplier creation you need to set the `saml.supplierCreationStrategy` to `AUTOMATIC` in your `configuration.properties` file.

```

1 #####
2 #####
3
4 # Define the strategy for creating a supplier, if SAML authentication is
5 # used.
6 # Options are AUTOMATIC, APPROVAL_WORKFLOW:
7 # - AUTOMATIC: Supplier and supplier users will be created
8 # - APPROVAL_WORKFLOW: Supplier and supplier users will be created with
9 # the registration workflow.
saml.supplierCreationStrategy=AUTOMATIC

```

Automatic creation means, that all the relevant user and supplier information is taken from the SAML assertion's attributes. When the supplier doesn't yet exist, the first successful login will create a new supplier named after the SAML attribute "SupplierName" (see chapter "SAML Attributes") and a new user with the `SUPPLIER_ADMIN` role and username named after the SAML attribute "emailaddress". Subsequent user authentication with different users but same supplier name will create additional users with role `SUPPLIER_USER` under the same supplier. The supplier creation also includes the creation of a default

catalog for this supplier. The name of the newly created catalog can be influenced by the `registrationCustomization.defaultCatalogName` entry in the `configuration.properties` file:

```

1 #####
2 #####
3
4   ## Customization Settings
5
6   # The pattern {SupplierName} is going to be replaced by the supplier's
7   # name on runtime.
8   registrationCustomization.defaultCatalogName={SupplierName} - default
9   Catalog

```

Manual supplier creation (approval workflow)

To activate the "Manual" supplier creation you need to set the `saml.supplierCreationStrategy` to `PORTAL_WORKFLOW` in your `configuration.properties` file.

```

1 #####
2 #####
3
4   ## SAML settings
5
6   # Define the strategy for creating a supplier, if SAML authentication is
7   # used.
8   #
9   # Options are AUTOMATIC, APPROVAL_WORKFLOW:
10  # - AUTOMATIC:      Supplier and supplier users will be created
11  #                   automatically.
12  # - APPROVAL_WORKFLOW: Supplier and supplier users will be created with
13  #                   the registration workflow.
14  saml.supplierCreationStrategy=APPROVAL_WORKFLOW

```

Manual creation means, while authentication needs to create a new supplier which does not exist yet, we will kick off an asynchronous approval workflow, which notifies a portal administrator to handle this registration manually and approve the present supplier (assign an appropriate supplier and catalog). The workflow will also take the SAML attributes like "SupplierName", "NameID", etc. into account to create and assign the appropriate supplier and user. The first user of a supplier will be assigned to the `SUPPLIER_ADMIN` role, while subsequent users of the same supplier will be assigned to the role `SUPPLIER_USER`.

SAML attributes

The user and supplier creation takes the following information from the assertions in the SAML authentication response.

Given name

Value of element attribute "name" in SAML Attribute

`http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname`

Mapped to User data	First name
Mandatory	No
Comment	An attribute may contain a list of values. All first name values are concatenated with a space as separator. E.g. the first name values {"John", "Karl"} will be mapped to "John Karl".

Last name

Value of element attribute "name" in SAML attribute	http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname
Mapped to user data	Last name
Mandatory	No
Comment	An attribute may contain a list of values. All last name values are concatenated with a space as separator. E.g. the last name values {"Earl", "Doe"} will be mapped to "Earl Doe".

E-mail

Value of element attribute "name" in SAML attribute	http://schemas.xmlsoap.org/ws/2005/05/identity/claims/emailaddress
Mapped to user data	E-mail
Mandatory	No for Portal Admin Users Yes for Supplier Users
Comment	An attribute may contain a list of values. Only the first value will be considered. E.g. the e-mail values {"john@company.com", "jdoe@company.com"} are mapped to "john@company.com". ⚠ Note that the value must be conform to the format of a valid e-mail address. If not, the synchronisation of the user fails and the single sign on process fails as well.


Supplier name

Value of element attribute "name" in SAML attribute	http://informatica.com/custom/claims/supplierName
Mapped to user data	Supplier name
Mandatory	<p>No for Portal Admin Users</p> <p>Yes for Supplier Users, if the user</p> <ul style="list-style-type: none"> • is unknown to the system and has to be created or • has been found and is not a broker user
Comment	<p>An attribute may contain a list of values. Only the first value will be considered.</p> <p>In case the supplier is newly created, then the supplier name will also be used as supplier identifier. On successive SSO login processes, in case the supplier user from the SAML response is found and the supplier name is different than that user's supplier name, then the name of the supplier will be updated with the new value.</p> <p>That supplier's identifier will remain unchanged and will still contain the initial name from supplier creation.</p>

7.7.4 Product 360 Supplier Portal Tomcat load balancing

For the usage of SAML in combination with a load balancer in a multi-server setup, there are some additional settings that have to be made on the load balancer and SAML configuration.

7.7.4.1 Supplier Portal configuration

 In the load balancing scenario you need to use the same **Encryption** and **Signing** certificates for all your cluster instances, as well as the same **entityId** in each `SamlConfig.xml` resp. `SamlConfigPortalAdmin.xml`.

Your IdP will only see the load balancer as a communication peer - the Supplier Portal cluster instances behind it are hidden from the IdP.

All your Supplier Portal cluster instances need to act as one host for the IdP, so they all need to return the same `assertionConsumerServiceLocation` which redirects to the load balancer.

Modify all your Supplier Portal cluster instances `SamlConfig.xml` resp. `SamlConfigPortalAdmin.xml`, when using an HTTP-based metadata provider:

- Redirect to the load balancer:


```
<assertionConsumerServiceLocation>https://loadbalancerhost/hsx</assertionConsumerServiceLocation>
```

- Use the same entityID and same signing and encryption keys:

```
1 <signingKey password="heiler" alias="signing" />
2 <encryptionKey password="heiler" alias="encryption" />
3 <entityId>supplierPortalEntityID</entityId>
```

Use the same keystore (signing, encryption keys) for all your Supplier Portal cluster instances.

Enable the additional spring profile named "loadBalancer", which tells the Supplier Portal to rewrite request url from IdP with the load balancer URL.

Windows

1. Call the configure script:

```
<SUPPLIER PORTAL INSTALLATION ROOT>/configure.bat
```

2. Add additionally to the samlSSO the loadBalancer profile to spring.profiles.active argument:

```
-Dspring.profiles.active=samlSSO,loadBalancer
```

Linux

1. Edit your tomcat.sh shell script:

```
<SUPPLIER PORTAL INSTALLATION ROOT>/tomcat/bin/tomcat.sh
```

2. Add additionally to the samlSSO the loadbalancer profile to spring.profiles.active argument (see line 11 below as an example):


```

1      ....
2      export CATALINA_OPTS="-Dcatalina.home=$CATALINA_HOME
3      -Dcatalina.base=$CATALINA_HOME
4      -Djava.endorsed.dirs=$CATALINA_HOME/endorsed
5      -Djava.io.tmpdir=$CATALINA_HOME/temp
6      -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
7      -Djava.util.logging.config.file=$CATALINA_HOME/conf/
      logging.properties
8      -Dhsx.configurationArea=$HSX_CONFIG_AREA
9      -Dlogback.configurationFile=$HSX_CONFIG_AREA/logback.xml
10
11     -Dspring.profiles.active=samlSSO,loadBalancer
12
13     -XX:MaxPermSize=512m"
14     .....
```

Edit your configuration.properties to modify your load balancer settings within in the Loadbalancer settings section.

```

1      #####
2      ### Loadbalancer settings
3      # Overrides request attributes with values of the load-balancer or
4      # reverse-proxy in front of the local application
5      # The settings help to provide correct redirect URLs and verify
6      # destination URLs during SAML processing. To activate the SAML loadbalancer
7      # scenario you additionally need to add the 'loadBalancer' profile to the
8      # active spring profiles as an JVM argument.
9
10     # override the request schema to http or https
11     loadbalancer.schema = https
12     # Context path must be set and start with a forward slash
13     loadbalancer.contextPath = /hsx
14     # override your server name
15     loadbalancer.serverName = localhost
16     # override the server port
17     loadbalancer.port = 443
```

7.7.4.2 IdP configuration

On IdP side, it is necessary to have the load balancer set as assertion consumer service for the Supplier Portal relying party. The assertion consumer service location URL is then the same as already adjusted in the assertionConsumerServiceLocation in the SamlConfig.xml. (see above).

When you are not using the URL-based metadata fetching mechanism on IdP side, you need to manually modify the assertion consumer service location to point to the load balancer location.

7.7.4.3 Load balancer configuration

The following steps need to be done **either** for Apache **or** IIS to handle load-balancing for the Supplier Portal.

Apache and Tomcat load balancing

Additionally to the default load balancing scenario for the Supplier Portal

- Apache and Tomcat load balancing without SAML (see [Supplier Portal Load Balancer Setup](#)(see page 0))

you need to do the following steps to handle SAML Authentication over your Apache load balancer (Tested with Apache httpd 2.4.18):

1. Edit the Apache configuration file `httpd.conf`: Activate the SSL module additionally to the other modules. (For the usage of SSL (https) in your load balancer (Apache), stick to the official Apache documentation)

```

1  LoadModule ssl_module modules/mod_ssl.so
2
3  LoadModule proxy_connect_module modules/mod_proxy_connect.so
4  LoadModule proxy_http_module modules/mod_proxy_http.so
5  LoadModule proxy_module modules/mod_proxy.so
6  LoadModule slotmem_shm_module modules/mod_slotmem_shm.so
7  LoadModule lbmethod_byrequests_module modules/
   mod_lbmethod_byrequests.so
8  LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
9  ...
10 <IfModule ssl_module>
11     Include conf/extra/httpd-ssl.conf
12
13     SSLRandomSeed startup builtin
14     SSLRandomSeed connect builtin
15 </IfModule>
16 ...
```

2. Check that the Listen statement listens to the appropriate SSL port (default 443):

```
Listen 443
```

3. There needs to be a virtual host matching your load balancer and the SSL port, the example below defines a virtual host supporting SSL and the additional directives necessary for SAML support:

Example virtual host configuration

```

1  <VirtualHost *:443>
2      ServerName loadBalancer
3      SSLEngine on
4      SSLCertificateFile "D:/certs/cert.pem"
5      SSLCertificateKeyFile "D:/certs/pk.pem"
6      SSLProxyEngine On
7      ProxyPreserveHost On
8
9      #optional for disabling certificate validation for testing
10     purpose
11     #SSLProxyVerify off
12     #SSLProxyCheckPeerCN off
13     #SSLProxyCheckPeerName off
14
15     <Proxy balancer://supplierclusterSSL>
16         BalancerMember https://supplierPortalCluster1:9443 route=server1
17         BalancerMember https://supplierPortalCluster2:9443 route=server2
18         ProxySet stickysession=JSESSIONID|jsessionid
19     </Proxy>
20
21     ProxyPass /hsx balancer://supplierclusterSSL/hsx
22     stickysession=JSESSIONID|jsessionid
23     ProxyPassReverse /hsx balancer://supplierclusterSSL/hsx
24     stickysession=JSESSIONID|jsessionid
25
26 </VirtualHost>

```

The most important additional directives to be configured are listed below:

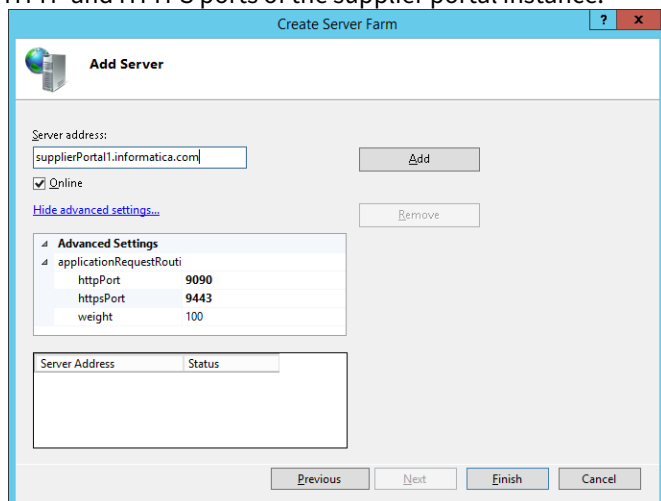
Directive	Explanation
SSLProxyEngine On	Support SSL proxy
ProxyPreserveHost On	Preserve host name on proxy requests (required for successful validation of SAML requests/responses)
SSLCertificate...	Either SSL Certificate or SSLCACertificates which where defined here, need to be trusted by the IDP to successfull handle an SAML authentication.

Microsoft IIS and Tomcat load balancing

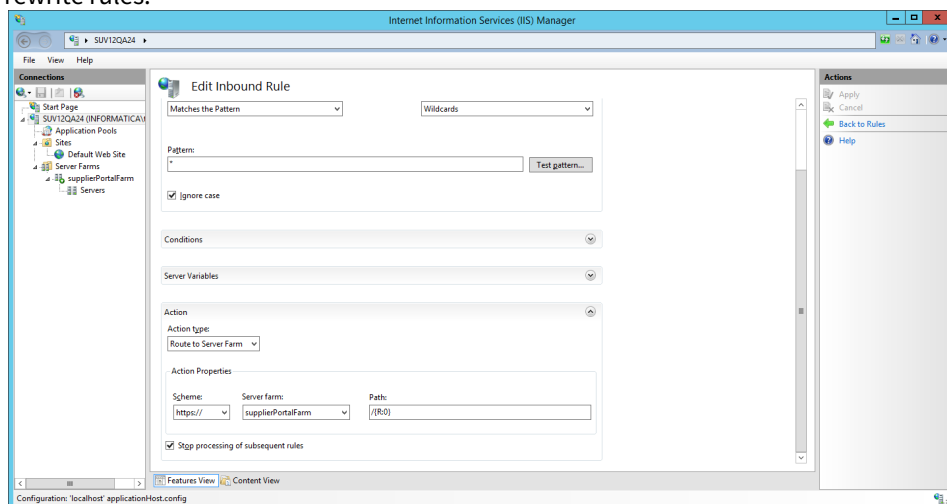
You need to do the following steps to handle SAML Authentication over your IIS load balancer (tested with IIS and ARR on windows 2012 R2 server).

Additionally to the default IIS load balancing settings you need to take care of the following settings for the Supplier Portal:

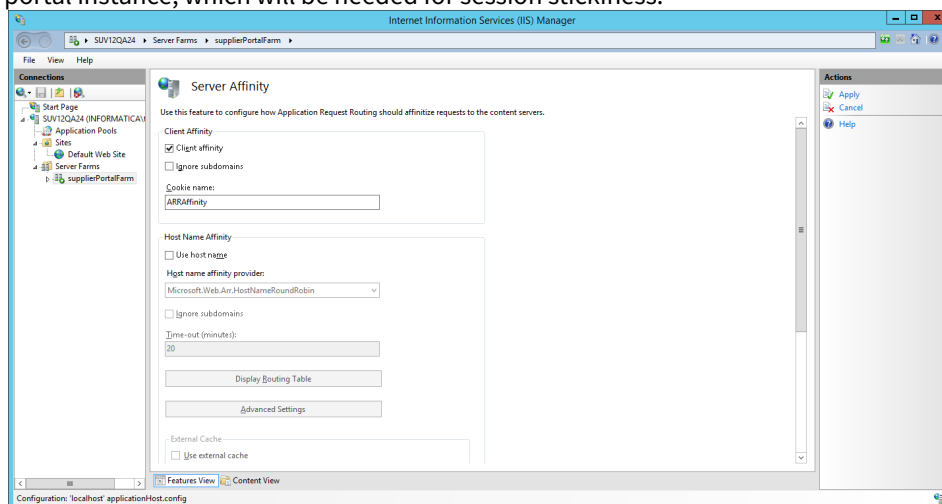
1. Install Application Request Routing and URL Rewriting on your IIS server.
2. Create server farm with the appropriate Supplier Portal server instances (especially with their appropriate port settings, which are configured in your supplier portal configuration.properties file). Add HTTP and HTTPS ports of the supplier portal instance:



3. Confirm the automatic creation of URL rewrite rules or create them yourself in case you need any special rewrite rules:



4. **! IMPORTANT:** Activate Client Affinity on the Server Affinity Settings. This will map an client to an supplier portal instance, which will be needed for session stickiness:



7.7.5 Session lifetimes

There are a several token or session lifetimes that have to be considered when setting up SSO for Supplier Portal. There is no specific recommendation for the IdP side session lifetimes, but for the Product 360 applications the following requirements must be met:

PIM Server Access Token Lifetime > PIM Server Session Lifetime > PIM Supplier Portal Session Lifetime

A preconfigured Product 360 installation package already has the required default values, so typically nothing has to be done. But keep this requirement in mind in case it is desired to change any of the lifetimes.

Token name	Default value	Configurable	Description
PIM Server Access Token	One day (86400 seconds)	via preference in plugin_customization.ini: com.heiler.ppm.webservice.server/ accessTokenExpirationTime.SAML	Access Token created to make Service API calls on behalf of the Portal Admin user.
PIM Server Session	3 hours	No	Used when issuing a Rest Service API call with certain credentials.

Token name	Default value	Configurable	Description
PIM Supplier Portal Session	120 minutes	in web.xml: <session-config> <session-timeout>120</session-timeout> ... </session-config>	Login token for the Supplier Portal application.

7.8 How to configure a secure database connection for Product 360 Supplier Portal

7.8.1 Prerequisite


In order to establish a secure database connection, ensure, that the DBMS's (Oracle/MSSQL) public key certificate is known by the Product 360 Supplier Portal's Java Runtime Environment (JRE). There are different possibilities to achieve this. Please refer to the JSSE Reference Guide (<https://docs.oracle.com/javase/8/docs/technotes/guides/security/jsse/JSSERefGuide.html>) and here especially the chapters "Creating an X509TrustManager" and "Creating a Keystore to Use with JSSE".

7.8.2 Configure Product 360 Supplier Portal

Ensure to do the following configuration changes on all Product 360 Supplier Portal servers. The Product 360 Supplier Portal needs to be restarted in order to have changes take effect.

- in <INSTALLATION_ROOT>/configuration/**configuration.properties**:
 - for Oracle:
 - specify the Oracle Server's TCPS port as value of the property **database.port** (and naturally also the other database parameters like host, database,...). For details, please refer to the chapter "[Supplier Portal Configuration\(see page 308\)](#)".
 - change the protocol to "**tcps**" in the property **database.url.oracle** so the value is like follows: **jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=tcps)(HOST=\${database.server})(PORT=\${database.port})(CONNECT_DATA=(SERVICE_NAME=\${database.name})))**
 - for MSSQL:
 - specify the MSSQL Server's secure port as value of the property **database.port** (and naturally also the other database parameters like host, database,...). For details, please refer to the chapter "[Supplier Portal Configuration\(see page 308\)](#)".
 - add "**;encrypt=true**" to the end of the JDBC connection URLs in the property **database.url.mssql**
 - for further details, please refer to Microsoft's SQL Server documentation: <https://docs.microsoft.com/en-us/sql/connect/jdbc/connecting-with-ssl-encryption?view=sql-server-ver15>

8 Audit Trail Configuration

 This page describes the configuration of the Audit Trail in Product 360

- [Prerequisite](#)(see page 379)
- [Configure Audit Trail in the Product 360 Application](#)(see page 379)
 - [Enable Audit Trail](#)(see page 379)
 - [Configure Audit Trail view](#)(see page 381)
 - [Start Product 360 Server](#)(see page 382)
- [Repository Based Configuration](#)(see page 382)
 - [Short Identifier](#)(see page 382)
 - [Audit Trail Settings](#)(see page 382)
 - [Supports Audit Trail Property](#)(see page 384)
- [Index policies and templates](#)(see page 384)
 - [Lifecycle Policies](#)(see page 385)
 - [Index Templates](#)(see page 386)
- [Configure Audit Trail logs in Product 360](#)(see page 386)

8.1 Prerequisite


Before you can start with this chapter, you need to have finished the following parts:

- [Setup Product 360 - Elasticsearch Installation](#)

8.2 Configure Audit Trail in the Product 360 Application

The Audit Trail feature is delivered as part of the Server and Desktop Client package. By default the Audit Trail functionality is disabled. To enable this feature you have to configure the following properties in `<PIM_SERVER_INSTALLATION_ROOT>\configuration\HPM\server.properties` file:

8.2.1 Enable Audit Trail

General settings	Mandatory	
system.name		This is a mandatory property. It specifies the name of the system, e.g. Test System / Productive System / Demo / Poad, etc. Blanks will be replaced with _. Best practice: use 0-9A-Za-z.-

General settings	Mandatory									
audittrail.rest.url	✔	URL path to the Elasticsearch REST server. E.g. audittrail.rest.url = http://localhost:9200,http://localhost:9201								
audittrail.rest.user	✘	Login name of the Elasticsearch REST server.								
audittrail.rest.password	✘	Login password of the Elasticsearch REST server.								
audittrail.rest.allow.self-signed.certificate	✘	Allows self-signed certificate only if you use https.								
audittrail.mode	✔	<div>The Audit Trail can be set up with the below modes</div> <table><tr><th>Mode</th><th></th></tr><tr><td>PRODUCTION</td><td>(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.</td></tr><tr><td>CLEAN_SLATE</td><td>(Only for testing, use with caution) All Audit Trail data will be erased when Product 360 - Server is restarted.</td></tr><tr><td>DISABLED</td><td>The Audit Trail will be disabled.</td></tr></table>	Mode		PRODUCTION	(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.	CLEAN_SLATE	(Only for testing, use with caution) All Audit Trail data will be erased when Product 360 - Server is restarted.	DISABLED	The Audit Trail will be disabled.
Mode										
PRODUCTION	(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.									
CLEAN_SLATE	(Only for testing, use with caution) All Audit Trail data will be erased when Product 360 - Server is restarted.									
DISABLED	The Audit Trail will be disabled.									

General settings	Mandatory													
audittrail.installation.type	✓	<p>The Audit Trail can have below installation types</p> <table> <tr> <th>Installation type</th><th>Configuration folder</th><th></th></tr> <tr> <td>elastic-standalone</td><td>conf/audittrail/elastic-standalone</td><td>On-premise installation of Elasticsearch for PROD</td></tr> <tr> <td>elastic-aws</td><td>conf/audittrail/elastic-aws</td><td>AWS Elasticsearch Service</td></tr> <tr> <td>elastic-test</td><td>conf/audittrail/elastic-test</td><td>On-premise installation of Elasticsearch for DEV, QA</td></tr> </table>	Installation type	Configuration folder		elastic-standalone	conf/audittrail/elastic-standalone	On-premise installation of Elasticsearch for PROD	elastic-aws	conf/audittrail/elastic-aws	AWS Elasticsearch Service	elastic-test	conf/audittrail/elastic-test	On-premise installation of Elasticsearch for DEV, QA
Installation type	Configuration folder													
elastic-standalone	conf/audittrail/elastic-standalone	On-premise installation of Elasticsearch for PROD												
elastic-aws	conf/audittrail/elastic-aws	AWS Elasticsearch Service												
elastic-test	conf/audittrail/elastic-test	On-premise installation of Elasticsearch for DEV, QA												
audittrail.threadpool.size	✓	This property should have a value that is the same as <code>db.default.pool.maxPoolSize</code>												
audittrail.backup.restoration.mode	✗	<p>This setting will synchronize the Product 360 records in the relational database and their corresponding Audit Trail data in Elasticsearch.</p> <p><i>Default: false</i></p> <p>NOTE: Set to "true" only when Product 360 - Server starts after recovering from a disaster.</p>												

8.2.2 Configure Audit Trail view

To limit the amount of data displayed, there are the following properties

in `<PIM_SERVER_INSTALLATION_ROOT>\configuration\HPM\plugin_customization.ini` file.

Property	Value
<code>com.heiler.ppm.audittrail.server/historyDetailTab.pageSize</code>	The count of documents to be displayed initially in the history detail tab for single/multi selected objects or audit trail search results, default is 5
<code>com.heiler.ppm.audittrail.server/historyDetailTab.content.maxChildren</code>	The maximum number of child nodes within a parent node in the history detail tab, default is 70.

8.2.3 Start Product 360 Server

In case of successful Audit Trail setup you should see the following log messages for each root entity which is configured for Audit Trail:

- *Lifecycle for entity '<entity identifier>' is running in Elasticsearch*

8.3 Repository Based Configuration

8.3.1 Short Identifier

In order to generate and store the changes in the entity item change document, it is important to provide the Short Identifier for entities and fields.

8.3.2 Audit Trail Settings

Audit Trail can be activated for any root entity in the repository. An activation/deactivation on the sub-entity level is not supported. The setting of the root entity will always be used, independent of the setting for the sub-entities.

1. Open the repository editor,
2. Go to Custom section and select a root entity
3. If "Audit trail settings" is not already available for that entity then right-click → select "New child" → click "Audit trail settings"
4. Audit trail settings have the below properties

Property	Value
Datasource	Datasource of Entity, which can be any of the following - MAIN, MASTER, or SUPPLIER
Documentation	

Property	Value								
Retention Policy	<p>There are 3 types of retentions can be chosen from the drop-down</p> <table> <tr> <th>Retention type</th><th></th></tr> <tr> <td>NO_RETENTION</td><td>If no auditing is needed for the entity. No change information will be recorded in the Elasticsearch for this entity</td></tr> <tr> <td>LONG_RETENTION</td><td> <p>If auditing is needed to be stored for the entity for a considerable amount of time, e.g. a few years.</p> <div> <i>i</i> The longterm_policy and longterm_template from the audittrail configuration folder will be used to create policy and index </div> </td></tr> <tr> <td>SHORT_RETENTION</td><td> <p>If auditing is needed to be stored for the entity for a relatively short amount of time, e.g. a few months.</p> <div> <i>i</i> The shortterm_policy and shortterm_template from the audittrail configuration folder will be used to create policy and index </div> </td></tr> </table>	Retention type		NO_RETENTION	If no auditing is needed for the entity. No change information will be recorded in the Elasticsearch for this entity	LONG_RETENTION	<p>If auditing is needed to be stored for the entity for a considerable amount of time, e.g. a few years.</p> <div> <i>i</i> The longterm_policy and longterm_template from the audittrail configuration folder will be used to create policy and index </div>	SHORT_RETENTION	<p>If auditing is needed to be stored for the entity for a relatively short amount of time, e.g. a few months.</p> <div> <i>i</i> The shortterm_policy and shortterm_template from the audittrail configuration folder will be used to create policy and index </div>
Retention type									
NO_RETENTION	If no auditing is needed for the entity. No change information will be recorded in the Elasticsearch for this entity								
LONG_RETENTION	<p>If auditing is needed to be stored for the entity for a considerable amount of time, e.g. a few years.</p> <div> <i>i</i> The longterm_policy and longterm_template from the audittrail configuration folder will be used to create policy and index </div>								
SHORT_RETENTION	<p>If auditing is needed to be stored for the entity for a relatively short amount of time, e.g. a few months.</p> <div> <i>i</i> The shortterm_policy and shortterm_template from the audittrail configuration folder will be used to create policy and index </div>								
Revision setting	<p>Below revision settings are available to choose from for auditing</p> <table> <tr> <th>Revision</th><th></th></tr> <tr> <td>ALL_REVISIONS</td><td>All revisions changes will be recorded in the Audit Trail</td></tr> <tr> <td>HEAD_REVISION_ONLY</td><td>Only head revisions changes will be recorded in the Audit Trail</td></tr> <tr> <td>NON_HEAD_REVISION_ONLY</td><td>All the revisions changes except head revision will be recorded in the Audit Trail</td></tr> </table>	Revision		ALL_REVISIONS	All revisions changes will be recorded in the Audit Trail	HEAD_REVISION_ONLY	Only head revisions changes will be recorded in the Audit Trail	NON_HEAD_REVISION_ONLY	All the revisions changes except head revision will be recorded in the Audit Trail
Revision									
ALL_REVISIONS	All revisions changes will be recorded in the Audit Trail								
HEAD_REVISION_ONLY	Only head revisions changes will be recorded in the Audit Trail								
NON_HEAD_REVISION_ONLY	All the revisions changes except head revision will be recorded in the Audit Trail								

Property	Value						
Use Own Index	Below values can be set for this property <table> <tr> <th>Own index</th><th></th></tr> <tr> <td>true</td><td>This will create a separate index in Elasticsearch for this particular entity</td></tr> <tr> <td>false</td><td>This will use a shared index in Elasticsearch for multiple entities.</td></tr> </table>	Own index		true	This will create a separate index in Elasticsearch for this particular entity	false	This will use a shared index in Elasticsearch for multiple entities.
Own index							
true	This will create a separate index in Elasticsearch for this particular entity						
false	This will use a shared index in Elasticsearch for multiple entities.						

⚠ Configuring Audit Trail for entities is a manual process.

Customers migrating to this version must manually configure the "Audit trail settings" for each entity.

8.3.3 Supports Audit Trail Property

If this flag is set to *false* for a field/entity then any changes done on the field/entity are not recorded in the Audit Trail. However a corresponding change document is stored recording the transaction but with empty change summary.

- **Entity level :** If set at an entity level then all it's sub-entities and fields also inherit this behavior.
- **Field level :** If set at a field level then only that field is affected. Any change done with respect to this field is not recorded in change summary of the document.

8.4 Index policies and templates

Elasticsearch provides OOB functionality to handle index lifecycle management which helps indices to automatically rollover in different phases after defined durations. This lifecycle management makes it easier to manage indices in hot-warm-cold architectures.

i You can read more about lifecycle management -

- ILM at <https://www.elastic.co/guide/en/elasticsearch/reference/current/index-lifecycle-management.html>
- ISM at <https://opendistro.github.io/for-elasticsearch-docs/docs/ism/>

Audit Trail policies and templates are available at the following location
in <PIM_SERVER_INSTALLATION_ROOT>\configuration\HPM\audittrail.

There are folders available for each `audittrail.installation.type` configured in `server.properties`. E.g. Folder `elastic-standalone` will have all the configurations for installation type `elastic-standalone`.



Based on the repository configuration for each entity, policy and template will be applied to particular indices.


8.4.1 Lifecycle Policies


There are `shortterm_policy` and `longterm_policy` in Product 360.

Each has a different configuration for the number of days an index will be in one phase. These can be configured based on customer needs and Product 360 will take care of applying these for indices in Elasticsearch after Product 360 server restart.

Each phase is explained below -

Phases	
Hot	<p>This phase is used for both creation and search of data by the Audit Trail. The index will be in the hot phase once created and stay in this phase until rollover. Only hot indices are writable indices.</p> <div> <p> When indices rollover, there is a potential chance that indices might be in an inconsistent state.</p> <p>To make sure indices never go to an inconsistent state, Product 360 has a job running to rollover indices from the hot phase to the warm phase.</p> <p>Other phases are taken care of by Elasticsearch lifecycle management.</p> </div> <p>Rollover of indices from the hot phase to warm phase using the below settings -</p> <ul style="list-style-type: none"> Default policy rollover is set to 60 days in policy template but the actual rollover happens based on <code>plugin_customization.ini</code> settings <ul style="list-style-type: none"> <code>com.heiler.ppm.audittrail.server/rolloverWatchdog.longPolicyRolloverInDays=30</code> <code>com.heiler.ppm.audittrail.server/rolloverWatchdog.shortPolicyRolloverInDays=30</code> <div> <p> Policy rollover time must be more than double of rollover time given in <code>plugin_customization.ini</code> so that Product 360 has sufficient time to attempt a proper rollover of the index.</p> <p>If Product 360 is unable to perform the rollover, then the default rollover defined in the Elasticsearch policy will execute.</p> </div>

Phases	
Warm	<p>This phase is used only for search by the Audit Trail. The index will be in a warm phase once the rollover is complete.</p> <p>We can define actions to be taken in the warm phase for changing shards and replicas and also to shrink the index.</p>
Delete	<p>Delete phase deletes the index once it reaches the time defined in min_age.</p> <div>  Customers should set the min_age of this phase based on how long they want to retain Audit Trail data of a particular entity. </div>

 For on-prem Elasticsearch installation, in every phase, the min_age means the index will wait for that amount of time in the previous phase before entering the current phase.

For example, if the min_age in the delete phase has 10d then the index will be in the warm phase for at least 10 days and then it will be deleted.

Read more at https://www.elastic.co/guide/en/elasticsearch/reference/6.8/_timing.html

8.4.2 Index Templates

There are 3 index templates in the Audit Trail configuration folder. Each has index settings JSON which contains configurations like number_of_shards, number_of_replicas, etc.

template	
longterm_template	This defines the index settings for the LONG_RETENTION entity based on the repository's "Audit trail settings".
shortterm_template	This defines the index settings for the SHORT_RETENTION entity based on the repository's "Audit trail settings".
migration_template	If the customer migrates data from the old Audit Trail to the new Audit Trail, a new index will be created using this template configuration.

8.5 Configure Audit Trail logs in Product 360

Logs for different components of the Audit Trail can be enabled in log4j2.xml located at <PIM_SERVER_INSTALLATION_ROOT>\configuration\HPM\log4j2.xml

All components can be configured to have different logging levels based on need. Below are the components.

Audit Trail modules	
AUDIT_TRAIL	Any logging level set to this component will apply to all the other components of the Audit Trail. By default, this is set to INFO.
AUDIT_TRAIL.LIFECYCLE	This component will show logs of all the activities related to the lifecycle like index creation, index rollover, etc.
AUDIT_TRAIL.WATCHDOG	This component logs activity related to internal Audit Trail jobs which synchronizes data between Elasticsearch and RDBMS.
AUDIT_TRAIL.PERSISTENCE	This component logs activity related to the persistence of data in the Audit Trail
AUDIT_TRAIL.SEARCH	This component logs activity related to the search of data from the Audit Trail

Example of enabling lifecycle component debug logs

```
<Logger name="AUDIT_TRAIL.LIFECYCLE" level="DEBUG" additivity="false">
  <AppenderRef ref="AuditTrailAppender" />
  <AppenderRef ref="StdFileAppender" />
</Logger>
```

9 Web Search Configuration

9.1 Introduction

Each Web Search is based on an index, which needs to be built before-hand. The content of the search index can be configured in the index configuration which is built using a Export Template.

Each Web Search index is basically a Export Profile based on a search index configuration Export Template.

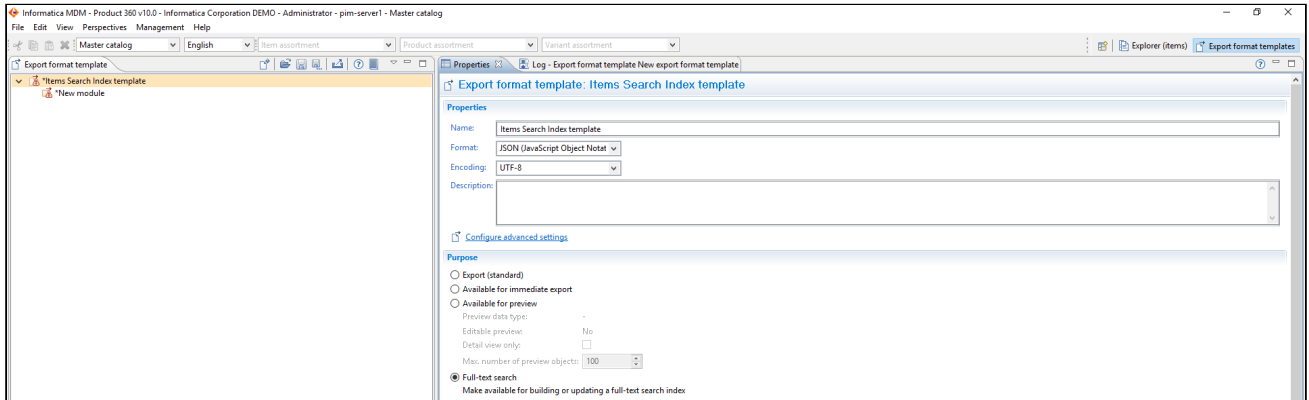
✓ Tip

If you have any further question, how to configure Web Search, have a look to the [HowTo page: Web Search Configuration How to](#) in the HTML package we ship with the software as technical documnetation.

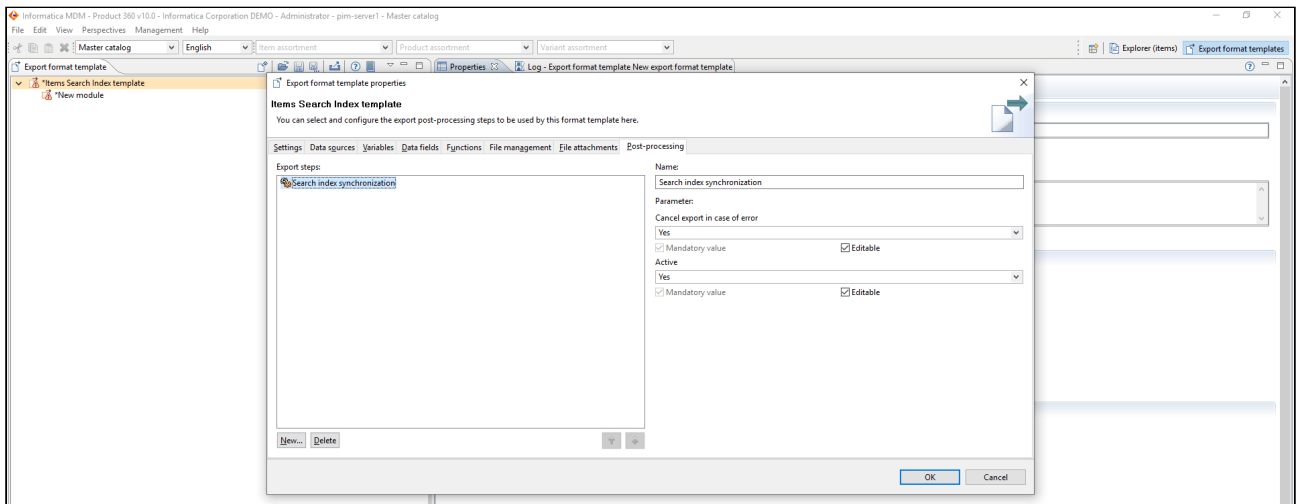
9.2 Export Template

9.2.1 Purpose

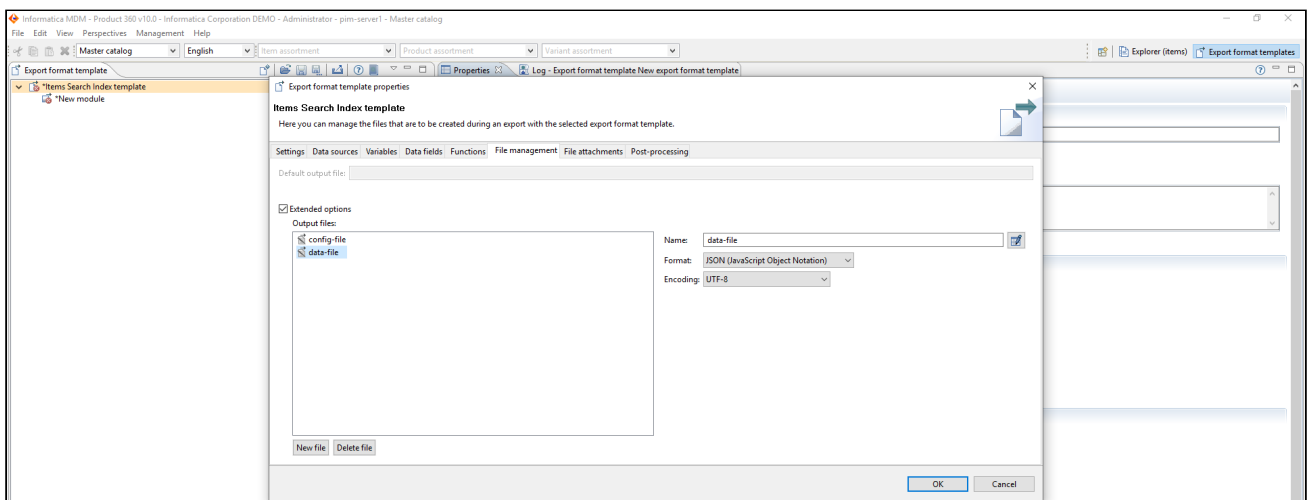
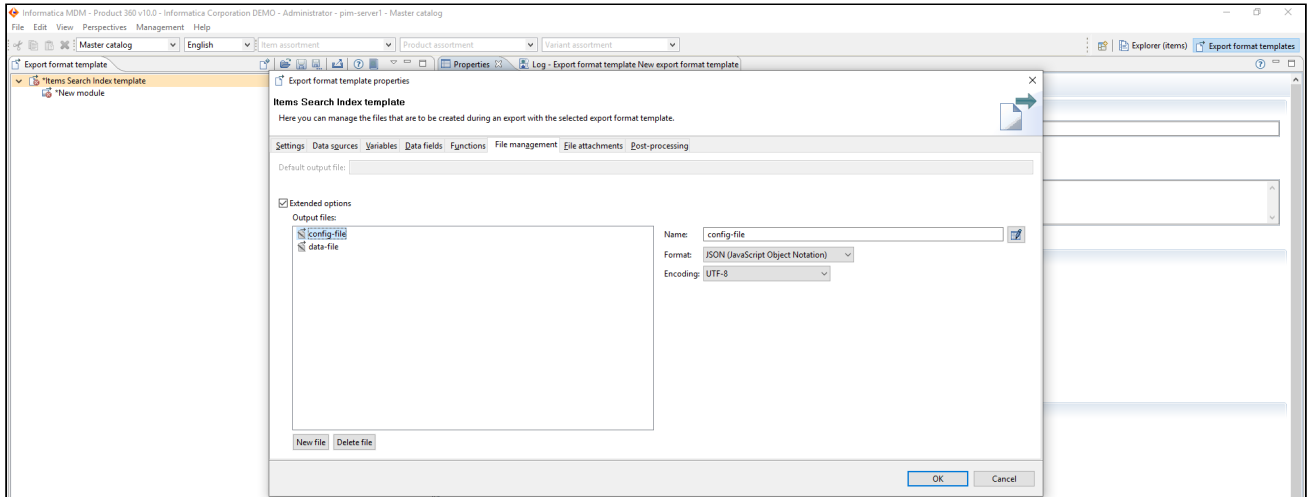
There is special purpose defined for the Web Search which provides automatic functionalities like adding a search indexing post step.



9.2.2 Post Step

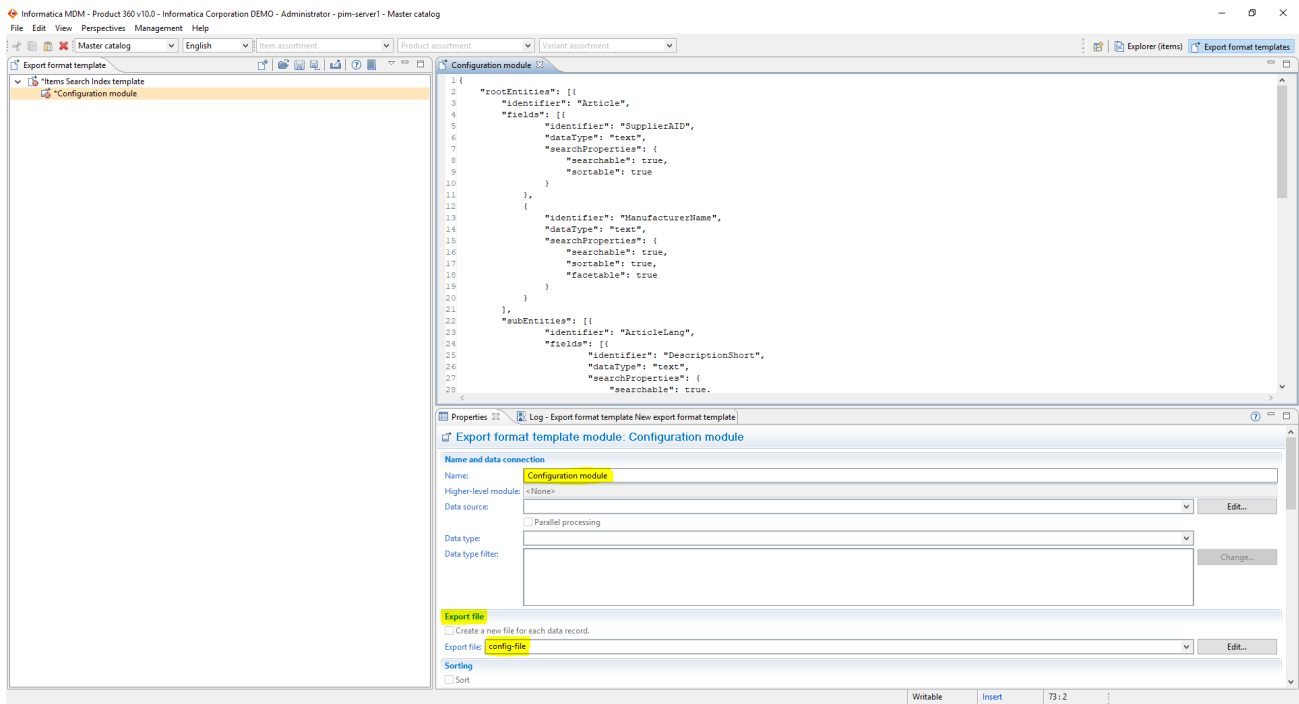


9.2.3 Output Files



9.3 Index Configuration Module

9.3.1 Export Configuration File



9.3.2 Configuration JSON Schema

9.3.2.1 Entities and Fields

Top level entities are called **rootEntities**. There can be an array of **rootEntities**.


Key	Type	Mandatory (M) Optional (O)	Description	Example
identifier	String	M	Identifier of the entity which is based on ArticleType	Product2G or Variant or Article
parentEntityIdentifier	String	O	Identifier of the entity which is based on ArticleType	In 2PPD index, identifier=Article, parentEntityIdentifier=Product2G
fields	Array	O	Fields of the root entity	

Key	Type	Mandatory (M) Optional (O)	Description	Example
subEntities	Array	O	Sub-entities of the root entity	

Any sub-level entities of root-level entities are called **subEntities**.

Key	Type	Mandatory (M) Optional (O)	Description	Example
identifier	String	M	Identifier of the sub-entity	Product2GLang
fields	Array	O	Fields of the sub-entity	
keyValue	Object	O	Object where the data is dynamic key-value pairs.	ArticleAttributes, where the Attribute Name and Attribute Value makes a key-value pair.

Any entity generally contains **fields**.

Key	Type	Mandatory (M) Optional (O)	Description	Example
identifier	String	M	Identifier of the field	SupplierAID, DescriptionShort
dataType	String	M	Data type of the field to be used in Elasticsearch	text, keyword
boostFactor	Float	O	Improves scoring	
qualifications	Array (String)	M (applicable only inside subEntities)	The logical key values need to be defined here. <div>  If logical keys are of enum type, use the enum code. </div>	For DescriptionShort (English), use "qualifications": ["9"]
searchProperties	Object	M	Defines the different properties like facetable, searchable, sortable, etc.	
analyzers	Array	O	If provided, will help to index data in different ways to improve search results and scoring.	


Sometimes sub-entity contains **keyValue**. E.g. ArticleAttributes


Key	Type	Mandatory (M) Optional (O)	Description	Example
dataType	String	M	Data type of the field to be used in Elasticsearch	text, keyword
boostFactor	Float	O	Improves scoring	
searchProperties	Object	M	Defines the different properties like facetable, searchable, sortable, etc.	
analyzers	Array	O	If provided, will help to index data in different ways to improve search results and scoring.	

The properties present in **searchProperties** for **fields** or **keyValue**.

Key	Type	Description
searchable	Boolean	
sortable	Boolean	
facetable	Boolean	
facetordervalue	Integer	

To improve search results and scoring, we can add **analyzers** for **fields** or **keyValue**.

Key	Type	Mandatory (M) Optional (O)	Description	Example
name	String	M	The name of the analyzer defined in the index settings.	Language analyzers like english, german, french, etc
dataType	String	O	Data type of the field to be used in Elasticsearch. <div>  If not specified, the dataType of the encapsulating object will be used. </div>	text, keyword

Key	Type	Mandatory (M) Optional (O)	Description	Example
boostFactor	Float	O	Improves scoring <div>  If not specified, the boostFactor of the encapsulating object will be used. </div>	

9.3.2.2

Index Settings

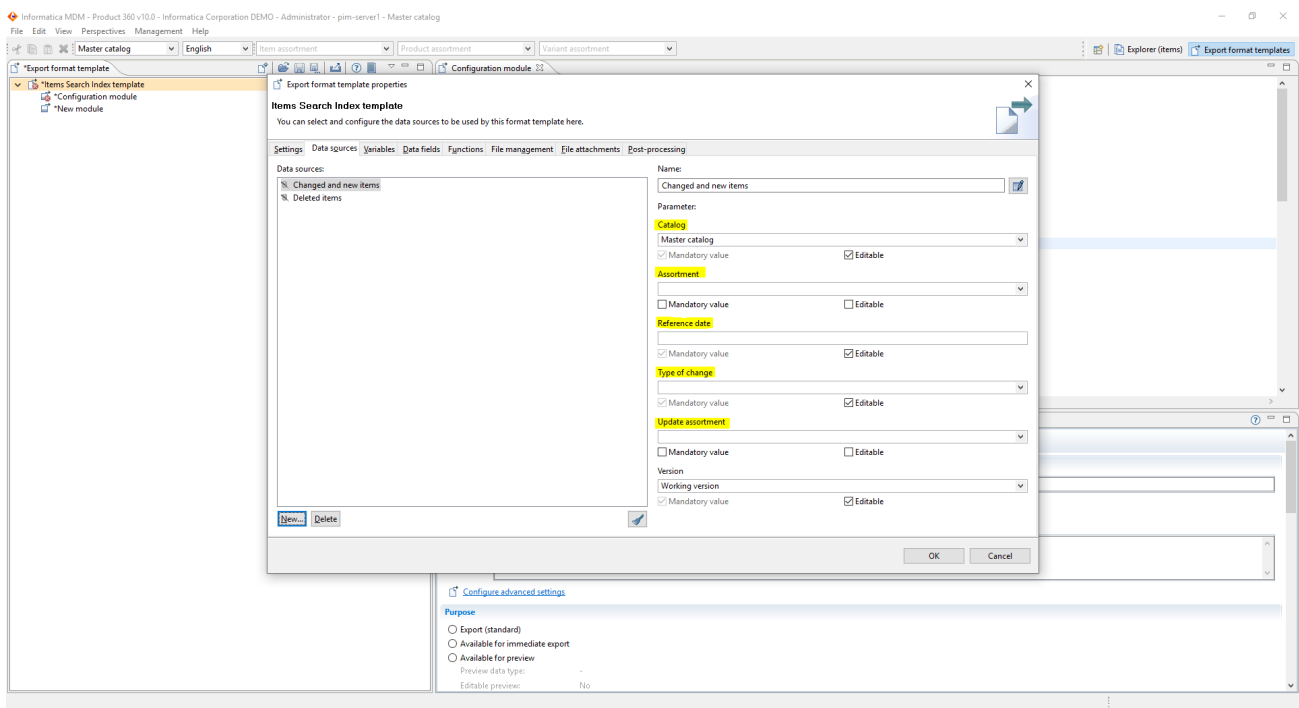
Every Elasticsearch index can have its own settings like the analyzers that can be used by fields, how many replicas and shards should be created and maximal number of search results, etc.

9.3.2.3 Search Settings

These are advanced settings to tweak search process. It is recommended to keep this untouched.

9.3.3 Data Sources

We need to define the data-providers for the export template. Depending the type of index, the data-providers can vary. The Web Search index data-provider is based on a catalog or an assortment of a catalog.



9.4 Index Data Module

9.4.1 Export Data File

9.4.1.1 Modules and Sub-modules

Each operation on a root entity needs to have a module.

Informatica MDM - Product 360 10.1- Configuration

The screenshot displays the Informatica MDM - Product 360 10.1 configuration interface. The main window shows the 'New and changed items' module, which is a sub-module of the 'Export format template' module. The module is configured with the following properties:

- Name: New and changed items
- Higher-level module: <None>
- Data source: Changed and new items
- Parallel processing: ☒
- Data type: Item
- Data type filter: (empty)
- Export file: ☐ Create a new file for each data record. Export file: data-file

The 'Export format template' module is also visible, showing the 'New and changed items' sub-module. The 'Export format template' module is configured with the following properties:

- Name: New and changed items
- Higher-level module: <None>
- Data source: Changed and new items
- Parallel processing: ☒
- Data type: Item
- Data type filter: (empty)
- Export file: ☐ Create a new file for each data record. Export file: data-file

⚠ At the end of the module, a line break is mandatory.

Each sub-entity needs to be a sub-module with-in the module.

Depending on the logical key selection we can have multiple such sub-modules.

The screenshot displays the Informatica MDM - Product 360 10.1 configuration interface. The main window shows the 'PriceValues' module, which is a sub-module of the 'Export format template' module. The module is configured with the following properties:

- Name: PriceValues
- Higher-level module: New and changed items
- Data source: Changed and new items
- Parallel processing: ☒
- Data type: Selling price
- Data type filter: Currency: Euro, Customer: <Public>, Price type: Net customer price, Time of validity: (all), Valid in region: USA
- Export file: ☐ Create a new file for each data record. Export file: data-file
- Sorting: ☐ Sort

The 'Export format template' module is also visible, showing the 'PriceValues' sub-module. The 'Export format template' module is configured with the following properties:

- Name: PriceValues
- Higher-level module: New and changed items
- Data source: Changed and new items
- Parallel processing: ☒
- Data type: Selling price
- Data type filter: Currency: Euro, Customer: <Public>, Price type: Net customer price, Time of validity: (all), Valid in region: USA
- Export file: ☐ Create a new file for each data record. Export file: data-file
- Sorting: ☐ Sort

⚠ At the end of the sub-module, a line break should not be added.

Both module and sub-module should have export file.

The screenshot shows the 'Export format template module: New and changed items' configuration window. It includes sections for 'Name and data connection', 'Export file', and 'Sorting'. The 'Name and data connection' section has fields for Name (New and changed items), Higher-level module (<None>), Data source (Changed and new items), Data type (Item), and Data type filter. The 'Export file' section has a checkbox for 'Create a new file for each data record.' and a field for 'Export file' (data-file). The 'Sorting' section has a checkbox for 'Sort'.

i Limitation

Note that the Index does currently not support the characteristics data type in the Product 360 data model. This means characteristic values can neither be used as searchable inputs nor to create facets to the search index.

10 BPM

10.1 How to configure a secure database connection for Product 360 BPM

10.1.1 Prerequisite

In order to establish a secure database connection, ensure, that the DBMS's (Oracle/MSSQL) public key certificate is known by the BPM server's Java Runtime Environment (JRE). There are different possibilities to achieve this. Please refer to the JSSE Reference Guide (<https://docs.oracle.com/javase/8/docs/technotes/guides/security/jsse/JSSERefGuide.html>) and here especially the chapters "Creating an X509TrustManager" and "Creating a Keystore to Use with JSSE".

Configure Product 360 BPM

Ensure to do the following configuration changes on all Product 360 BPM servers. The Product 360 BPM servers need to be restarted in order to have changes take effect.

- in `<INSTALLATION_ROOT>/server/server-enterprise/tomcat_config/bin/install.properties:`

- for Oracle:
 - change the **jdbc.database.url** property to the following: `jdbc\:oracle\:thin\://@ (DESCRIPTION\= (ADDRESS\= (PROTOCOL\=tcps) (HOST\=<YOUR_DATABASE_HOST>) (PORT\=<DB_SSL_PORT>)) (CONNECT_DATA\= (SERVICE_NAME\=<DATABASE_NAME>)))`
- for MSSQL:
 - add "**;encrypt=true**" to the end of the JDBC connection URL in the **jdbc.database.url** property.
- run the **config_deploy.sh** file in the same directory as follows: **sudo ./config_deploy.sh console**
- restart the BPM service

10.2 Pre-requisites of Trigger configuration

10.2.1 Repository Based

10.2.1.1 Audit Trail Settings

Ensure that Audit Trail Settings is present for a root entity in the repository. If this param is not present then triggers will not fire for this entity or any of its corresponding field changes.

10.2.1.2 Supports Audit Trail Property

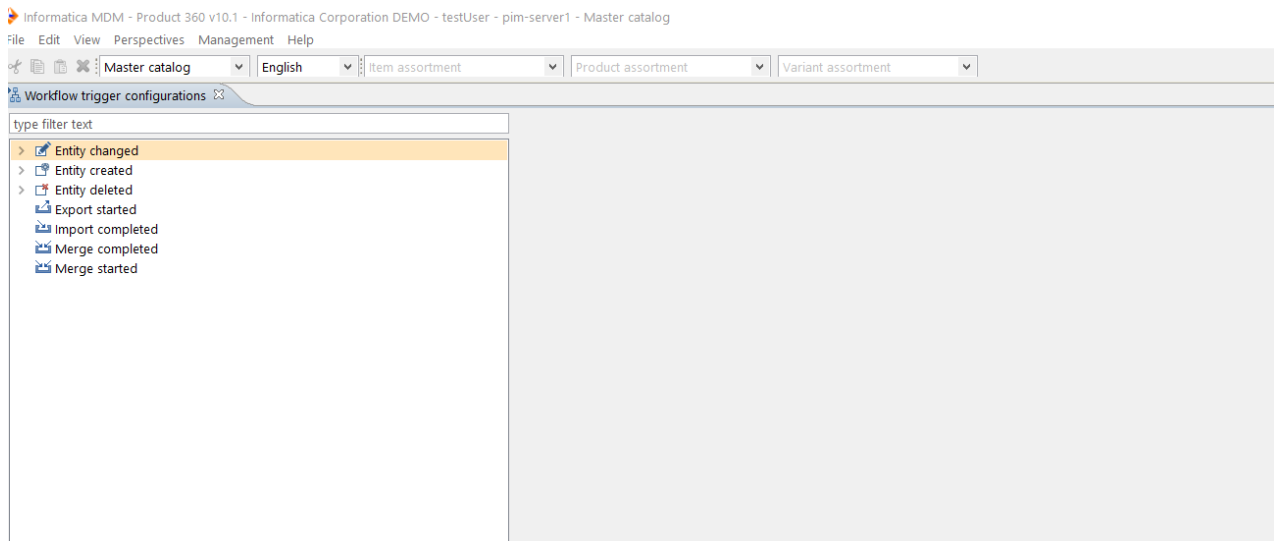
If this is turned off for a field/entity then any change done on any of the fields of this entity are not recorded in the change summary.

In this case, triggers get fired nevertheless of anything. However since changes on the field are not recorded, this field is also not a part of the set of fields for evaluating modified field trigger rule. Hence, adding this field to trigger rule config and disabling it in repository won't help as it would be considered as if this field was never changed. Note that once "Supports Audit Trail" flag is set to false in repository, field would no longer be available on UI either, that is from the field selection dialog of modified fields trigger rule config.

10.3 Trigger Configuration UI Features

A trigger event fires when an entity is created, modified or deleted. By default , trigger fires for all the conditions, but it can be controlled by providing different filter configurations. This document will talk about those conditions in details.

Click on "Management >> Business process Management " menu tab , and it will open a new window to define the configuration to filter out the trigger event execution for entity creation, modification and deletion. As shown in below screenshot.

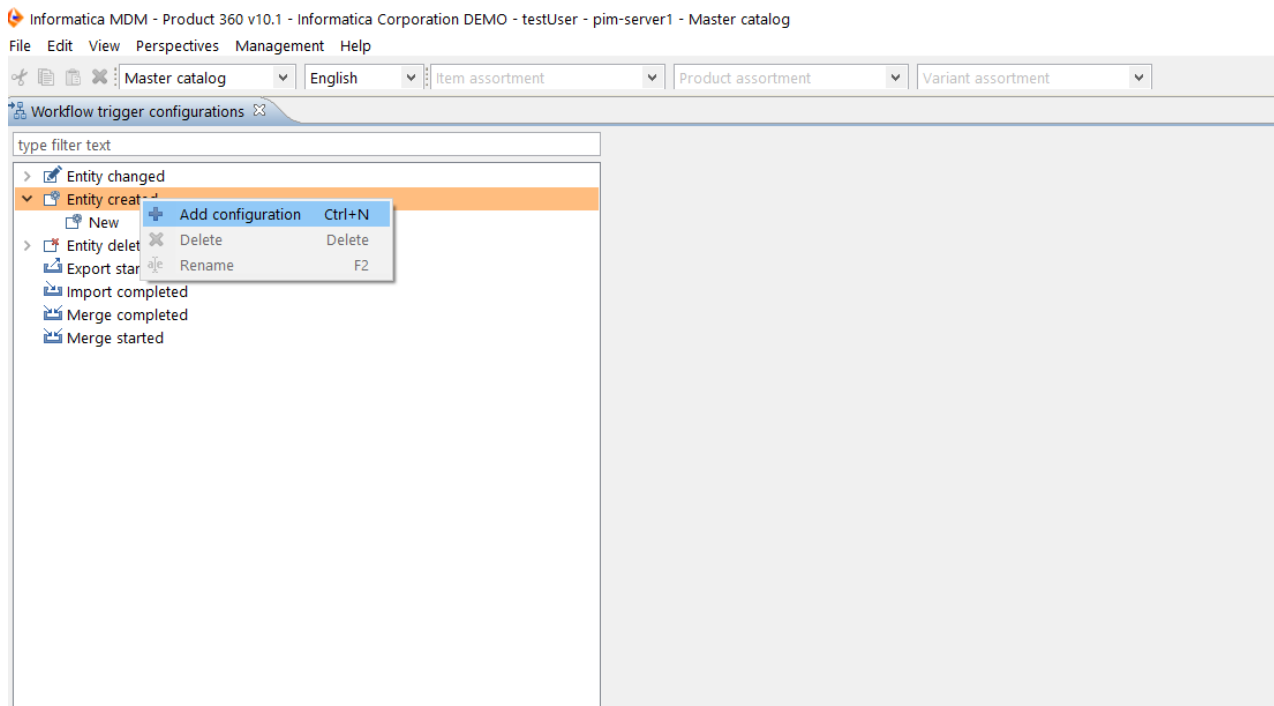


10.3.1 Entity Created/Changed

A trigger event for entity creation and modification , can be controlled by providing different filter configurations. These configurations provide different options to control the trigger execution. This document will talk about those configurations in details in below sections.

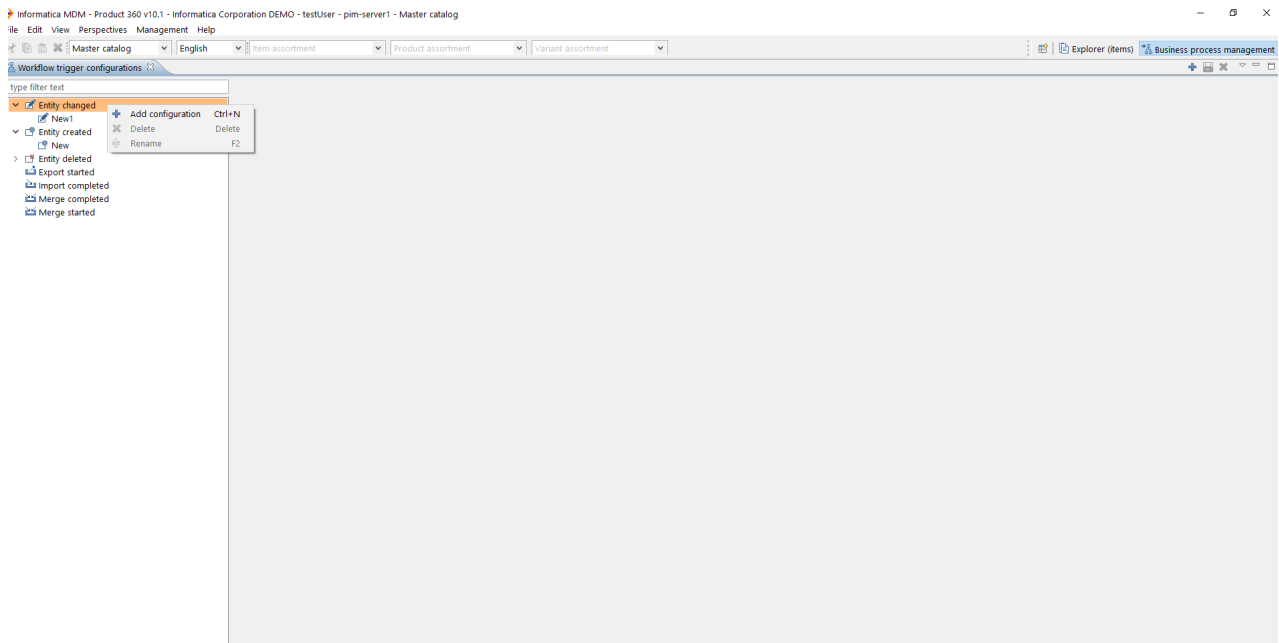
Entity creation filters can be created by going to "Entity Created" window. You need to right click "Entity created" menu for defining new trigger execution filters.

Add Configuration windows will popup after right click on "Entity created" menu item. As shown in below screenshot.



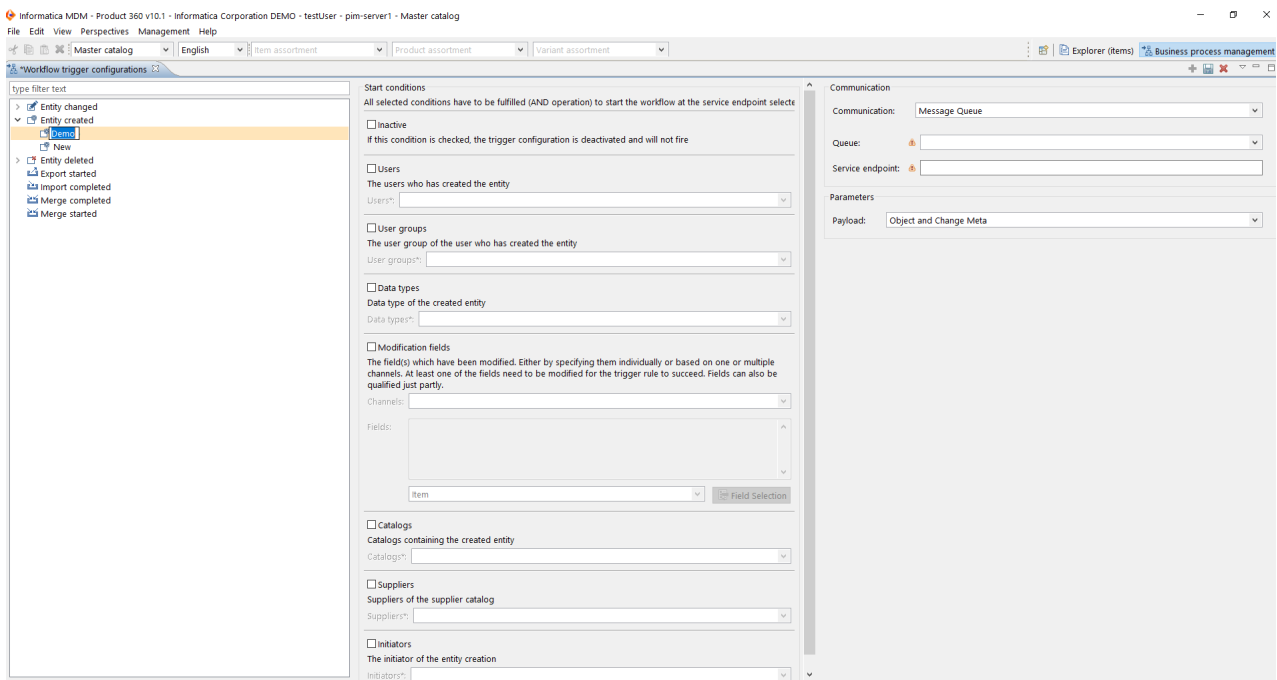
Entity changed filters can be created by going to "Entity Changed" window. You need to right click "Entity Changed" menu for defining new trigger execution filters.

Add Configuration windows will popup after right click on "Entity Changed" menu item. As shown in below screenshot.



Once you click "Add configuration" it will open below configuration page. You need to provide the name for configuration that you are going to create.

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The above trigger configuration window is showing two sub windows : -

1. Start Conditions - This window gives options to add different filters.
2. Communication - This option gives option to define different communication mode.

We will talk more about these options in later sections of this document.

10.3.1.1 Start Conditions

This option gives options to add different configuration to filter out trigger execution at the time of entity creation.

Start conditions

All selected conditions have to be fulfilled (AND operation) to start the workflow at the service endpoint selected

☐ Inactive

If this condition is checked, the trigger configuration is deactivated and will not fire

☐ Users

The users who has created the entity

Users*:

☐ User groups

The user group of the user who has created the entity

User groups*:

☐ Data types

Data type of the created entity

Data types*:

☐ Modification fields

The field(s) which have been modified. Either by specifying them individually or based on one or multiple channels. At least one of the fields need to be modified for the trigger rule to succeed. Fields can also be qualified just partly.

Channels:

Fields:

Item

 Field Selection

☐ Catalogs

Catalogs containing the created entity

Catalogs*:

☐ Suppliers

Suppliers of the supplier catalog

Suppliers*:

☐ Initiators

The initiator of the entity creation

Initiators*:

Inactive

If this condition is checked , the trigger configuration will be deactivated and will not fire.

☒ Inactive

If this condition is checked, the trigger configuration is deactivated and will not fire

Trigger configuration can be activated after removing this check

☐ Inactive

If this condition is checked, the trigger configuration is deactivated and will not fire

Users

This condition gives option to filter out the users for which trigger will be executed. The below screenshot is showing that trigger configuration has chosen for two users - admin and Administrator, but not testUser. So trigger will be executed for admin and Administrator users only. Trigger will not be fired for any changes for user, testUser.

☒ Users

The users who has created the entity

Users*:

☐ User g

The user

User gro

☐ Data ty

Data type

Data type

☐ Modifi

- ☒ admin
- ☒ Administrator
- ☐ testUser

User groups

This condition gives option to filter out trigger execution for user groups. Trigger will be executed only for selected user groups.

☒ **User groups**
The user group of the user who has created the entity

User groups*:

☐ **Data types**
Data type of the created entity

Data types*:

☐ **Modification**
The field(s) which one of the fields

Channels:

Fields:

☒ admin
☒ New user group
☐ New user group (2)

Data Types

This condition gives option to filter out trigger execution for different data types. Multiple data types can be selected , and trigger will be executed for those selected data types.

☒ **Data types**
Data type of the created entity

Data types*:

☐ **Modification**
The field(s) which one of the fields

Channels:

Fields:

☐ Certification
☐ Characteristic
☐ Ingredient
☒ Item
☐ Lookup
☐ Lookup value
☐ Partner
☐ Product

☐ **Catalogs**

[All](#) [None](#) [OK](#) [Cancel](#)

Modification Fields

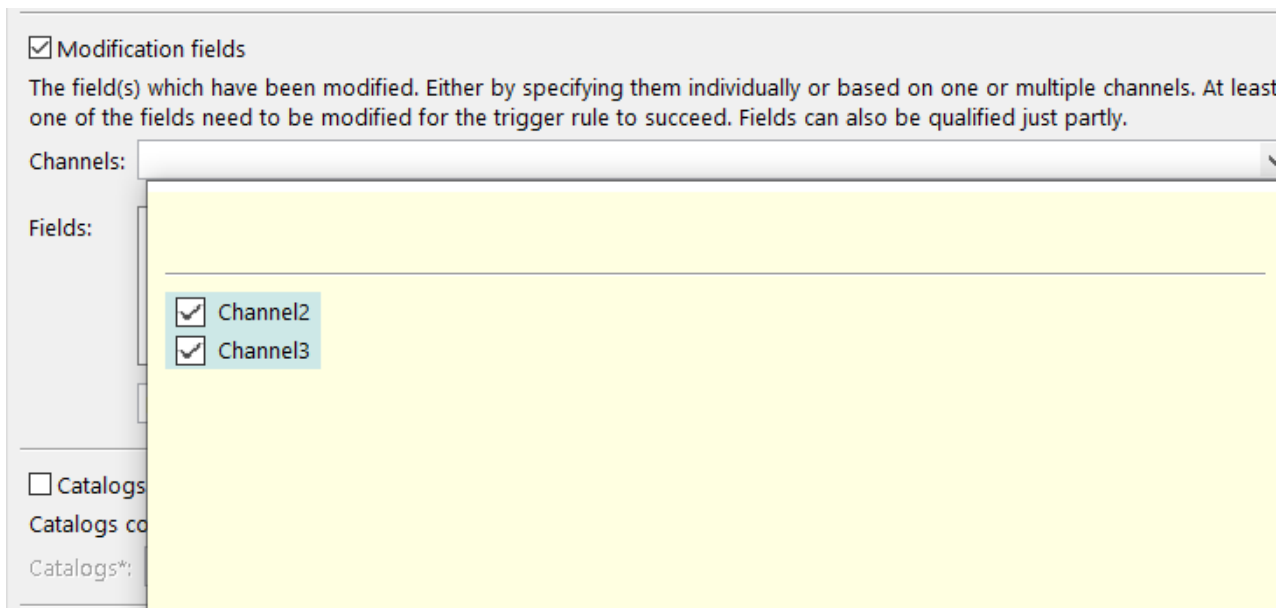
Modification fields provides option to filter out trigger execution. At least one of the fields need to be modified for the trigger rule to succeed.

Modifications fields can be chosen in two different ways -

1. Channel - Channel is combination of multiple fields. Please refer channel section for more details.
2. Fields :- Individual fields can be selected.

Channel

One or multiple channels can be selected.



☒ Modification fields

The field(s) which have been modified. Either by specifying them individually or based on one or multiple channels. At least one of the fields need to be modified for the trigger rule to succeed. Fields can also be qualified just partly.

Channels:

Fields:

- ☒ Channel2
- ☒ Channel3

☐ Catalogs

Catalogs co

Catalogs*:

Fields

First data type needs to selected and then field Selection . Below sample picture is showing item data has been chosen.

☒ **Modification fields**

The field(s) which have been modified. Either by specifying them individually or based on one or multiple channels. At least one of the fields need to be modified for the trigger rule to succeed. Fields can also be qualified just partly.

Channels:

Fields:

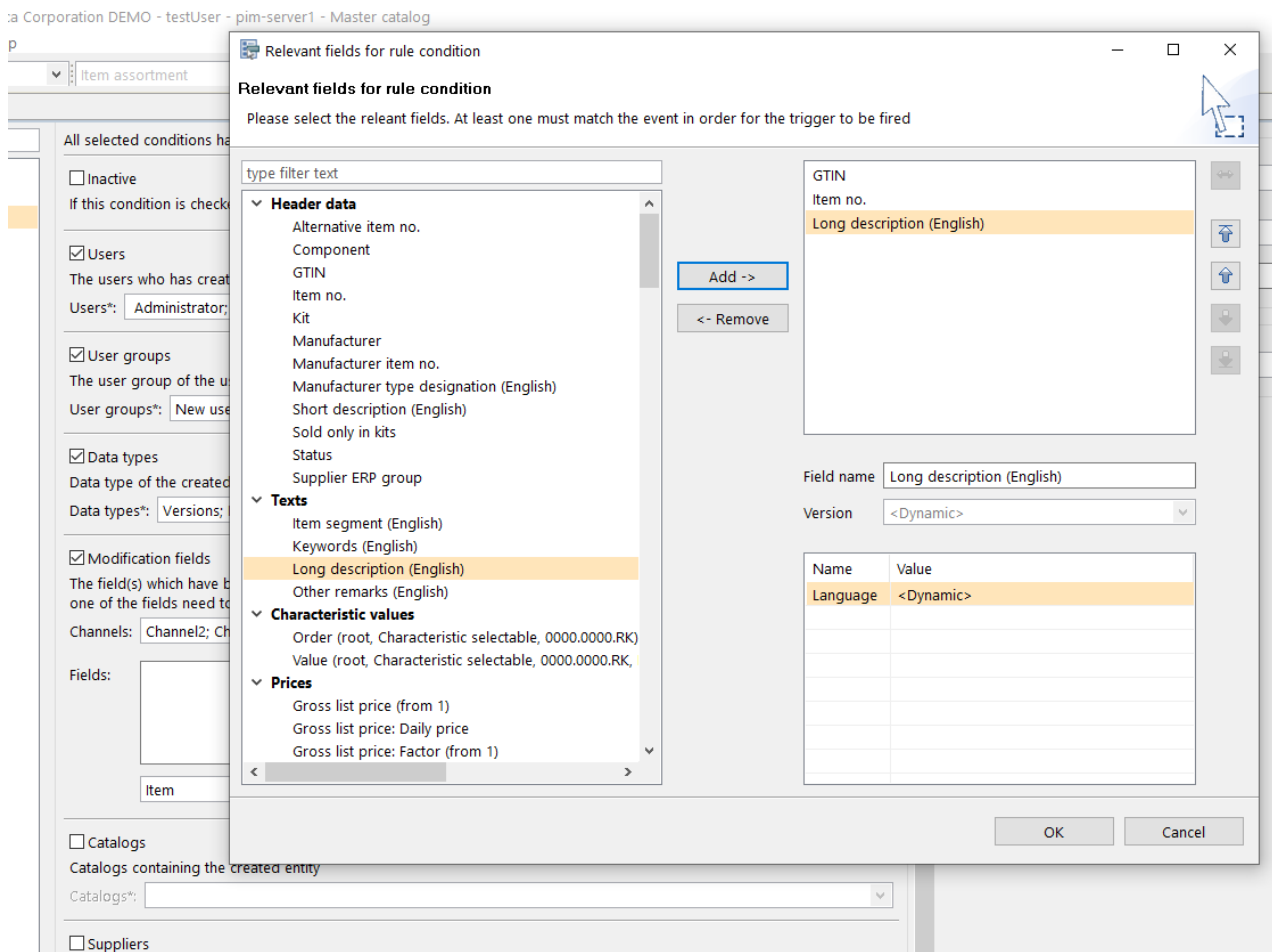
☐ Catalogs
 Catalogs co
 Catalogs*:

☐ Suppliers
 Suppliers of
 Suppliers*:

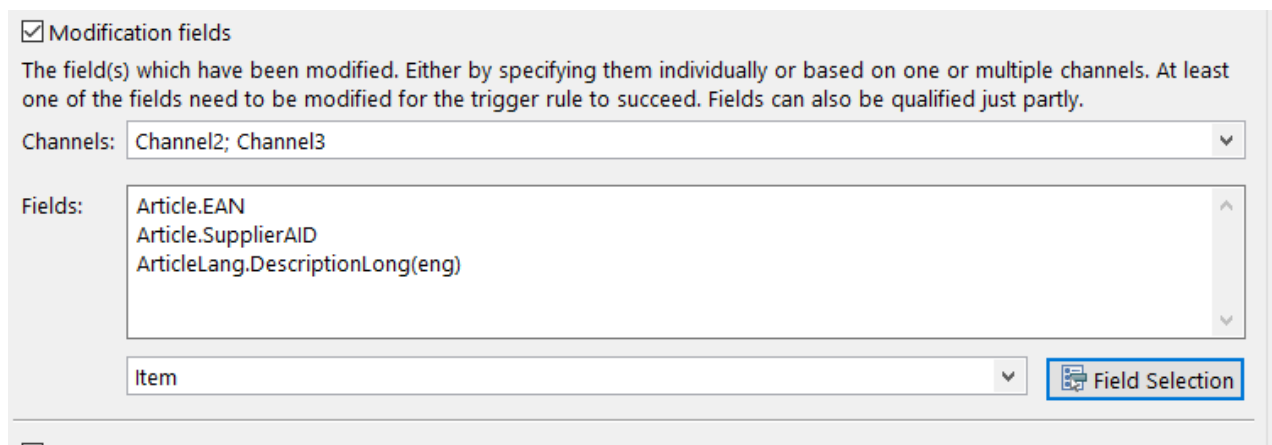
☐ Initiators
 The initiator
 Initiators*:

Item
 Product
 Variant
 Certification
 Characteristic
 Ingredient
 Lookup
 Lookup value
 Partner
 Product (deprecated)

Once you select the data type as shown in above picture then click "Field Selection" , and it will popup new field rule conditions. (As shown in below picture)

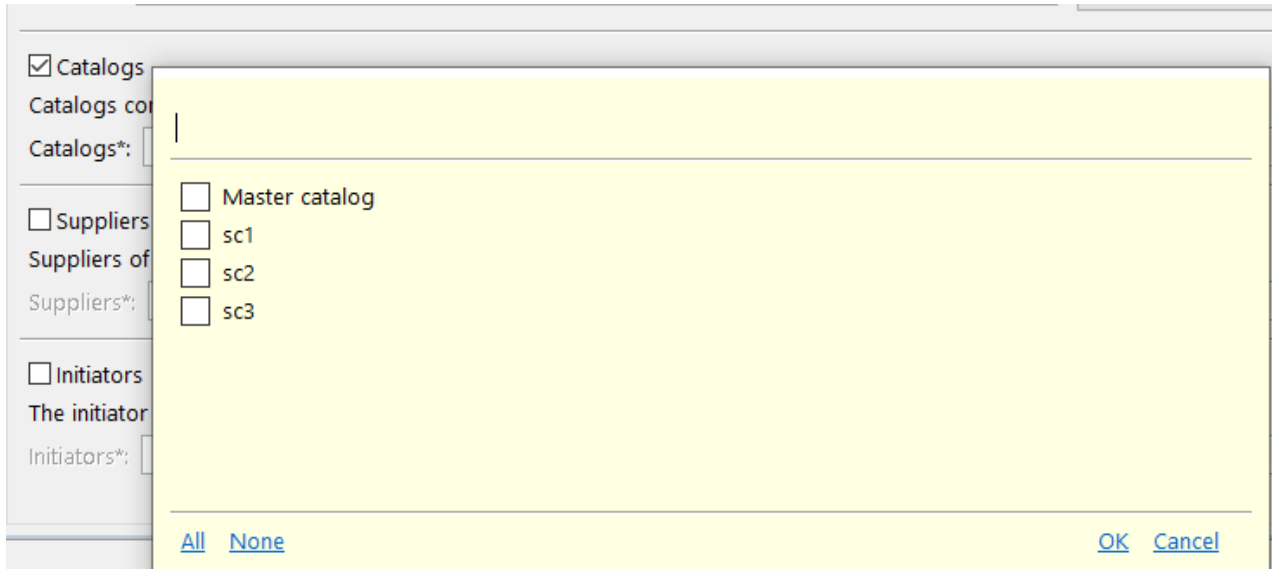


Click ok after selecting fields that you want to chose for executing trigger. After clicking ok Modified fields will look like as below picture.



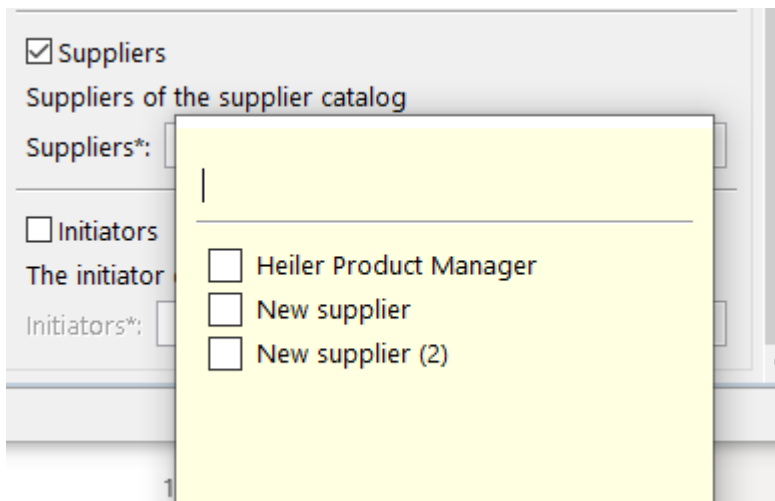
Catalog

This condition gives option to filter out the trigger execution for catalogs containing the created entity.



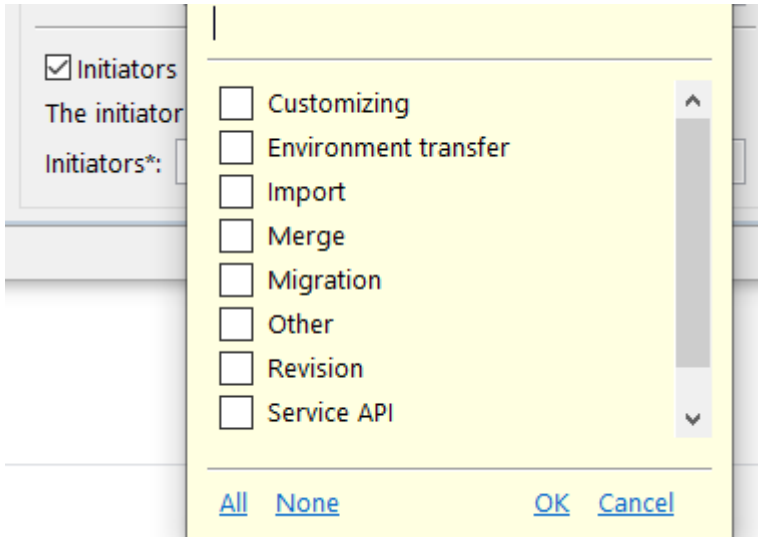
Suppliers

This condition will give option to filter out the trigger execution for suppliers of the supplier catalog.



Initiators

This condition gives option to filter out the trigger execution for initiator of entity creation. Example - If user chose service API then trigger will be executed only for entity creation through service api.



10.3.1.2 Communication

Communication filter provides the option to filter out trigger execution on basis of communication channel.

It gives following options to chose -

1. Communication - Example - Message Queue can be chosen
2. Queue - Queue details can be chosen
3. Service endpoint - Service endpoint can be provided.
4. Parameters : - Payload can be chosen

Communication :

Provides option to filter out trigger execution.

Communication

Communication:

Queue:

Service endpoint:

Parameters

Payload:

Queue:

Provide different options of queue to filter out the trigger execution.

Queue:

Service endpoint:

Parameters

Payload:

Service endpoint:

Service endpoint be specified to filter out the trigger execution.

Service endpoint:

Parameters:

Provide different options of payload to filter out trigger execution.

Parameters

Payload:

|

Object and Change Meta

Object and Change Summary

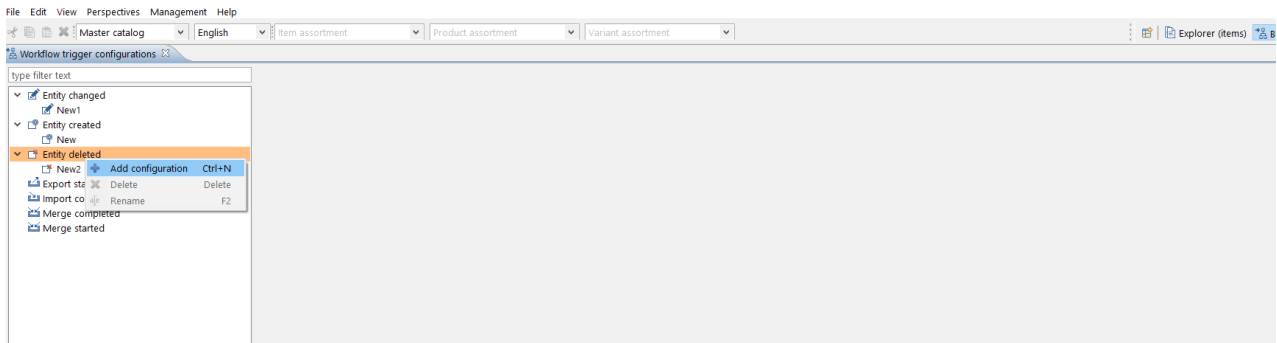
- i** Object and Change Meta payload has information about Meta attributes of EntityItemChangeDocument only.
Object and Change Summary payload has information about Meta attributes as well as DATA attributes(_changeSummary) of EntityItemChangeDocument.

10.3.2 Entity Deleted

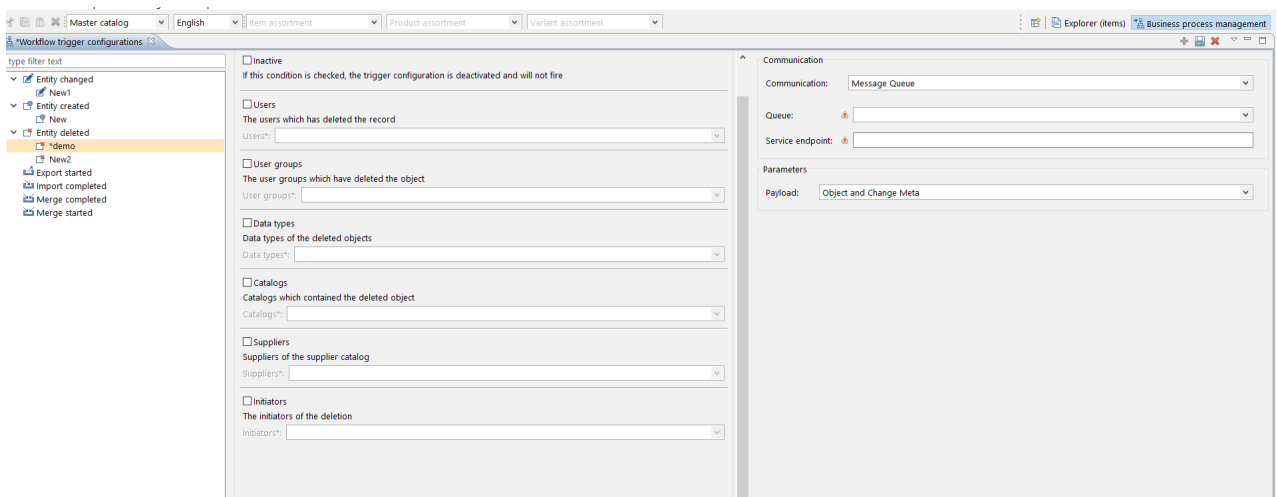
A trigger event for entity deletion can be controlled by providing different filter configurations. These configurations provide different options to control the trigger execution. This document will talk about those configurations in details in below sections.

Entity deleted filters can be created by going to "Entity Deleted" window. You need to right click "Entity Deleted" menu for defining new trigger execution filters.

Add Configuration windows will popup after right click on "Entity Deleted" menu item. As shown in below screenshot.



Once you click "Add configuration" it will open below configuration page. You need to provide the name for configuration that you are going to create.



The above trigger configuration window is showing two sub windows : -

1. Start Conditions - This window gives options to add different filters.
2. Communication - This option gives option to define different communication mode.

We will talk more about these options in later sections of this document.

10.3.2.1 Start Conditions

This option gives options to add different configuration to filter out trigger execution at the time of entity creation.

Start conditions
All selected conditions have to be fulfilled (AND operation) to start the workflow at the service endpoint selected

☐ **Inactive**
If this condition is checked, the trigger configuration is deactivated and will not fire

☐ **Users**
The users which has deleted the record
Users*:

☐ **User groups**
The user groups which have deleted the object
User groups*:

☐ **Data types**
Data types of the deleted objects
Data types*:

☐ **Catalogs**
Catalogs which contained the deleted object
Catalogs*:

☐ **Suppliers**
Suppliers of the supplier catalog
Suppliers*:

☐ **Initiators**
The initiators of the deletion
Initiators*:

Inactive

If this condition is checked , the trigger configuration will be deactivated and will not fire.

☒ **Inactive**
If this condition is checked, the trigger configuration is deactivated and will not fire

Trigger configuration can be activated after removing this check

☐ **Inactive**
If this condition is checked, the trigger configuration is deactivated and will not fire

Users

This condition gives option to filter out the users for which trigger will be executed. The below screenshot is showing that trigger configuration has chosen for two users - admin and Administrator, but not testUser. So trigger will be executed for admin and Administrator users only. Trigger will not be fired for any changes for user, testUser.

☒ Users

The users who has created the entity

Users*:

☐ User group

The user group of the user who has created the entity

User group*:

☐ Data type

Data type of the entity

Data type*:

☐ Modification

The field(s) which one of the fields

Channels:

Fields:

☒ admin

☒ Administrator

☐ testUser

User groups

This condition gives option to filter out trigger execution for user groups. Trigger will be executed only for selected user groups.

☒ User groups

The user group of the user who has created the entity

User groups*:

☐ Data types

Data type of the entity

Data types*:

☐ Modification

The field(s) which one of the fields

Channels:

Fields:

☒ admin

☒ New user group

☐ New user group (2)

Data Types

This condition gives option to filter out trigger execution for different data types. Multiple data types can be selected, and trigger will be executed for those selected data types.

☒ Data types

Data type of the created entity

Data types*: ▼

- ☐ Certification
- ☐ Characteristic
- ☐ Ingredient
- ☒ Item
- ☐ Lookup
- ☐ Lookup value
- ☐ Partner
- ☐ Product

[All](#) [None](#) [OK](#) [Cancel](#)

Catalog

This condition gives option to filter out the trigger execution for catalogs containing the created entity.

☒ Catalogs

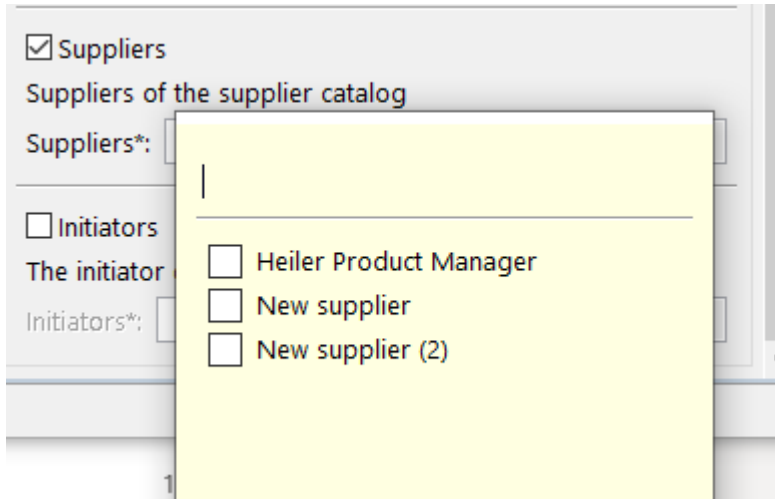
Catalogs*:

- ☐ Master catalog
- ☐ sc1
- ☐ sc2
- ☐ sc3

[All](#) [None](#) [OK](#) [Cancel](#)

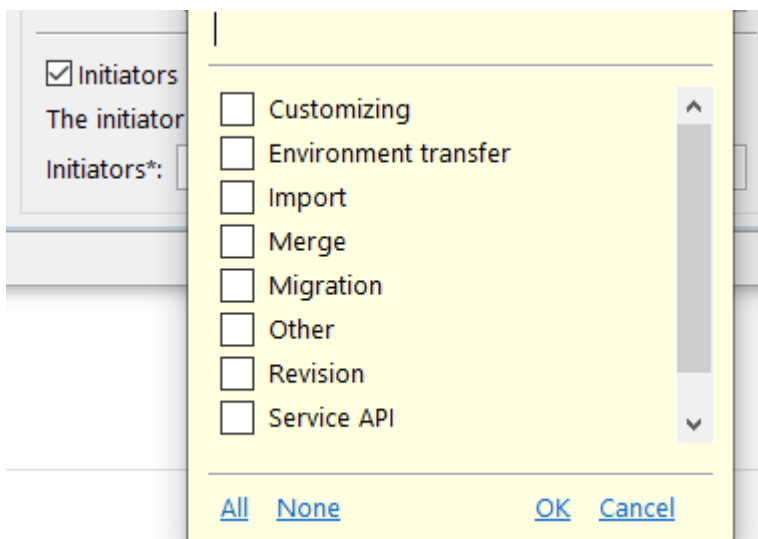
Suppliers

This condition will give option to filter out the trigger execution for suppliers of the supplier catalog.



Initiators

This condition gives option to filter out the trigger execution for initiator of entity creation. Example - If user chose service API then trigger will be executed only for entity creation through service api.



10.3.2.2 Communication

Communication filter provides the option to filter out trigger execution on basis of communication channel.

It gives following options to chose -

1. Communication - Example - Message Queue can be chosen
2. Queue - Queue details can be chosen
3. Service endpoint - Service endpoint can be provided.
4. Parameters : - Payload can be chosen

Communication :

Provides option to filter out trigger execution.

The screenshot shows a configuration window titled "Communication". It contains several fields and a large yellow dropdown menu. The "Communication:" field has a dropdown menu with "Message Queue" selected. The "Queue:" field has a warning icon and a yellow dropdown menu. The "Service endpoint:" field has a warning icon and a text input field containing "Message Queue". The "Parameters" section is visible below, with a "Payload:" field containing "Object a".

Queue:

Provide different options of queue to filter out the trigger execution.

Queue: ⚠

Service endpoint: ⚠

Parameters

Payload: Object and Change Meta

BPM

Service endpoint:

Service endpoint be specified to filter out the trigger execution.

Service endpoint: TriggerServiceEndpoint

Parameters:

Provide different options of payload to filter out trigger execution.

Parameters

Payload: Object and Change Meta

Object and Change Meta

Object and Change Summary

10.4 Trigger Payload

There are 2 types of payload we can get when triggers are fired. The required payload (based on our requirement) can be configured while creating a trigger.

10.4.1 Object and Change Meta

This payload contains information about Meta attributes of EntityItemChangeDocument (as explained in table below), but does not contain any information about _current and _old value.

Meta Attribute	Description
_module	defines which area of the application has triggered the modification. Possible values are IMPORT, MERGE, CLONE, SERVICEAPI, REVISION, ENVIRONMENT_TRANSFER, UI, OTHER
_entity	root entity which is changed
_identifier	external identifier of the entity item
_user	entity item of the user which executed the CRUD operation. <ul style="list-style-type: none"> • internalId = Service API syntax with internal numeric IDs - includes the container in case the entity item has one • externalId = Service API syntax with the alphanumeric identifier of the entity item. Includes the container as well in case the entity item has one
_revision	the revision in which the operation has been performed
_container	the container of the root entity record
_entityItem	the root entity record's proxy information <ul style="list-style-type: none"> • externalId = External identifier of the entity, same as _identifier attribute. • internalId = Internal identifier of the entity.
_eventTimestamp	timestamp at which this document is created

Meta Attribute	Description
_changeType	<p>the change type of the entity record. Every entity record has a change type.</p> <ul style="list-style-type: none"> • CREATED = the entity record has been created (this implies that all children of this also have been created) • CHANGED = the entity record has been changed. Also it's children MIGHT have been changed, but at least the entity itself has changed • CHANGED_CHILD = only one or multiple children of this entity record has changed, not the record itself • DELETED_SOFT = the entity record has been marked as deleted. This implies that all children of this entity also have been deleted • DELETED_HARD = the entity item has been hard (=physically) deleted from the database
_changedFields	an array of fields which got changed (fields are without qualifications)
_changedEntities	an array of entity identifiers which are part of the change summary (but only in case the entity is created, changed or deleted - not for changed_child!)

The screenshot shows the 'Workflow trigger configurations' window. On the left, a tree view lists various triggers, with 'Entity changed' and 'MyChangeTrigger' selected. The main area is divided into three sections: 'Start conditions', 'Communication', and 'Parameters'. Under 'Start conditions', the 'Inactive' checkbox is checked, and a note states: 'All selected conditions have to be fulfilled (AND operation) to start the workflow at the service endpoint selected. If this condition is checked, the trigger configuration is deactivated and will not fire.' The 'Communication' section has 'Message Queue' selected for 'Communication', 'BPM' for 'Queue', and 'SampleTriggerWorkflow' for 'Service endpoint'. The 'Parameters' section has 'Object and Change Meta' selected for 'Payload'.

i Payload for an entity change event will contain details about only the changed field, while entity created payload will have all the sub-entities and fields with which item is created.

Entity Change - Object and Change Meta

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<infaBPMRequest>
  <entityId>11@1</entityId>
  <entity>Article</entity>
  <data>
    <entry>
      <key>catalog.label</key>
      <value>MASTER</value>
    </entry>
    <entry>
      <key>triggerConfiguration</key>
      <value>MyChangeTrigger</value>
    </entry>
    <entry>
      <key>triggerIdentifier</key>
      <value>hlr.persistence.trigger.entityChanged</value>
    </entry>
    <entry>
      <key>user.label</key>
      <value>'testUser'</value>
    </entry>
    <entry>
      <key>userGroup.label</key>
      <value>Allmighty</value>
    </entry>
  </data>
  <entityItemChange>
    <_module>UI</_module>
    <_entity>Article</_entity>
    <_identifier>Article_1603223965867005</_identifier>
    <_user>
      <entityId>2600</entityId>
      <externalId>'testUser'</externalId>
      <internalId>100</internalId>
    </_user>
    <_revision>
      <entityId>5600</entityId>
      <externalId>'root'</externalId>
      <internalId>1</internalId>
    </_revision>
    <_container>
      <entityId>2900</entityId>
      <externalId>'MASTER'</externalId>
      <internalId>1</internalId>
    </_container>
    <_entityItem>
      <entityId>1000</entityId>
      <externalId>'Article_1603223965867005'@'MASTER'</externalId>
      <internalId>11@1</internalId>
    </_entityItem>
  </entityItemChange>
</infaBPMRequest>

```



```
</_entityItem>
<_eventTimestamp>2020-10-28T14:36:16.750Z</_eventTimestamp>
<_changeType>CHANGED</_changeType>
<_changedFields>
  <_changedField>Article.EAN</_changedField>
</_changedFields>
<_changedEntities>
  <_changedEntity>Article</_changedEntity>
</_changedEntities>
</entityItemChange>
</infaBPMRequest>
```


Entity Created - Object and Change Meta

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<infaBPMRequest>
  <entityId>23@1</entityId>
  <entity>Article</entity>
  <data>
    <entry>
      <key>catalog.label</key>
      <value>MASTER</value>
    </entry>
    <entry>
      <key>triggerConfiguration</key>
      <value>MyCreatedTrigger</value>
    </entry>
    <entry>
      <key>triggerIdentifier</key>
      <value>hlr.persistence.trigger.entityCreated</value>
    </entry>
    <entry>
      <key>user.label</key>
      <value>'testUser'</value>
    </entry>
    <entry>
      <key>userGroup.label</key>
      <value>Allmighty</value>
    </entry>
  </data>
  <entityItemChange>
    <_module>UI</_module>
    <_entity>Article</_entity>
    <_identifier>Article_1603223965881011</_identifier>
    <_user>
      <entityId>2600</entityId>
      <externalId>'testUser'</externalId>
      <internalId>100</internalId>
    </_user>
    <_revision>
      <entityId>5600</entityId>
      <externalId>'root'</externalId>
      <internalId>1</internalId>
    </_revision>
    <_container>
      <entityId>2900</entityId>
      <externalId>'MASTER'</externalId>
      <internalId>1</internalId>
    </_container>
    <_entityItem>
      <entityId>1000</entityId>
      <externalId>'Article_1603223965881011'@'MASTER'</externalId>
      <internalId>23@1</internalId>
    </_entityItem>
  </entityItemChange>
</infaBPMRequest>

```



```

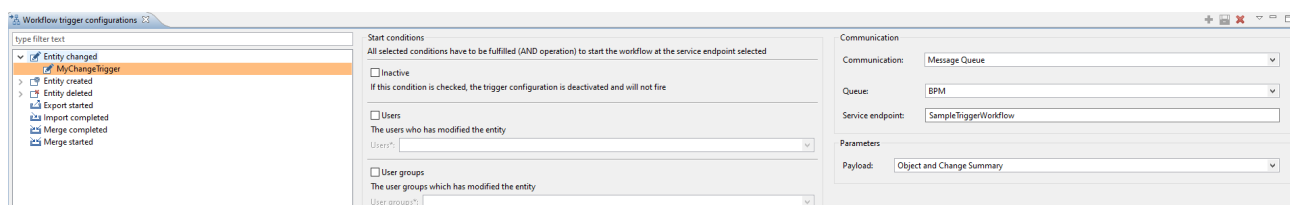
</_entityItem>
<_eventTimestamp>2020-10-28T14:55:08.160Z</_eventTimestamp>
<_changeType>CREATED</_changeType>
<_changedFields>
  <_changedField>Article.SupplierAID</_changedField>
  <_changedField>Article.MainSupplier</_changedField>
  <_changedField>Article.NoCUperOU</_changedField>
  <_changedField>Article.PriceQuantity</_changedField>
  <_changedField>Article.QuantityMin</_changedField>
  <_changedField>Article.QuantityInterval</_changedField>
  <_changedField>Article.CurrentStatus</_changedField>
  <_changedField>Article.SoldOnlyInKits</_changedField>
  <_changedField>Article.KitParent</_changedField>
</_changedFields>
<_changedEntities>
  <_changedEntity>Article</_changedEntity>
</_changedEntities>
</entityItemChange>
</infoBPMRequest>

```

10.4.2 Object and Change Summary

This payload contains information about META as well as DATA attributes(`_changeSummary`) of `EntityItemChangeDocument`.

Data Attribute	Description
<code>_changeSummary</code>	<p>The actual change summary starting from the root entity. It contain an entry from all fields which are changed(present in <code>_changeFields</code>).</p> <p><code>_old</code> : this is the old value of field before this change. This will not be available for entity created event as it is just created and doesn't have a old value for any field.</p> <p><code>_current</code> : this is the current value of field after the change.</p>



Entity Change - Object and Change Summary

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<infaBPMRequest>
  <entityId>11@1</entityId>
  <entity>Article</entity>
  <data>
    <entry>
      <key>catalog.label</key>
      <value>MASTER</value>
    </entry>
    <entry>
      <key>triggerConfiguration</key>
      <value>MyChangeTrigger</value>
    </entry>
    <entry>
      <key>triggerIdentifier</key>
      <value>hlr.persistence.trigger.entityChanged</value>
    </entry>
    <entry>
      <key>user.label</key>
      <value>'testUser'</value>
    </entry>
    <entry>
      <key>userGroup.label</key>
      <value>Allmighty</value>
    </entry>
  </data>
  <entityItemChange>
    <_module>UI</_module>
    <_entity>Article</_entity>
    <_identifier>Article_1603223965867005</_identifier>
    <_user>
      <entityId>2600</entityId>
      <externalId>'testUser'</externalId>
      <internalId>100</internalId>
    </_user>
    <_revision>
      <entityId>5600</entityId>
      <externalId>'root'</externalId>
      <internalId>1</internalId>
    </_revision>
    <_container>
      <entityId>2900</entityId>
      <externalId>'MASTER'</externalId>
      <internalId>1</internalId>
    </_container>
    <_entityItem>
      <entityId>1000</entityId>
      <externalId>'Article_1603223965867005'@'MASTER'</externalId>
      <internalId>11@1</internalId>
    </_entityItem>
  </entityItemChange>
</infaBPMRequest>

```



```

</_entityItem>
<_eventTimestamp>2020-10-28T14:45:24.750Z</_eventTimestamp>
<_changeType>CHANGED</_changeType>
<_changedFields>
  <_changedField>Article.EAN</_changedField>
</_changedFields>
<_changedEntities>
  <_changedEntity>Article</_changedEntity>
</_changedEntities>
<_changeSummary>
  <ObjectNode>
    <article>
      <_changeType>CHANGED</_changeType>
      <_mainSupplierProxy>
        <_entityId>2800</_entityId>
        <_internalId>3</_internalId>
        <_externalId>'Heiler Product Manager'</_externalId>
      </_mainSupplierProxy>
      <gtin>
        <_old>1234</_old>
        <_current>123</_current>
      </gtin>
    </article>
  </ObjectNode>
</_changeSummary>
</entityItemChange>
</infaBPMRequest>

```


Entity Created - Object and Change Summary

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<infaBPMRequest>
  <entityId>24@1</entityId>
  <entity>Article</entity>
  <data>
    <entry>
      <key>catalog.label</key>
      <value>MASTER</value>
    </entry>
    <entry>
      <key>triggerConfiguration</key>
      <value>MyCreatedTrigger</value>
    </entry>
    <entry>
      <key>triggerIdentifier</key>
      <value>hlr.persistence.trigger.entityCreated</value>
    </entry>
    <entry>
      <key>user.label</key>
      <value>'testUser'</value>
    </entry>
    <entry>
      <key>userGroup.label</key>
      <value>Allmighty</value>
    </entry>
  </data>
  <entityItemChange>
    <_module>UI</_module>
    <_entity>Article</_entity>
    <_identifier>Article_1603223965881012</_identifier>
    <_user>
      <entityId>2600</entityId>
      <externalId>'testUser'</externalId>
      <internalId>100</internalId>
    </_user>
    <_revision>
      <entityId>5600</entityId>
      <externalId>'root'</externalId>
      <internalId>1</internalId>
    </_revision>
    <_container>
      <entityId>2900</entityId>
      <externalId>'MASTER'</externalId>
      <internalId>1</internalId>
    </_container>
    <_entityItem>
      <entityId>1000</entityId>
      <externalId>'Article_1603223965881012'@'MASTER'</externalId>
      <internalId>24@1</internalId>
    </_entityItem>
  </entityItemChange>
</infaBPMRequest>

```



```

</_entityItem>
<_eventTimestamp>2020-10-28T15:00:43.870Z</_eventTimestamp>
<_changeType>CREATED</_changeType>
<_changedFields>
  <_changedField>Article.SupplierAID</_changedField>
  <_changedField>Article.MainSupplier</_changedField>
  <_changedField>Article.NoCUperOU</_changedField>
  <_changedField>Article.PriceQuantity</_changedField>
  <_changedField>Article.QuantityMin</_changedField>
  <_changedField>Article.QuantityInterval</_changedField>
  <_changedField>Article.CurrentStatus</_changedField>
  <_changedField>Article.SoldOnlyInKits</_changedField>
  <_changedField>Article.KitParent</_changedField>
</_changedFields>
<_changedEntities>
  <_changedEntity>Article</_changedEntity>
</_changedEntities>
<_changeSummary>
  <ObjectNode>
    <article>
      <_changeType>CREATED</_changeType>
      <_mainSupplierProxy>
        <_entityId>2800</_entityId>
        <_internalId>3</_internalId>
        <_externalId>'Heiler Product Manager'</_externalId>
      </_mainSupplierProxy>
      <identifier>
        <_current>Article_1603223965881012</_current>
      </identifier>
      <noCUperOU>
        <_current>1</_current>
      </noCUperOU>
      <priceQuantity>
        <_current>1</_current>
      </priceQuantity>
      <quantityMin>
        <_current>1</_current>
      </quantityMin>
      <quantityInterval>
        <_current>1</_current>
      </quantityInterval>
      <mainSupplier>
        <_current>
          <_key>
            <_entityId>2800</_entityId>
            <_internalId>3</_internalId>
            <_externalId>'Heiler Product Manager'</_externalId>
          </_key>
          <_code>Heiler Product Manager</_code>
        </_current>
      </mainSupplier>
      <currentStatus>

```



```

        <_current>
          <_key>100</_key>
        </_current>
      </currentStatus>
      <kitParent>
        <_current>>false</_current>
      </kitParent>
      <soldOnlyInKits>
        <_current>>false</_current>
      </soldOnlyInKits>
    </article>
  </ObjectNode>
</_changeSummary>
</entityItemChange>
</infaBPMRequest>

```

10.4.3 Entity Deleted Payload

i Entity Deleted trigger has information from EntityItemDelete document (instead of EntityItemChange document for Change and Create Trigger). So it does not matter which payload type we choose while configuring a delete trigger.

EntityItemDeletedDocument Attribute	Description
_module	defines which area of the application has triggered the modification. Possible values are IMPORT, MERGE, CLONE, SERVICEAPI, REVISION, ENVIRONMENT_TRANSFER, UI, OTHER
_entity	root entity which is changed
_user	entity item of the user which executed the CRUD operation. <ul style="list-style-type: none"> • internalId = Service API syntax with internal numeric IDs - includes the container in case the entity item has one • externalId = Service API syntax with the alphanumeric identifier of the entity item. Includes the container as well in case the entity item has one
_revision	the revision in which the operation has been performed
_container	the container of the root entity record
_eventTimestamp	timestamp at which this document is deleted
_changeType	indicates that change type is Deleted
_identifiers	a list of external identifiers which are deleted.

EntityItemDeletedDocument Attribute	Description
_entityItems	list of entities that are deleted

Entity deleted

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<infaBPMRequest>
  <entity>Article</entity>
  <reportId>231</reportId>
  <dataSource>PCM_MASTER</dataSource>
  <data>
    <entry>
      <key>catalog.label</key>
      <value>MASTER</value>
    </entry>
    <entry>
      <key>triggerConfiguration</key>
      <value>New</value>
    </entry>
    <entry>
      <key>triggerIdentifier</key>
      <value>hlr.persistence.trigger.entityDeleted</value>
    </entry>
    <entry>
      <key>user.label</key>
      <value>'testUser'</value>
    </entry>
    <entry>
      <key>userGroup.label</key>
      <value>Allmighty</value>
    </entry>
  </data>
  <entityItemsDeleted>
    <_module>OTHER</_module>
    <_entity>Article</_entity>
    <_user>
      <entityId>2600</entityId>
      <externalId>'testUser'</externalId>
      <internalId>100</internalId>
    </_user>
    <_revision>
      <entityId>5600</entityId>
      <externalId>'root'</externalId>
      <internalId>1</internalId>
    </_revision>
    <_container>
      <entityId>2900</entityId>
      <externalId>'MASTER'</externalId>
      <internalId>1</internalId>
    </_container>
    <_eventTimestamp>2020-10-28T15:07:35.230Z</_eventTimestamp>
    <_changeType>DELETED</_changeType>
    <_identifiers>
      <_identifier>Article_1603223965881011</_identifier>
    </_identifiers>
  </entityItemsDeleted>
</infaBPMRequest>

```



```

</_identifiers>
<_entityItems>
  <_entityItem>
    <entityId>1000</entityId>
    <externalId>'Article_1603223965881011'@'MASTER'</externalId>
    <internalId>23@1</internalId>
  </_entityItem>
</_entityItems>
</entityItemsDeleted>
</infaBPMRequest>

```

10.5 Batch Finish Approve/Reject Trigger

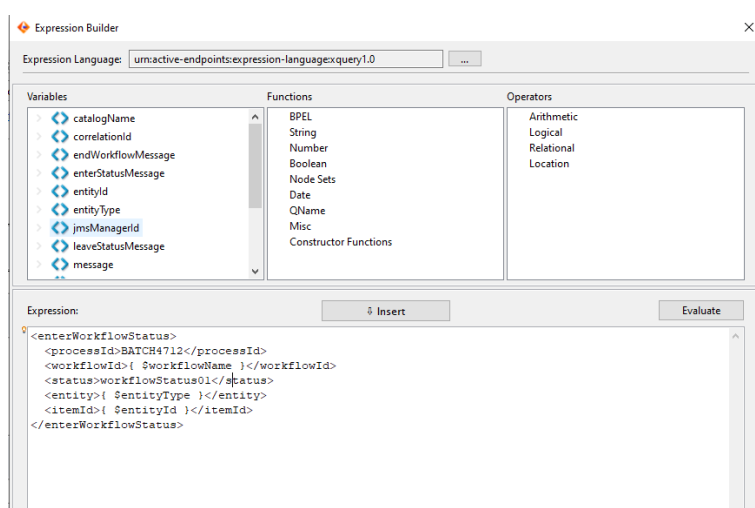
10.5.1 General

When a user selects multiple items in a task and do Finish/Approve or Finish/Reject operation, multiple responses(one for each item) are sent to AVOS/BPM. We can batch/group these responses and send only a single response(which contain details of all the items) back to BPM.

10.5.2 Enable Batching

To enable batching for Finish/Approve or Finish/Reject response, we need to take care of following things :

1. Message Queue communication mode should be enabled between P360 and BPM. Batching will not work with REST based communication.
2. Process Identifier(processId) in the request payload for enterWorkflowStatus(V1.0/manage/workflow/status/enter) should be appended as a prefix with **BATCH** (case insensitive) keyword. Please refer the screenshot below.



- i** Batching is optional. If batching is not enabled, BPM will receive multiple messages each with one item.

10.5.3 Batching Parameter

Batching is done based on a threshold parameter named **Workflow items batch threshold**. This threshold specifies the size in terms of number of items in a batch after which it is executed as a group.

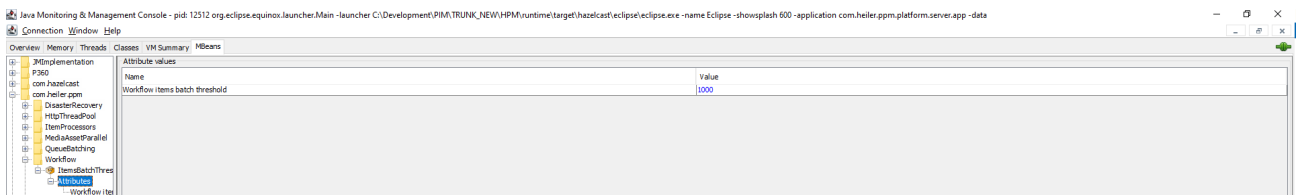
- **Default Value**

Default value for this parameter is 1000.

```
workflow.items.batch.threshold=1000
```

- **Custom Value at Runtime**

To change this parameter at runtime, MXBeans are used which allow this value to be updated from JConsole and does not require server restart.



- i** Number of messages received by BPM depends on batch threshold and number of items selected together for Approve/Reject operation. If number of items selected are less than batch threshold, BPM will receive 1 message with all items. But if number of items selected are more than threshold, multiple messages will be received. For example, if batch threshold is 1000 and user selected 1500 items, BPM will receive 2 messages, one with 1000 items and other with 500 items.

10.5.4 BPM Payload with Batching

- **Finish/Approve Trigger**

Parameter	Description
decision id	decision id for approve/finish decision.

Parameter	Description												
processStatusInfo's	group of process status info objects each having information for an individual item <table> <tr> <th>Parameter</th><th>Description</th></tr> <tr> <td>processIdentifier</td><td>process Id with BATCH prefix keyword</td></tr> <tr> <td>itemEntity</td><td>Entity for item</td></tr> <tr> <td>item</td><td>internal identifier with catalog id</td></tr> <tr> <td>itemExternalIdentifier</td><td>external identifier for an item</td></tr> <tr> <td>statusEntry</td><td>status entry attributes</td></tr> </table>	Parameter	Description	processIdentifier	process Id with BATCH prefix keyword	itemEntity	Entity for item	item	internal identifier with catalog id	itemExternalIdentifier	external identifier for an item	statusEntry	status entry attributes
Parameter	Description												
processIdentifier	process Id with BATCH prefix keyword												
itemEntity	Entity for item												
item	internal identifier with catalog id												
itemExternalIdentifier	external identifier for an item												
statusEntry	status entry attributes												

Approve Trigger Payload

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<decisions>
  <decision id="p360.bpm.approve"/>
  <processStatusInfo>
    <processIdentifier>batch4712</processIdentifier>
    <itemEntity>Article</itemEntity>
    <item>11@1</item>
    <itemExternalIdentifier>Article_1603223965867005</itemExternalIdentifier>
    <statusEntry>
      <attribute>
        <name>workflow.identifier</name>
        <value>WorkflowTask1</value>
      </attribute>
      <attribute>
        <name>workflow</name>
        <value>1</value>
      </attribute>
      <attribute>
        <name>status</name>
        <value>Status1</value>
      </attribute>
      <attribute>
        <name>startTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
      </attribute>
      <attribute>
        <name>lastStartTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
      </attribute>
      <attribute>
        <name>user</name>
      </attribute>
      <attribute>
        <name>userGroup</name>
      </attribute>
      <attribute>
        <name>supplier</name>
      </attribute>
      <attribute>
        <name>endTime</name>
        <value>2020-10-28T16:34:31:620-0400</value>
      </attribute>
      <attribute>
        <name>duration</name>
        <value>0</value>
      </attribute>
      <attribute>
        <name>visitCounter</name>
        <value>1</value>
      </attribute>
    </statusEntry>
  </processStatusInfo>
</decisions>

```



```

</attribute>
<attribute>
  <name>errorMessage</name>
  <value>No error</value>
</attribute>
<attribute>
  <name>acceptDate</name>
</attribute>
<attribute>
  <name>deadline</name>
</attribute>
<attribute>
  <name>creationDate</name>
  <value>2020-10-28T16:33:50:640-0400</value>
</attribute>
<attribute>
  <name>creationUser</name>
  <value>100</value>
</attribute>
<attribute>
  <name>modificationDate</name>
</attribute>
<attribute>
  <name>modificationUser</name>
</attribute>
<attribute>
  <name>hint</name>
  <value>Comment for Status1</value>
</attribute>
</statusEntry>
</processStatusInfo>
<processStatusInfo>
  <processIdentifier>batch4712</processIdentifier>
  <itemEntity>Article</itemEntity>
  <item>10@1</item>
  <itemExternalIdentifier>Article_1603223965867004</itemExternalIdentifier>
  <statusEntry>
    <attribute>
      <name>workflow.identifier</name>
      <value>WorkflowTask1</value>
    </attribute>
    <attribute>
      <name>workflow</name>
      <value>1</value>
    </attribute>
    <attribute>
      <name>status</name>
      <value>Status1</value>
    </attribute>
    <attribute>
      <name>startTime</name>
      <value>2020-10-22T14:11:01:590-0400</value>
    </attribute>
  </statusEntry>
</processStatusInfo>

```



```

</attribute>
<attribute>
  <name>lastStartTime</name>
  <value>2020-10-28T16:33:50:610-0400</value>
</attribute>
<attribute>
  <name>user</name>
</attribute>
<attribute>
  <name>userGroup</name>
</attribute>
<attribute>
  <name>supplier</name>
</attribute>
<attribute>
  <name>endTime</name>
  <value>2020-10-28T16:34:31:620-0400</value>
</attribute>
<attribute>
  <name>duration</name>
  <value>0</value>
</attribute>
<attribute>
  <name>visitCounter</name>
  <value>4</value>
</attribute>
<attribute>
  <name>errorMessage</name>
  <value>No error</value>
</attribute>
<attribute>
  <name>acceptDate</name>
</attribute>
<attribute>
  <name>deadline</name>
  <value>2020-10-22T14:15:23:220-0400</value>
</attribute>
<attribute>
  <name>creationDate</name>
  <value>2020-10-22T14:11:01:620-0400</value>
</attribute>
<attribute>
  <name>creationUser</name>
  <value>100</value>
</attribute>
<attribute>
  <name>modificationDate</name>
  <value>2020-10-28T16:33:50:640-0400</value>
</attribute>
<attribute>
  <name>modificationUser</name>
  <value>100</value>

```



```

        </attribute>
        <attribute>
            <name>hint</name>
            <value>Comment for Status1</value>
        </attribute>
    </statusEntry>
</processStatusInfo>
<processStatusInfo>
    <processIdentifier>batch4712</processIdentifier>
    <itemEntity>Article</itemEntity>
    <item>16@1</item>
    <itemExternalIdentifier>Article_1603223965880002</itemExternalIdentifier>
    <statusEntry>
        <attribute>
            <name>workflow.identifier</name>
            <value>WorkflowTask1</value>
        </attribute>
        <attribute>
            <name>workflow</name>
            <value>1</value>
        </attribute>
        <attribute>
            <name>status</name>
            <value>Status1</value>
        </attribute>
        <attribute>
            <name>startTime</name>
            <value>2020-10-28T16:33:50:610-0400</value>
        </attribute>
        <attribute>
            <name>lastStartTime</name>
            <value>2020-10-28T16:33:50:610-0400</value>
        </attribute>
        <attribute>
            <name>user</name>
            <value>100</value>
        </attribute>
        <attribute>
            <name>userGroup</name>
        </attribute>
        <attribute>
            <name>supplier</name>
        </attribute>
        <attribute>
            <name>endTime</name>
            <value>2020-10-28T16:34:31:620-0400</value>
        </attribute>
        <attribute>
            <name>duration</name>
            <value>0</value>
        </attribute>
        <attribute>

```



```

        <name>visitCounter</name>
        <value>1</value>
    </attribute>
    <attribute>
        <name>errorMessage</name>
        <value>No error</value>
    </attribute>
    <attribute>
        <name>acceptDate</name>
        <value>2020-10-28T16:34:31:643-0400</value>
    </attribute>
    <attribute>
        <name>deadline</name>
        <value>2020-10-28T16:34:31:600-0400</value>
    </attribute>
    <attribute>
        <name>creationDate</name>
        <value>2020-10-28T16:33:50:640-0400</value>
    </attribute>
    <attribute>
        <name>creationUser</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>modificationDate</name>
        <value>2020-10-28T16:34:31:640-0400</value>
    </attribute>
    <attribute>
        <name>modificationUser</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>hint</name>
        <value>Comment for Status1</value>
    </attribute>
</statusEntry>
</processStatusInfo>
<processStatusInfo>
    <processIdentifier>batch4712</processIdentifier>
    <itemEntity>Article</itemEntity>
    <item>20@1</item>
    <itemExternalIdentifier>Article_1603223965881002</itemExternalIdentifier>
    <statusEntry>
        <attribute>
            <name>workflow.identifier</name>
            <value>WorkflowTask1</value>
        </attribute>
        <attribute>
            <name>workflow</name>
            <value>1</value>
        </attribute>
        <attribute>

```



```

        <name>status</name>
        <value>Status1</value>
    </attribute>
    <attribute>
        <name>startTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
    </attribute>
    <attribute>
        <name>lastStartTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
    </attribute>
    <attribute>
        <name>user</name>
    </attribute>
    <attribute>
        <name>userGroup</name>
    </attribute>
    <attribute>
        <name>supplier</name>
    </attribute>
    <attribute>
        <name>endTime</name>
        <value>2020-10-28T16:34:31:620-0400</value>
    </attribute>
    <attribute>
        <name>duration</name>
        <value>0</value>
    </attribute>
    <attribute>
        <name>visitCounter</name>
        <value>1</value>
    </attribute>
    <attribute>
        <name>errorMessage</name>
        <value>No error</value>
    </attribute>
    <attribute>
        <name>acceptDate</name>
    </attribute>
    <attribute>
        <name>deadline</name>
    </attribute>
    <attribute>
        <name>creationDate</name>
        <value>2020-10-28T16:33:50:640-0400</value>
    </attribute>
    <attribute>
        <name>creationUser</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>modificationDate</name>

```



```

    </attribute>
    <attribute>
      <name>modificationUser</name>
    </attribute>
    <attribute>
      <name>hint</name>
      <value>Comment for Status1</value>
    </attribute>
  </statusEntry>
</processStatusInfo>
</decisions>

```

- **Finish/Reject Trigger**

Parameter	Description												
decision id's	group of all decision id's selected for rejecting a task												
processStatusInfo's	group of process status info objects each having information for an individual item <table> <tr> <th>Parameter</th><th>Description</th></tr> <tr> <td>processIdentifier</td><td>process Id with BATCH prefix keyword</td></tr> <tr> <td>itemEntity</td><td>Entity for item</td></tr> <tr> <td>item</td><td>internal identifier with catalog id</td></tr> <tr> <td>itemExternalIdentifier</td><td>external identifier for an item</td></tr> <tr> <td>statusEntry</td><td>status entry attributes</td></tr> </table>	Parameter	Description	processIdentifier	process Id with BATCH prefix keyword	itemEntity	Entity for item	item	internal identifier with catalog id	itemExternalIdentifier	external identifier for an item	statusEntry	status entry attributes
Parameter	Description												
processIdentifier	process Id with BATCH prefix keyword												
itemEntity	Entity for item												
item	internal identifier with catalog id												
itemExternalIdentifier	external identifier for an item												
statusEntry	status entry attributes												

Reject Trigger Payload

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<decisions>
  <decision id="decision1-id"/>
  <decision id="decision2-id"/>
  <processStatusInfo>
    <processIdentifier>batch4712</processIdentifier>
    <itemEntity>Article</itemEntity>
    <item>20@1</item>
    <itemExternalIdentifier>Article_1603223965881002</itemExternalIdentifier>
    <statusEntry>
      <attribute>
        <name>workflow.identifier</name>
        <value>WorkflowTask1</value>
      </attribute>
      <attribute>
        <name>workflow</name>
        <value>1</value>
      </attribute>
      <attribute>
        <name>status</name>
        <value>Status1</value>
      </attribute>
      <attribute>
        <name>startTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
      </attribute>
      <attribute>
        <name>lastStartTime</name>
        <value>2020-10-28T16:35:16:107-0400</value>
      </attribute>
      <attribute>
        <name>user</name>
        <value>100</value>
      </attribute>
      <attribute>
        <name>userGroup</name>
      </attribute>
      <attribute>
        <name>supplier</name>
      </attribute>
      <attribute>
        <name>endTime</name>
        <value>2020-10-28T16:35:33:844-0400</value>
      </attribute>
      <attribute>
        <name>duration</name>
        <value>0</value>
      </attribute>
    </statusEntry>
  </processStatusInfo>
</decisions>

```



```

        <name>visitCounter</name>
        <value>2</value>
    </attribute>
    <attribute>
        <name>errorMessage</name>
        <value>No error</value>
    </attribute>
    <attribute>
        <name>acceptDate</name>
        <value>2020-10-28T16:35:33:850-0400</value>
    </attribute>
    <attribute>
        <name>deadline</name>
        <value>2020-10-28T16:35:33:843-0400</value>
    </attribute>
    <attribute>
        <name>creationDate</name>
        <value>2020-10-28T16:33:50:640-0400</value>
    </attribute>
    <attribute>
        <name>creationUser</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>modificationDate</name>
        <value>2020-10-28T16:35:33:850-0400</value>
    </attribute>
    <attribute>
        <name>modificationUser</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>hint</name>
        <value>Comment for Status1</value>
    </attribute>
</statusEntry>
</processStatusInfo>
<processStatusInfo>
    <processIdentifier>batch4712</processIdentifier>
    <itemEntity>Article</itemEntity>
    <item>11@1</item>
    <itemExternalIdentifier>Article_1603223965867005</itemExternalIdentifier>
    <statusEntry>
        <attribute>
            <name>workflow.identifier</name>
            <value>WorkflowTask1</value>
        </attribute>
        <attribute>
            <name>workflow</name>
            <value>1</value>
        </attribute>
        <attribute>

```



```

        <name>status</name>
        <value>Status1</value>
    </attribute>
    <attribute>
        <name>startTime</name>
        <value>2020-10-28T16:33:50:610-0400</value>
    </attribute>
    <attribute>
        <name>lastStartTime</name>
        <value>2020-10-28T16:35:16:107-0400</value>
    </attribute>
    <attribute>
        <name>user</name>
        <value>100</value>
    </attribute>
    <attribute>
        <name>userGroup</name>
    </attribute>
    <attribute>
        <name>supplier</name>
    </attribute>
    <attribute>
        <name>endTime</name>
        <value>2020-10-28T16:35:33:844-0400</value>
    </attribute>
    <attribute>
        <name>duration</name>
        <value>0</value>
    </attribute>
    <attribute>
        <name>visitCounter</name>
        <value>2</value>
    </attribute>
    <attribute>
        <name>errorMessage</name>
        <value>No error</value>
    </attribute>
    <attribute>
        <name>acceptDate</name>
        <value>2020-10-28T16:35:33:850-0400</value>
    </attribute>
    <attribute>
        <name>deadline</name>
        <value>2020-10-28T16:35:33:843-0400</value>
    </attribute>
    <attribute>
        <name>creationDate</name>
        <value>2020-10-28T16:33:50:640-0400</value>
    </attribute>
    <attribute>
        <name>creationUser</name>
        <value>100</value>
    </attribute>

```



```

</attribute>
<attribute>
  <name>modificationDate</name>
  <value>2020-10-28T16:35:33:850-0400</value>
</attribute>
<attribute>
  <name>modificationUser</name>
  <value>100</value>
</attribute>
<attribute>
  <name>hint</name>
  <value>Comment for Status1</value>
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