



InformaticaTM

Configuration

Informatica MDM - Product 360

Version: 10.5 HotFix 3 SP 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

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 16)
- [Authentication Setup](#) (see page 36)

- General Requirements Windows Desktop Client SSO (Simple SSO) (see page 36)
- Supported Authentication Scenarios (see page 36)
- LDAP Authentication (LDAPConfig.xml) (see page 41)
 - LDAPS (see page 44)
- SAML Configuration (SamlConfig.xml) (see page 45)
- Windows Desktop Client SSO (Simple SSO) (see page 45)
 - Domain Validations (see page 46)
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- Communication from P360 server to Control Center (see page 47)
- Control Center Configuration (ClusterixConfig.xml) (see page 47)
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- Application Modules configuration (application_modules.properties) (see page 72)
- Spelling dictionaries (see page 72)
- Media Asset Management Configuration (see page 74)
 - Media Manager (see page 74)
 - Classic Provider (see page 74)
 - Preview Generation Parameters (see page 74)
 - Previews for PS, EPF, PDF, HTML and other formats. (see page 76)
 - Running "Classic MediaAssetProvider" with unicode encoded folder names (see page 76)
- Security logging (see page 78)

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	
<code>system.name</code>	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!	
<code>filestorage.dir.shared</code>	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
<code>filestorage.default</code>	Default file storage implementation. Currently only SMB is available. SMB stores the files using the SMB file protocol
<code>filestorage.import</code>	File storage implementation for import files, default is also SMB


<code>filestorage.import.path</code>	Path for the import files used by the SMB file storage implementation
<code>filestorage.mime</code>	File storage implementation for mime files, default is also SMB. Applies only to the Classic Media Asset Provider.
<code>filestorage.mime.path</code>	Path for the import files used by the SMB file storage implementation. Applies only to the Classic Media Asset Provider.
<code>filestorage.export</code>	File storage implementation for export files, default is also SMB
<code>filestorage.export.path</code>	Path for the export files used by the SMB file storage implementation
<code>filestorage.shared</code>	File storage implementation for various shared files, default is also SMB
<code>filestorage.shared.path</code>	Path for various shared files used by the SMB file storage implementation
<code>upload.root.local</code>	Path for the service api file upload
<code>filestorage.dataquality</code>	File storage implementation for data quality (DQ) files, default is also SMB
<code>filestorage.dataquality.path</code>	Path for the data quality (DQ) files used by the SMB file storage implementation


<code>filestorage.bpm</code>	File storage implementation for Informatica BPM (Workflow) files, default is also SMB
<code>filestorage.bpm.path</code>	Path for Informatica BPM (Workflow) files used by the SMB file storage implementation
<p>Informatica Queue Settings (required for Batch API queue processing and for integration with Informatica BPM)</p> <p>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. <code>queue.myQueue.name</code>). The required queues for Product 360 are contained in the <code>server.properties</code> template file.</p>	
<code>queue.default.type</code>	The message queue type which will be used. Currently only type "ActiveMQ" is supported
<code>queue.default.writer.count</code>	Number of threads which can write on the queue
<code>queue.default.consumer.count</code>	Number of threads which can read from the queue
<code>queue.default.url</code>	The base url and port to access the message queue. For example: <code>tcp://localhost:61616</code>
<code>queue.default.username</code>	Username to authenticate against the message queue
<code>queue.default.password</code>	Password to authenticate against the message queue


<code>queue.default.message.format</code>	Message format which will be used for writing messages into the queue. Possible values are: "XML" or "JSON"
<code>queue.default.label</code>	Human readable label to display the queue in Product 360
<code>queue.default.name</code>	Technical name to identify the queue by Product 360 and third party applications
<code>queue.default.selector</code>	<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>
<code>queue.default.delivery.delay</code>	<p>Defines the duration [ms] after that the message will be made available to consumers to the message queue. Default is 50 [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> <div>  Please change only if advised by Informatica Support </div>
Informatica Batch API Queue Settings (needed for Batching framework)	
<div>  Data Quality and Merge requests coming via message queue can be batched as of now. </div>	
<code>queue.batchapi.type</code>	The message queue type which will be used. Currently only type "ActiveMQ" is supported

<code>queue.batchapi.writer.count</code>	Number of threads which can write on the queue
<code>queue.batchapi.consumer.count</code>	Number of threads which can read from the queue
<code>queue.batchapi.url</code>	The base url and port to access the message queue. For example: tcp://localhost:61616
<code>queue.batchapi.username</code>	Username to authenticate against the message queue
<code>queue.batchapi.password</code>	Password to authenticate against the message queue
<code>queue.batchapi.message.format</code>	Message format which will be used for writing messages into the queue. Possible values are: "XML" or "JSON"
<code>queue.batchapi.name</code>	Technical name to identify the queue by Product 360 and third party applications (P360_BATCH_API)
<code>queue.batchapi.label</code>	Human readable label to display the queue in Product 360 (Batch API)
<code>queue.batchapi.delivery.delay</code>	<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)	
<code>infa.bpm.base.url</code>	REST The base url to the Informatica BPM instance in the form http://[server]:[port]/active-bpel
<code>infa.bpm.workflows.path</code>	REST The workflows path. Will be used together with the property infa.bpm.base.url to find the endpoints
<code>infa.bpm.user</code>	REST The username for accessing the Informatica BPM instance. Only required if basic authentication on BPM side is configured
<code>infa.bpm.password</code>	REST The password for accessing the Informatica BPM instance. Only required if basic authentication on BPM side is configured <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<code>com.heiler.ppm.bpm.server/proxy</code>	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
<code>infa.bpm.queue.jms.connection.username</code>	REST The username for accessing the ActiveMQ service
<code>infa.bpm.queue.jms.connection.password</code>	REST The password for accessing the ActiveMQ service <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<code>infa.bpm.queue.jms.queue.suffix</code>	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.processing.folder	
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	



<code>license.customer .file.local</code>	Local path to the license file. Please contact the Informatica Partner Management to obtain a license file.
<code>license.customer .key</code>	Appropriate customer key (in case of multiline keys, use backslash at the end of the line)
Media Asset Server Settings	
<code>mime.defaultProv ider</code>	Identifier of the media asset provider. Possible values are <code>HLR</code> which corresponds to the Classic Provider or <code>HMM</code> for the Product 360 - Media Manager. Default is <code>HLR</code>
Repository Settings	
<code>repository.defau lt.language</code>	<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. <code>"de"</code> or <code>"en_US"</code> - 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)	
<code>mail.host</code>	Host name of the e-mail server
<code>mail.port</code>	If the mail server uses the standard port for the protocol, this property can be left empty.



<code>mail.protocol</code>	E-mail protocol used, currently only SMTP is supported
<code>mail.user</code>	If the e-mail server requires authentication, then the properties "mail.user" and/or "mail.password" must be set.
<code>mail.password</code>	<div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<code>mail.securityMode</code>	The security mode (please note that security modes have different ports). Possible values are: NONE, TLS, SSL. Default: empty (NONE).
<code>mail.securityMode.tls.protocol</code>	Define the TLS protocol to be used, by default it's TLSv1.2. Will only be used if mail.securityMode is set to TLS. Possible values are: TLSv1.0, TLSv1.1, TLSv1.2, TLSv1.3
Various Settings	
<code>context.sessionInactiveInterval</code>	http session timeout sec. if not set no timeout is defined
<code>http.client.proxy</code>	The base URL of the reverse proxy (e.g. Apache WebServer). Mandatory if web links used in email notifications.
Full-text Search Integration	
<code>fulltextsearch.enabled</code>	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.
<code>fulltextsearch.rest.url</code>	URL path to the Elasticsearch REST server. E.g. fulltextsearch.rest.url = http://localhost:9200,http://localhost:9201




<code>fulltextsearch.rest.user</code>	Login name of the Elasticsearch REST server.
<code>fulltextsearch.rest.password</code>	Login password of the Elasticsearch REST server.
<code>fulltextsearch.rest.allow.self-signed.certificate</code>	Allows self-signed certificate only if you use <code>https</code> .
Audit-trail Integration	
<code>audittrail.rest.url</code>	URL path to the Elasticsearch REST server. E.g. <code>audittrail.rest.url</code> = <code>http://localhost:9200,http://localhost:9201</code>
<code>audittrail.rest.user</code>	Login name of the Elasticsearch REST server.
<code>audittrail.rest.password</code>	Login password of the Elasticsearch REST server.
<code>audittrail.rest.allow.self-signed.certificate</code>	Allows self-signed certificate only if you use <code>https</code> .


<code>audittrail.mode</code>	Audit trail can be set up with the below modes -		
	Mode		
	<code>PRODUCTION</code>	(Recommended) All Audit trail data will remain intact even if Product 360 - Server is restarted.	
	<code>CLEAN_SLATE</code>	(Only for testing, use with caution) All Audit trail data will be erased when Product 360 - Server is restarted.	
	<code>DISABLED</code>	The audit trail will be disabled.	
<code>audittrail.installation.type</code>	Audit trail can have below installation types -		
	Installation type	Configuration folder	
	<code>elastic-standalone</code>	conf/audittrail/elastic-standalone	On-premise installation of Elasticsearch for PROD
	<code>elastic-aws</code>	conf/audittrail/elastic-aws	AWS Elasticsearch Service
	<code>elastic-test</code>	conf/audittrail/elastic-test	On-premise installation of Elasticsearch for DEV, QA
<code>audittrail.threadpool.size</code>	The maximum number of threads available for audit trail processors. This property should have a value that is the same as <code>db.default.pool.maxPoolSize</code>		



<code>audittrail.backup.restoration.mode</code>	<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!)	
<code>db.default.type</code>	<p>MSSQL</p> <p>This property should never be changed!</p>
<code>db.default.server</code>	<p>The host name of the Microsoft SQL Server; Change this in case you have a separate database server</p>
<code>db.default.port</code>	<p>Port of the Microsoft SQL Server instance, usually this is 1433</p>
<code>db.default.user</code>	<p>User name of the database user</p>
<code>db.default.password</code>	<p>Password of the database user</p> <div>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<code>db.default.dir</code>	<p>Base folder for the database schema and database transaction log files (also used by the database setup)</p> <p>Note: This folder needs not to be local to the application server but to the database server!</p>
<code>db.default.dir.data</code>	<p>Folder for the database schema files (*.mdf) Note: This folder needs not to be local to the application server but to the database server!</p>

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	<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 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.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	<p>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.</p>
db.default.rowPrefetchSize	<p>Affects the default prefetch size which is especially important for mass data retrieval. In SQL Server there is usually no need to change that.</p>
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>
db.main.pool.jdbcUrl	<div>  10.5.02.01 onwards New connection property "encrypt=false" added in the url </div> <p>jdbc:sqlserver://\${db.main.server}:\${db.main.port};databaseName=\${db.main.database};integratedSecurity=\${db.integrated.security};sendStringParametersAsUnicode=true;selectMethod=direct;responseBuffering=adaptive;encrypt=false</p>
db.master.pool.jdbcUrl	<div>  10.5.02.01 onwards New connection property "encrypt=false" added in the url </div> <p>jdbc:sqlserver://\${db.master.server}:\${db.master.port};databaseName=\${db.master.database};integratedSecurity=\${db.integrated.security};sendStringParametersAsUnicode=true;selectMethod=direct;responseBuffering=adaptive;encrypt=false</p>

<code>db.supplier.pool.jdbcUrl</code>	<div>  10.5.02.01 onwards New connection property "encrypt=false" added in the url </div> <pre>jdbc:sqlserver://\${db.supplier.server}:\${db.supplier.port};databaseName=\${db.supplier.database};integratedSecurity=\${db.integrated.security};sendStringParametersAsUnicode=true;selectMethod=direct;responseBuffering=adaptive;encrypt=false</pre>
<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!)</p>	
<code>db.default.type</code>	ORACLE Never change this property!
<code>db.default.database</code>	Oracle Service Name
<code>db.default.server</code>	The host name of the Oracle server; change this in case you have a separate database server.
<code>db.default.port</code>	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 v10.5 (see page 14)" manual. </div>
<code>db.default.password</code>	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>

<code>db.default.dir</code>	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.
<code>db.default.dir.data</code>	Folder for the database schema files Note: This folder needs not to be local to the application server but to the database server.
<code>db.default.dir.tmp</code>	Folder for the database transaction log files Note: This folder needs not to be local to the application server but to the database server.
<code>db.default.dir.index</code>	Folder for the index tablespaces Note: This folder needs not to be local to the application server but to the database server.
<code>db.default.data.size</code>	Default size in MB allocated for a database schema; adapt this setting to your needs
<code>db.default.data.size.growth</code>	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>
<code>db.default.temp.size</code>	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>

<code>db.default.rowPrefetchSize</code>	<p>Affects the default prefetch size which is especially important for mass data retrieval.</p> <p>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.</p> <p>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>
<code>db.default.pool.hibernate.dialect</code>	<p>The corresponding dialect for your Oracle version.</p> <p>Currently only one value, no need to change.</p> <p><code>com.heiler.ppm.persistence.db.internal.dialect.Oracle12c</code></p>
Connection pool settings (make sure to only change values after consultation with Informatica Support)	
<code>db.default.pool.statementCacheSize</code>	<p>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.</p>
<code>db.default.pool.connectionTimeout</code>	<p>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 <code>SQLException</code> will be thrown.</p> <p><i>Default: 2000 (2 seconds)</i></p>
<code>db.default.pool.idleTimeout</code>	<p>Controls the maximum amount of time in milliseconds that a connection is allowed to sit idle in the pool. This setting only applies when <code>minPoolSize</code> is defined to be less than <code>maxPoolSize</code>.</p> <p>Idle connections will <i>not</i> be retired once the pool reaches <code>minPoolSize</code> connections.</p> <p>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.</p> <p>A value of 0 means that idle connections are never removed from the pool. The minimum allowed value is 10000ms (10 seconds).</p> <p><i>Default: 60000 (1 minute)</i></p>

<code>db.default.pool.minPoolSize</code>	<p>Controls the minimum number of <i>idle connections</i> that will constantly be maintained in the pool.</p> <p><i>Default: 5</i></p>
<code>db.default.pool.maxPoolSize</code>	<p>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.</p> <p>A reasonable value for this is best determined by observing the corresponding environment.</p> <p>When the pool reaches this size, and no idle connections are available, calls to <code>getConnection()</code> will block for up to <code>connectionTimeout</code> milliseconds before timing out.</p> <p>Before throwing a <code>PoolExhaustException</code>, the connection pool will grow to the maximum size specified by the <code>maxPoolOverflowSize</code> property.</p> <p><i>Default: 100</i></p>
<code>db.default.pool.maxLifetime</code>	<p>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.</p> <p>A value of 0 indicates no maximum lifetime (infinite lifetime), subject of course to the <code>idleTimeout</code> setting.</p> <p><i>Default: 0 (unlimited)</i></p>
<code>db.default.pool.maxPoolOverflowSize</code>	<p>This is the maximum limit a target connection pool can stretch to.</p> <p><i>Default: 120</i></p>
<code>db.default.pool.maxRetryBeforeOverflow</code>	<p>This is the maximum number of retries attempts before trying to stretch the target connection pool.</p> <p>Default: 10</p>
<code>db.default.pool.validationTimeout</code>	<p>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 <code>connectionTimeout</code>.</p> <p>Lowest acceptable validation timeout is 250 ms.</p> <p><i>Default: 2000 (2 seconds)</i></p>

<code>db.default.pool.validationQuery</code>	<p>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.</p> <p><i>Default:</i> MSSQL: <code>SELECT 1</code> ORACLE: <code>SELECT 1 FROM DUAL</code></p>
<code>db.default.pool.leakDetectionThreshold</code>	<p>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).</p> <p><i>Default: 600000 (10 minutes)</i></p>
<code>db.default.pool.leaseTimeThreshold</code>	<p>Specifies a time threshold in milliseconds for the connection lease. When the time limit is exceeded a log entry will be generated.</p> <p><i>Default: 2000 (2 seconds)</i></p>
<code>db.default.pool.registerMbean</code>	<p>Controls whether or not JMX Management Beans ("MBeans") are registered or not.</p> <p><i>Default: true</i></p>
<code>db.default.pool.registerMetrics</code>	<p>Controls whether or not Micrometer metrics are enabled or not.</p> <p><i>Default: true</i></p>
<code>db.default.pool.reportMetricsInterval</code>	<p>Controls the amount of time in milliseconds after which metrics are being updated (only in case metrics are enabled).</p> <p><i>Default: 5000 (5 seconds)</i></p>

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

3.2 Authentication Setup

3.2.1 General Requirements Windows Desktop Client SSO (Simple SSO)

- Server needs to be on Windows or Linux
- Client and Server need to run within same domain
- Secure connection between Desktop client and server

3.2.2 Supported Authentication Scenarios

In general there are two types of authentication modes, dependent of the type of user authentication mode : internal and external.

A user can only have one authentication mode. For external authentication scenarios, a user with authentication mode external will be created if that user does not exist yet.



Note that even if there are external user authentication scenarios are described here, it is of course still always possible to create an arbitrary internal user with user / password credentials.

So even if the server is configured for external authentication, internal authentication for internal users is still possible

- Desktop Client: by holding STRG or CTRL to cancel Windows Desktop Client (Simple SSO) or SAML SSO login process.
- Web Client: using Login page `pim/webaccess/login`.
- Service API: using Basic Auth and username/password credentials.

Authentic ation Scenario	Server Configuratio n / Requirement s	User Entities	Desktop Client	Web Client	Service API / Supplier Portal / Mobile	Automatic User Sync
Internal						
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
PIM Internal Auth with Simple SSO	<i>Default configuration</i> plugin_customization.ini com.heiler.ppm.security.server/login.sso.enabled = true com.heiler.ppm.security.server/login.sso.simpleSSO = true TCPS communication between client and server required	<ul style="list-style-type: none"> • AuthenticationMode internal • Username matches Windows username • Domain matches Windows domain, e.g. informatica.com 	Silent Login User Name / Password with SHIFT/CTRL	User Name / Password	User Name / Password	No

External						
LDAP	LdapConfig.xml configured 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	Ldap User Name / Password	Ldap User Name / Password	User creation on login. Periodic sync job for groups.

LDAP with Simple SSO	<p>LdapConfig.xml configured</p> <p>plugin_customization.ini</p> <p>com.heiler.ppm.security.server/login.sso.simpleSSO = true</p> <p>TCPs communication between client and server required</p>	<ul style="list-style-type: none"> • Authentication Mode external • For details about the domain validations for Desktop Client SSO, see section 'Authentication Setup - Windows Desktop Client SSO' below 	<p>Silent Login</p> <p>Ldap User Name / Password with SHIFT/CTRL</p>	Ldap User Name / Password	Ldap User Name / Password	User creation on login. Periodic sync job for groups.
SAML	<p>SamlConfig.xml configured</p> <p>plugin_customization.ini</p> <p>com.heiler.ppm.security.server/login.sso.enabled = false</p>	<ul style="list-style-type: none"> • Authentication Mode external • Domain any value not considered 	SAML SSO	SAML SSO only	<i>Not possible</i>	User creation on login.

SAML with LDAP	<p>SamlConfig.xml configured</p> <p>LdapConfig.xml configured</p> <p>SAML user name must match LDAP user name</p> <p>plugin_customization.ini</p> <p>com.heiler.ppm.security.server/login.sso.enabled = false</p>	<ul style="list-style-type: none"> • Authentication Mode external • Domain matches LDAP domain, e.g. informatica.com 	<p>SAML SSO</p> <p>Ldap User Name / Password with SHIFT/CTRL</p>	<p>SAML SSO</p> <p>Ldap User Name / Password on Login page</p>	<p>Ldap User Name / Password</p>	<p>User creation on login.</p> <p>Periodic sync job for groups for LDAP login.</p>
SAML with Simple SSO	<p>SamlConfig.xml configured</p>	<ul style="list-style-type: none"> • Authentication Mode external • Domain matches Windows domain, e.g. INFORMatica 	<p>Silent Login</p> <p>SAML SSO if Simple SSO not successful</p>	<p>SAML SSO only</p>	<p><i>Not possible</i></p>	<p>User creation on login.</p>

SAML with Simple SSO and LDAP	SamlConfig.xml configured LdapConfig.xml configured SAML user name must match LDAP user name	<ul style="list-style-type: none"> • Authentication Mode external • Domain matches LDAP domain, e.g. informatica.com 	Silent Login SAML SSO if Simple SSO not successful Ldap User Name / Password with SHIFT/CTRL	SAML SSO Ldap User Name / Password on Login page	Ldap User Name / Password	User creation on login. Periodic sync job for groups for LDAP login.
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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
<code>identifier</code>	unique identifier of the directory
<code>domain</code>	<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>
<code>url</code>	<p>The URL to the LDAP server. <code><ldap ldaps>://<fullyQualifiedHost>:[Port]</code></p> <p>You can use <code>ldaps</code> in case you want and can connect to your LDAP server using the SSL protocol (LDAP over SSL), otherwise use <code>ldap</code>.</p> <p>The port is optional, if omitted the default port 389 for <code>ldap</code> and 636 for <code>ldaps</code> will be used.</p>
<code>principal</code>	<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 <code>username@domain.com</code>) 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>
<code>password</code>	
<code>connectionTimeoutInMs</code>	<p>Connection timeout between Product 360 Server and LDAP server. Value in milliseconds. Default is <code>10000</code>.</p>
UserConfig	


<code>objectClass</code>	the class of the object which represent the users in this directory
<code>accountNameFilter</code>	filter definition to search for the user based on its user name
<code>sidFilter</code>	filter definition to find an user based on his unique SID
<code>name</code>	the property of the LDAP user class which represents the username
<code>sid</code>	the property of the LDAP user class which represents his unique id
<code>groups</code>	the property of the LDAP user class which contains his group memberships
<code>firstName</code>	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
<code>lastName</code>	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
<code>email</code>	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	
<code>objectClass</code>	the class of the object which represents the user groups in this directory

<code>objectFilter</code>	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
<code>searchBase</code>	(optional) Root node for <code>objectFilter</code> to filter user groups. Default is DC values build out of the domain (like DC=domain,DC=com).
<code>name</code>	the property of the LDAP user group class which represents the groups name
<code>sid</code>	the property of the LDAP user group class which represents it's unique id
<code>refreshIntervalInMin</code>	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 \(see page 78\)](#). 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 \(see page 92\)](#) for details.

3.2.5 Windows Desktop Client SSO (Simple SSO)

This type of SSO uses windows user and windows client machine information in order to perform an SSO for Desktop Clients.

There is no need for the user to provide a password at any point during that process, not even to an external system.

Simple SSO is available for P360 Servers running on Windows and Linux.

Since the information used during this kind of SSO depends on OS, machine and user setup, it is advised for the customer to have a setup that includes as much detailed information for users and machines as possible in order to have a robust Windows SSO mechanism in place.

E.g. providing Fully Qualified Domain Name (FQDN) for user's and client machine domain. In order to retrieve client machine domain information that machine must be domain attached (customer IT has to set that up).

Simple SSO can be activated or deactivated in the `plugin_customization.ini`. Simple SSO is active per default.

plugin_customization.ini

```
# If set to true the simple SSO is activated.
# Simple SSO also works on Linux. TCPS communication
# between client and server is required for this.
# Default is true.
com.heiler.ppm.security.server/login.sso.simpleSSO = true
```

In addition it is required to enable secure communication between P360 Desktop Client and P360 Server. The secure communication gets enabled in the `ServerConnection.xml` of the P360 Desktop Client and in P360 Server's `NetworkConfig.xml`.

It is required to have the Fully Qualified Domain Name (FQDN) given on server and client machines. Desired FQDN would be for example `myDomain.com` instead of only `myDomain`.



Windows Desktop Client SSO should only be considered if an external authentication method like SAML is not available. SAML is the first choice for SSO for Desktop Client SSO. It provides a higher level of security and offers convenient functions like automated user creation in P360. It is also a well-known industry standard - and makes the customer independent of the aforementioned user and machine setup dependencies.

3.2.5.1 Domain Validations

It is required to have the Fully Qualified Domain Name (FQDN) given on server and client machines. A desired FQDN would be for example `myDomain.com` instead of only `myDomain`.

In order to retrieve client machine domain information that machine must be domain attached. This has to be setup by the customer's IT.

The domain of the client machine will be checked against the domain of the server machine: they need to be the exact same domain or the client machine's domain is a sub domain of the server's domain. If that check is not passed, no Windows Desktop Client SSO is possible. In that case, SAML SSO is still tried if configured and activated.

User domain allowlisting

To provide customers more flexibility for their infrastructure and domain setup, an allowlist preference has been introduced.

To use allowlisting, the preference `com.heiler.ppm.security.server/login.sso.userDomain.whitelist` has to be defined with a semicolon separated list of allowed domains.

The preference is optional and per default the allowlist is empty - no allowlist logic is used in that case.

The listed domains may be completely arbitrary and different top level domains are also valid; it is also not necessary to provide top level domains in addition to a sub domain.

The user's domain may not deliver a FQDN, therefor it is also valid to use a non-FQDN, e.g. CUSTOMERDOMAIN.

During SSO login, the provided user's domain will simply be checked if it is contained in the allowlist. If it is not contained, no Windows Desktop Client SSO will be performed. In that case, SAML SSO is still tried if configured and activated.

Preference example in the `plugin_customization.ini`.

```
# Whitelist of allowed domain of user to connect for SSO. Separated via semicolon.
# If empty, the client machine's domain has to be the same like the server machine's
domain or has to be a subdomain of the server machine's domain.
com.heiler.ppm.security.server/login.sso.userDomain.whitelist =
customerdomain.com;CUSTOMERDOMAIN;sub.customerdomain.com;sub.anotherdomain.com;
```

Additional user domain validations

As a last step of the SSO login, the user's domain will be checked with the 'Domain realm' of the found persisted user in P360. See the 'Domain realm' field in the user management perspective of that user. In case LDAP is used and during the login process the user can be found in the directories, the LDAP domain of that found user will be used for comparison.

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.	

<div>default-role</div> <div>  mandatory attribute </div>	Default role(s) each server node must have at start time. Available roles are CLIENTS_SERVER , JOB_SERVER , MQ_CONSUMER_SERVER , PRIORITY_JOB_SERVER . The server roles can not be modified during runtime of the server.	CLIENTS_SERVER . JOB_SERVER , MQ_CONSUMER_SERVER , PRIORITY_JOB_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>	


<code>domain</code>	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.	
<code>path</code>	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.	
<code>comment</code>	<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 <code>1</code>.</p>	
<code>httpOnly</code>	<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 HttpOnly by adding the HttpOnly 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>	
<code>secure</code>	<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>	
<code>maxAge</code>	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.	

node/web/threadPool	Thread pool relevant settings for web. Since 8.0.03.01	
maxThreads	Maximum number of threads in pool that can be created (optional setting). Replaces the http.maxThreads setting in server.properties.	512
maxIdleThreadTime	Maximum idle time in milliseconds for threads in pool (optional setting). Replaces the http.maxIdleThreadTime in server.properties.	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	
defaultRequestTimeout	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 (= <code>true</code>) 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 <code>maxQueueSize</code> together with this parameter. For more details concerning scheduling algorithm consult <code>Java SDK ThreadPoolExecutor</code>	100
maxThreads	The maximum number of threads that are processing request/events. This is a hard limit (in comparison with <code>maxCoreThreads</code>). 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 <code>maxCoreThreads</code> . This value protects from the situations when average number of required threads is higher than <code>maxCoreThreads</code> and scheduling strategy is constantly recreating threads, because it tries to reduce number of threads down to <code>maxCoreThreads</code>	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.	false
node/service	Settings for the Service of the Application Server	
identifier	Short identifier of the service	PIM_8.0
name	Name of the service	Informatica PIM_8.0
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	55555
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	<p>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.</p> <p>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>.</p> <p>Alternatively you can define an absolute path.</p>	
password	<p>The password for the keystore</p> <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>

3.5.3 SSL detail configuration

Product 360 offers and uses encrypted connection like HTTPS for web interface and Service API but also to establishes a secure connection to the used database.

The server side details of the SSL configuration are driven by Java's

<PIM_ROOT>\jre\lib\security\java.security file.

This means, by default all algorithms which are enabled by Java are enabled on the Product 360 server as well and can be used for HTTPS or other encrypted connections. The available algorithms are getting updated with the Java runtime and change over time.

It is possible to enable or disable certain algorithms if needed.

For SSL connections the values of the settings starting with `jdk.tls` are used. The following example disabled the algorithm `TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256` for encrypted connections.

java.security

```
# Example:
#   jdk.tls.disabledAlgorithms=MD5, SSLv3, DSA, RSA keySize < 2048
jdk.tls.disabledAlgorithms=SSLv3, TLSv1, TLSv1.1, RC4, DES, MD5withRSA,
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256, \
    DH keySize < 1024, EC keySize < 224, 3DES_EDE_CBC, anon, NULL, \
    include jdk.disabled.namedCurves
```

Please keep in mind that server and client that communicate via an encrypted connection need to find a usable algorithm they have in common. Disabling algorithms on the Product 360 server side can cause connection issues.

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)
```



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 address 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.



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.



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.



Sometimes a customer wants to update from the 2PPD to the 3PPD mode. This is possible but there is no supported out of the box migration path for this scenario.

Keep in mind that 2PPD data is invalid data in a 3PPD scenario. This relates to the references between products and items. In 2PPD the reference from an item to its superordinate product is stored in the subentity ProductReference, whereas in 3PPD mode, this subentity is deactivated and the reference to the superordinate variant is stored in the subentity VariantReference. However, there is some functionality where the old datasets interfere and lead to exceptions, therefore the old references have to be deleted from the database.

The same applies for a change from 3PPD to 2PPD mode. In this case old references of items (datasets of subentity VariantReference) and variants (datasets of subentity SuperordinateProductReference) have to be deleted.

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.

3.8.5 Richtext Fields

3.8.5.1 Security settings

The setting `com.heiler.ppm.richtext.server/richtext-html-cleaner` is introduced in `plugin_customization.ini`. If set to `true`, all rich text fields will be cleared of HTML tags or attributes not mentioned in the allowlist. This has been introduced to allow you to setup a granular security definition for such values. Default value is `true`.

plugin_customization.ini

```
com.heiler.ppm.richtext.server/richtext-html-cleaner = true
```

The adjustments is based on a allowlist:

Allowed HTML tags:

a, b, blockquote, br, caption, cite, code, col, colgroup, dd, div, dl, dt, em, figure, h1, h2, h3, h4, h5, h6, i, img, li, mark, ol, p, pre, q, small, span, strike, strong, sub, sup, table, tbody, td, tfoot, th, thead, tr, u, ul

Allowed HTML attributes:

- for all HTML tags: class, id, role, aria-label, contenteditable, tabindex
- a: href, title
- blockquote: cite
- col: span, width
- colgroup: span, width
- img: align, alt, height, src, title, width
- ol: start, type
- q: cite
- table: summary, width, cellpadding, cellspacing, border
- td: abbr, axis, colspan, height, rowspan, width, valign
- th: abbr, axis, colspan, rowspan, scope, width
- ul: type

Example

Here is some richtext with <i>html</i> code .png> will be adjusted to → Here is some richtext with <i>html</i> code .png

3.8.5.2 Ignore HTML tags in rich text editor

The `src` attribute of `` HTML tags could potentially point to a vulnerable or improper URL. With this release we allow to explicitly configure that any `` tag inside the rich text editor should be ignored via the following setting in `plugin_customization.ini`.

plugin_customization.ini

```
# If set to false, img tags are not allowed in rich text fields.
# IMG html tags can contains src-attributes which can be vulnerable or can contains
improper urls.
# Default is true.
com.heiler.ppm.richtext.server/enable-img-html-tag = true
```

3.8.5.3 Security settings for Mail Templates

The setting `com.heiler.ppm.mailtemplate.core/mail-template-cleaner` is introduced in `plugin_customization.ini`. If set to `true`, all mail templates will be cleared of HTML tags or attributes not mentioned in the allowlist. Additionally no javascript code will be allowed. This has been introduced to allow you to setup a granular security definition for such values. Default value is `true`.

plugin_customization.ini

```
com.heiler.ppm.mailtemplate.core/mail-template-cleaner = true
```

The adjustments is based on a allowlist:

Allowed HTML tags:

a, b, blockquote, br, caption, cite, code, col, colgroup, dd, div, dl, dt, em, figure, font, h1, h2, h3, h4, h5, h6, i, img, li, mark, ol, p, pre, q, small, span, strike, strong, sub, sup, table, tbody, td, tfoot, th, thead, tr, u, ul

Allowed HTML attributes:

- for all HTML tags: align, aria-label, class, id, role, style, tabindex
- a: href, title
- blockquote: cite
- col: span, width
- colgroup: span, width
- img: align, alt, height, src, title, width
- ol: start, type
- q: cite
- table: summary, width, cellpadding, cellspacing, border
- td: abbr, axis, colspan, height, rowspan, width, valign
- th: abbr, axis, colspan, rowspan, scope, width

- ul: type

3.8.6 MIME type Filter for Media Upload

The setting `com.heiler.ppm.web.common/media.filter.accepted.mime.types` is introduced in `plugin_customization.ini`. If it set to `*`, it will allow all the MIME Types for upload. If it is **List of MIME Types separated by comma**, it will allow only the mentioned MIME Types for upload. Default value is `*`.

A list of valid mime types can be found here: <http://www.iana.org/assignments/media-types/media-types.xhtml>

plugin_customization.ini

```
# -----
# MIME Type Preferences
# -----
# Specifies Allowed MIME Type during Media Upload
# Allowed Values : 1) * (Accept all MIME Types)
#                  2) List of MIME Types separated by comma
# Default value : *
#com.heiler.ppm.web.common/media.filter.accepted.mime.types=application/xml, text/
#csv, text/plain, 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
```

3.8.7 Automated Archival for Audit Enabled Entities

Elastic Search maintains audittrail data. However the audit data gets deleted as per the time configured in the lifecycle policies, threatening the deletion of important historical data. To cope with this a new job - "Audit trail backup" has been contributed for. The job would not be enabled by default. The user can choose to enable the automated job, by setting the property `auditTrail.backup.enableAuditBackupJob=true`. Please note that it is MANDATORY to specify the folder location for archive file creation. Please refer to the following configuration in context to the `plugin_customization.in` file, necessary for the job to run. Once the scheduled job is initiated, the overview of the back up job's details can be seen from the rich client in process overview perspective.

plugin_customization.ini

```
# -----
# Audit Trail Backup Job Preferences
# -----
# AuditTrail Backup Settings
# Specifies to enable or disable AuditTrail Backup
# Allowed Values: true,false
```

```

# Default Value : false
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.enableAuditBackupJob=false

# Specifies the date from which the data has to be archived, when the job runs first
time.
# In subsequent execution, the from date would be calculated from lastSuccessDate in
timestamp
# file. Value to be entered in YYYY-MM-DD format only
# NOTE: Data will backed up from (1989-12-31 + 1 day) i.e 1990-01-01
# Default value : 1989-12-31
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.jobStartDateFirstExec=1989-1
2-31

# Specifies the days of gap from current date, till which the data would be backed up
# starting from auditTrail.backup.jobStartDateFirstExec in case of first job run or
from lastSuccessDate
# for subsequent job runs.
# The data backup window is -
# |From|-----|To|
# auditTrail.backup.jobStartDateFirstExec----- (JobRunDate -
auditTrail.backup.archiveDataTillDaysBefore) -> for first job run
# LastSuccessDate----- (JobRunDate -
auditTrail.backup.archiveDataTillDaysBefore) -> for every other job run
# Currently, the default value for this property is 7 days. The job backs up data
till one week before
# current date
# Allowed Values : Any positive integer
# Default value : 7
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.archiveDataTillDaysBefore=7

# Specifies the location for file/folder creation e.g. for windows machine, this path
could
# look like C:/es-backup where es-backup is the folder that will get created(only
during first successful
# job run). In subsequent runs, the folder is not recreated, only contents modified.
In case the first
# job run is unsuccessful, the folder will not be created.
# Allowed Values : Folder Path
# Default value : null (Mandatory to provide Folder Path, if not mentioned Backup
job will fail)
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.rootFolder=

# Specifies the start time for the job for the day
# Allowed Values : CRON Expression must be mentioned in 24HRS Format
# Sample cron expression to run the job weekly(Monday, 19:00 hrs): 0 0 19 ? * MON
# Default value : 0 0 19 * * ? (Start at 19:00 hrs(7:00 PM))
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.scheduleInterval=0 0 19 *
* ?

# Specifies the max file size (in MB)
# Allowed Values : File Size must be mentioned in MB
# Default value : 100

```

```
# com.heiler.ppm.persistence.dr.server/auditTrail.backup.fileChunkSize=100
```

100

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 14) 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'Rumänisc
h');
```

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

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:Dictionaries

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 321).

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

Parameter	Description	Default value
<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
<code>thumbnailFiletype</code>	File type of thumbnails. Possible values are "jpg" and "png".	jpg
<code>dpi</code>	Resolution of thumbnails.	50
<code>systemDirName</code>	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


Parameter	Description	Default value
<code>blacklistExtensions</code>	Comma separated list of file extensions which should not be supported by classic provider.	chm,db,doc,docx,eps,exe,html,html,jar,log,pdf,ps,rar,txt,xls,xlsx,zip
<code>numberOfThread.initValue</code>	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
<code>com.heiler.graphicsmagick/gm.execute.timeoutMSec</code>	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:14
3)
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.

3.14 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
<code>serviceBindDN</code>	(optional) Used to authenticate the management user. Overwrite <code><principal></code>

<code>domainComponentIdentifier</code>	(optional) Used to identify domain tokens. Default is 'DC'
UserConfig	
<code>accountBindDN</code>	(optional) Used to authenticate user. {userName} will be replaced with entered user name. {domainName} will be replaced with attribute <code>domain</code> value of directory. Default is authentication by principal name.
<code>accountNameFilterBaseDN</code>	(optional) Root node for <code>accountNameFilter</code> 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

LDAP configuration		Additional comments
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

Action		LDAP field
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 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 users execute on the system, manual ones, or automatic ones.

This page should give some simple overview over the most important caches we use and how to configure them.

3.15.1 Proxy Cache

The `EntityProxyCache` is responsible to resolve any entity item by it's external identifier. Additionally to that, it also holds the current Object Permission ID (aka AclID) and the last modified timestamp for each object. With this it is also used within the Status Cache and every time a list of objects is filtered for their permission.

There are various use cases in which this cache plays an important role. Every time customers provide an identifier to read or update or create a new object in Product 360 the identifier first needs to be resolved. The internal id of the object need to be found so the system knows if this is a creation or an update. Crucial for import, Service API and other use cases. Even manual creation of an item uses this cache to check if the item already exists or not.

This resolve process, if executed without a cache, would lead to a database query for each call. Putting high load on the database layer.

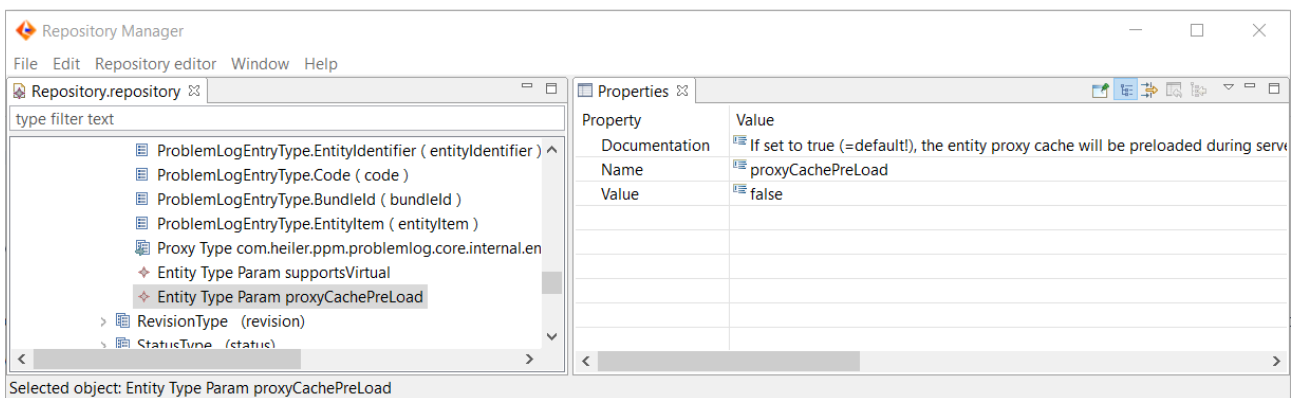
As this cache is so important, it's implementation is optimized and the data is kept fully in memory. During server startup the cache will be pre loaded with all objects. This way, the cache knows if an item is in the system or not and a database query for new items can be avoided.

3.15.1.1 Available Settings

Customers should not modify these settings unless being told so by the Informatica Support.

Disable Pre-Load

The pre load of the proxy cache can be disabled for specific entity types by using an entity type param in the repository.



The proxy cache is of course still active for these entity types, it's just not pre loaded during startup.

Enable database as final source

There is a preference for the proxy cache which will enable the database as final source of truth for the proxy cache. If `resultIsNeverFinal` is set to true, the cache will check the database if an item is really not there. This will slow down performance in item creation scenarios!

```
# If set to true the proxy cache will never return his results as "final", even if
  all data has been preloaded
# during startup. See also HPM-53444. This should only be activated after
  consultation with R&D as it slows down
# the system in case of new items
com.heiler.ppm.std.server/entity-proxy-cache.resultIsNeverFinal = false
```

In past releases the synchronization between servers of a multi-server deployment had an event buffer delay of about 5 seconds.

This has been resolved and the delay between the servers is now typically below 5 milliseconds, depending on the network infrastructure of course.

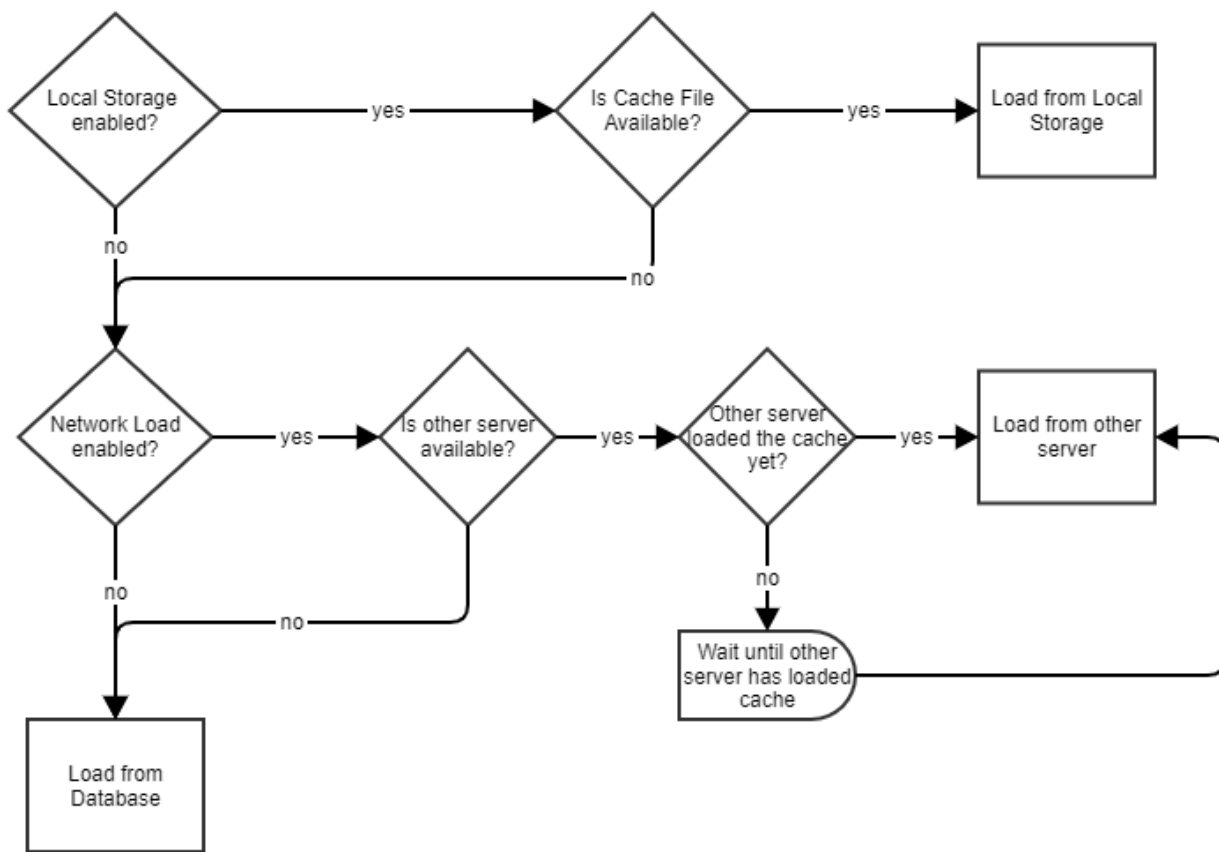
`ResultIsNeverFinal` should not be enabled unless being told so by the Informatica Support.

3.15.2 Status Cache

The status cache holds all data quality results for all objects in a optimized and compressed form in memory. It is able to filter a list of items based on data quality results in a matter of seconds without additional database queries. It also calculates the channel specific data quality status by combining the results of the rules on the fly. The status cache is fundamentally needed for data quality dashboards, filters and queries.

During startup the cache is fully initialized from the database. Starting with version 10.1.0.02 we optimized the startup behavior drastically and enabled intelligent strategies to use already running servers or the servers local hard disk to improve the startup performance.

A fallback mechanism always makes sure that the status cache is loaded in the fastest way possible:



3.15.2.1 Load from local storage

In case a server is orderly shut down, it will also store the status cache on the local disk to improve the startup time for the next startup. A corresponding check file will be saved to recognize if the server has been orderly shut down. The shutdown of the server takes a few minutes extra time to persist the cache locally. This depends on the size of the cache of course.

```

# Allows the status cache initialization from local storage.
# Default: true
com.heiler.ppm.status.server/statusCache.localStorageEnabled = true

# The local file path of the status cache snapshot
# Default: empty (using workspace)
com.heiler.ppm.status.server/statusCache.localStoragePath =

# The maximum amount of parallel threads to read the status cache from the local
# storage.
# This process is I/O bound, i.e. increasing parallel degree could lead to worse
# performance.
# In case there are less CPU cores available, all CPU cores except one will be
# utilized.
# Default: 4

```

```
com.heiler.ppm.status.server/statusCache.localStorageParallelDegree = 4
```

3.15.2.2 Load over network

In multi-server scenarios cache is loaded from already running servers. So, in a multi-server scenario, all but the first server will load the cache from another server. This improves the startup time even further and reduces the overall load on the database during cluster startup (as only one server needs to access the persisted data there). This is especially useful in deployment scenarios in which the IOPS of the database is limited.

```
# Allows the status cache initialization over network.
# Default: true
com.heiler.ppm.status.server/statusCache.networkEnabled = true

# The amount of status cache elements contained in every network request.
# Default: 500000
com.heiler.ppm.status.server/statusCache.networkBatchSize = 500000

# The maximum amount of parallel threads to transfer the status cache over the
# network.
# While there can be only one active socket at a time, the other threads will be
# preparing their payload.
# In case there are less CPU cores available, all CPU cores except one will be
# utilized.
# Default: 4
com.heiler.ppm.status.server/statusCache.networkParallelDegree = 4
```

3.15.2.3 Load from database

The status cache initialization will use multiple threads to load the data quality results from the database

Preferences to control the database load:

```
# Status cache initialization will utilize multiple threads once the threshold has
# been reached.
# Default: 200000
com.heiler.ppm.status.server/statusCache.parallelTreshold = 200000

# The maximum amount of concurrent threads to query the database.
# Default: empty (using "number of DB CPU cores" configured in server.properties)
com.heiler.ppm.status.server/statusCache.parallelDegree =
```

3.15.3 Persistence Cache

The persistence cache, aka data graph cache, is a lazy loaded cache based on the caffeine cache framework. Every time the data (aka the detail model) of an object is read, the persistence cache is used. If the object is

in the cache, it's returned from there. In case the object is modified, the object is removed from the cache. The next read request will put it back in.

With the introduction of the Service API's ObjectAPI this cache becomes even more important. As the ObjectAPI uses our detailed model to obtain all data for a single entity item, the data access for this is also done via the persistence cache. Integration scenarios which make excessive use of the object api might very well profit from an increase in available memory for this cache. Customers could also deploy a separate server which e.g. is primarily for REST and MQ processing and give this server a higher part of the heap to improve the caching.

If that really improves the performance can only be known when the cache utilization is monitored.

3.15.3.1 Configuration

The cache can be configured with the `CacheConfig.xml` file. By default, the file contains two cache configurations. A global one which is used for all entity types, and a specific one for `JobHistoryType` and `ProblemLogEntryType`. These entity types are specially used and it makes not much sense to keep them as long in memory as other entity types.

The global cache is used for all other entity types, like `ArticleType` (Item, Product, Variant) but also `StructureTypes` and `UserTypes` etc.

The persistence cache is not configured with a "maximum number of objects" but with a specific amount of memory it is allowed to use. The data in the cache is stored as compressed byte arrays which allows us to keep a larger number of objects in the cache with a reduced memory footprint. The `maxWeight` parameter defines the available memory for the cache in mega byte, or percentage of the heap. The global cache is configured to use 20% of the available heap where the other cache is configured to use a maximum of 128 MB.

```
<!-- Global Cache for all EntityTypes -->
<cacheConfig>
  <cacheName>persistenceManagerCache.global</cacheName>
  <entityTypes></entityTypes>
  <isGlobal>true</isGlobal>
  <isEternal>false</isEternal>
  <initialSize>1000000</initialSize>
  <maxElements>-1</maxElements>
  <maxWeight>20%</maxWeight>
  <timeToIdleSeconds>3600</timeToIdleSeconds>
  <timeToLiveSeconds>3600</timeToLiveSeconds>
</cacheConfig>

<!-- JobHistoryType, ProblemLogEntryType -->
<cacheConfig>
  <cacheName>persistenceManagerCache.job</cacheName>
  <entityTypes>JobHistoryType,ProblemLogEntryType</entityTypes>
  <isGlobal>false</isGlobal>
  <isEternal>false</isEternal>
  <initialSize>10000</initialSize>
  <maxElements>-1</maxElements>
```

```
<maxWeight>128</maxWeight>
<timeToIdleSeconds>300</timeToIdleSeconds>
<timeToLiveSeconds>300</timeToLiveSeconds>
</cacheConfig>
```

Element	Description
cacheName	The unique name of the cache. Used to prefix all metrics of this cache instance
entityTypes	Comma seperated list of entity types this cache is responsible for. Can only be empty when isGlobal is true (and there can only be one global cache!)
isGlobal	True in case this cache configuration is global, false if not. There can only be one cache which is defined as global
isEternal	True in case the entries in the cache should not be removed in a timely manner. timeToldle and timeToLive will be ignored in this case
initialSize	Sets the minimum total size for the internal data structures of the cache. Providing a large enough estimate avoids the need for expensive resizing operations later, but setting this value unnecessarily high wastes memory. If maxElements is given, the smaller one of both is used.
maxElements	Maximum number of elements in the cache. If -1 is used, there is no maximum number of objects. The cache is then unlimited (or limited by the weight!)
maxWeight	The maximum amount of memory the cache can use. If zero or below, no maximum is defined. The memory can be provided as percentage of the configured maximum heap (e.g. 20% = 20% of the Xmx parameter) or as absolute amount in mega byte (e.g. 128 = 128 MB of heap memory).

Element	Description
<code>timeToIdleSeconds</code>	Specifies that each entry should be automatically removed from the cache once a fixed duration has elapsed after the entry's creation, the most recent replacement of its value, or its last read. (In seconds)
<code>timeToLiveSeconds</code>	Specifies that each entry should be automatically removed from the cache once a fixed duration has elapsed after the entry's creation, or the most recent replacement of its value. (In seconds)

3.15.3.2 Monitoring

The persistence cache is fully integrated in the Micrometer framework and valuable metrics are available.

3.15.4 Other Caches (EH-Cache based)

3.15.4.1 EH-Cache Configuration

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.

Mandatory Attributes	Description
<code>name</code>	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!
<code>maxElementsInMemory</code>	Sets the maximum number of objects that will be created in memory
<code>maxElementsOnDisk</code>	Sets the maximum number of objects that will be maintained in the DiskStore. The default value is zero, meaning unlimited.
<code>eternal</code>	Sets whether elements are eternal. If eternal, timeouts are ignored and the element is never expired.

<code>overflowToDisk</code>	Sets whether elements can overflow to disk when the memory store has reached the <code>maxInMemory</code> limit.
Optional Attributes	Description
<code>timeToIdleSeconds</code>	<p>Sets the time to idle for an element before it expires. i.e. The maximum amount of time between accesses before an element expires</p> <p>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.</p>
<code>timeToLiveSeconds</code>	<p>Sets the time to live for an element before it expires. i.e. The maximum time between creation time and when an element expires.</p> <p>Is only used if the element is not eternal. Optional attribute. A value of 0 means that an Element can live for infinity. The default value is 0.</p>
<code>diskPersistent</code>	Whether the disk store persists between restarts of the Virtual Machine. The default value is false.
<code>diskExpiryThreadIntervalSeconds</code>	The number of seconds between runs of the disk expiry thread. The default value is 120 seconds.
<code>diskSpoolBufferSizeMB</code>	<p>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.</p> <p>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.</p>
<code>clearOnFlush</code>	Whether the MemoryStore should be cleared when <code>flush()</code> 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)

3.15.4.2 Monitoring

EH-Cache can be monitored with JMX

Name	Value
AssociatedCacheName	
CacheHits	0
CacheMisses	0
DiskStoreObjectCount	0
InMemoryHits	0
MemoryStoreObjectCount	0
ObjectCount	0
OnDiskHits	0
StatisticsAccuracy	1
StatisticsAccuracyDescription	Best Effort

The `MemoryStoreObjectCount` is very important here, especially in combination with the `CacheHits` and `CacheMisses`.

In case there are just a few `CacheHits` and a lot `CacheMisses` the cache is not very useful all.

In case of the List Model Cache this tends to be a hint for a wrong usage of the Service API V1 (in which the caching is enabled by default).

In case the object count is at it's limit and the hit rate is high, the cache is very effective - but could also profit from a higher `maxObjectsInMemory` setting.

EH Cache tends to block on cache operations in case the cache has reached it's maximum, this leads to a throughput degeneration.

3.15.4.3 List Model Cache

The List Model Cache is only used in the Service API's ListAPI of Product 360 - specifically for the purpose of "paging" in larger list models.

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, if not it 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. Be careful with this cache, it can easily bind quite a lot of memory.

```
<!-- 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"
/>
```

3.15.4.4 Dashboard Cache

For details on this cache see [Data caching for dashboard components \(see page 294\)](#)

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 \(see page 93\)](#)
 - [Roles \(see page 93\)](#)
 - [Single Sign On flow \(see page 93\)](#)

- [Product 360 SAML support](#) (see page 94)
- [Preparation steps](#) (see page 94)
 - [Certificate keystores](#) (see page 94)
 - [Enabling HTTPS](#) (see page 96)
- [Configuring SAML for Product 360](#) (see page 97)
 - [Adding SAML relevant configuration files \(SamlConfig.xml and IdP metadata\)](#) (see page 97)
 - [Service Provider Metadata](#) (see page 104)
 - [Identity Provider Metadata](#) (see page 104)
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 - [Usage of SAML with Product 360 multi-server and load balancer](#) (see page 108)
 - [Automatic User creation on successful authentication](#) (see page 111)
 - [Internal Users](#) (see page 112)
- [Logging](#) (see page 112)

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



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	-	<p>An entity ID is a globally unique name for a SAML entity, either an Identity Provider (IdP) or a Service Provider (SP).</p> <p>The entityId defined will be used for communication between IdP and Sp.</p>
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>  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). </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>  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). </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 AuthReqeust 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+gAwIBAgIEFuHJDDANBgkqhkiG9w0BAQsFADBkMQ
swCQYDVQQGEwJE
RTEQMA4GA1UECBMR2VybwFueTENMA5GA1UEBxMEU3RndDERMA8GA1UEChMIV2lu
ZG93czcxDTALBgNVBAsTBFBPSU0xEjAQBgNVBAMTCWxvY2FsaG9zdDAeFw0xNTEw

```

```
MDIxMjA2NDFaFw0xNjA5MjYxMjA2NDFaMGQxCzAJBgNVBAYTAkRFRmRAwDgYDVQQI
...
    </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 come 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 \(see page 131\)](#)), 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

Directive	Explanation
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 **SamIConfig.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 **SamIConfig.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 SamIConfig.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>
  ...
</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".
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 \(see page 78\)](#) 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>
```

3.17 Server Job Type Overview

This page provides an overview of the available job server types and their identifiers. Some settings require the job type identifier, for example the job history cleanup or the priority jobs.

Group	Identifier	Name	Description	Default History Lifetime (days)
Export	AiTrainingSingleExport	AI Trainings (one-off)		0
Export	AiTrainingRepeatedExport	AI Trainings (repeated)		0
Export	SupplierExchangeExport	Export operations (Supplier Portal)	Shows all Supplier Portal export operations in the system	5
Export	SingleExport	Export operations (one-off)	Shows all individual export operations in the system	0
Export	ExportSeries	Export operations (repeated)	Shows all export series in the system	0
Export	TestExport	Test export operations	Shows all test export operations in the system	0
Export	ExportDryRun	Quality check	Shows all quality checks in the system	30
Export	FullTextSearchSingleExport	Full-text search (one-off)	Shows all individual export operations for synchronizing full-text search indexes	0
Export	FullTextSearchExportSeries	Full-text search (repeated)	Shows all export series for synchronizing full-text search indexes	0

Group	Identifier	Name	Description	Default History Lifetime (days)
Characteristics	CloneArticleCharacteristicRecords	Clone characteristic values	Clones characteristic values from a single object to one or multiple other objects	10
DataMaintenanceGroup	FeatureAttributeMatch	Feature attribute match	Shows all completed and running feature attribute matches	0
DataMaintenanceGroup	FindReplace	Find and Replace		2
DataMaintenanceGroup	FindReplaceSetValue	Set		2
DataMaintenanceGroup	MigrateStructures	Migrate structures	Shows all structure migration processes	
DataMaintenanceGroup	com.heiler.ppm.revision.jobType	Versioning	Shows all completed and running release processes	10

Group	Identifier	Name	Description	Default History Lifetime (days)
Data Maintenance Group	SpellCheckService	Spellcheck	Shows all spellcheck processes	0
GDSN	CreateConfirmationStatusJob	Create confirmation status		1
BPM	BPMSeries			
Data Quality Group	SingleDataQuality	Data quality check (manual)		0
Data Quality Group	DataQualitySeries	Data quality check (scheduled)		0
Data Quality Group	DictionarySynchronization	Dictionary synchronization (manual)	Shows all manually started synchronization operations for dictionaries	0
Data Quality Group	ReferenceDataDeployment	Deployment of reference data (scheduled)	Shows all scheduled deployment operations for reference data	0
Data Quality Group	CleanUpDataQualityStatusEntries	Status entries cleanup (scheduled)	Shows all scheduled cleanup operations for data quality status entries	0

Group	Identifier	Name	Description	Default History Lifetime (days)
ECCnet	ECCnetUnsubscribe	Unsubscribe		0
ECCnet	ECCnetSubscribe	Subscribe (selected items)		0
ECCnet	ECCnetSubscribeCompleteSearchResult	Subscribe (complete search result)		0
ECCnet	ECCnetUpdateItemsInCatalogJob	Update data (scheduled)		0
ECCnet	ECCnetUpdateItemsAllCatalogJob	Update data all catalogs (scheduled)		0
ECCnet	ECCnetUpdateDataManually	Update data (manual)		0
Environment Transfer	ExtractEnvironment	Extract environment	Environmental extraction jobs	5

Group	Identifier	Name	Description	Default History Lifetime (days)
Environment Transfer	IntegrateEnvironment	Integrate environment	Environmental integration jobs	5
Import	Inbox	Hotfolder data processing		0
Import	Import	Import operations (manual)	Shows all import operations scheduled manually by user	0
Import	InboxImport	Import operations (hotfolder)	Shows all import operations scheduled by the hotfolder	0
KPI	CalculateKPIValues_SystemJob	Calculate KPI values (scheduled)	Shows all scheduled KPI value calculations	0
KPI	CalculateKPIValues_SingleJob	Calculate KPI values (manual)	Shows all manually started KPI value calculations	0
Media	create.thumbnail	Thumbnail generation	Shows all thumbnail generation operations in the system	3
Media	update.version	Updating image versions	Shows all image version update processes in the system	0

Group	Identifier	Name	Description	Default History Lifetime (days)
Media	NewMediaAssetDerivativeSchema	New derivative schema	Inserts a new derivative schema	0
Media	UpdateModifiedAssetJob	Updating the modification date	Updating the modification date of the referenced data with the modified Media Asset.	3
Media	AssignDocumentJob	Media Manager document assignment	Assignment of the Media Manager document to a PIM object.	3
Media	DeleteDerivative	Remove media asset documents(derivatives)	Deletes media asset documents(derivatives) according to the deleted derivative of Media Manager	3
Merge	Merge	Merge operations	Shows all merge operations in the system	0
System	CleanUpReports	Remove obsolete query results	Removes historic query results marked as temporary at regular intervals	0
System	ManualCleanUpReports	Remove obsolete query results (manual)	Removes historic query results marked as temporary	30
System	CleanUpSoftdelete	Remove deleted objects	Physically deletes objects whose maximum time with the status "Logically deleted" has been exceeded	0

Group	Identifier	Name	Description	Default History Lifetime (days)
System	UpdateTasksJob	Update tasks	Updates all tasks in the system	0
System	CheckTaskEscalatedJob	Check for escalated tasks	Checks all tasks in the system to determine whether they have exceeded the escalation time or deadline and triggers the appropriate action by assigning the tasks to a different user.	0
System	UpdateRecentlyUsedTasksJob			0
System	com.heiler.ppm.usermanagement.ldapSynchronisation	LDAP Synchronization	Job which synchronizes all active and external users against the ldap directories	15
System	WebPreviewsCleanUp			0
System	AudittrailMigration	Audit trail migration		0
System	RefreshAttributeNamesCacheJob			0

Group	Identifier	Name	Description	Default History Lifetime (days)
System	MapArticlesToStructureGroupJob	Update item-structure group assignment		0
System	MapEGDsToStructureGroupJob	Update EGD-structure group assignment		0
System	CleanUpJobHistory	Remove obsolete processes	Removes historic process entries at regular intervals	0
System	CleanupMIMEValues	Attachment Files Cleanup	Deletes all unused attachment files (not media assets!)	0
System	MapArticlesToProductGroupJob	Product item feature transfer	Assigns the items for the product to the product structure group and transfers its features as item attributes.	0
System	CopyValueIntoStructureGroupsJob	Update structure group features		0

4 Desktop Client Configuration

- [OSGI Configuration Area](#) (see page 121)
- [Server Connection Configuration](#) (see page 121)
- [General Preferences](#) (see page 125)
 - [Load Balancing](#) (see page 126)

- Disable Load Balancing (see page 126)
 - Always open Server Selection Dialog (see page 126)
- Form settings (see page 126)
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- General (see page 127)
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- Query (see page 128)
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- Structure editor (see page 129)
 - Transfer feature of the parent group when creating structure groups (see page 129)
 - Update subgroups when features have been changed (see page 129)
 - Include objects and their attribute assignments when copying structures and structure groups (see page 130)
- Table settings (see page 130)
 - Max. number of rows (see page 130)
 - Max. number of grouping nodes per level (see page 130)
 - Group date/time fields by (see page 130)
 - Region specific sorting of texts (see page 131)
 - Case sensitive sorting (see page 131)
 - Execute "Find and Replace" on server side from (see page 131)



To be followed for Product 360 v.10.5.0.01.00 and above

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="1712" />
  <servers host="localhost" port="1712" connectTimeout="0" tcpNoDelay="true"
    keepAlive="true"/>
  <servers host="localhost" port="1713" 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.	
<code>defaultRequestTimeout</code>	Timeout in milliseconds for requests in communication framework	300000
<code>connectTimeout</code>	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
<code>tcpNoDelay</code>	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	

<code>keepAliveTime</code>	Time in milliseconds that the thread scheduling strategy will wait, before reducing number of idle threads down to <code>maxCoreThreads</code> . This value protects from the situations when average number of required threads is higher than <code>maxCoreThreads</code> and scheduling strategy is constantly recreating threads, because it tries to reduce number of threads down to <code>maxCoreThreads</code>	
<code>doPrestartAllCoreThreads</code>	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.	
initial-server	Connection settings to the initial application server	
<code>host</code>	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.	
<code>port</code>	The port of the Product 360 application on the host	<code>1712</code>
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: <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>.</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.



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.

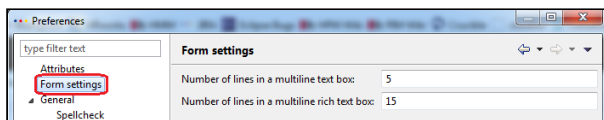
To disable the desktop client load balancing add the following line to the `plugin_customization.ini` of the **client**: `com.heiler.ppm.communication.ui/clientLoadBalancingEnabled = false`

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).

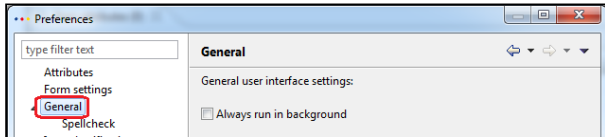
The preference key for the `plugin_customization.ini`: **com.heiler.ppm.std.ui/form.rows.multiline** (the default value is **5**)

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

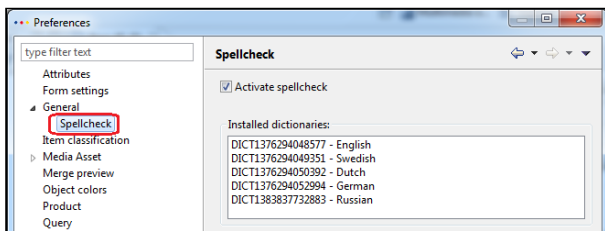


4.3.3.1 Always run in background

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

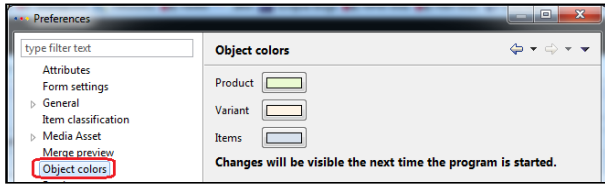
Determines if the spellchecking is enabled

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.

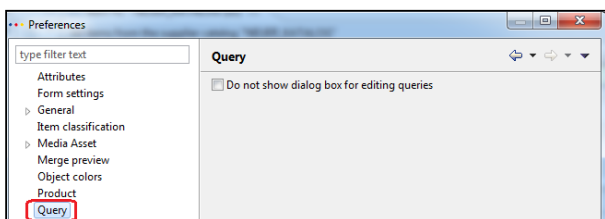
The preference key for the *plugin_customization.ini* (on the server!): **com.heiler.ppm.std.ui/header.background.color.Variant** (the default value is **255,244,229**)

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

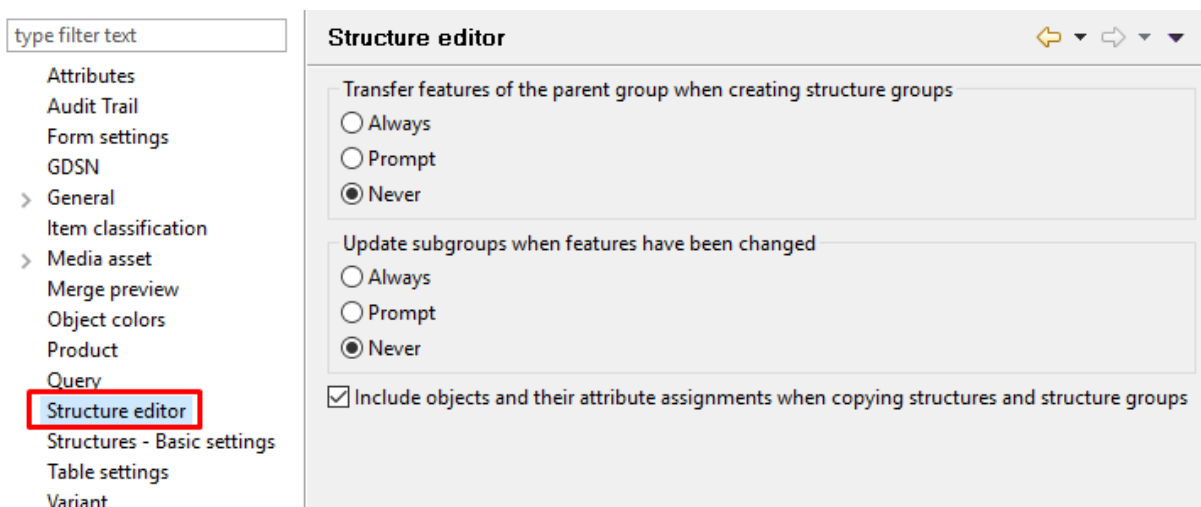


4.3.6.1 Do not show dialog box for editing queries

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

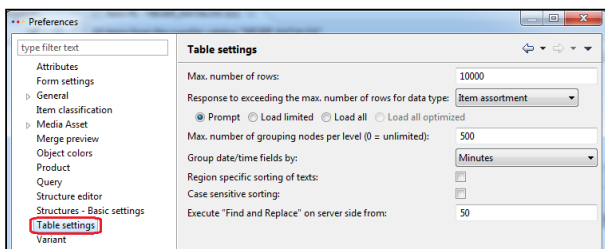
The preference key for the *plugin_customization.ini*: **com.heiler.ppm.structure.ui/feature_update** with the options

- 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 132)
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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	Allowed	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

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.

Grouping	Allowed	Name	Category	Type
1	<input checked="" type="checkbox"/>	Context visibility: Catalogs (PIM Web)	Context	PIM Web Context
2	<input checked="" type="checkbox"/>	Context visibility: Search (PIM Web)	Context	PIM Web Context
3	<input checked="" type="checkbox"/>	Context visibility: Context visibility: Entire Context selection area (PIM Web)	Context	PIM Web Context
4	<input checked="" type="checkbox"/>	Context visibility: Queries (PIM Web)	Context	PIM Web Context
5	<input checked="" type="checkbox"/>	Context visibility: Tasks (PIM Web)	Context	PIM Web Context
6	<input checked="" type="checkbox"/>	Context visibility: Multimedia attachments (PIM Web)	Context	PIM Web Context
7	<input checked="" type="checkbox"/>	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):</p> <p>28800</p>
<p>web.client.xframeoptions</p> <p>⚠ since 8.0.03.02</p>	<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>
<p>web.client.headers.response</p> <p>⚠ since 10.1.0.01</p>	<p>It is possible add http response headers to each http response send to the client. This applies for all http resources below <code>/pim</code> context.</p> <p>Use prefix <code>web.client.headers.response.</code> to add arbitrary number of http response header.</p> <p>The following sample adds the header <code>Strict-Transport-Security</code> with value <code>max-age=31536000;</code> <code>includeSubDomains</code> to each response.</p> <pre>web.client.headers.response.Strict-Transport-Security = max-age=31536000; includeSubDomains</pre> <p>Default: not specified</p>
<p>web.client.headers.response.Content-Security-Policy</p> <p>⚠ since 10.1.0.02</p>	<p>This is to apply the appropriate Content-Security-Policy header to the http response send to client.</p> <p>The default value is <code>*</code> as this property varies from one environment to other, this property can be changed to appropriate value based on the environment.</p> <p>To know how to change the value please refer to https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Content-Security-Policy.</p> <p>Default:</p> <p><code>*</code></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. 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. Recommended value between 200-1000 ms.</p> <p>Default:</p> <p>200</p>
web.client.clone.referencetype.Article web.client.clone.referencetype.Variant web.client.clone.referencetype.Product 2G	<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</p> <p>Default:</p> <p>""</p>


web.definition.dir	<p>Relative path to web definitions XML files, starting from configuration directory. By default points to configuration/server/webdefinitions</p> <p>It can be also configured with absolute path. If path doesn't start with /, it is considered as absolute.</p> <p>Default:</p> <p>/webdefinitions</p>
<p>web.client.default.fetch.size</p> <p> 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.</p> <p>Default:</p> <p>200</p>
Media Asset Configuration	
web.client.mediaasset.servlet.path	<p>Media asset bridge servlet (root path)..</p> <p>Default:</p> <p>/pim/mediaasset</p>
web.client.mediaasset.prefered.quality	<p>Preferred quality for thumbnails at mediaasset viewer.</p> <p>HLR Available values: web, lowres, highres [doc,htm,printxml,pdf, ...]</p> <p>Product 360 - Media Manager Available values: 1, originalimage.</p> <p>Please clarify available quality values from Product 360 - Media Manager system administrator</p> <p>Default</p> <p>web</p>


<p>web.client.mediaasset.usage.quality.filter</p>	<p>Quality for filter the usage list of a media asset file.</p> <p>Use '*' to show all qualities in the usage list. In addition it is required to have a web definition for the type of the assigned objects. E.g. for item it is mandatory to have a adjusted web definition having identifier</p> <p>'article.table.config.default' with rootEntity set to 'ArticleMediaAssetDocument'.</p> <p>It is also recommended to add the logical key field columns to the usage list as these columns are the differentiator for the visible entries.</p> <p>Default value is the content of</p> <p>web.client.mediaasset.prefered.quality, if property is not set or has an invalid value.</p>
<p>web.client.mediaasset.thumbnail.detail.panel.type</p>	<p>Detail form top image type from available mediaasset. Available values: normal, thumbnail, data_sheet, logo, others, unknown [, ...]</p> <p>Default</p> <p>normal</p>
<p>web.client.mediaasset.list.thumb.small</p>	<p>Documents list view thumbnails quality mapping for small images.</p> <p>Default:</p> <p>small</p>
<p>web.client.mediaasset.list.thumb.normal</p>	<p>Documents list view thumbnails quality mapping for standard images.</p> <p>Default:</p> <p>normal</p>
<p>web.client.mediaasset.list.thumb.big</p>	<p>Documents list view thumbnails quality mapping for large images.</p> <p>Default:</p> <p>big</p>

web.client.mediaasset.list.page.size	<p>Number of multimedia document that are display on a single page.</p> <p>Default:</p> <p>25</p>
Product 360 - Supplier Portal Integration(till version 10.5.0.02)	
web.client.hsx.supplier.login	<p>Login name of Product Manager user that is used for supplier editor.</p> <p>Only needed for Product 360 - Supplier Portal integration.</p> <p>Default:</p> <p>supplier</p>
web.client.hsx.supplier.password	<p>Login password of Product Manager user that is used for supplier editor.</p> <p>Only needed for Product 360 - Supplier Portal integration.</p> <p>Default:</p> <p>supplier</p> <div>  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.</p> <p>Only needed for Product 360 - Supplier Portal integration.</p> <p>Default:</p> <p>readonlysupplier</p>

<p>web.client.hsx.readonly.supplier.password</p>	<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>  If you want to encrypt the password please refer to chapter Encryption of secure information in the Server Installation manual. </div>
<p>Product 360 - Supplier Portal Integration(from version 10.5.02.01)</p>	<div>  Property removed Properties web.client.hsx.supplier.login, web.client.hsx.supplier.password, web.client.hsx.readonly.supplier.login, web.client.hsx.readonly.supplier.password are obsolete starting from product version 10.5.02.01. New user group properties added for Product 360 - Supplier portal Integration. These user groups would be assigned automatically to the supplier users created in Product 360. Starting from version 10.5.02.01 every supplier administrator, supplier user and broker user in Supplier Portal will have a user created in Product 360, at first login and auto assigned to the user group based on the supplier's permissions to access catalog and values set for these new user group properties. </div>
<p>web.client.hsx.itemEditor.userGroup</p>	<p>User group when the Supplier of the user has permission to edit catalog items.</p> <p>Default: supplierUserGroup_ItemEditor</p>
<p>web.client.hsx.itemViewer.userGroup</p>	<p>User group when the Supplier of the user has permission to view catalog items.</p> <p>Default: supplierUserGroup_ItemViewer</p>
<p>Product 360 - Web Search Integration</p>	

web.client.hps.max.display.facet	<p>Maximum number of displayed search facets.</p> <p>Default:</p> <p>5</p>
Export Configuration	
web.client.export.max.selection	<p>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.</p> <p>Default:</p> <p>200</p>
Various UI settings	
web.client.ui.search.and.replace.dialog.default.action	<p>The default action in the Search and Replace dialog.</p> <p>Available values: SEARCH_AND_REPLACE, SET</p> <p>Default:</p> <p>SEARCH_AND_REPLACE</p>
web.client.ui.classification.dialog.default.type	<p>The default classification type in the Classification dialog.</p> <p>Available values: MOVE, COPY</p> <p>Default:</p> <p>MOVE</p>

<p><code>web.client.ui.show.transition.fields.content</code></p>	<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>
<p><code>web.client.autoload.catalog</code></p>	<p>Autoselect Master catalog or catalog stored in cookies after login.</p> <p>Possible values: true, false</p> <p>The default is: <code>true</code></p>
<p><code>web.client.menu.initial.structure</code></p>	<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>
<p><code>web.client.popup.initial.structure</code></p>	<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>
<p><code>web.client.enum.sort.locale-sensitive</code></p> <p> since 8.1.0.02</p>	<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>
<h2>Vaadin Internal Configuration Parameters</h2>	
<code>web.vaadin.productionMode</code>	<p>Enables the application in development mode, must be true in production.</p> <p>Default:</p> <p>true</p>
<code>web.vaadin.disable-xsrf-protection</code>	<p>Enables the Vaadin XSRF protection. Set to true when running automated web tests. Should be false in production.</p> <p>Default:</p> <p>false</p>
<code>web.vaadin.widgetset</code>	<p>Vaadin Widgetset which is used in application.</p> <p>Default:</p> <p><code>com.heiler.ppm.web.widgetset.Widgetset</code></p>
<code>web.vaadin.heartbeatInterval</code>	<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>

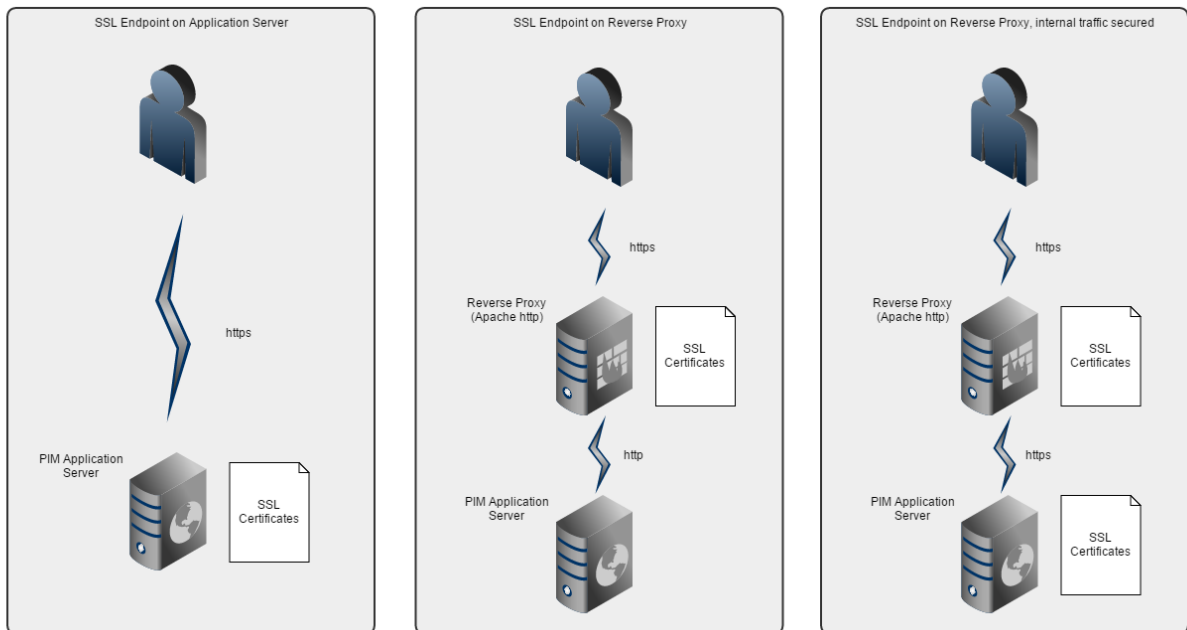
Vaadin Internal Configuration Parameters	
web.vaadin.closeIdleSessions	<p>Close http session after user inactivity. # https://vaadin.com/book/vaadin7/-/page/application.environment.html#aui_3_2_0_1309</p> <p>Default: true</p>
web.vaadin.pushMode	<p>Mode for server side push. Possible values: AUTOMATIC, MANUAL, DISABLED When disabled, some application might not work correctly. Must be disabled for JMeter load test.</p> <p>Default: AUTOMATIC</p>
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.



Please expose only the dedicated P360 interface you want to use externally.

If the P360 web application should be used expose only `http://<hpmserver>:<hpmport>/pim` to the public.

Never expose all endpoints running at `http://<hpmserver>:<hpmport>`.

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>:<hpmport>/pim
ProxyPassReverse /pim http://<hpmserver>:<hpmport>/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 14) 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



Please expose only the dedicated P360 interface you want to use externally.

If the P360 web application should be used expose only `http://<hpmserver>:<hpmport>/pim` to the public.

Never expose all endpoints running at `http://<hpmserver>:<hpmport>`.

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.

? Unknown Attachment

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 149)
- [Declarative Customization Area](#) (see page 149)
- [Make Changes to XML Configuration Files](#) (see page 151)
- [Example Definitions](#) (see page 153)
- [List of Customization Areas](#) (see page 153)
- [Q&A](#) (see page 169)
 - [Debugging](#) (see page 169)
 - [Referencing Fields and Logical Keys](#) (see page 170)
 - [Display Media Asset Thumbnail in Table](#) (see page 170)
 - [Display Media Asset Thumbnail in Form](#) (see page 171)
 - [Display tool-tip in Table](#) (see page 171)
 - [Renaming the localization strings](#) (see page 172)
 - [Setting default 'Filter By' field to 'All Columns' in the main table search of Web UI](#) (see page 173)

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:

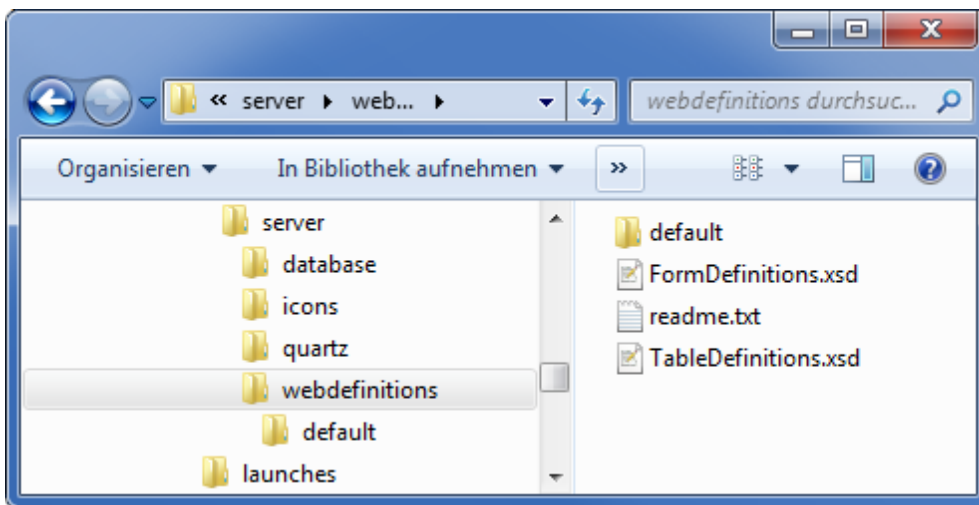
- All list views for the root entities like items, products, variants, tasks, structures and multimedia documents
- Most of the subentity list views, like prices, items/variants of the product, references
- All simple detail tabs like header, texts, change information
- Action menus for items, products,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



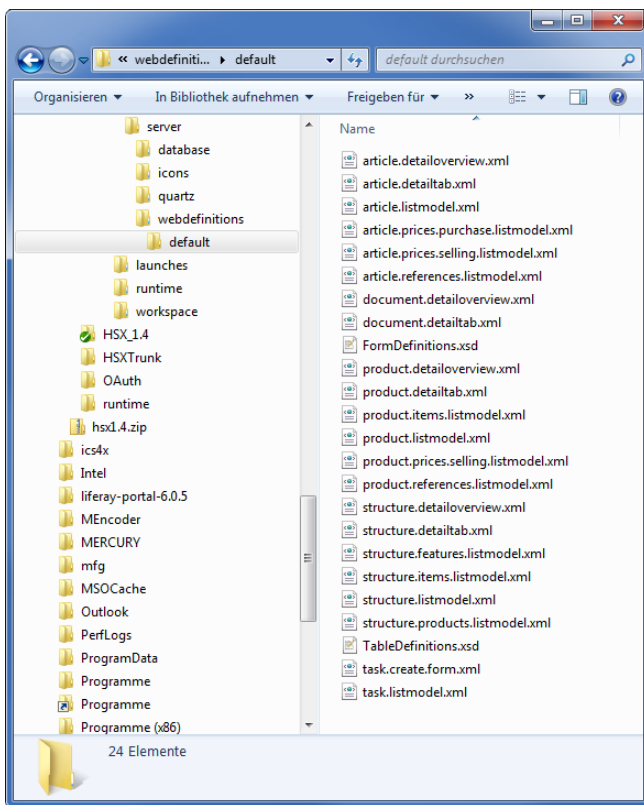
The directory /webdefinitions is the place where all customized definition files are loaded from. Initially, this folder only contains a readme file and XML schema files. The subdirectory /default contains all definition files. These files are updated on each server start.

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):

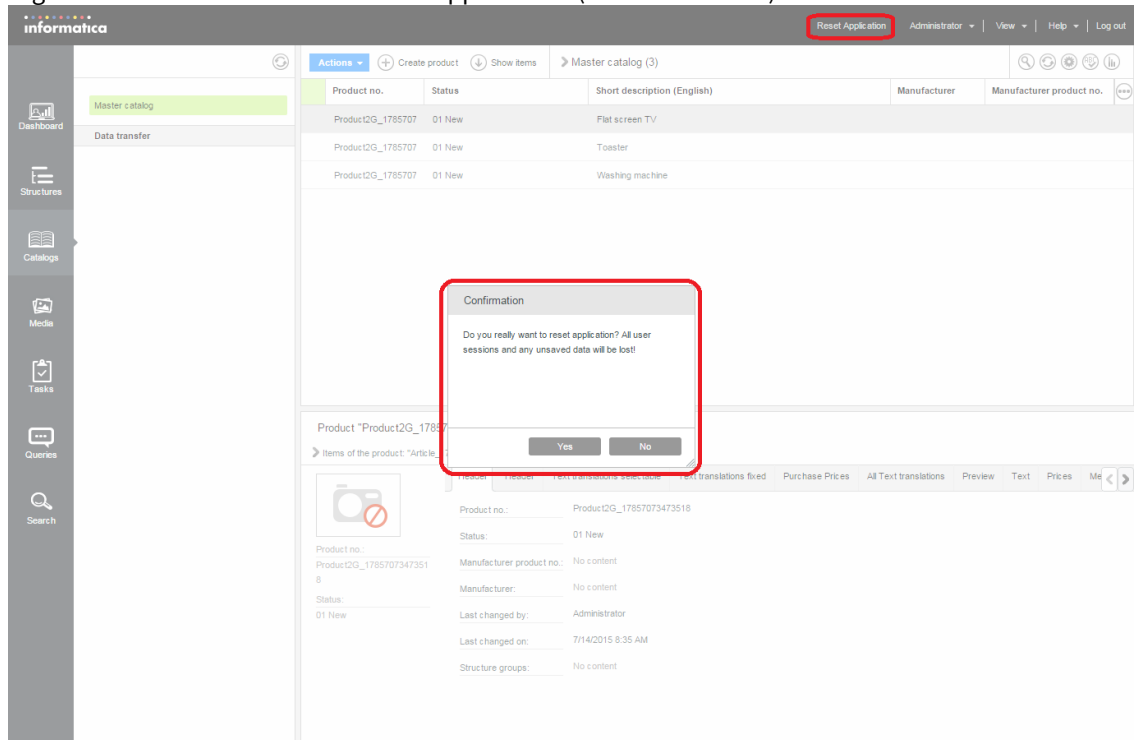


5.5.3 Make Changes to XML Configuration Files

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

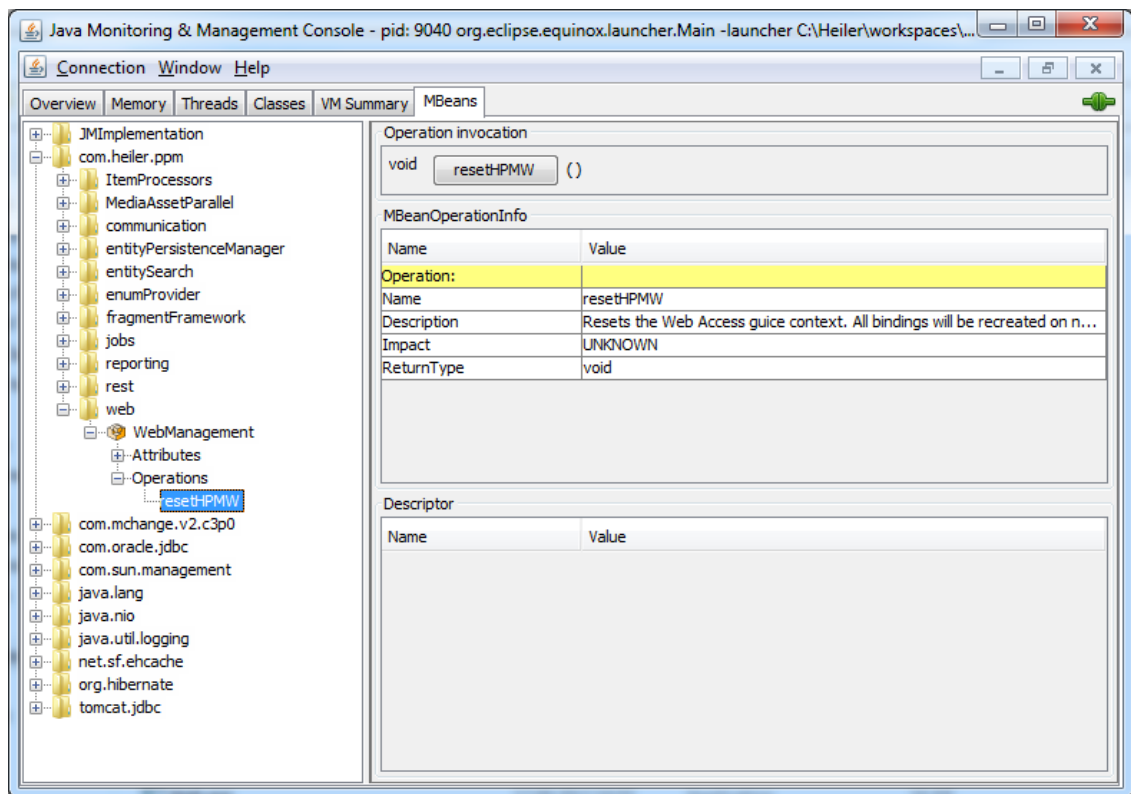
a. Login as Administrator and call "Reset Application" (since version 7.1)



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



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 173)
- [Detail Tab Definition Examples](#) (see page 183)
- [Action menu definition examples](#) (see page 216)
- [Working With Focus Mode](#) (see page 219)
- [Detail Tabs Navigation and Configuration](#) (see page 221)

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, Queries, and Search. The main content area displays a table of products under the 'Master catalog' section. The table has columns for Product no., Status, Short description (English), Manufacturer, and Manufacturer product no. Below the table, a detailed view for a specific product is shown. This view includes a thumbnail image (highlighted with a red box) and a list of items for the product. The detailed view also shows 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

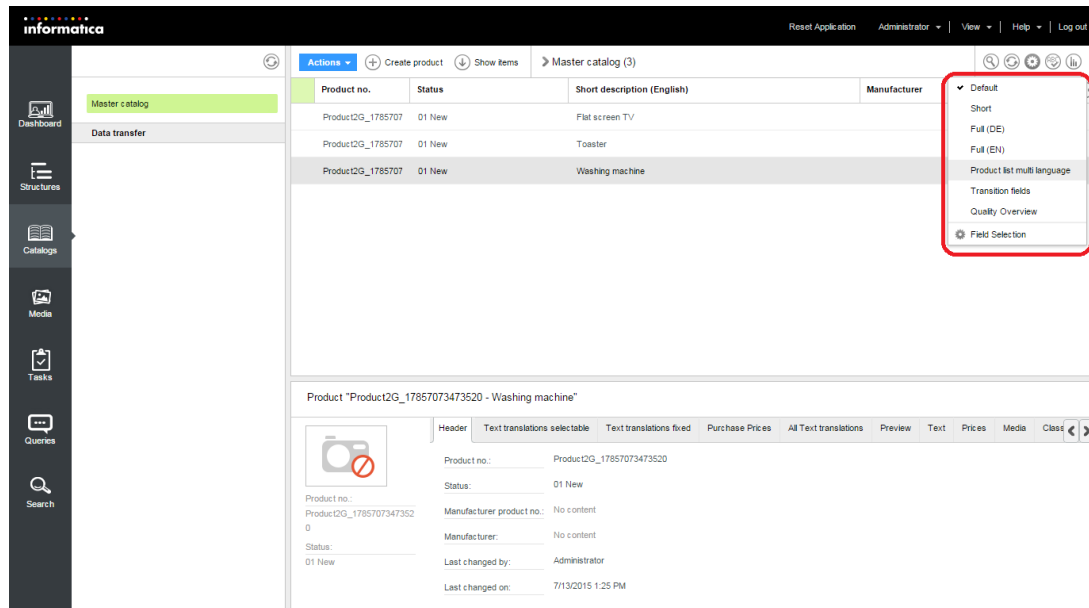
All custom detail tabs, e.g. Header, Text, Prices.

The screenshot displays the Informatica MDM Product 360 interface. On the left is a navigation sidebar with icons for Dashboard, Structures, Catalogs, Media, Tasks, Queues, and Search. The main area shows a table of products under the 'Master catalog' tab. Below the table, the 'Product "Product2G_17857073473520 - Washing machine"' detail view is open. This view includes a tabbed interface at the top with the following tabs: Header, Text translations selectable, Text translations fixed, Purchase Prices, All Text translations, Preview, Text, Prices, Media, and Class. The 'Header' tab is currently selected and highlighted with a red box. It contains the following information:

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

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

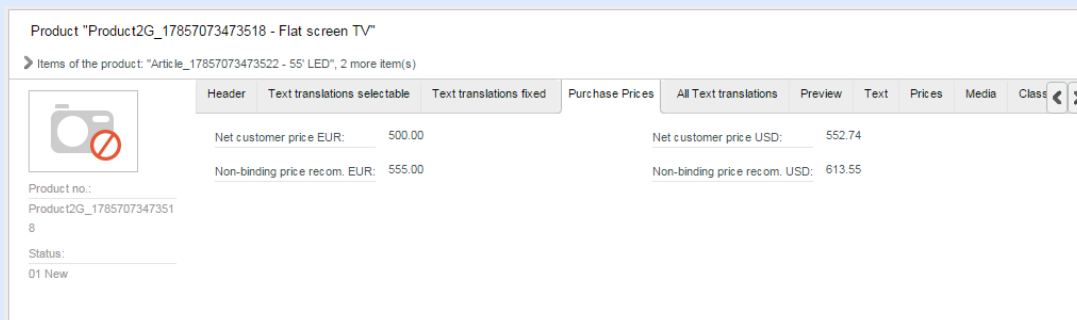
The default list definitions for the master list view.



`article.prices.purchase.listmodel.xml`

< 7.1.00

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



`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):

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

Item "Article_17857073473522 - 55" LED"

Parent product

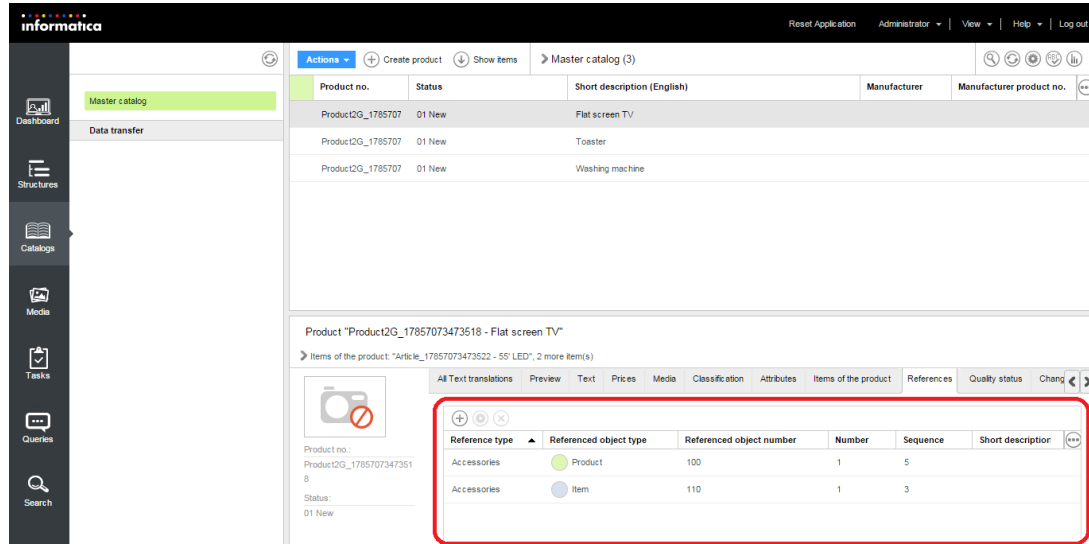
Item no.: Article_17857073473522
Status: 03 Selling price OK

Attributes Kits and Components References Order

number Number Sequence GTIN Sho

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.



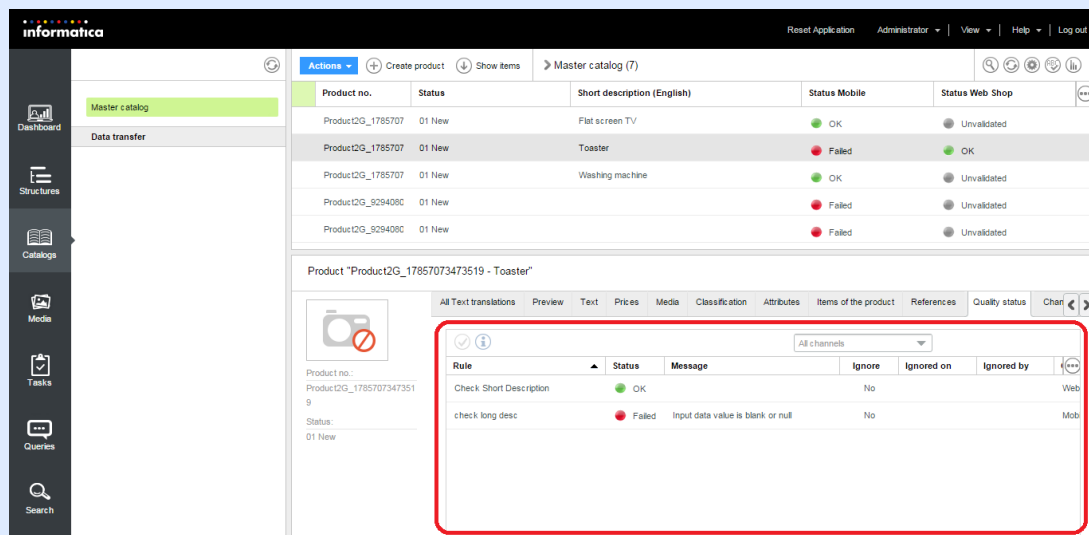
The screenshot shows the Informatica MDM Product 360 interface. The left sidebar contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main area displays the 'Master catalog' with a table of products. Below this, the 'Product "Product2G_17857073473518 - Flat screen TV"' is selected. The 'References' tab is active, showing a table of references:

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 interface. The left sidebar contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main area displays the 'Master catalog' with a table of products. Below this, the 'Product "Product2G_17857073473519 - Toaster"' is selected. The 'Quality status' tab is active, showing a table of quality status rules:

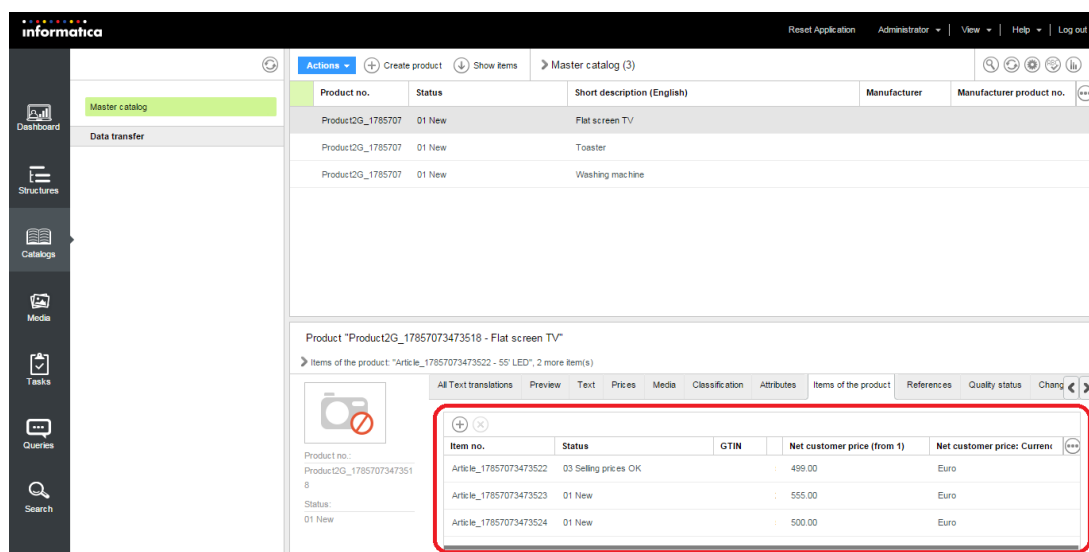
Rule	Status	Message	Ignore	Ignored on	Ignored by
Check Short Description	OK		No		Web
check long desc	Failed	Input data value is blank or null	No		Mob

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 displays the Informatica MDM Product 360 interface. The top navigation bar includes 'Reset Application', 'Administrator', 'View', 'Help', and 'Log out'. The left sidebar contains icons for Dashboard, Master catalog, Data transfer, Structures, Catalogs, Media, Tasks, Queries, and Search. The main content area shows a 'Master catalog (3)' table with columns: Product no., Status, Short description (English), Manufacturer, and Manufacturer product no. Below this, the 'Product "Product2G_17857073473518 - Flat screen TV"' is selected. The 'Items of the product: "Article_17857073473522 - 55" LED", 2 more item(s)' section is highlighted with a red box, showing a table with columns: Item no., Status, GTIN, Net customer price (from 1), and Net customer price: Current.

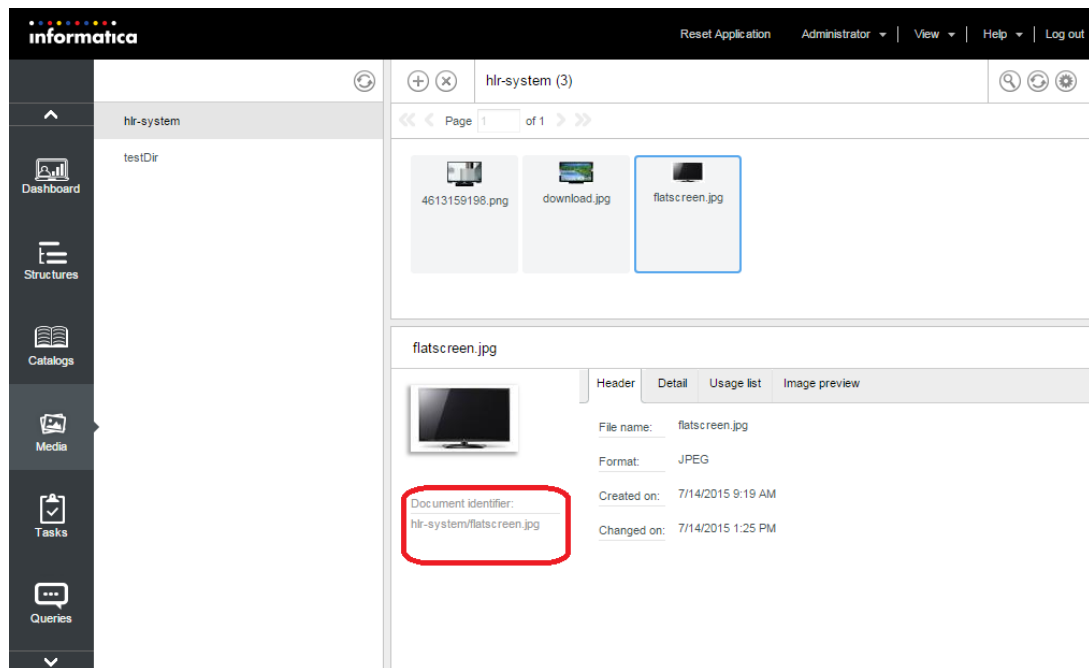
Product no.	Status	Short description (English)	Manufacturer	Manufacturer product no.
Product2G_1785707	01 New	Flat screen TV		
Product2G_1785707	01 New	Toaster		
Product2G_1785707	01 New	Washing machine		

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

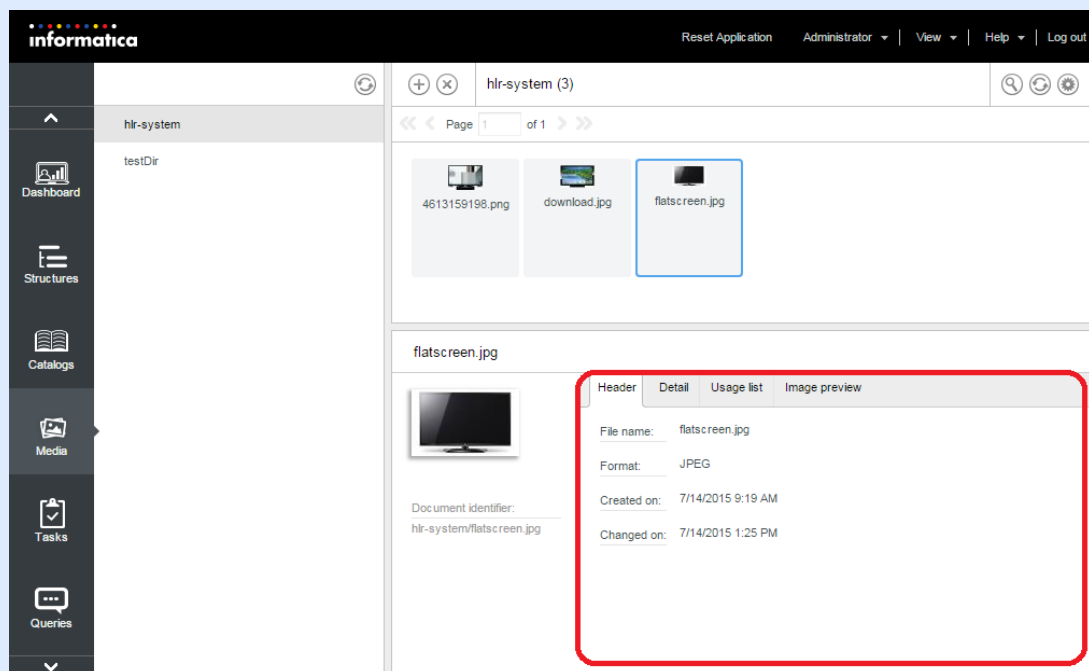
document.detailoverview.xml

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

The screenshot shows the Informatica MDM interface with the 'Add media attachment' dialog box open. The dialog box is titled 'Add media attachment' and contains the following fields:

- Type: Standard image
- Language: English
- Quality: Html document
- Document identifier: (empty)

The dialog box also has 'OK' and 'Cancel' buttons, and a checkbox for 'Create another reference'.

media.hlr.details.xml

Media asset detail popup for Heiler Classic Provider (HLR)

The screenshot shows the Informatica MDM interface with the 'Html document' detail popup open. The popup displays the following information:

- Document identifier: hlr-system/flatscreen.jpg
- Quality: Html document
- File name: flatscreen.jpg
- Color depth: 8
- Resolution [dpi]: 0
- Width [pixels]: 284
- Height [pixels]: 177
- Size [Bytes]: 3,362

The popup also has an 'OK' button.

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 an media asset.

The screenshot shows the Informatica MDM application interface. A 'Create assignment' dialog box is open, prompting the user to complete fields for reference creation. The fields are as follows:

Field	Value
Referenced catalog *	Master catalog
Referenced object type *	Item
Referenced object number *	100
Type *	Logo
Language *	German
Quality *	Internet image

At the bottom of the dialog box, there are 'OK' and 'Cancel' buttons, and a checkbox labeled 'Create another reference'.

media.variants.xml

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

The screenshot displays the Informatica MDM Product 360 interface. The top navigation bar includes the Informatica logo, user roles (Administrator), and utility links (Reset Application, View, Help, Log out). The left sidebar contains navigation icons for Dashboard, Structures, Catalogs, Media, Tasks, Queries, and Search. The main content area is divided into two sections. The top section shows a table of products with columns: Thumb, Product no., Status, Manufacturer, Manufacturer product no., and Net customer price. The bottom section displays the details for a specific product, "Product2G_17857073473518 - Flat screen TV". This section includes tabs for Text translations, Purchase Prices, All Text translations, Preview, Text, Prices, Media, and Classification. The Media tab is active, showing a media gallery with a thumbnail of a flat screen TV. Below the thumbnail, a red box highlights the metadata fields: Name (No content), Type (Standard image), Description (English) (No content), and Alternative text (English) (No content). The Multimedia documents section is also visible at the bottom.

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

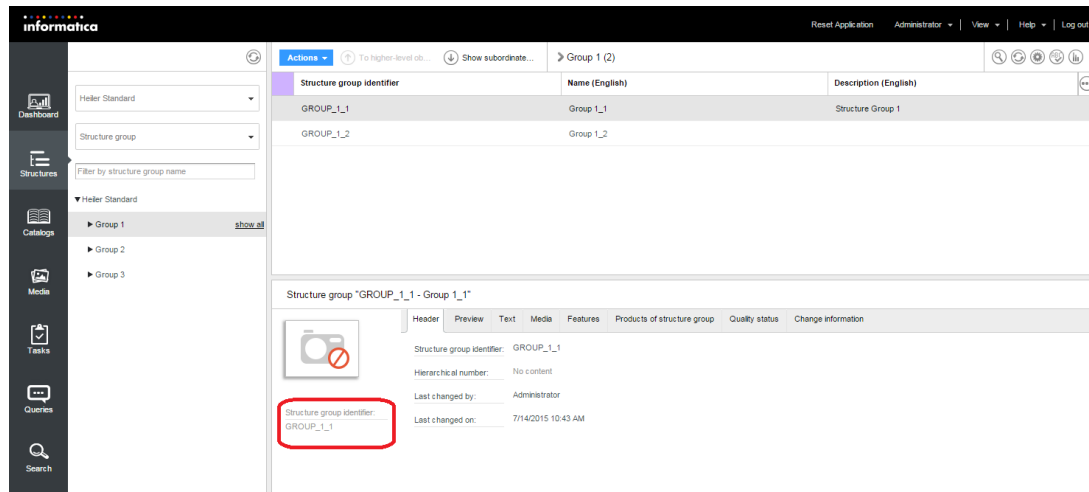
Name: No content
 Type: Standard image
 Description (English): No content
 Alternative text (English): No content

Multimedia documents:
 Html document

Structures

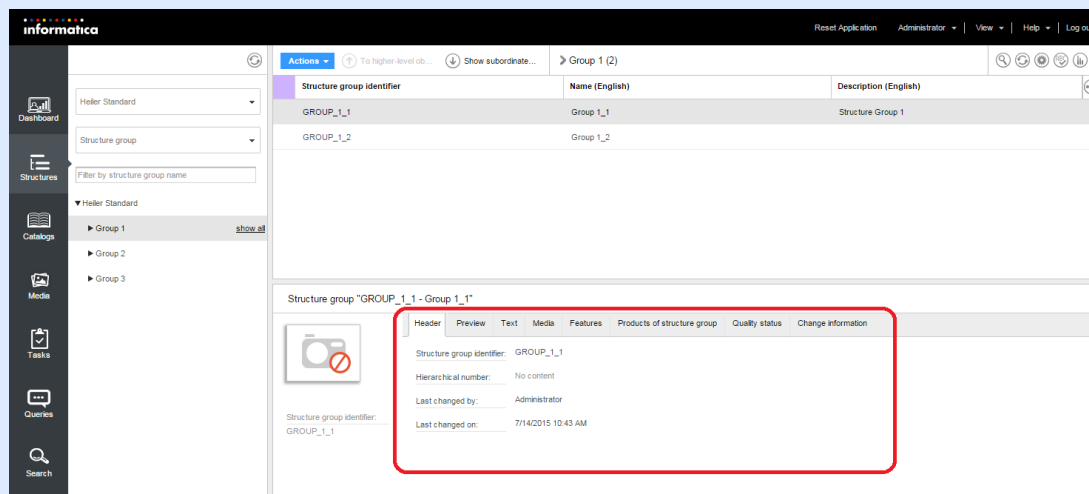
structure.detailoverview.xml

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 'Heller Standard' category. The 'Television' group is selected, and its details are shown in a tabbed view. The 'Features' tab is active, displaying a table of features for the selected structure group.

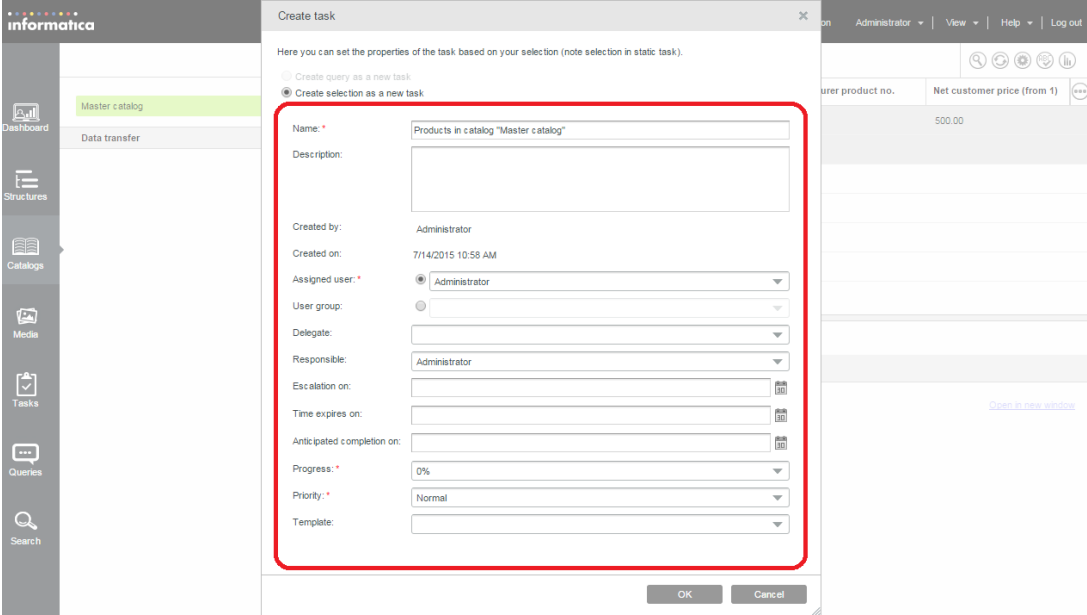
Name (English)	Description (English)	Preset values (English)	Purpose
Android TV	Android TV enabled		Descriptive
DVB-T		1	
HDMI	HDMI Input Slots	2	Defining; Webshop
VideoOnDemand		Yes	

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. 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 'Heller Standard' category. The 'Group 1' group is selected, and its details are shown in a tabbed view. The 'Products of structure group' tab is active, displaying a table of products assigned to the selected structure group.

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.

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Reset Application Administrator View Help Log out

Actions Accept Open Flex UI My tasks (2)

Type	Name	Priority	Description	Escalation on	Time expires on	Anticipated
✓	Products in catalog "Master catalog"	Normal				
✓	Products in structure group "GROUP_1_1 - Group 1_1"	Normal				

Tasks "Products in catalog "Master catalog""

Name: Products in catalog "Master catalog"

Description: No content

Created by: Administrator

Created on: 7/14/2015 10:58 AM

Assigned user: * Administrator

User group: No content

Delegate: No content

Responsible: Administrator

Escalation on: No content

Time expires on: No content

Anticipated completion on: No content

Progress: 0%

Priority: Normal

Complete: No content

task.listmodel.xml

List definitions for task main list.

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Reset Application Administrator View Help Log out

Actions Accept Open Flex UI My tasks (2)

Type	Name	Priority	Description	Escalation on	Time expires on	Anticipated
✓	Products in catalog "Master catalog"	Normal				
✓	Products in structure group "GROUP_1_1 - Group 1_1"	Normal				

Tasks "Products in catalog "Master catalog""

Name: Products in catalog "Master catalog"

Description: No content

Created by: Administrator

Created on: 7/14/2015 10:58 AM

Assigned user: * Administrator

User group: No content

Delegate: No content

Responsible: Administrator

Escalation on: No content

Time expires on: No content

Anticipated completion on: No content

Progress: 0%

Priority: Normal

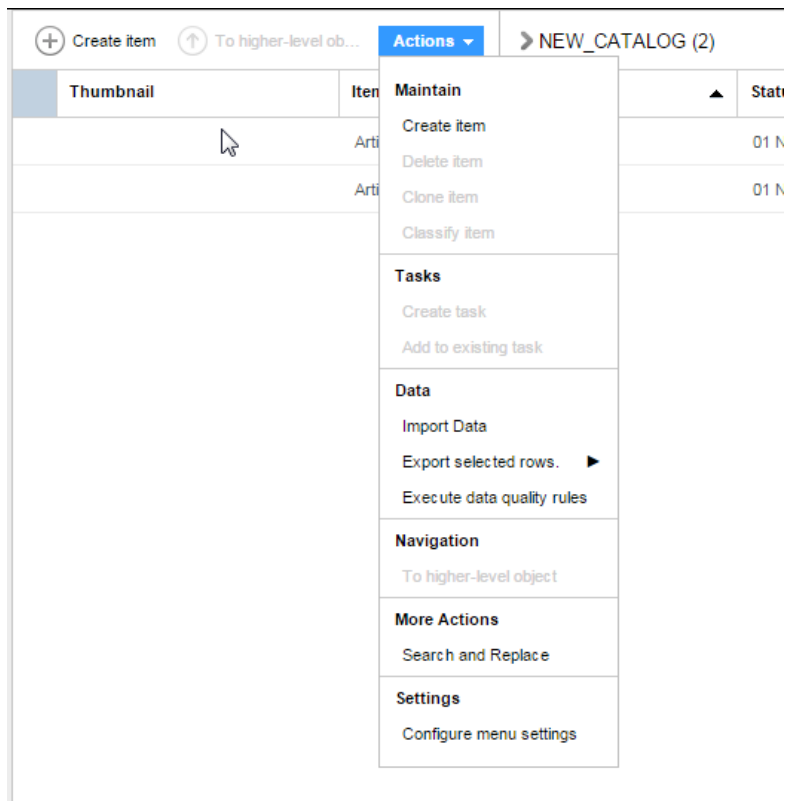
Complete: No content

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

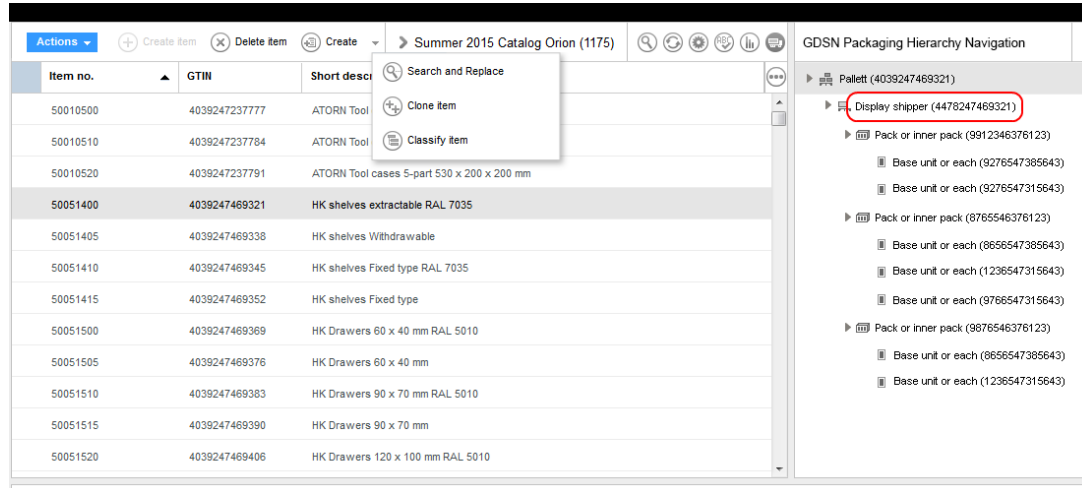
Action menus for items, products, variants, tasks and structures lists.



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 "-".



Item no.	GTIN	Short desc
50010500	4039247237777	ATORIN Tool
50010510	4039247237784	ATORIN Tool
50010520	4039247237791	ATORIN Tool cases 5-part 530 x 200 x 200 mm
50051400	4039247469321	HK shelves extractable RAL 7035
50051405	4039247469338	HK shelves Withdrawable
50051410	4039247469345	HK shelves Fixed type RAL 7035
50051415	4039247469352	HK shelves Fixed type
50051500	4039247469369	HK Drawers 60 x 40 mm RAL 5010
50051505	4039247469376	HK Drawers 60 x 40 mm
50051510	4039247469383	HK Drawers 90 x 70 mm RAL 5010
50051515	4039247469390	HK Drawers 90 x 70 mm
50051520	4039247469406	HK Drawers 120 x 100 mm RAL 5010

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 has 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="ArticleMediaAssetDocument.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="Standa
rd image"/>
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Quality" value="Html
document"/>
  <logicalKey identifier="ArticleMediaAssetDocumentType.LK.Language" value="Languag
e 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.

Actions: Create product Show variants Master catalog (2)

Filter by Product no. Filter by Product no. Filter

Thumbnail	Product no.	Status	Short description (English)	Manufacturer	Manufacturer product no.	Net customer price (from 1)	Long description (English)
1	Product2G_5272155078999	01 New	Lorem Ipsum				Lorem ipsum dolor sit amet, in quo tota iusto saperet, pri harum utinam at. Reque dicit perfecto nec ex, pro ex dicam facilisis. Falli putent prodesset et has, graece alterum nonumes quo ad, duo alterum albusci reprehendunt no. Facete vocent fincidunt cu eam, illi aliquid senserit ius at. Sit sale audiam aliquando et, vix le illum error delecti. Mei te molestiae vulputate concludaturque.
2	Product2G_1	01 New					Lorem ipsum dolor sit amet, in quo tota iusto saperet, pri harum utinam at. Reque dicit perfecto nec ex, pro ex dicam facilisis. Falli putent prodesset et has, graece alterum nonumes quo ad, duo alterum albusci reprehendunt no. Facete vocent fincidunt cu eam, illi aliquid senserit ius at. Sit sale audiam aliquando et, vix le illum error delecti. Mei te molestiae vulputate concludaturque.

Product "Product2G_5272155078999 - Lorem Ipsum"

Variants of the product: "Variant_436626261779402"

Items of the product: "Article_436626261779403 - Lorem Ipsum"

Header Preview Text Prices Media Classification Attributes Variants of the product References Quality status Change information Translation All texts

Product no.: Product2G_5272155078999
Status: 01 New

Short description: Lorem Ipsum

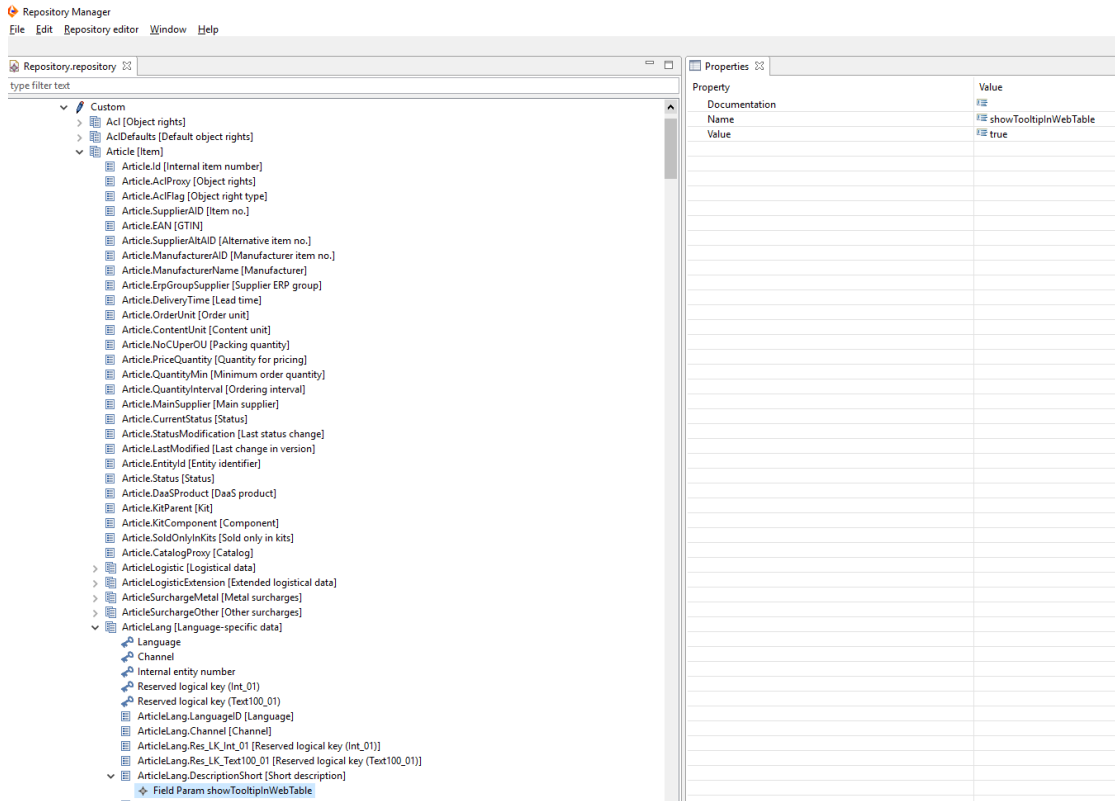
Long description: Lorem ipsum dolor sit amet, in quo tota iusto saperet, pri harum utinam at. Reque dicit perfecto nec ex, pro ex dicam facilisis. Falli putent prodesset et has, graece alterum nonumes quo ad, duo alterum albusci reprehendunt no. Facete vocent fincidunt cu eam, illi aliquid senserit ius at. Sit sale audiam aliquando et, vix le illum error delecti. 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`, `ProductDetailtabParameterized_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 173)
- [Variables support for views](#) (see page 174)
- [List with attribute values and custom caption](#) (see page 175)
- [List with different price types](#) (see page 176)
- [List with Structure Group Name](#) (see page 177)
- [List of additional price tiers](#) (see page 177)
- [List of DQ Status per Channel \(Transition Fields\)](#) (see page 178)
- [List of DQ Rule Status and Message \(Transition Fields\)](#) (see page 179)
- [Use of "displaySectionWidget" attribute in detail tabs](#) (see page 180)



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:

Actions + Create product ↓ Show items ➤ Master catalog (3)							
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="Colo
r (English)">
    <logicalKey identifier="ArticleAttributeValueType.LK.Language" value="9"/
  >
    <logicalKey identifier="ArticleAttributeType.LK.Name" value="Farbe"/>
  </field>
  <field identifier="ArticleAttributeValue.Value" sortable="true" caption="Colo
r (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> <div>+</div> Create item </div> <div> <div>➤</div> Master catalog (3) </div> <div> <div>➤</div> Product Product2G_17857073473518 (3) </div> <div> <div>🔍</div> <div>🔄</div> <div>⚙️</div> <div>ABC</div> <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_92940804911119
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 Customer

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>Create product</div> <div>Show items</div> </div> <div>Master catalog (7)</div> </div> <div> <div>Search</div> <div>Refresh</div> <div>Export</div> <div>Print</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="produ
ct.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)

Actions + Create product ↓ Show items ➤ Master catalog (7)					
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>
</definition>

```

```

</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.article.detail.tabs.surcharges" position="100" rootEntity="Article">
  <column>
    <fieldGroup displaySectionWidget="true" subEntityId="ArticleSurchargeMetal">
      <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.CalculateOnStepComplete"/>
    </fieldGroup>
    <fieldGroup>
      <field identifier="ArticleSurchargeOther.Amount"/>
      <field identifier="ArticleSurchargeOther.Currency"/>
      <field identifier="ArticleSurchargeOther.Step"/>
      <field identifier="ArticleSurchargeOther.IsPercentage"/>
      <field identifier="ArticleSurchargeOther.CalculateOnStepComplete"/>
    </fieldGroup>
  </column>
</definition>

```

Informatica MDM - Product 360 10.5 HotFix 3 SP 1 - Configuration

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	
Editable	true
Enumerated	Enum.MetalSurchar...
Deprecated	
Value Path	
General	
Logical Key	ArticleSurchargeTyp...
Value	copper
Misc	
Alias	
Document	
Identifier	ArticleSurchargeMet...
Short Ident	
Supports	true
Presentation	
Description	
Name	Logical-key.Article...
Proposal Et	
Security	
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: No content

Weight (in grams): No content

Base: No content

Currency: No content

Size of jump: No content

In percent?: No content

Calculate after price jump?: No content

Other surcharge: Amount: 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
	<div> <div>Languages</div> <div>English</div> </div>										
Item no.: Article_16032742297250 10	Short description: fsdbvfsdb										
Status: 01 New	Long description: fbfd										
	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
	<div> <div>Text</div> </div>								
Item no.: Article_16032742297250 10	Short description: fsdbvfsdb								
Status: 01 New	Long description: fbfd								
	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 183)
- [Two column layout with language picker](#) (see page 184)
- [Two column layout with fixed language](#) (see page 185)
- [Variables support for detail tabs](#) (see page 186)
- [Detail Tab with specific attributes](#) (see page 186)
- [Detail Tab and editing multi-value attribbte values](#) (see page 187)
- [Logical Keys exploded](#) (see page 189)
- [Logistic Extension Data with multiple Logical Keys](#) (see page 191)
- [Fullqualified Purchase Prices](#) (see page 192)
- [Editable Item Preview Panel](#) (see page 193)
- [Display Structure Group Assignment](#) (see page 195)
- [Editable List of Sub Entities](#) (see page 196)
- [Editable List of Retail Prices for Items](#) (see page 197)
- [Display Transition Fields in Detail Tab Lists, e.g. Short Description for References](#) (see page 198)
- [Single Logical Key Selector for Multiple Subentities](#) (see page 200)
- [List of all references to items, but not to other entities \(with optional filter\)](#) (see page 202)
- [Example for combination of <fieldGroup> and <tableGroup> in one custom tab](#) (see page 205)



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_1785707347351 8</p> <p>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.L
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.L
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	Attributes
 <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"/>
    </fieldGroup>
  </column>
</definition>

```

```

        <logicalKey displayAllValues="false" identifier="ArticleLangType.LK.L
anguage" 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.L
anguage" 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.L
anguage" 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.L
anguage" 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):

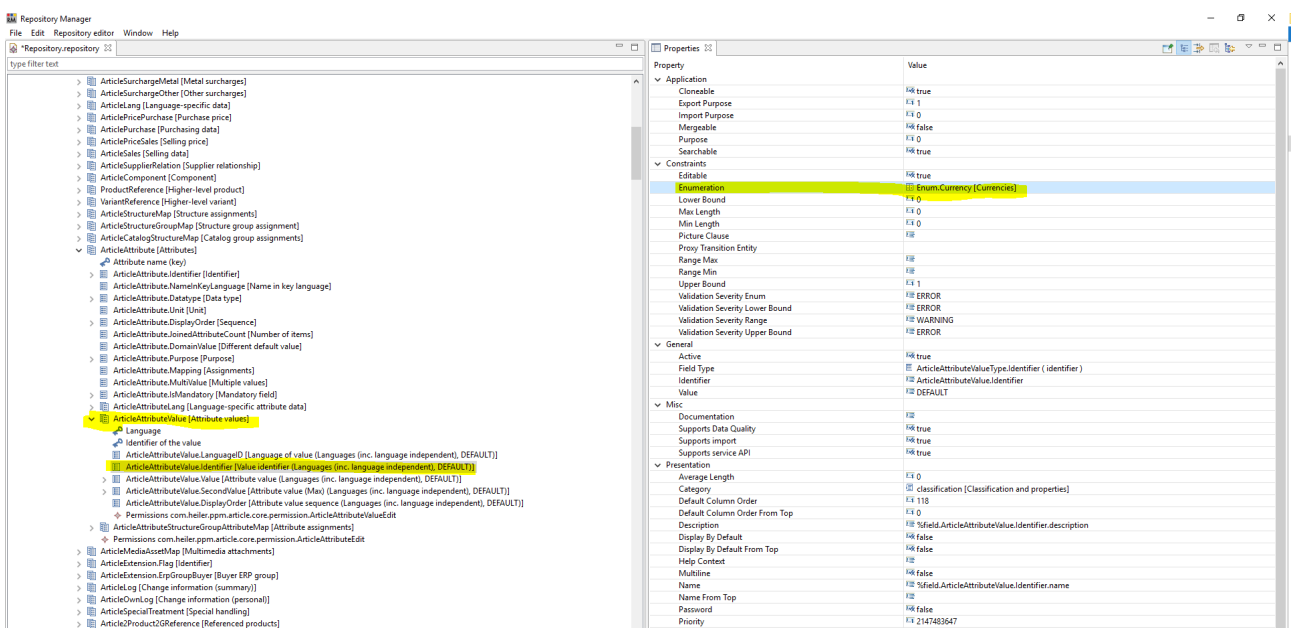
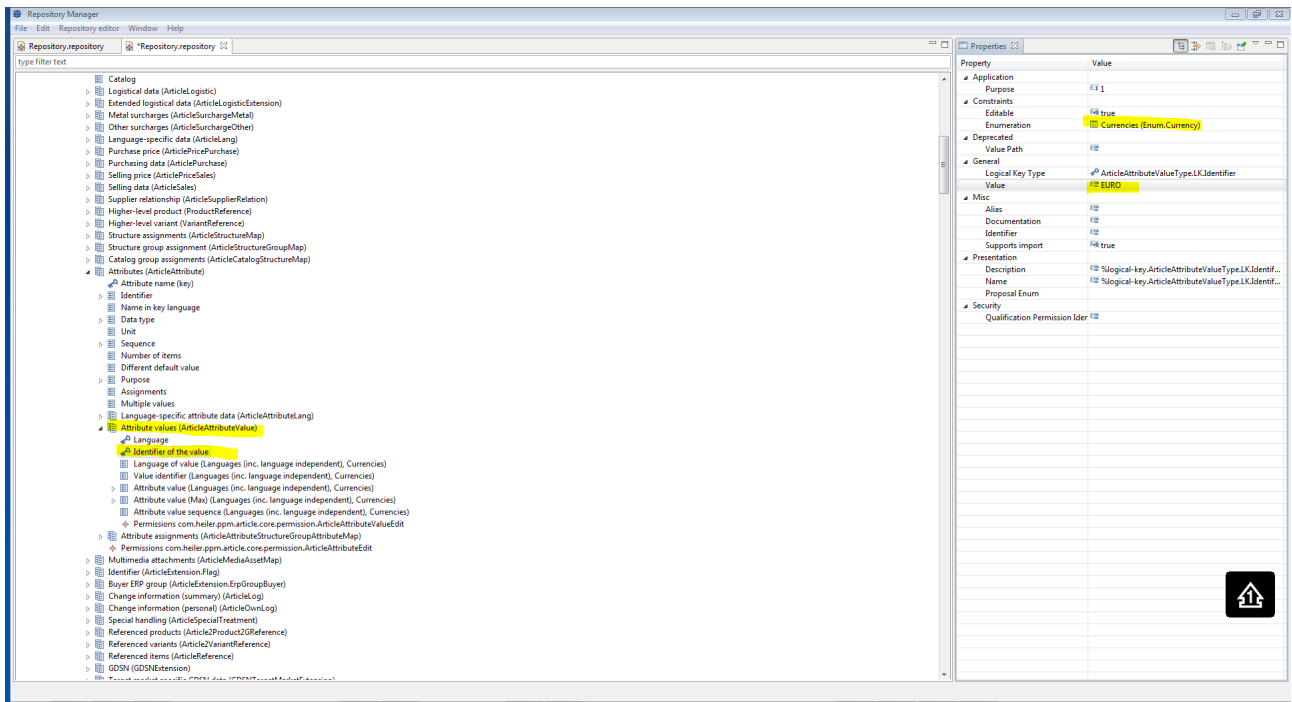
```
<definition debugId="attr" i18NKey="Custom attributes" permissionId="" position="
1" rootEntity="Product2G">
  <column>
    <enumGrouping caption="%web.client.login.form.language" enumIdentifier="E
num.Language.WithLanguageIndependent" selectable="true" value="9"/>

    <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 an 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.



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"/>
        </fieldGroup>
    </column>
</definition>

```

```

                <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 < >



Item no.: Article_17857073473522

Status: 01 New

Language: Language independent

Units:

Suppliers (inc. main supplier):

Code128: 153

GTIN-14: 864

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>

```

```

        </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:	<input type="text" value="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>
    <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>
```

```

        </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

+
-
x

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

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>
    </tableGroup>
  </column>
</definition>
```

```

<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"

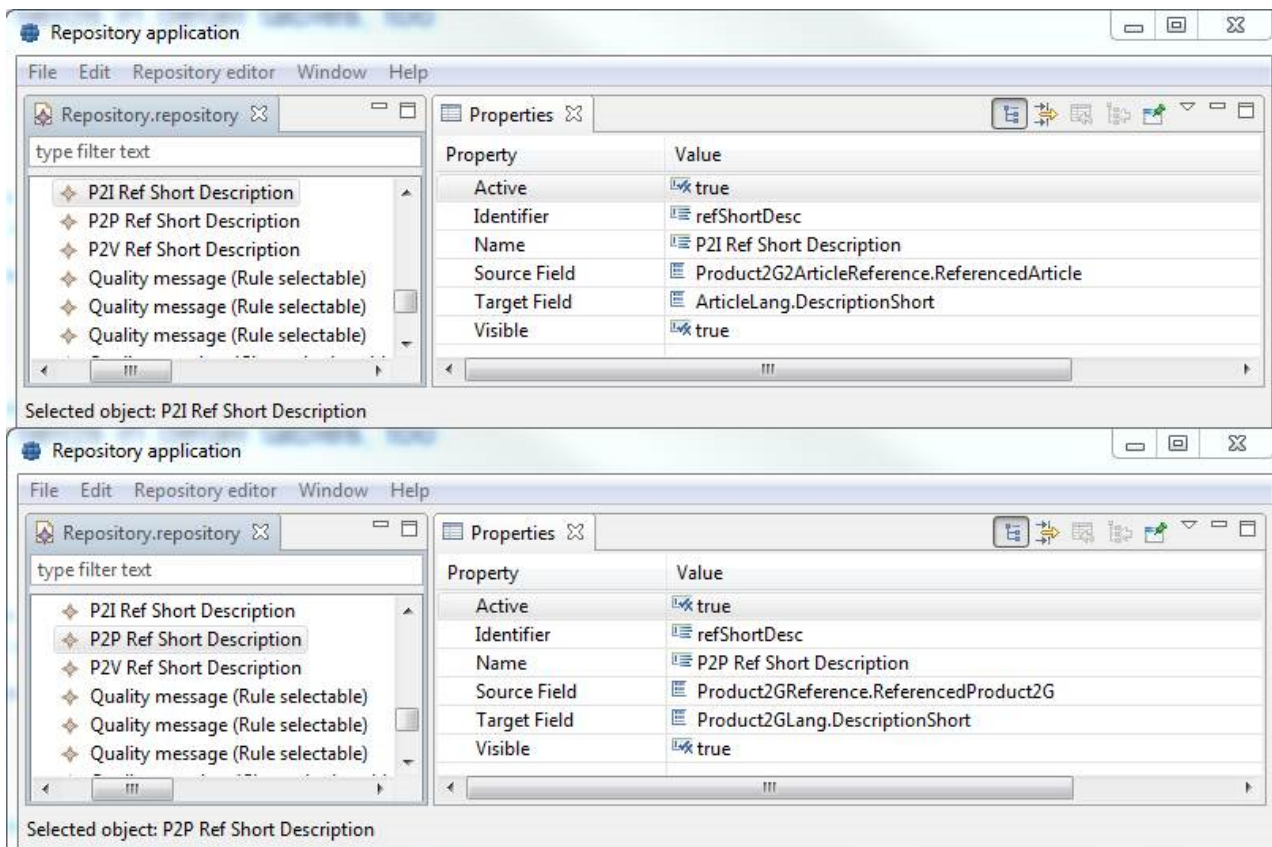
Items of the product: "Article_17857073473522 - 55' LED", 2 more item(s)

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

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.



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 207)
 - [Tab Attributes](#) (see page 207)
 - [Tab Parameters](#) (see page 208)
 - [Display all categories in a single tab](#) (see page 208)
 - [Display separate categories in separate tabs](#) (see page 209)
 - [Filter Behavior](#) (see page 210)
- [Preview Detail Tab](#) (see page 211)
 - [Tab Attributes](#) (see page 211)
 - [Tab Parameters](#) (see page 212)
 - [Display all preview templates in the drop-down in a single tab](#) (see page 212)
 - [For single entity selection](#) (see page 212)
 - [For multiple entity selection](#) (see page 213)
 - [Display separate templates in separate tabs](#) (see page 213)
 - [For single entity selection](#) (see page 213)
 - [For multiple entity selection](#) (see page 214)
 - [Filter Behavior](#) (see page 215)

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.



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

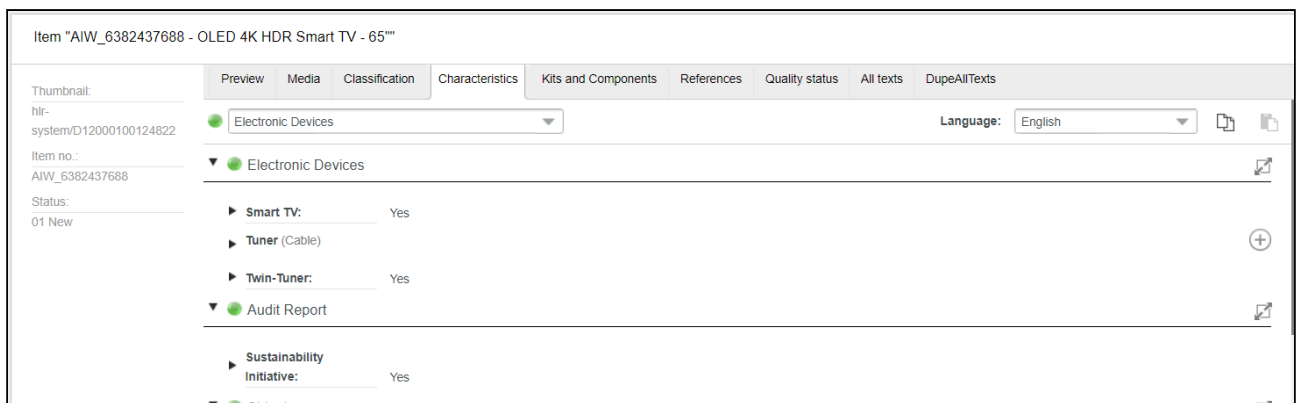
Parameter name	M(andatory) O(ptional)	Example values	Description
filterCategories	0	e.g. "Shipping" "CareInstructions, AuditReport" "ElectronicDevices"	Comma separated category codes which should be displayed or not displayed
filterType	0	include (default) exclude	Type of filter to be applied on the 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:

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"/>
  </tab>
</tabDefinitions>
```

```

        <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

Name	M(andatory) O(ptional)	Example values	Description
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
hasOpenInNew Window	O	true (default) false	To hide the "open in new window" link in specific previews

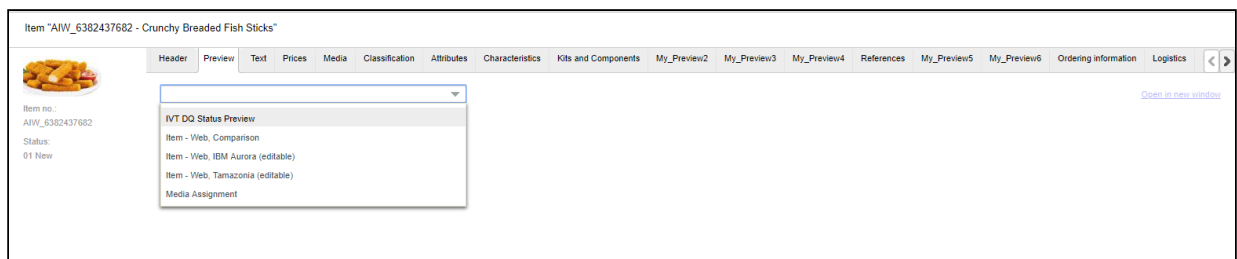
At max one pair of templateName and hasOpenInNewWindow is allowed per tab.

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:



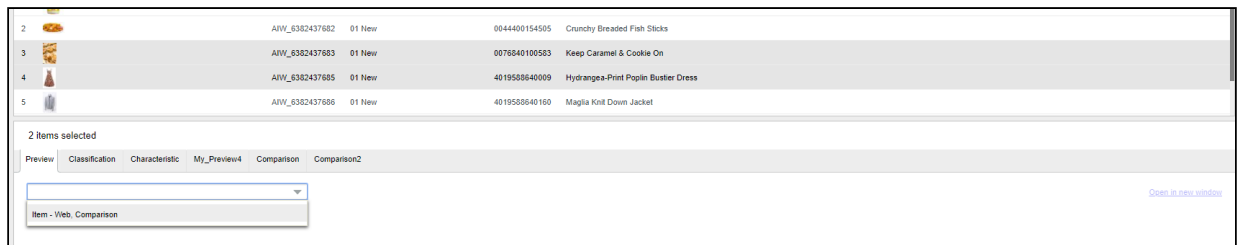
Definition (article.detailtab.parameterized.xml)

```
<?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>
```

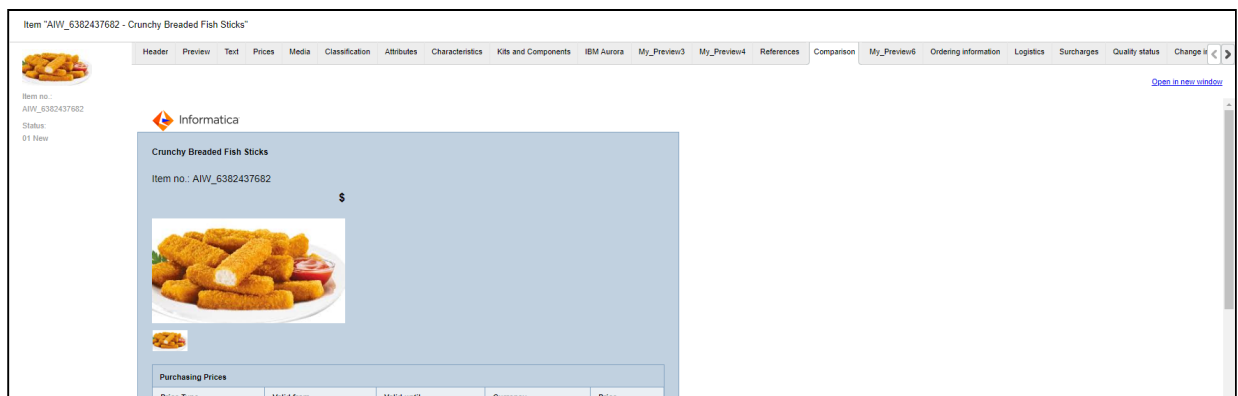
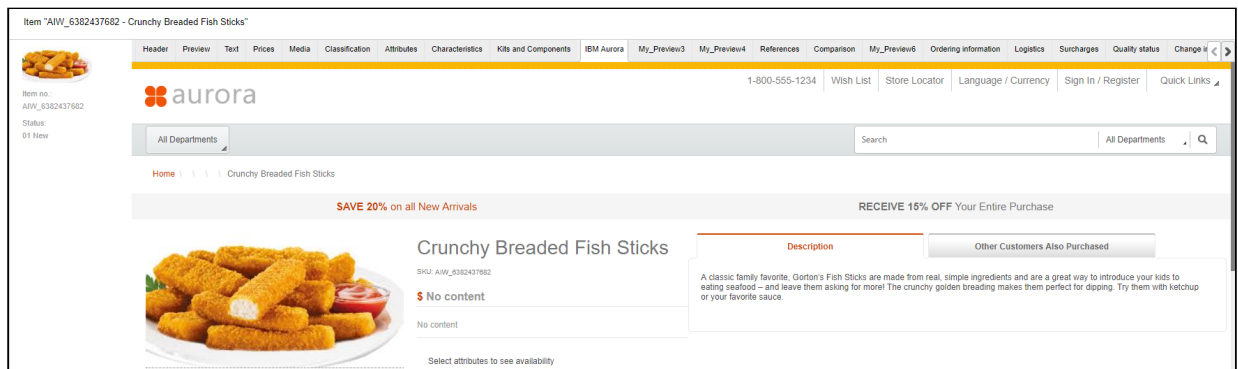
Display separate templates in separate tabs

- 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)

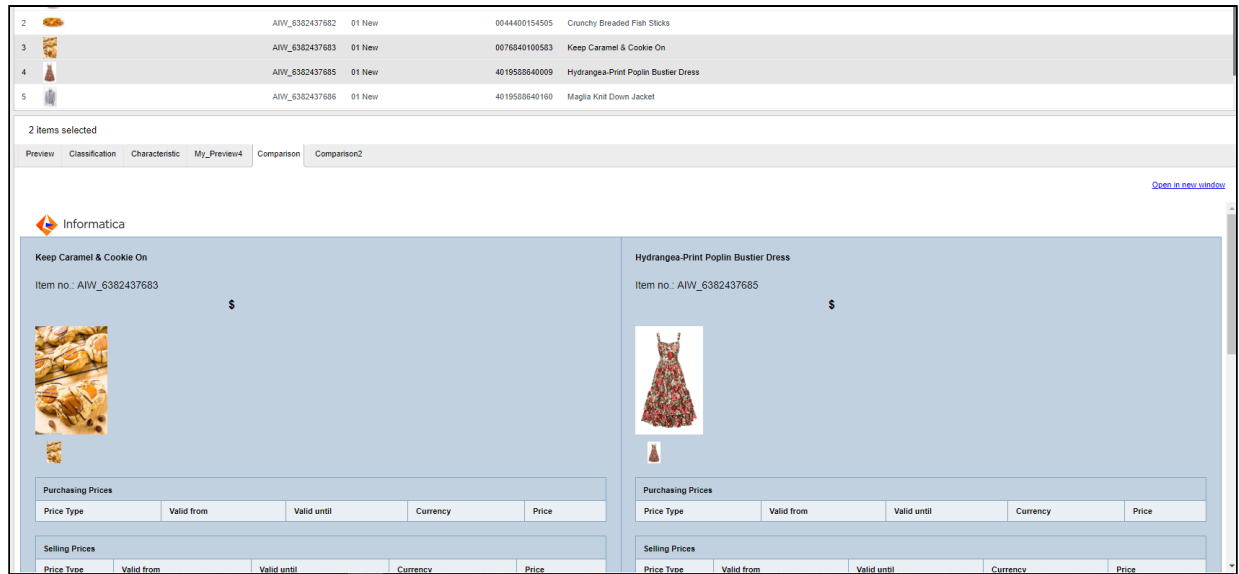
```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tabDefinitions xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="ParameterizedDetailTabs.xsd">
  <tab i18NKey="IBM Aurora" id="ArticlePreviewTab2" permissionId="web.article.detail.tabs.preview2" position="66" 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:



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 il18NKey="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

templateName	hasOpenInNew Window	Tab Visibility	Behaviour
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 216)
 - [Possible customization](#) (see page 217)
 - [Limitations](#) (see page 218)
 - [Example definition](#) (see page 218)

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 programmatically 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.g
roup.maintain">
    <menuItem identifier="menu.item.product.action.clone" i18NKey="%web.client.pr
oduct.clone" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.delete" i18NKey="%web.client.p
roduct.delete" favorite="false" visible="true"/>
    <menuItem identifier="menu.item.product.action.create" i18NKey="%web.client.p
roduct.create" favorite="true" visible="true"/>
    <menuItem identifier="menu.item.product.action.classify" i18NKey="%web.produc
t.classification.menu" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.task" i18NKey="%web.task.menu.item.group.t
ask">
    <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.ad
d" favorite="false" visible="true"/>
  </menuGroup>
  <menuGroup identifier="menu.item.group.data" i18NKey="%web.common.menu.item.group
.data">
```

```

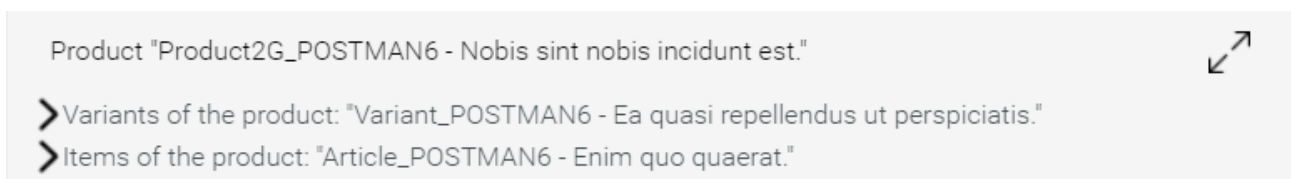
        <menuItem identifier="menu.item.product.dataquality.action.execute" i18NKey="%web.quality.menu.execute" favorite="false" visible="true"/>
        <menuItem identifier="menu.item.product.action.directexport" i18NKey="%export.exportHint" favorite="false" visible="true"/>
        <menuItem identifier="menu.item.product.action.import" 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 221)
- [Tab list with filter](#) (see page 221)
- [Change tab positions by drag and drop](#) (see page 222)
- [Configure tab visibility](#) (see page 223)
- [Permission to control tab visibility configuration](#) (see page 224)
 - ["Customize tabs" permission removed](#) (see page 224)

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

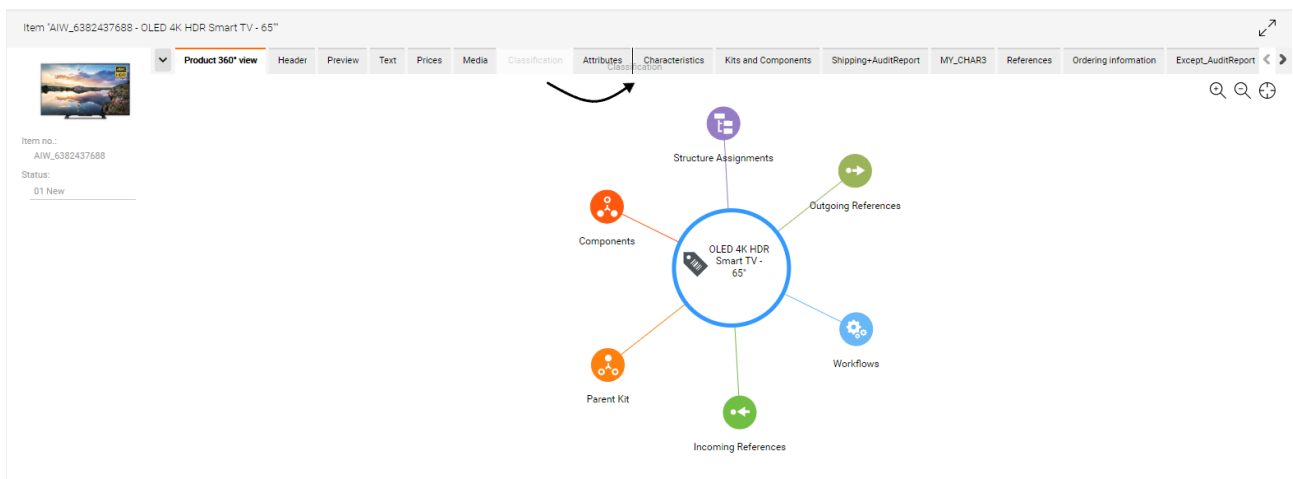
Configure tabs

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

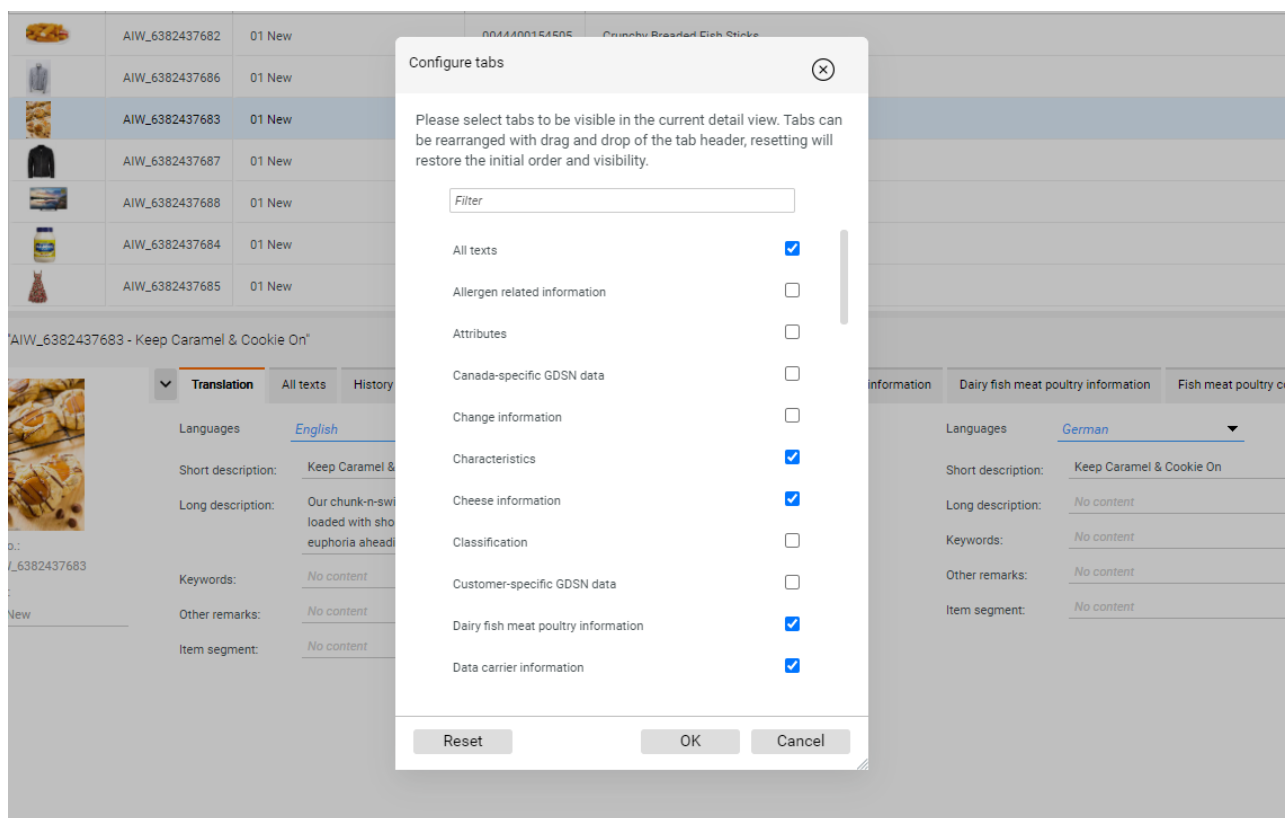
 **Configure tabs**. This popup lists all the detail tabs alphabetically with the corresponding checkbox for the tab visibility.

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



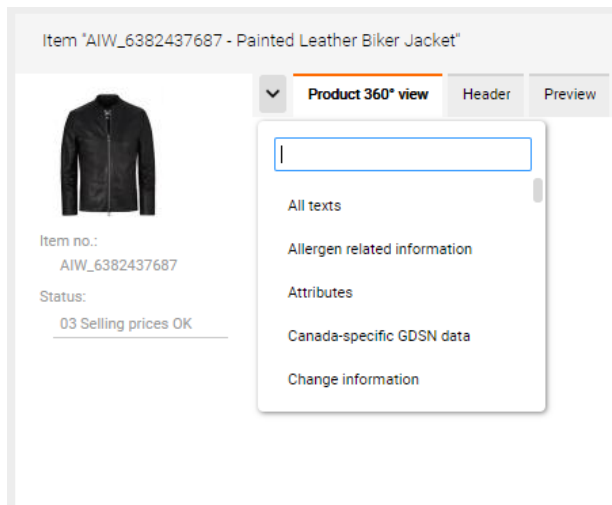
5.5.11.5 Permission to control tab visibility configuration

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.permissi
97	<input checked="" type="checkbox"/>	Delete certification	Certification		com.heiler.ppm.certification.core.pr
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 225)
 - [Navigation button state](#) (see page 226)
 - [Navigate to the Detail tab](#) (see page 226)
 - [Navigate to Flex UI](#) (see page 226)
- [Quality status rule navigation configuration](#) (see page 227)
 - [Combine multiple Data Quality rules configuration](#) (see page 227)
 - [Configure the characteristic rules configuration](#) (see page 228)
 - [Where to get "tabId" and "flexTemplateName"](#) (see page 228)
 - ["tabId"](#) (see page 228)
 - ["flexTemplateName"](#) (see page 228)

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

All channels

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



It is mandatory to either pass tabId or flexTemplateName.

Example 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

Example 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

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
        used here -->
5      <parameter key="columns" value="2"/>
6      <parameter key="rows" value="1"/>
7  </layout>
  </flexUi>

```

```

8      <component type="messageBox" identifier="message1" i18NKey="Greetings">
9
10         <layoutData>
11             <!-- this area specifies layout details for this component -->
12
13             <parameter key="colSpan" value="2"/>
14         </layoutData>
15         <!-- this is a parameter specific to the functionality of the individual component -->
16         <parameter key="message" value="Hello, world!"/>
17     </component>
18
19 </layout>
20 </flexUi>

```

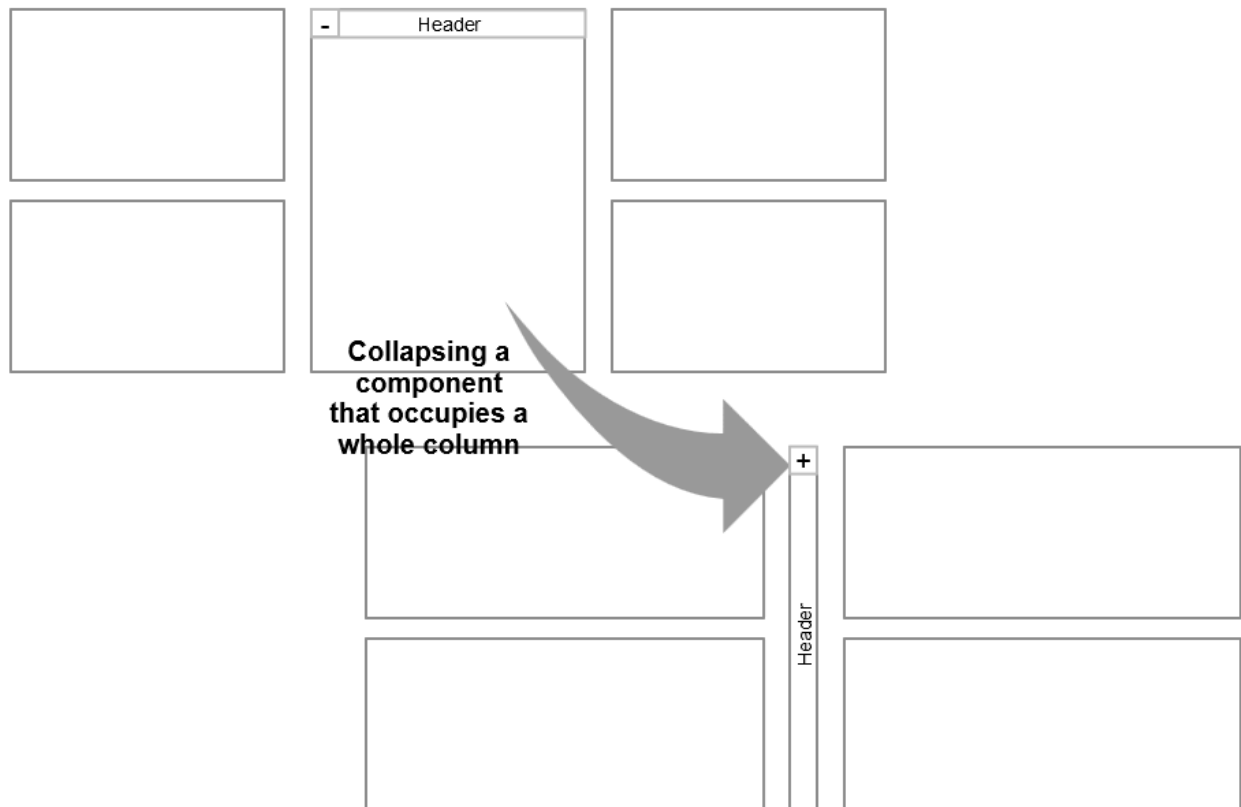
5.6.2.1 Grid layout

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

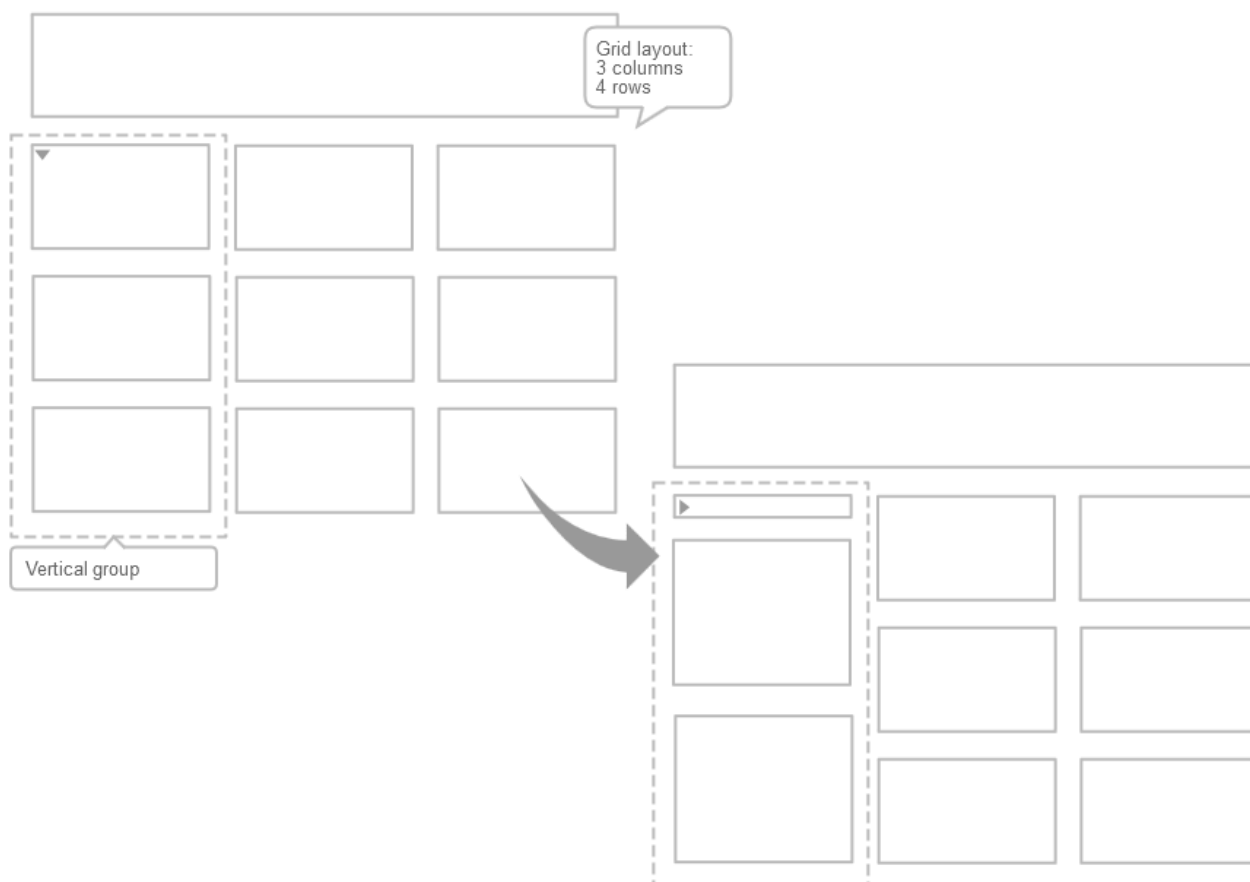
Parameter name	M(andatory) O(ptional)	Layout parameter (LP) Component layout data parameter (CLP)	Example values	Description
collapsed	0	CLP	true (default) false	Specifies whether the component should be collapsed initially. Only applies if collapsible is set to true.

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	true (default) false	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	true (default) false	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	e.g. <i>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.
entity	e.g. <i>Article</i>	Has to match the "item-entity" attribute of the same entity report.
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 Eclipse extension.

Report-by-alias data source examples

```

1  <!-- all products in the master catalog -->
2  <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
3  entity="Product2G" />
4
5  <!-- all articles in a supplier catalog -->
6  <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
7  entity="Article" >
8    <parameter key="catalog" value="Apparel"/>
9  </dataSource>
10
11 <!-- all articles in a supplier catalog - catalog can be selected
12 interactively -->
13 <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
14 entity="Article" >
15   <parameter key="catalog" value="Apparel"/>
16   <parameter key="catalog.editable" value="true"/>
17 </dataSource>
18
19 <!-- all articles in a catalog - catalog can be selected interactively and
20 defaults to master catalog -->
21 <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
22 entity="Article" >
23   <parameter key="catalog.editable" value="true"/>
24 </dataSource>

```

```

19
20 <!-- all articles in an assortment - note there is an issue currently for
21 referencing assortments by name, -->
22 <!-- instead the internal ID has to be used
23 -->
24 <dataSource identifier="dataSet" type="reportByAlias" ref="byAssortment"
25 entity="Article" >
26   <parameter key="Assortment" value="33"/>
27 </dataSource>
28
29 <!-- all articles from master catalog classified in a structure system -->
30 <dataSource identifier="dataSet" type="reportByAlias" ref="classifiedBy"
31 entity="Article" >
32   <parameter key="structure" value="Heiler Standard"/>
33 </dataSource>
34
35 <!-- all articles from supplier catalog classified in a structure system
36 -->
37 <dataSource identifier="dataSet" type="reportByAlias" ref="classifiedBy"
38 entity="Article" >
39   <parameter key="structure" value="Heiler Standard"/>
40   <parameter key="catalog" value="Apparel"/>
41 </dataSource>
42
43 <!-- all articles from master catalog classified in a structure group -->
44 <dataSource identifier="dataSet" type="reportByAlias" ref="byStructureGroup"
45 entity="Article" >
46   <parameter key="structureGroup" value="'GROUP_1'@'HeilerStandard'"/>
47 </dataSource>
48
49 <!-- add hoc search - all articles in a specific segment and with a price
50 in a specific price range, -->
51 <!-- note that the 'less than' sign had to be encoded as it is not allowed
52 in XML attribute values -->
53 <!-- Note that most field qualifications use the default from the
54 repository. They could be of course -->
55 <!-- also specified directly here - e.g. looking at the segment in German
56 and comparing against the -->
57 <!-- prices in Euro in Germany, etc.
58 -->
59 <dataSource identifier="dataSet" type="reportByAlias" ref="bySearch"
60 entity="Article" >
61   <parameter key="query" value="ArticleLang.Segment({Default}) =
62 Segment01 and ArticlePriceValuePurchase.Amount({Default},{Default},{
63 {Default},{Default},{Default},1.0) > 60 and
64 ArticlePriceValuePurchase.Amount({Default},{Default},{Default},{
65 {Default},{Default},1.0) < 90"/>
66 </dataSource>
67
68 <!-- add the value within single quotes in case of an expression starting
69 with a number -->
70 <dataSource identifier = "dataSet" type = "reportByAlias" ref = "bySearch"
71 entity = "Article">

```

```

53     <parameter key = "query" value = 'Article.SupplierAID startsWith "1)'"
    />
54 </dataSource>
55
56 <dataSource identifier = "dataSet" type = "reportByAlias" ref = "bySearch"
    entity = "Article">
57     <parameter key="query" value=
    'ArticleStructureMap.StructureGroup(HeilerStandard) ->
    StructureGroup.Identifier startsWith "04_"' />
58 </dataSource>
59
60 <dataSource identifier = "dataSet" type = "reportByAlias" ref = "bySearch"
    entity = "Article">
61     <parameter key = "query" value = 'Article.SupplierAID equals
    "1001618-4-502051-2)'" />
62 </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	reportById	
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
    icle.core.ArticlesOfMasterCatalog" />

```



```

4
5 <!-- ***** Data sources with parameters -->
6
7 <!-- All articles of a supplier catalog -->
8 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
9 icle.core.ArticlesOfSupplierCatalog">
10   <parameter key="SupplierCatalog" value="Apparel" />
11 </dataSource>
12
13 <!-- All articles of an assortment -->
14 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
15 icle.assortment.core.ArticlesOfAssortment">
16   <parameter key="Assortment" value="MyAssortment" />
17 </dataSource>
18
19 <!-- All articles from master catalog classified within a structure system
20 -->
21 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
22 icle.core.SupplierArticlesClassifiedTo">
23   <parameter key="Structure" value="HeilerStandard" />
24 </dataSource>
25
26 <!-- All articles from master catalog classified to a specific structure
27 group -->
28 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
29 icle.core.ArticlesOfStrucureGroup">
30   <parameter key="StructureGroupID" value="'GROUP_1'@'HeilerStandard'" />
31 </dataSource>
32
33 <!-- ***** data source with multiple parameters -->
34
35 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
36 icle.core.MasterArticlesClassifiedTo">
37   <parameter key="Catalog" value="1" />
38   <parameter key="Structure" value="HeilerStandard" />
39 </dataSource>
40
41 <!-- ***** data source with an editable parameter -->
42
43 <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.art
44 icle.core.MasterArticlesClassifiedTo">
45   <parameter key="Catalog" value="1" />
46   <parameter key="Catalog.editable" value="true" />
47   <parameter key="Structure" value="HeilerStandard" />
48 </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 apart from catalog parameter nothing is supported. Parameter values for a saved search should be provided in Product 360 Desktop when it is created.

Field/sublement	Value	Description
type	savedSearch	
ref	e.g. SearchName	Has to match the name of the saved search.
entity	e.g. Article	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" />
```

Saved search data source with catalog example

With reference to the above point, in the rich client users can also set catalog parameter inside flexible UIs for saved searches.

Field/sublement	Value	Description
key	catalogName	
value	e.g. MASTER	Has to match the name of the catalog

Saved search data source example

```
1 <dataSource entity="Article" identifier="dataSet" ref="Query1" type="saved
2   Search">
3   <parameter key="catalogName" value="MASTER" />
   </dataSource>
```

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.
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 233](#)) 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 229) 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="Art
icle">
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	<p>Article.CurrentStatus</p> <p>Product2GLang.Segment(de_DE)</p> <p>Article.Status->QualityStatusSummary.Status(\${Default})</p> <p>ArticleLog.ModificationDate(&#x22;WebShop&#x22;)</p>	<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	<p>true</p> <p>false (default)</p>	<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	<div>true (default)</div> <div>false</div>	<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	<div>true (default)</div> <div>false</div>	<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	<p>red, blue, green, black</p> <p>#000000 (black), #399bf9 (blue)</p> <p>rbg(255, 0, 255) (magenta)</p> <p>Default color is the theme-based color described in dashboard.css in style class:</p> <p>.hpmw-horizontal-barchart-widget</p>	<p>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.</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>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.</p>
isCacheable	O	<p>true</p> <p>false (default)</p>	<p>Enables the data cache for this dashboard component. See chapter "Data caching for dashboard components (see page 294)" for details.</p>
timeToLiveSeconds	O	<p>3600 (default)</p>	<p>Specifies in seconds how long a cache element resides in the cache before it is destroyed and loaded from the data source anew.</p> <p>Therefor the data cache has to be enabled for this component (isCacheable="true").</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
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
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
18 language -->
19 <!-- show a bar with the count of all articles that do not have any short
20 description in the given language -->
21 <component type="barchart" identifier="chart2" i18NKey="Article Short Desc
22 in Master Catalog">
23   <parameter key="groupingField" value="ArticleLang.DescriptionShort($
24 {Default})"/>
25   <parameter key="groupingField.lk0.editable" value="true" />
26   <parameter key="showNullValues" value="true"/>
27   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
28 rticle.core.ArticlesOfMasterCatalog"/>
29 </component>
30
31 <!-- report with an editable parameter and a different color for the bars
32 -->
33 <component type="barchart" identifier="chart3" i18NKey="Articles by
34 Segment in specified catalog (default: Apparel)">
35   <parameter key="groupingField" value="ArticleLang.Segment(${Default})"/>
36   <parameter key="barChartColor" value="rgb(34,45,78)"/>
37   <dataSource identifier="dataSet" type="reportByAlias" ref="byCatalog"
38 entity="Article" >
39     <parameter key="catalog" value="Apparel"/>
40     <parameter key="catalog.editable" value="true"/>
41   </dataSource>
42 </component>
43
44 <!-- display the distribution of article prices in buckets -->
45 <component type="barchart" identifier="chart3" i18NKey="Article Prices in
46 Master Catalog">
47   <parameter key="groupingField" value="ArticlePriceValuePurchase.Amount($
48 {Default},${Default},${Default},${Default},${Default},1.0)"/>
49   <parameter key="numValueBuckets" value="10"/>      <!-- maximum
50 number of buckets is 10 -->
51   <parameter key="showBlankEntries" value="true"/>    <!-- show all
52 buckets, even empty ones -->
53   <parameter key="showNullValues" value="true"/>      <!-- show a bar
54 with the articles that don't have a price set up -->
55   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
56 rticle.core.ArticlesOfMasterCatalog"/>
57 </component>
58
59 <!-- Barchart component sorting -->
60 <component i18NKey="BarChart Sorting Demo" identifier="grouped_chart2"
61 type="barchart">
62   <parameter key="groupingField" value="Article.CurrentStatus"/>
63   <parameter key="showBlankEntries" value="false"/>
64   <parameter key="sortBy" value="sortByValue"/>      <!-- sort by grouping
65 count -->
66   <parameter key="sortOrder" value="asc"/>            <!-- sorting
67 descending order -->
68   <dataSource entity="Article" identifier="dataSet" ref="byCatalog" type="
69 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	<div>Article.CurrentStatus</div> <div>Product2GLang.Segment(de_DE)</div> <div>Article.Status->QualityStatusSummary.Status({Default})</div> <div>ArticleLog.ModificationDate(&#x22;Web Shop&#x22;)</div>	<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: <code>&#x22;</code></p>

Parameter name	M(andatory) O(ptional)	Example values	Description
groupingField.Ik n.editable	0	true false (default)	Specifies whether the n th (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. ⚠ Note that for this to work the respective Product 360 qualification field has to have an enumeration assigned to it.
numValueBuckets	0	10 5	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). 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. The lowest bucket always contains the minimum and the highest always contains the maximum value.
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.

Parameter name	M(andatory) O(ptional)	Example values	Description
showLegend	O	true false (default)	Toggles the visibility of a legend that lists all captions for each of the values.
showNullValues	O	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>
colors	O	red, blue, green, black #000000 (black), #399bf9 (blue) rbg(255, 0, 255) (magenta)	<p>List of colors used for coloring the sections. Colors are separated by semicolon ";".</p> <p>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 rbg(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>
isCacheable	O	true false (default)	Enables the data cache for this dashboard component. See chapter "Data caching for dashboard components (see page 294)" for details.

Parameter name	M(andatory) O(ptional)	Example values	Description
timeToLiveSeconds	0	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	0	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
<code>dataSet</code>	M	Specifies the data set. The <code>channelstatus</code> component does not support editing of data source parameters.

Parameter name	M(andatory) O(ptional)	Example values	Description
<code>channelIdentifiers</code>	M	<code>Mobile,Print</code> <code>Catalog,Web</code> <code>Shop,Amazon</code>	Comma separated list of Product 360 channels to display. Nonexistent channels are ignored.
<code>enableCreateTask</code>	O	<code>true</code> <code>false</code> (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.

Parameter name	M(andatory) O(ptional)	Example values	Description
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 294)" 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
  Status Information">
3   <parameter key="channelIdentifiers" value="Mobile,Print Catalog,Web
  Shop"/>
4   <parameter key="enableCreateTask" value="true"/>
5   <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
  rticle.core.ArticlesOfMasterCatalog"/>
6 </component>

```

```

7
8  <!-- Display status and enable creating tasks; enabled data cache and
9  <component type="channelstatus" identifier="dqstatus2" i18NKey="Channel
    Status Information">
10    <parameter key="channelIdentifiers" value="Mobile,Print Catalog,Web
        Shop"/>
11    <parameter key="enableCreateTask" value="true"/>
12    <parameter key="isCacheable" value="true"/>
13    <parameter key="timeToLiveSeconds" value="1800"/>
14    <parameter key="isRefreshable" value="true"/>
15    <dataSource identifier="dataSet" type="reportById" ref="com.heiler.ppm.a
        rticle.core.ArticlesOfMasterCatalog"/>
16  </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	0	accepted (default) notAccepted myResponsibilit ies	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.

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 "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 <code>allFixed</code> and this will override any setting in the template.</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>

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	0	<code>all</code> (default) <code>workflow</code> <code>allFixed</code> <code>workflowFixed</code>	<p>Specifies in which mode the component should operate. There are two modes:</p> <p>Displaying both normal and workflow tasks.</p> <p>Displaying only workflow tasks and offering additional filtering capabilities</p> <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 <code>allFixed</code> and this will override any setting in the template.</p>

Parameter name	M(andatory) O(ptional)	Example values	Description
includeGroups	O	<code>group1,</code> <code>group2</code>	<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>
excludeGroups	O	<code>group1,</code> <code>group2</code>	<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>
completedTasksDays Limit	O	<code>5</code> (default) <code>10</code> <code>-1</code>	<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	<code>true</code> <code>false</code> (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>

Parameter name	M(andatory) O(ptional)	Example values	Description
userAssignedTasks	0	true (default) false	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.

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  <!-- restrict mode and only include the groups specified here, do not show
5  user assigned tasks, only user group assigned tasks -->
6  <component type="teamtasks" identifier="teamtasks2" i18NKey="Team Tasks">
7  <parameter key="groups" value="PriceMaintainers, SuperUsers" />
8  <parameter key="mode" value="allFixed" />
9  <parameter key="userAssignedTasks" value="false" />
10 </component>
11 <!-- only include all user groups of the logged in user that are not
12 listed here, extend time window for completed tasks and add a filter by
13 name field -->
14 <component type="teamtasks" identifier="teamtasks3" i18NKey="Team Tasks">
15 <parameter key="excludeGroups" value="DashboardAdmins" />
16 <parameter key="completedTasksDaysLimit" value="10" />
17 <parameter key="filterByName" value="true" />
18 </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	<code>http:// localhost:9090/ hsx</code>	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    <parameter key="hsxWebappUrl" value="http://portalserver:9090/hsx"/>
3  </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	O		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.
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>CurrentDay</td><td>Current day</td></tr><tr><td>CurrentWeek</td><td>Current month</td></tr><tr><td>CurrentMonth</td><td>Current week</td></tr><tr><td>CurrentYear</td><td>Current year</td></tr></table> <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. Therefor the identifier is recommended to be used.</p></div>	identifier	display name (in english)	CurrentDay	Current day	CurrentWeek	Current month	CurrentMonth	Current week	CurrentYear	Current year
identifier	display name (in english)												
CurrentDay	Current day												
CurrentWeek	Current month												
CurrentMonth	Current week												
CurrentYear	Current year												

Parameter name	M(andatory) O(ptional)	Example values	Description																
preSelectionPrevious TimePeriod	0	PreviousDay	<p>Specifies the preselected value of previous time period combobox. Valid values are a PreviousTimePeriod identifier or its language specified displayName.</p> <table><tr><th>identifier</th><th>display name (in english)</th></tr><tr><td>NoComparison Period</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>SameWeekOfP reviousYear</td><td>Same week of previous year</td></tr><tr><td>PreviousMonth</td><td>Previous month</td></tr><tr><td>SameMonthOf PreviousYear</td><td>Same month of previous year</td></tr><tr><td>PreviousYear</td><td>Previous year</td></tr></table> <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. Therefor the identifier is recommended to be used.</p></div>	identifier	display name (in english)	NoComparison Period	No comparison period	PreviousDay	Previous day	PreviousWeek	Previous week	SameWeekOfP reviousYear	Same week of previous year	PreviousMonth	Previous month	SameMonthOf PreviousYear	Same month of previous year	PreviousYear	Previous year
identifier	display name (in english)																		
NoComparison Period	No comparison period																		
PreviousDay	Previous day																		
PreviousWeek	Previous week																		
SameWeekOfP reviousYear	Same week of previous year																		
PreviousMonth	Previous month																		
SameMonthOf PreviousYear	Same month of previous year																		
PreviousYear	Previous year																		

Parameter name	M(andatory) O(ptional)	Example values	Description
allowedTimeBarChart Color	0	red, blue, green, black #000000 (black), # 399bf9 (blue) rgb(255, 0, 255) (magenta)	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/syntax3.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 #6AA84F will be used.
currentTimeBarChart Color	0	red, blue, green, black #000000 (black), # 399bf9 (blue) rgb(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/syntax3.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.

Parameter name	M(andatory) O(ptional)	Example values	Description
previousTimeBarChartColor	0	red, blue, green, black #000000 (black), #399bf9 (blue) rgb(255, 0, 255) (magenta)	<p>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.</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 #00FFFF will be used.</p>

Example dashboard template

Example dashboard template
<pre> <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"/> </component> </layout> </flexUi> </pre>

```

        <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 ?

1. 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)
2. Next the central task item that is currently displayed is forwarded to all components that indicate that they can handle it.
 - a. all components with rootEntity = Task
 - b. list based components with a rootEntity for which the task can provide a list of matching child items
3. 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
 - a. all components with rootEntity set to the entity of the selected item
 - b. 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 -->

```

```

24     <component identifier="preview1" type="preview" i18NKey="Detail"
    rootEntity="Article">
25         ...
26     </component>
27
28     <!-- This form will also be updated with the selection events for
Article -->
29     <form identifier="translationForm" i18NKey="Translate">
30         <fieldFormDefinition rootEntity="Article">
31             ...
32         </fieldFormDefinition>
33     </form>
34
35     ...
36 </layout>
37 </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
(Product)" rootEntity="Product2G">
11        <listenFor source="TaskProducts" type="selectionEvent" />
12        ...
13    </component>
14
15
16    <!-- displaying a structure tree based on configuration parameter -->
17    <component identifier="structure" type="structureTree" i18NKey="My
structure" >
18        ...
19        <parameter key="structure" value="MyStructure" />

```



```

20     </component>
21
22     <!-- the selected structure can be used to derive a set of product
child items ! -->
23     <list identifier="StructureProducts" pageSize="20" i18NKey="Classified
in Structure">
24         <listenFor source="structure" type="selectionEvent"/>
25         <listModelDefinition rootEntity="Product2G">
26             ...
27         </listModelDefinition>
28     </list>
29
30     <!-- this preview is tied to the list above, ignores selections in
TaskProducts table -->
31     <component identifier="productPreviewFromStructure" type="preview"
i18NKey="Detail (Product)" rootEntity="Product2G">
32         <listenFor source="StructureProducts" type="selectionEvent" />
33         ...
34     </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.

? Unknown Attachment

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" />
</header>
```

```
<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	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". Note that the <code>fieldFormDefinition</code> tag used in this component corresponds to the <code>definition</code> tag used in detail tab XML files.
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	0	<code>true</code> (default) <code>false</code>	Should field label be in one line with value or above it.
enableRefresh Button	0	<code>true</code> <code>false</code> (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	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". Note that the <code>listModelDefinition</code> tag used in this component corresponds to the <code>definition</code> tag used in list model XML files.
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 be 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(p tional)	Example values	Description
forceShowContentFromMaster	0	true false (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	0	true false (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="ProductListModel
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="Product2GLang.DescriptionShort" sortable="true">
9            <logicalKey identifier="ArticleLangType.LK.Language" value="En
10           glish" />
11          </field>
12        </listModelDefinition>
13        <i18n>Classified in Structure</i18n>
14        <i18n locale="de">Klassifiziert in Struktur</i18n>
15        <i18n locale="ja_JP">構造で分類される</i18n>
16      </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="
180" />
7      <field identifier="Product2GLang.DescriptionShort" sortable="true">
8        <logicalKey identifier="ArticleLangType.LK.Language" value="Eng
lish" />
9      </field>
10    </listModelDefinition>
11    <i18n>Products</i18n>
12    <i18n locale="de">Produkte</i18n>
13    <i18n locale="ja_JP">製品</i18n>
14  </list>

```

5.6.6.6 Preview

Displays a preview template.

Type: preview

Parameter name	M(andatory) O(ptional)	Example values	Description
previewTemplate	M	WebShopPreview	The name of the preview template to display.
enableAutoRefresh	O	true false (default)	Specifies whether the component is refreshed on edit events.

Parameter name	M(andatory) O(ptional)	Example values	Description
enableRefreshButton	0	<div>true</div> <div>false (default)</div>	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	0	<div>true</div> <div>false (default)</div>	Specifies whether the component is refreshed on edit events.
enableRefreshButton	0	<div>true</div> <div>false (default)</div>	Specifies whether the component has a manual refresh button in the header.

Parameter name	Mandatory (Optional)	Example values	Description
filterUsers	0	Administrator;rest;someUserName	Specifies which user changes should be filtered by default
filterFields	0	Article.EAN;ArticleLang.DescriptionLong({Empty})	Specifies which field changes should be filtered by default
filterDate	0	2020-10-07T11:59	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	<code>HeilerStandard</code>	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" />
4   </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
embeddedMetaDataTabVisible	O	true (default) <code>false</code>	Defines whether the embedded metadata tab is shown for the HMM provider.
embeddedMetadataTabPosition	O	<code>30</code> (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 aAssetDocumentAttributes">
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 aAssetFileAttribute">
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
dragEnabled	O	<code>true</code> (default) <code>false</code>	Defines whether the drag from list operation enabled.
selectionMode	O	<code>none</code> <code>single</code> (default) <code>multiple</code>	Defines if the user can select (one or more) media documents.
enableRefreshButton	O	<code>true</code> <code>false</code> (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	0	h1r-system	Root category name which children to display. By default shows all.

Media tree examples	
1	<component identifier="multimediaTreeId" type="multimediaTree" i18NKey="Multimedia attachments" >
2	</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(optional)	Example values	Description
urlPattern	M	<code>http:// yourshop.com/ display? itemid={0}</code>	URL that will be used. {0} is the placeholder.
valueField	O	<code>Product2G.Id</code>	<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	<code>true</code> <code>false</code> (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	<pre><filterCategories>Shipping</filterCategories></pre> <pre><filterCategories>Car eInstructions,AuditRe port</filterCategories></pre>	Characteristics will be filtered based on category Code. Multiple category Code can be supplied by comma separating.
filterType	0	<pre><filterType>include</filterType></pre> <pre><filterType>exclude</filterType></pre>	Type of filter to be applied on the supplied category codes.
enableRefreshButton	0	<pre>true</pre> <pre>false (default)</pre>	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"/>
   <header headerStrategy="characteristicsHeader"/>

```


5 **</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>
13 </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

filterCategories	filterType	Categories displayed
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

 Unknown Attachment

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	<p>To compare two or more different items/products/variants with each other</p> <p>To compare a single item with all it's revisions</p> <p>To compare a supplier catalog item, with it's corresponding master catalog item</p> <p>To compare a master catalog item with it's corresponding supplier catalog items (might be multiple!)</p> <p>To compare the supplier catalog item, with the master catalog item as it would look like after the merge</p>
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	<div>true</div> <div>false (default)</div>	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

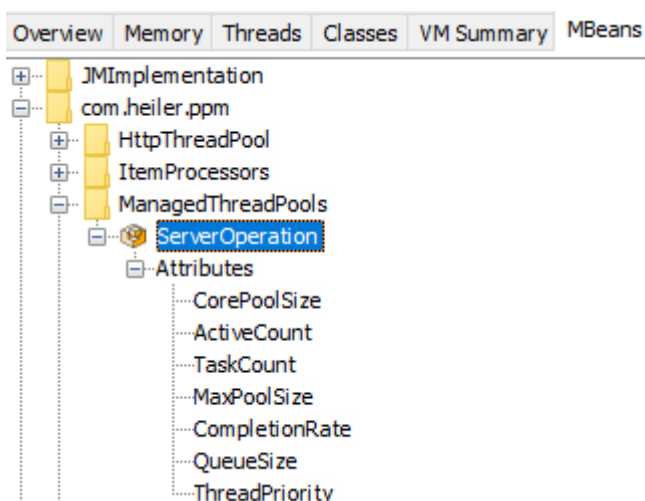
5.7.1 Purpose of the asynchronous loading thread pool

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 <code>plugin_customization.ini</code>
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>	<code>CorePoolSize</code>	<code>serverOperation.threadPool.corePoolSize</code>
Thread pool maximum size	Per default the maximum size of the thread pool is thrice the number of available processors.	<code>MaxPoolSize</code>	<code>serverOperation.threadPool.maxPoolSize</code>
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 	<code>ThreadPriority</code>	

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
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
<code>isCacheable</code>	<code>true</code> <code>false</code> (default)	Enables the data cache for this dashboard component.
<code>timeToLiveSeconds</code>	<code>3600</code> (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 (<code>isCacheable="true"</code>). This parameter is optional.
<code>isRefreshable</code>	<code>true</code> <code>false</code> (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 (<code>isCacheable="true"</code>). This parameter is optional.

Barchar 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"/>
</component>
```

```
<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

Number of entity items in a cache element	Heap memory usage of a cache element
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 webdefinition 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="ParameterizedDetailT
4 abs.xsd">
5 <tab i18NKey="%web.article.detail.tab.graph" id="articleGraph
6 DetailTab" permissionId="web.article.detail.tabs.graph" posit
  ion="5" rootEntity="Article" tabType="Graph"/>
  <tab i18NKey="%web.article.detail.tab.characteristic" id="art
  icleCharacteristicDetailTab" permissionId="web.article.detail
  .tabs.characteristics" position="61" rootEntity="Article" tabT
  ype="Characteristic"/>
  <tab i18NKey="%web.article.detail.tab.preview" id="articlePre
  viewTab" permissionId="web.article.detail.tabs.multichannelpr
  eview" 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
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	O p t i o n a l/ M a n d a t o r y	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
textFill	O	Any hex-code of color	Gives background color of graph node/edge

Style Name	Optional/Mandatory	Possible Style Value	Description
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
textFill	O	Any hex-code of color	Gives background color of graph node/edge
display	O	true/false	<p>If display=true set by user then label of the edge/node will be displayed to user</p> <p>For edges, display=false by default</p> <p>For nodes, display=true by default</p>

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
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	

5.10 Assigning or Generating higher-level objects

5.10.1 Overview

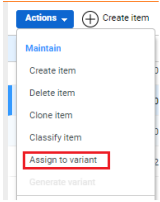
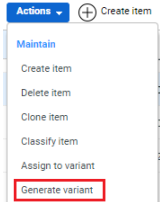
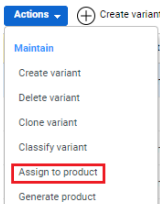
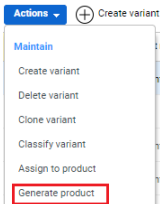
Just like in the Desktop client, the Web-client also allows to assign or generate higher-level objects, for example, assign or generate Products from Variants (3PPD) or Items (2PPD).

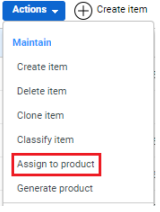
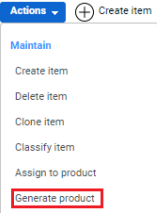
5.10.2 Permissions

The control over the visibility of Master List View menu actions and Detail View Tab actions can be achieved with a combination of action rights.

5.10.2.1 Master List View Actions Menu

- **Assign to variant** (3PPD)
- **Assign to product** (3PPD and 2PPD)
- **Generate variant** (3PPD)
- **Generate product** (3PPD and 2PPD)

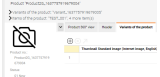
Master List Entity	Menu	Description	Action Rights	Screenshot
Item	Assign to variant	This action menu is available in the Items Master List View action menu, user can assign variant to the selected item	<ul style="list-style-type: none"> • Edit items • Items, general access • Variant management, general access 	
Item	Generate variant	This action menu is available in the Items Master List View action menu, user can create a variant for the selected item	<ul style="list-style-type: none"> • Edit items • Items, general access • Variant management, general access • Create variants 	
Variant	Assign to product	This action menu is available in the Variant Master List View action menu, user can assign a product to the selected variant	<ul style="list-style-type: none"> • Edit variants • Variant management, general access • Product management, general access 	
Variant	Generate product	This action menu is available in the Variant Master List View action menu, user can create a product for the selected variant	<ul style="list-style-type: none"> • Edit variants • Variant management, general access • Product management, general access • Create products 	


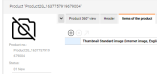
Master List Entity	Menu	Description	Action Rights	Screenshot
Item	Assign to product (2PPD)	This action menu is available in the Item Master List View action menu, user can assign a product to the selected item	<ul style="list-style-type: none"> Edit items Items, general access Product management, general access 	
Item	Generate product (2PPD)	This action menu is available in the Item Master List View action menu, user can create a product for the selected item	<ul style="list-style-type: none"> Edit items Items, general access Product management, general access Create products 	

5.10.2.2 Detail View Tab

- **Variants of the Product** (3PPD)
- **Items of the Variant** (3PPD)
- **Items of the Product** (2PPD)


Both the add and remove assignment actions are controlled by the same action rights

Master List Entity	Tab	Description	Action Rights	Screenshot
Product	Variants of the product	This tab action is available in the Product Detail View tab, user can assign variants to the selected product, or remove variant assignment	<ul style="list-style-type: none"> Edit variants Variant management, general access Product management, general access 	

Master List Entity	Tab	Description	Action Rights	Screenshot
Variant	Items of the variant	This tab action is available in the Variant Detail View tab, user can assign items to the selected variant, or remove item assignment	<ul style="list-style-type: none"> Edit items Items, general access Variant management, general access 	
Product	Items of the product (2PPD)	This tab action is available in the Product Detail View tab, user can assign items to the selected product, or remove item assignment	<ul style="list-style-type: none"> Edit items Items, general access Product management, general access 	

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

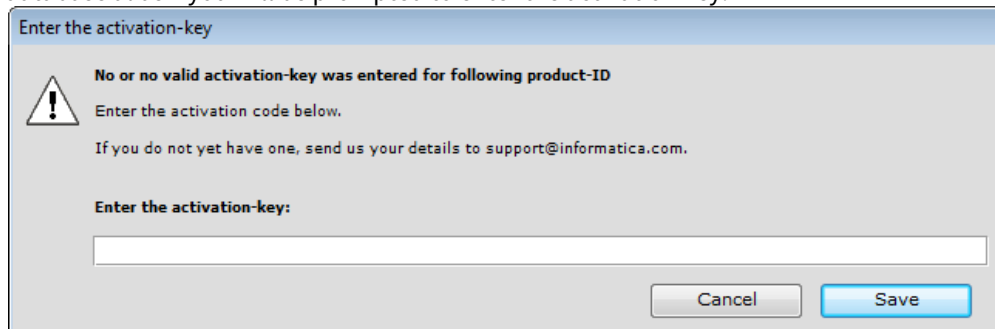
- [Activating Product 360 - Media Manager](#) (see page 308)
- [Defining Volumes](#) (see page 309)
- [Setting up Funcd](#) (see page 310)

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.

- 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.

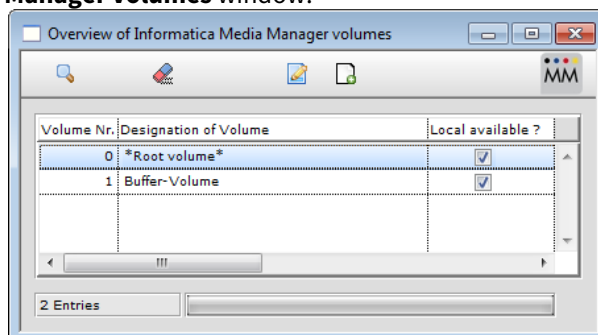


- Contact Informatica Support to receive an activation key.
- Enter the activation key in the **Enter activation key:** field and click on **Save**.
- Restart the **Administration** module so that your changes will take effect.

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:

- Start the **Administration** module.
- Select **System > Volumes of Product 360 - Media Manager** to open the **Overview of Product 360 - Media Manager volumes** window.



- Double-click an existing volume to modify it or click on the **New** button to create a new one.
- 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.

- 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.

- 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.

6.2 External preview generation

- [External preview generation \(see page 310\)](#)
 - [Example of the file datatypes.xml \(see page 311\)](#)
 - [Example of a shell script \(see page 312\)](#)

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**.

i 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/opus/buffer_volume/TransScript01.sh</PROGRAM>
7    </ENTRY>
8    <ENTRY>
9      <CUSTOMER>D049999</CUSTOMER>
10     <DATATYPE>epsf</DATATYPE>
11     <FUNCD>1</FUNCD>
12     <PROGRAM>/export/opus/buffer_volume/TranScript01.sh</PROGRAM>
13   </ENTRY>
14   <ENTRY>
15     <CUSTOMER>D049999</CUSTOMER>
16     <DATATYPE>.tif</DATATYPE>
17     <FUNCD>2</FUNCD>
18     <PROGRAM>X:\opus\buffer_volume\TranScript02.bat</PROGRAM>
19   </ENTRY>
20   <ENTRY>
21     <CUSTOMER>D049999</CUSTOMER>
22     <DATATYPE>tiff</DATATYPE>
23     <FUNCD>2</FUNCD>
24     <PROGRAM>X:\opus\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]/opusdata/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 313)
- [Setting up the Session Manager \(Obsolete since Product 360 8.0\)](#) (see page 315)

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.

i 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"/>**

i 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 \(see page 319\)](#).

You can query the status of the Session Manager under [http://localhost:\[Port \(see page 313\) for info page\]/](http://localhost:[Port (see page 313) for info page]/) in your browser.

i 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.

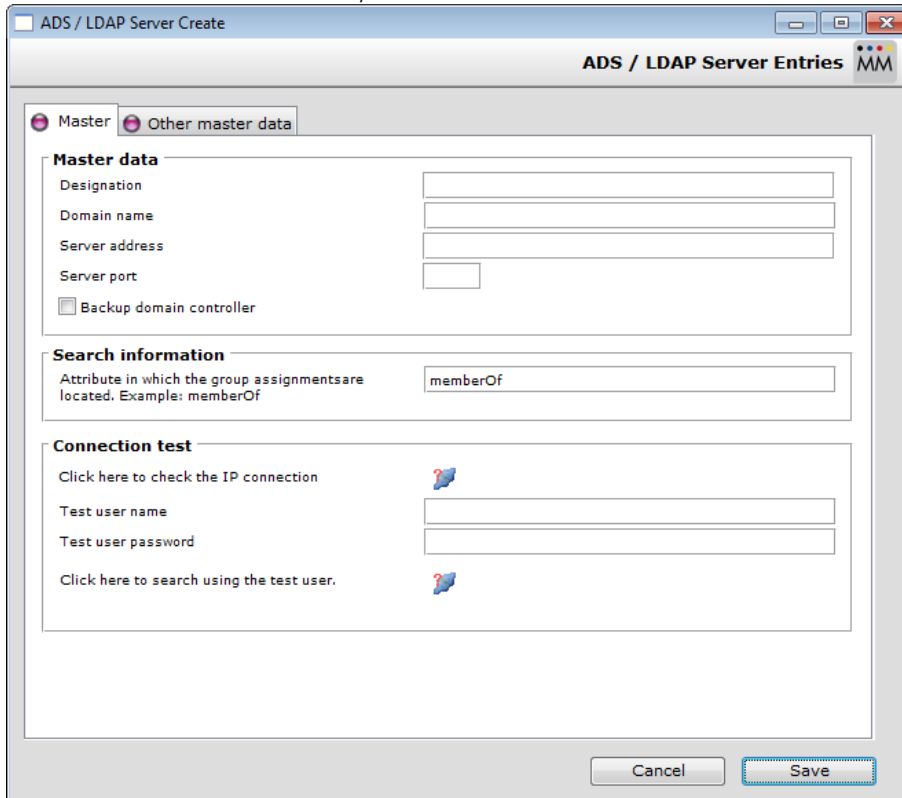
It is implemented in every module, which forwards login requests from Product 360 - Media Manager to a directory service, synchronizes the data in this service with the Product 360 - Media Manager system and ensures that access to and rights in Product 360 - Media Manager are in line with your requirements.

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:

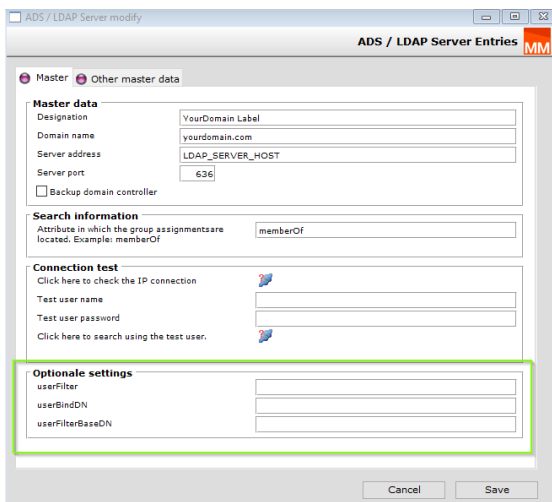
1. Select the menu **ADS/LDAP > LDAP group settings**.to open the overview list for group assignments.
2. Create new group assignments, e.g. LDAP group:
CN=companyname,OU=groups,OU=mycity,DC=mycompany,DC=com
3. Select the corresponding Product 360 - Media Manager user group.
4. Click on **Save**.

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



The screenshot shows the 'ADS / LDAP Server modify' dialog box. The 'Optional settings' section is highlighted with a green box. It contains three input fields: 'userFilter', 'userBindDN', and 'userFilterBaseDN'.

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 318)
 - "Standard" tab (see page 319)
 - "Internal" tab (see page 319)
 - "Orders" tab (see page 319)
 - "Additional parameters" tab (see page 319)

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 Funct 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 \(see page 320\)](#)

- [Run Tomcat as a service](#) (see page 321)
- [Run Session Manager as service](#) (see page 321)

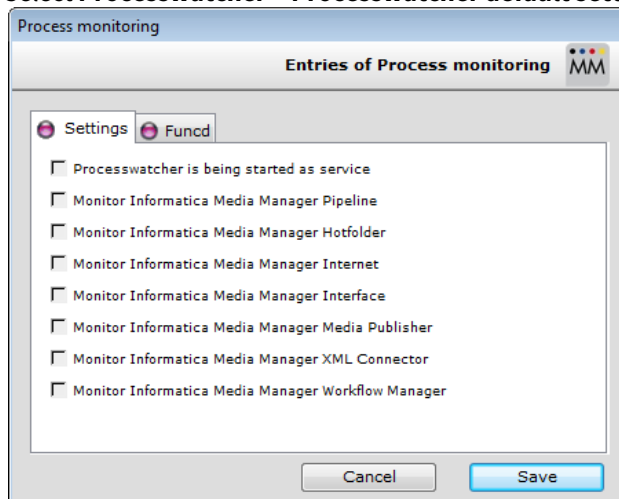
i All non-local paths must be UNC paths on the workstation where the services are running. The user account for the service must have read and write permissions on these UNC paths:

- 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 \(see page 322\)](#)

- [Integrating Product 360 - Media Manager \(see page 322\)](#)
 - [Switching default media asset provider to Product 360 - Media Manager \(see page 322\)](#)
 - [Configuring Product 360 - Media Manager \(see page 323\)](#)
 - [Connection data \(see page 323\)](#)
 - [Shares \(see page 325\)](#)
 - [Notification queue \(see page 325\)](#)
 - [Write access \(see page 326\)](#)
 - [Additional language packages \(see page 327\)](#)
 - [Miscellaneous \(see page 328\)](#)
 - [Auto Assignment \(see page 329\)](#)
 - [Configuration example of Product 360 - Media Manager \(see page 329\)](#)
 - [Using Product 360 - Media Manager with master assets and derivatives \(see page 332\)](#)
 - [Adding new media asset attribute\(property field\) to the repository \(see page 333\)](#)
 - [Add new media asset attribute\(property field\) for media asset file \(see page 334\)](#)
 - [Add new media asset attribute\(property field\) for media asset document \(see page 334\)](#)
- [Product 360 - Desktop Client \(see page 335\)](#)

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 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>

Property	Description
<code>hmm.login.customer</code>	Customer ID for the authentication at Product 360 - Media Manager.
<code>hmm.db.url</code>	<p>Url of the Media Manager database which can be reached by Product 360.</p> <div> <p> It is possible to use an encrypted connection to the Media Manager database (MSSQL only). Append 'ssl=request' to your url.</p> <p>The url would look like</p> <pre>jdbc:sqlserver:// localhost:1433;databaseName=opasdb;ssl= request</pre> </div>
<code>hmm.db.user</code>	<p>Login name at the Media Manager database which can be reached by Product 360.</p> <p>Might be empty if integrated authentication with MSSQL is used.</p>
<code>hmm.db.password</code>	<p>Password for the above mentioned user at the Media Manager database which can be reached by Product 360.</p> <p>Might be empty if integrated authentication with MSSQL is used.</p>
<code>hmm.db.type</code>	<p>Supported Product 360 - Media Manager database type. It must be one integer of the following values:</p> <p>1: ORACLE 11g R2 and above; 2: MSSQL SERVER 2008 R2; 3: MSSQL SERVER 2012 and above</p>
<code>hmm.db.allowAutomaticMigration</code>	Specifies whether the Informatica Media Manager database gets updated automatically during the P360 starts up a connection with it. Default is true.

Property	Description
<code>hmm.connection.poolsize</code>	Size of connections pool per Product 360 user to Media Manager, default value is 10.
<code>hmm.connection.timeoutSEC</code>	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
<code>hmm.share.export</code>  Removed since Product 360_8.0.03	Path to the share containing the temporary exported zip file for images. This share must provide read-write access to application server.






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
<code>hmm.jms.connection.url</code>	<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> <p> Example</p> <pre>hmm.jms.connection.url = failover:(tcp:// JMSServer:61616? wireFormat.maxInactivityDuration=0)? initialReconnectDelay=2000&maxReconnectAttempts= 2</pre> </div>
<code>hmm.jms.connection.username</code>	<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> <p> 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.</p> </div>
<code>hmm.jms.connection.password</code>	<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> <p> 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.</p> </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
<code>hmm.supportsWrite</code>	<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>
<code>hmm.defaultCategoryId</code>	<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: select IHIE_ID from F_IMGHIER where IHIE_NAME = 'Unassigned' </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 plugin:

Property	Description	Default value
<code>hmm.maxCountOfIdsInOneThread</code>	<p>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.</p> <p>For more detailed information please visit the section "Media Asset Parallel Management" of chapter "Tuning advisory" in [OperationManual].</p>	1000
<code>hmm.numberOfWorkThread.initialValue</code>	<p>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 numberOfWorkThread can be also changed by JMX tooling in real time.</p>	1
<code>hmm.maxNumberOfDisplayableObjects</code>	<p>Maximum number of the from Product 360 - Media Manager loadable media objects per search, no matter what default value in the Product 360 - Media Manager system parameters.</p>	10000
<code>defaultquality</code>	<p>The default image quality. This parameter is only needed when using the master asset functionality of Product 360 - Media Manager.</p>	originalimage


```
# 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.
# The further default connection option is '?wireFormat.maxInactivityDuration=0' to
increase robustness
# Example for JMS server '10.10.11.198' and port '61616':
# hmm.jms.connection.url=failover:(tcp://10.10.11.198:61616?
wireFormat.maxInactivityDuration=0)?initialReconnectDelay=2000&maxReconnectAttempts=2
hmm.jms.connection.url=failover:(tcp://10.10.11.198:61616?
wireFormat.maxInactivityDuration=0)?initialReconnectDelay=2000&maxReconnectAttempts=2
#
### -----
### Write access
#
# Set this to false, If the write access of HMM Provider should not be supported,
default value is true.
# Please note, that there is not granular destinction.
```

[illegible]


```
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, media assets and assigned objects(item, product and structure group).

There are example workflows existing which can be imported into the Product 360 - Media Manager workflow manager.



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 activated 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 336).

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.



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 an 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.

MediaAssetDocumentAttributesType.NameHMM (nameHMM)	Identifier	MediaAssetDocumentAttributesType.LicenseFreeHMM
MediaAssetDocumentAttributesType.AgencyIdHMM (agencyIdHMM)	Inactive	true
MediaAssetDocumentAttributesType.LevelHMM (levelHMM)	Object Name	licenseFreeHMM
MediaAssetDocumentAttributesType.StateHMM (stateHMM)	Proxy Transition Entity Type	
MediaAssetDocumentAttributesType.StatusHMM (statusHMM)	Persistence	
MediaAssetDocumentAttributesType.FinishedHMM (finishedHMM)	Fragment Column Access	
MediaAssetDocumentAttributesType.InProgressHMM (inProgressHMM)	Persistence Class Name	java.lang.String
MediaAssetDocumentAttributesType.ClassHMM (classHMM)	Persistence Model Class	
MediaAssetDocumentAttributesType.MemoHMM (memoHMM)	Persistence XPath	F_IMGITEM.IMI_ITEM1
MediaAssetDocumentAttributesType.LicenseFreeHMM (licenseFreeHMM)	Physical Column Is Big	false

3. In the "custom" area, add an new field of the defined field type under the entity "MediaAssetDocumentAttributes".

Class	Active	false
Memo	Field Type	MediaAssetDocumentAttributesType.LicenseFreeHMM (licenseFreeHMM)
License free	Identifier	MediaAssetDocumentAttributes.LicenseFreeHMM
Field Param mediaAssetProvider	Value	

Warning: Currently only read access is supported for the fields under the entity "MediaAssetDocumentAttributes", therefore the corresponding "Editable" property has to be set with "false".

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)

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.



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

- [Media Manager Native Client](#) (see page 335)
- [Media Manager Web](#) (see page 335)

6.8.1 Media Manager Native Client

Media assets can not be deleted if media manager is connected with Product 360 server.

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

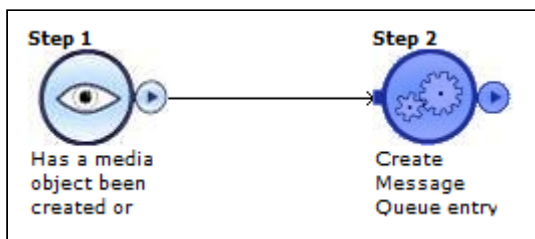
- Start the application "Workflow Manager - Informatica Media Manager" and activate the administration mode.
- Select the menu entry "Management of Workflows" in the menu "Master data".
- Cilck on the button "Import Worklfow".

- 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.

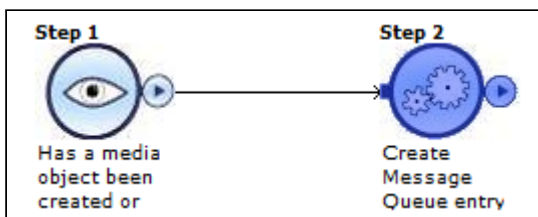


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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.

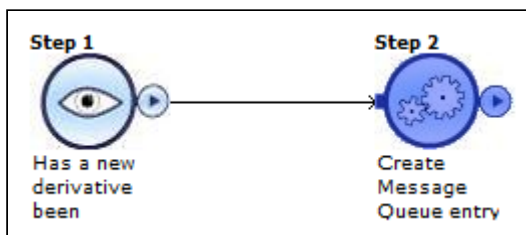


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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.

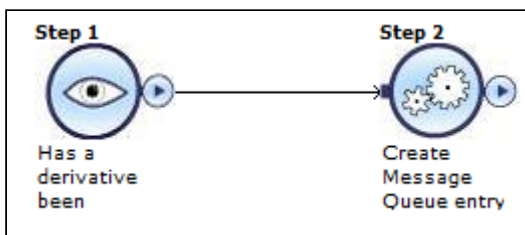


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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.

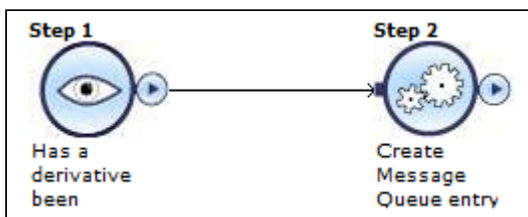


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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.

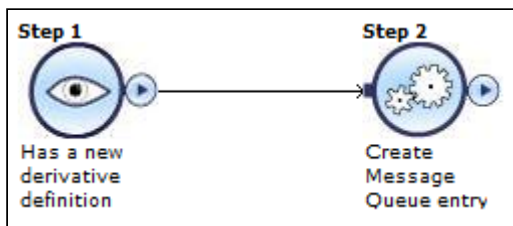


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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..

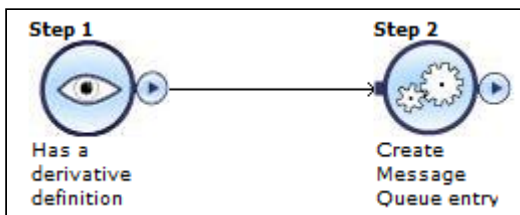


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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..

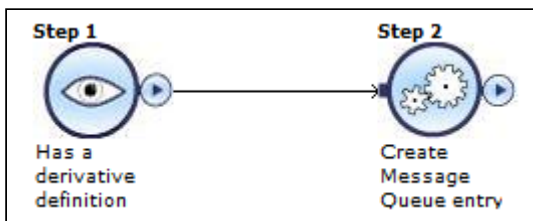


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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..

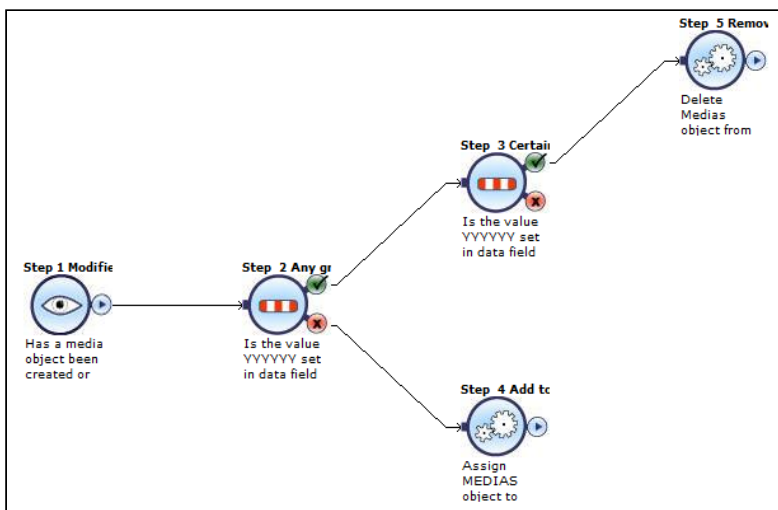


Step	Value(s)	Change Value(s)	Comment
Definition	<WRFD_STATION>1</WRFD_STATION>	YES	ID of the Media Manager Application Server where the Workflow Module is running in the automatic mode.
Step 1	D120001	YES	Select the correct client, which stores the Product 360 assets.
Step 2	tcp://localhost:61616 heiler.hmm.backend.event 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.

6.10 Web front end cookie settings

6.10.1 Authentication cookie

Informatica Product 360 Media Manager Web use Tomcat as servlet container. Tomcat use a cookie called **JSESSIONID** for session handling.

To secure the **JSESSIONID** cookie the following attributes are set by default and can be adjusted if necessary:

cookie attribute	default value	configuration file	parameter	Notes
HttpOnly	true	OpasGWebServer\Tomcat\webapps\opas\WEB-INF\web.xml	<pre> <web-app> <session- config> <cookie- config> <http- only>true</http- only> </cookie- config> </session- config> </web-app> </pre>	
Secure	false	OpasGWebServer\Tomcat\webapps\opas\WEB-INF\web.xml	<pre> <web-app> <session- config> <cookie- config> <secure>>false</ secure> </cookie- config> </session- config> </web-app> </pre>	<p>Value can be changed to true if the application is only used with https.</p> <p>Value needs to be false as long as the application is used with http.</p>
SameSite	strict	OpasGWebServer\Tomcat\webapps\opas\META-INF\context.xml	<pre> <Context> <CookieProcessor sameSiteCookies=" strict" /> </Context> </pre>	Value needs to be change if the application should be integrated in other web applications.

7 Supplier Portal Configuration

In this manual, configuration settings for Product 360 - Supplier Portal are described.

- [Configuration Setup and General Description](#) (see page 348)
 - [Property Description](#) (see page 349)
- [Item Editor configuration](#) (see page 378)
- [Setup Post Export Step](#) (see page 389)
- [Network setup](#) (see page 390)
 - [Setup HTTPS/SSL Security](#) (see page 390)
 - [Setup a Reverse Proxy](#) (see page 391)
 - [Configure Support for X-Forward-* headers](#) (see page 392)
 - [Configure HTTP Strict-Transport-Security \(HTST\) response header](#) (see page 392)
 - [Configure CORS header](#) (see page 393)
 - [Set secure flag for cookies](#) (see page 394)
 - [Install SSL certificates on Supplier Portal Server directly](#) (see page 395)
 - [Setup Secure Connection between Supplier Portal and Product 360 Server](#) (see page 395)
- [Multiserver Setup](#) (see page 396)
 - [Property configuration](#) (see page 396)
 - [Setup Reverse Proxy and Load Balancer](#) (see page 397)
- [Start Supplier Portal with additional Spring Profiles](#) (see page 398)



Mandatory Oracle DB

10.5.02.01 onwards users, with supplier portal database on Oracle, and migrating from versions lower than 10.5.02.01, need to run the **setupToUpdateOracle.cmd** (*setupToUpdateOracle.sh for linux*) in the **<INSTALLATION ROOT>/database/** before starting Supplier Portal service to upgrade version management system.

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>Default: mssql</p>
database.name	<p>MSSQL: Name of the created database</p> <p>e.g. database.name=hsx_1.4</p> <p>Oracle: SID or ServiceName of the Oracle DB</p> <p>e.g. database.name=XE</p> <div> <p> If you want to use the ServiceName it is required to adjust the <code>database.url.oracle</code> parameter as well.</p> </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>  <p>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 428)" in the "Supplier Portal Configuration (see page 348)" manual.</p> </div>
database.username	<p>User name for the database connection</p> <p>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.</p> <p>The default is MB. Specify a whole number; do not include a decimal. The minimum value for size 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</p> <p>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> <p>jdbc:oracle:thin:@databaseServer:1521:sid</p> <p>jdbc:jtds:sqlserver:// databaseServer:1433;DatabaseName=HENRI</p> <p>Default:</p> <p>automatically set though database.type declaration.</p> <p>\${database.url}.\${database.type}}</p>
database.url.oracle	<p>If you want to use Oracle's ServiceName please adjust this setting to</p> <p>jdbc:oracle:thin:@\${database.server}:\${ database.port}/\${database.name}</p> <p>Default:</p> <p>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> <p>Default: automatically set though database.type declaration.</p> <pre>database.driverClassName=\${database.driverClassName}.\${database.type}</pre>
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> <pre>file:///C:/Informatica/SupplierPortal/configuration/persistence-mssql.xml</pre> <p>Default:</p> <pre>persistence.xmlLocation=file:///\${hsx.configurationArea}/persistence-\${database.type}.xml (see page 348)</pre> <p>where <code>\${hsx.configurationArea}</code> and <code>\${database.type}</code> 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> <pre>default</pre> <p>Default: default</p>

<p>Database connection pool settings (since 10.5.02.01)</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># 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. 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). If true, the following parameters need to be used for mail server configuration. (It does not make much sense to use Product 360 - Supplier Portal without a mail server.)</p> <p>Default: false</p>
mail.protocol	<p>Mail protocol as passed to javax.mail.</p> <p>Example value: smtp</p> <p>Default: smtp</p>
mail.serverHost	<p>Mail server host.</p> <p>Example value: smtp.company.com</p>
mail.serverPort	<p>Mail server port. Example: 25</p> <p>Default: 25</p>
mail.senderAddressDefault	<p>The default sender address for mails. Will be used and displayed as mail sender. Has to follow a valid email pattern.</p> <p>Example value: admin@company.com</p>
mail.username	<p>User name if the mail server demands authentication. Can be empty otherwise.</p>
mail.password	<p>User password for mail server authentication.</p>

mail.templateFolderPath	<p>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.</p> <p>Default: file:/// \${hsx.configurationArea}/mailTemplates/ (see page 348)</p>
mail.securityMode	<p>The security mode (please note that security modes have different ports) Possible values are: NONE, TLS, SSL Default: NONE</p>
Filestorage settings	
fileStorageService.rootDirectory	<p>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).</p> <p>Default: C:/Informatica/PIM/SupplierPortal/filestorage</p>
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>


fileshare.adapter.home.dir	<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>C:/Informatica/PIM/SupplierPortal/DAM //ServerName/ShareFolder</p> <p>Default: C:/Informatica/PIM/SupplierPortal/DAM</p>
fileshare.adapter.supplier.subfolder	<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: true</p>
fileshare.adapter.catalog.subfolder	<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: true</p>
fileshare.adapter.unzip.images	<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: false</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> <p>C:/Informatica/PIM/SupplierPortal/bin/ MyBatchScript.bat //ServerName/ShareFolder/BIN/ MyBatchScript.bat</p>

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> <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: <code>http://www.informatica.com</code></p> <p>Default: <empty></p>
<p>logoutUrlActiveRoles (since 8.1.0.02)</p>	<p>Defines a list of user roles to enable the logout redirect defined in property <code>logoutUrl</code>.</p> <p>Property is only relevant if <code>logoutUrl</code> is defined and Supplier Portal runs without SAML.</p> <p>Example value: <code>ROLE_SUPPLIER_USER,ROLE_SUPPLIER_ADMIN,ROLE_BROKER_USER,ROLE_PORTAL_ADMIN</code></p> <p>Default: <code>ROLE_SUPPLIER_USER,ROLE_SUPPLIER_ADMIN,ROLE_BROKER_USER</code></p>
<p>File upload content filter settings</p>	

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 an allowlist 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	<p>The width uploaded user avatar images will be resized to.</p> <p>Default: 256</p>
image.resize.height	<p>The height uploaded user avatar images will be resized to.</p> <p>Default: 256</p>
Timeline / notification settings	

<p>Default values for mail notifications of new feed messages (can be individually changed per user in personal settings)</p> <p>Supplier:</p>	
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).
<p>Default values for mail notifications of new feed messages (can be individually changed per user in personal settings)</p> <p>Portal Administrator:</p>	
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	<p>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.</p> <p>Example value for 2 weeks: 2</p> <p>Default: 2</p>
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.suppliertasks	<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 • CREATE_USER <p>Default:</p> <p>INVITE_SUPPLIER,VIEW_IMPORT_MANAGER,MANAGE_SUPPLIER_USER,MANAGE_SUPPLIER,START_DRY_RUN,MANAGE_BROKER_USER,CREATE_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 CREATE_USER <p>Default:</p> <p>START_DRY_RUN,MANAGE_SUPPLIER_USER,CREATE_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:</p> <p>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	

uiCustomization.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)	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 <code>wrongLogin.lockDuration</code> . 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 $(\text{wrongLogin.maxAttempts} * \text{number of servers})$ attempts. Default value: 10
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 (<code>wrongLogin.maxAttempts</code>). 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	<p>Define the strategy how to create suppliers, if SAML authentication is used.</p> <p>Possible values are:</p> <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. <p>Default value is AUTOMATIC</p>
Misc Settings	
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	Set the Job Frameworks thread pool size. Default: 10
job.threadNamePrefix	Set the job frameworks thread name prefix. Default: JobThread
job.defaultLockAtMostFor	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. Default: 15
Cookie Settings (since 8.1.1)	
cookie.secure	Indicates to the browser whether the cookie should only be sent using a secure protocol, such as HTTPS. Default: false
Security HTTP response headers	
security.httpHeaders.xframeoptions	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. Please note, that this will break existing functionality in Supplier 360. Details: https://tools.ietf.org/html/rfc7034 Supported values: DENY, SAMEORIGIN, ALLOW-FROM Default: <empty>

Security HTTP response headers	
<p>security.httpHeaders.Strict-Transport-Security</p>	<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>
<p>security.httpHeaders.Content-Security-Policy</p>	<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>
<p>security.httpHeaders.X-Content-Type-Options</p>	<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: <code>nosniff</code></p> <p>Default: <empty></p>

Security HTTP response headers	
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.



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	
Items	Items, general access	Yes	
Items	Create Items	Yes	
Items	Create Prices	Yes	
Items	Create Prices (in the past)	Yes	
Items	Delete item	Yes	

Rights group	Permission	Mandatory	Note
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	

Following **field rights** have to be defined at least as defined below.

Data range	Permission
Partner	<p>As basis grant visible and editable permissions to all fields.</p> <p>For following fields it is not mandatory to grant permissions:</p> <p>Object rights</p> <p>All fields of the field group Change Information</p>

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	

Action rights			
Rights group	Permission	Mandatory	Note
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

Action rights			
Rights group	Permission	Mandatory	Note
Document management	Create documents	No	Only for assignment and upload of media attachments
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	

Field rights			
Data range	Field	Mandatory	Note
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 rights, permissions and interface visibility MUST be REVOKED:

Interface visibility		
Category	Name	Note
Context	Context visibility: Entire Context selection area	
Action rights		
Rights group	Permission	Note
Flexible UI	Access Flexible UI	Flex UIs are not supported in context of supplier tasks.
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	
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	

Field rights			
Data range	Field	Mandatory	Note
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	

3. Following permissions, rights and interface visibility MUST be REVOKED:

Interface visibility		
Category	Name	Note
Context	Context visibility: Entire Context selection area	

Action rights		
Rights group	Permission	Note
Flexible UI	Access Flexible UI	Flex UIs are not supported in context of supplier tasks.
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

- 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 Administrators User Group**

7.2.1.5 Add Product 360 Core Users as Product 360 Supplier Portal Administrator

- 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
- 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.

 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 <code>hsx.enabled=true</code>
hsx.server	The Product 360 - Supplier Portal tomcat application server host name. e.g. <code>hsx.server=localhost</code>
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:

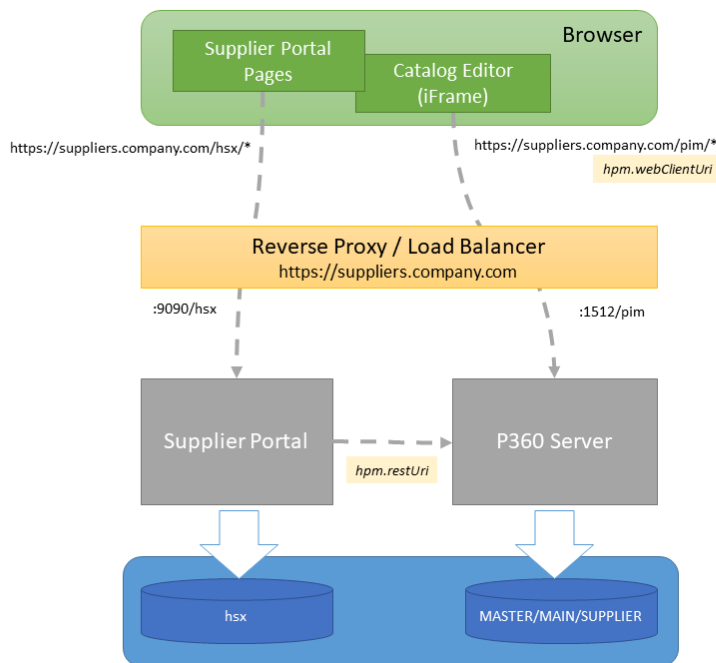
- Setup a Reverse Proxy that transparently forwards all requests to the Supplier Portal server. SSL certificates are installed on the Reverse Proxy.
- Install SSL certificates directly on Supplier Portal Server.

A combination of both is possible, too.

i When using a proxy don't forget to configure the externally visible URLs in the [configuration file](#) (see [page 365](#)). 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 Configure HTTP Strict-Transport-Security (HTST) response header

Please note, that a https setup is required to use HTTP Strict-Transport-Security (HTST) response header for Supplier Portal.

HTST needs to be enabled within the `<HSX_Install>\tomcat\conf\web.xml` file.

Enable the following existing blocks and adjust to your needs.

web.xml

```
...
<filter>
    <filter-name>httpHeaderSecurity</filter-name>
```



```

    <filter-class>org.apache.catalina.filters.HttpHeaderSecurityFilter</filter-
class>
    <init-param>
      <param-name>hstsMaxAgeSeconds</param-name>
      <param-value>31536000</param-value>
    </init-param>
    <async-supported>true</async-supported>
  </filter>
  ...

```

web.xml

```

...
<!-- The mapping for the HTTP header security Filter -->
<filter-mapping>
  <filter-name>httpHeaderSecurity</filter-name>
  <url-pattern>*</url-pattern>
  <dispatcher>REQUEST</dispatcher>
</filter-mapping>
...

```

For general details about HTTP Strict-Transport-Security (HTST) please refer to <https://developer.mozilla.org/en-US/docs/Web/HTTP/Headers/Strict-Transport-Security>.

7.4.5 Configure CORS header

The CORS headers are realized by a default http filter of Apache Tomcat. CORS headers can be enabled in the `<HSX_Install>\tomcat\conf\web.xml` file.

The following sample adds a minimum configuration and define a valid `origin` with `http://supplierportal:9090`

Adjust this sample to your needs. For details please refer to https://tomcat.apache.org/tomcat-8.5-doc/config/filter.html#CORS_Filter.

web.xml

```

...
<filter>
  <filter-name>CorsFilter</filter-name>
  <filter-class>org.apache.catalina.filters.CorsFilter</filter-class>
  <init-param>
    <param-name>cors.allowed.origins</param-name>
    <param-value>http://supplierportal:9090</param-value>
  </init-param>
</filter>

```

...

web.xml

```
...
<filter-mapping>
  <filter-name>CorsFilter</filter-name>
  <url-pattern>*/</url-pattern>
</filter-mapping>
...
```

7.4.6 Set secure flag for cookies

Please note, that a https setup is required to set the secure flag for cookies in Supplier Portal.

The secure flag indicates to the browser the cookie should only be sent using a secure protocol, such as HTTPS.

The secure flag needs to be enabled with in the `<HSX_Install>\tomcat\conf\web.xml` file.

Enable the following existing blocks and adjust to your needs.

web.xml

```
...
<!-- ===== Default Session Configuration ===== -->
<!-- You can set the default session timeout (in minutes) for all newly -->
<!-- created sessions by modifying the value below. -->

  <session-config>
    <session-timeout>30</session-timeout>
    <cookie-config>
      <http-only>true</http-only>
      <secure>true</secure>
    </cookie-config>
  </session-config>
...
```

Additionally the secure flag needs to be enabled with in the

`<HSX_Install>\configuration\configuration.properties` file.

configuration.properties

```
...
#####
```

```
### Cookie settings

# Indicates to the browser whether the cookie should only be sent
# using a secure protocol, such as HTTPS.
#
cookie.secure = true
...
```

7.4.7 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.

7.4.8 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:

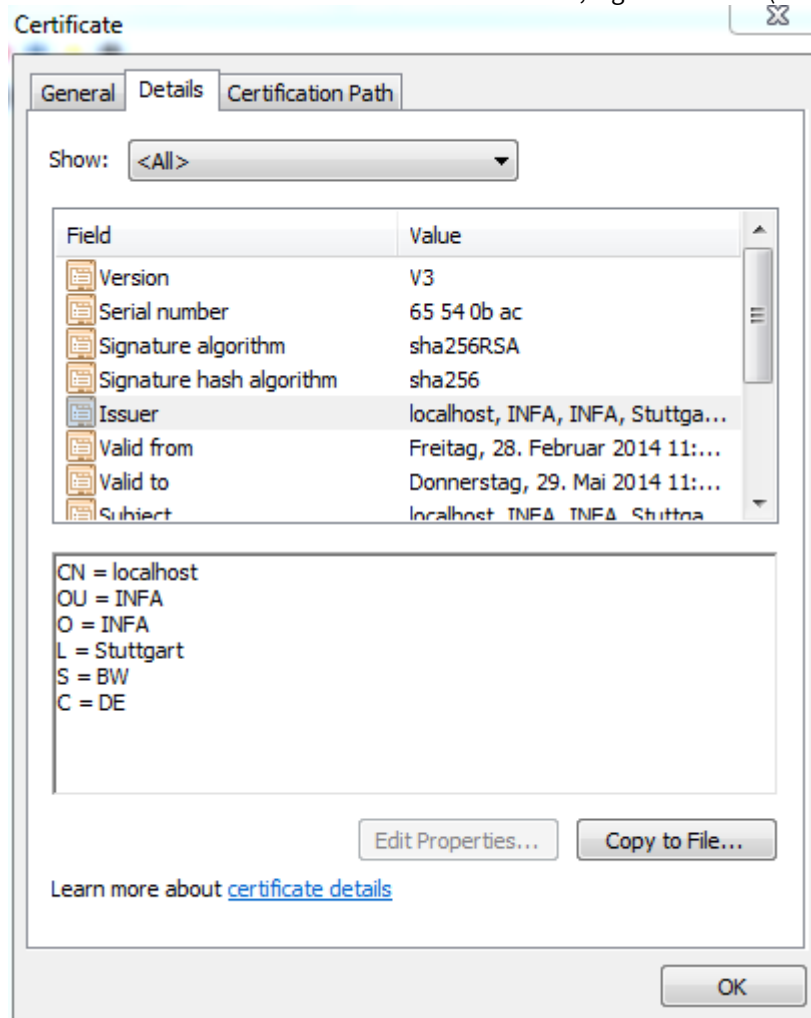
1. Configure https on the Product 360 Server as described [here \(see page 131\)](#)
2. Specify the configured https url within Supplier Portal, e.g.

```
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.

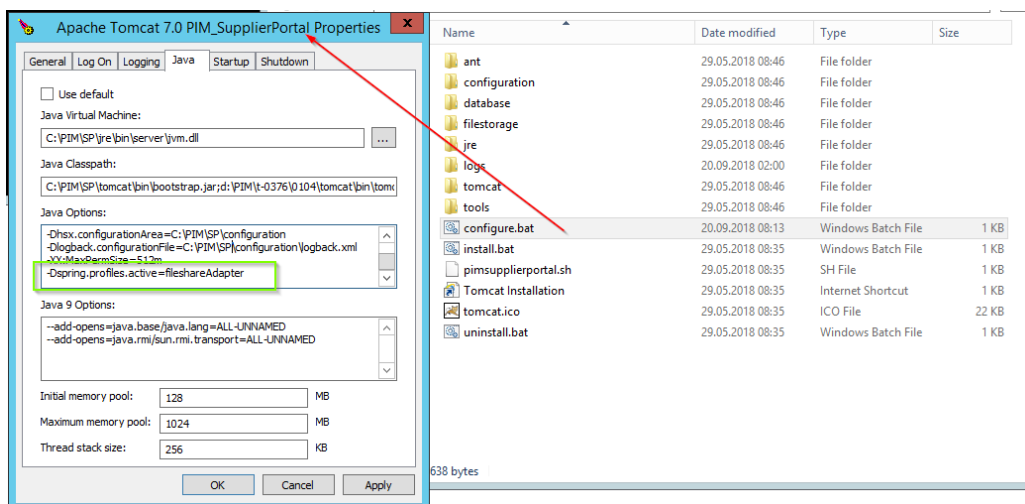
```
<Valve className="org.apache.catalina.valves.RemoteIpValve" internalProxies="192.168.1.XXX" remoteIpHeader="x-forwarded-for" remoteIpProxiesHeader="x-forwarded-by" protocolHeader="x-forwarded-proto" />
```

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

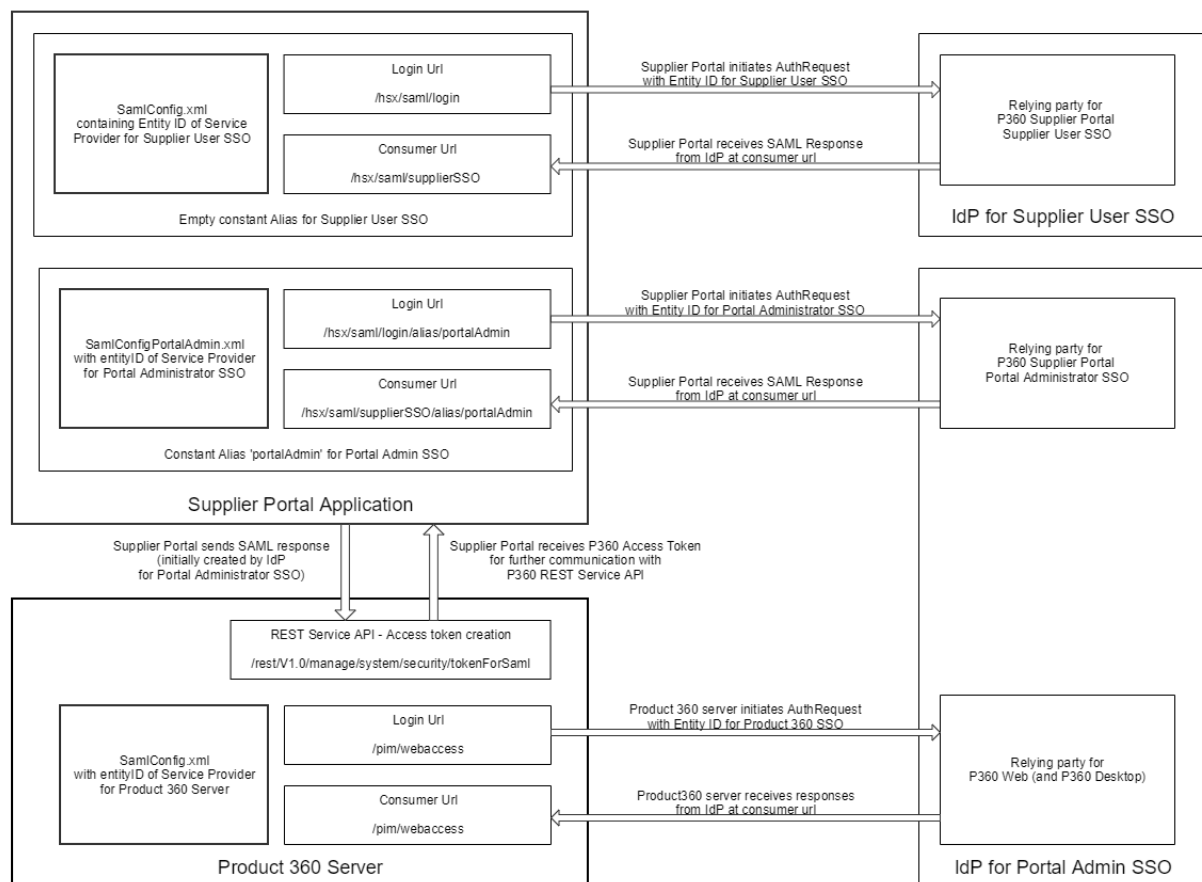
In this scenario, there is no initial authentication request from the SP. Instead, the IdP provides links to certain SP resources. IdP initiated Single Sign On is started when the user clicks on such a link.

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



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 "[SAML Configuration \(see page 92\)](#)"). 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 to 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 server 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 "[SAML Configuration \(see page 92\)](#)").



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.

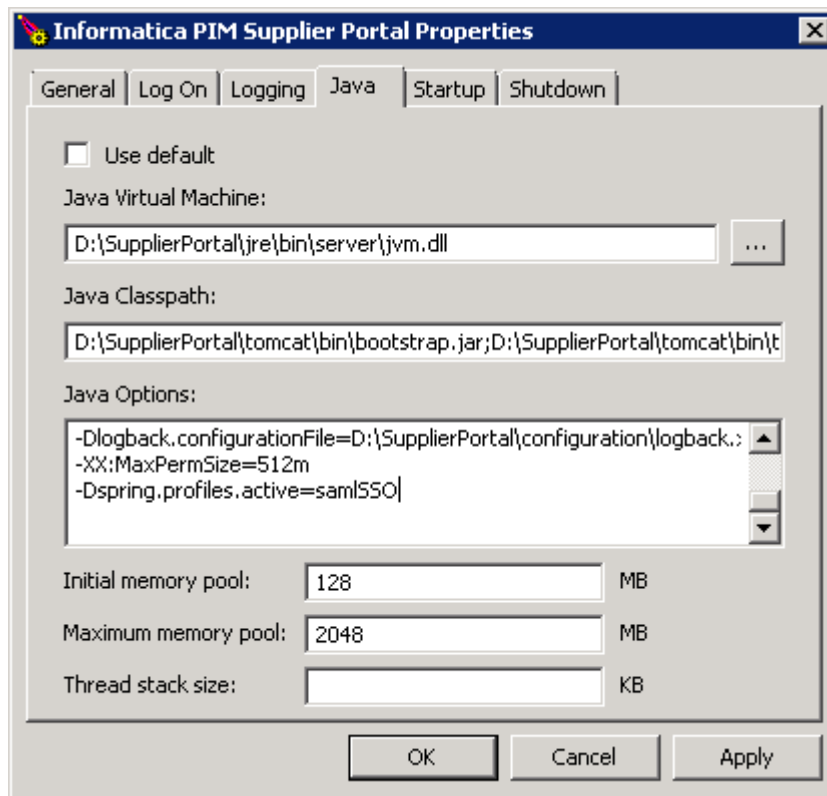
Windows

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=$CATALINA_HOME/conf/
8      logging.properties
9      -Dhsx.configurationArea=$HSX_CONFIG_AREA
10     -Dlogback.configurationFile=$HSX_CONFIG_AREA/logback.xml
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 # Defines the file location of the keystore to use
5 keystore.location = file:c:/temp/.keystore
6 # Defines the password of the keystore defined via ${keystore.location}
7 # property
8 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 "[SAML Configuration](#) (see page 92)".

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"
disregardSslCertificate="false">idp-metadata.xml</metadataLocation>
7    </idpMetadata>
8    <spMetadata>
9      <assertionConsumerServiceLocation>https://
supplierPortal.informatica.com</assertionConsumerServiceLocation>
10     <signingKey password="secret" alias="localhost"/>
11     <encryptionKey password="secret" alias="localhost"/>
12     <entityId>spEntityID</entityId>
13     <wantAssertionsSigned>true</wantAssertionsSigned>
14   </spMetadata>
15 </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 <code>SamlConfigPortalAdmin.xml</code> , 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>  <p>In case the <code>SamlConfigPortalAdmin.xml</code> is configured for Portal administrator SSO, then the entityId must differ from the entityId in the <code>SamlConfig.xml</code> of Product 360 Server and also from the entityId in the <code>SamlConfig.xml</code> of Product 360 Supplier Portal.</p> </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`

Booleano-

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    ...

```

9 `</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`.



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
    BAQsFADBkMQswCQYDVQQGEwJE
11
    RTEQMA4GA1UECBMR2VybWVudG90eXNja2NDFaMGQxCzAJBgNVBAMTCWxvY2FsaG9zdDAeFw0xNTEw
12
    ZG93czcxDTALBgNVBAsTBFBPSU0xNjA5MjYxMjA2NDFaMGQxCzAJBgNVBAYTAkRFMRAwDgYDVQQI
13
    MDIxMjA2NDFaFw0xNjA5MjYxMjA2NDFaMGQxCzAJBgNVBAYTAkRFMRAwDgYDVQQI
14
    ...
15      </ds:X509Certificate>
16      </ds:X509Data>
17      </ds:KeyInfo>
18      </md:KeyDescriptor>
19      ...
20      </md:IDPSSODescriptor>
21      </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 ### Saml settings
4 # Define the strategy for creating a supplier, if SAML authentication is
  used.
5 #
6 # Options are AUTOMATIC, APPROVAL_WORKFLOW:
7 # - AUTOMATIC:      Supplier and supplier users will be created
  automatically.
8 # - APPROVAL_WORKFLOW: Supplier and supplier users will be created with
  the registration workflow.
9 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 ### Customization Settings
4 # The pattern {SupplierName} is going to be replaced by the supplier's
  name on runtime.

```

5	registrationCustomization.defaultCatalogName={SupplierName} - default 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 ### Saml settings
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 #                   automatically.
9 # - APPROVAL_WORKFLOW: Supplier and supplier users will be created with
10 #                   the registration workflow.
11 saml.supplierCreationStrategy=APPROVAL_WORKFLOW

```

Manual creation means, while authentication needs to create an new supplier which does not exists yet, we will kick of an asynchronous approval workflow, which notifies an 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	<p>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".</p> <p> 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.</p>
----------------	--

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. 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

- 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
purpose
10     #SSLProxyVerify off
11     #SSLProxyCheckPeerCN off
12     #SSLProxyCheckPeerName off
13
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
stickysession=JSESSIONID|jsessionid
22     ProxyPassReverse /hsx balancer://supplierclusterSSL/hsx
stickysession=JSESSIONID|jsessionid
23
24 </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)

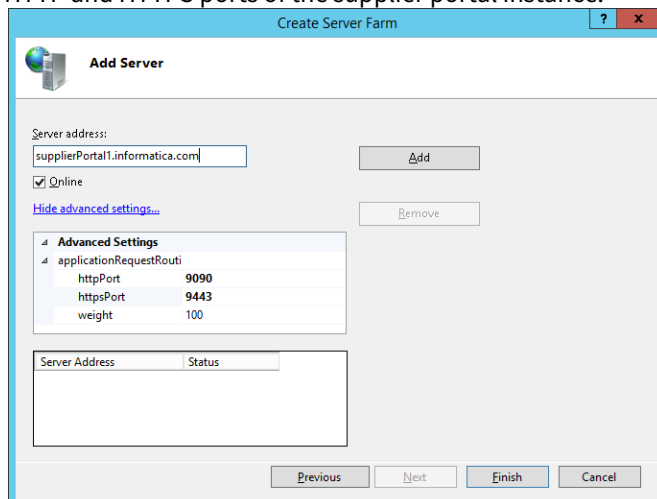
Directive	Explanation
SSLCertificate...	Either SSL Certificate or SSLCACertificates which were defined here, need to be trusted by the IDP to successfully handle an SAML authentication.

Microsoft IIS and Tomcat load balancing

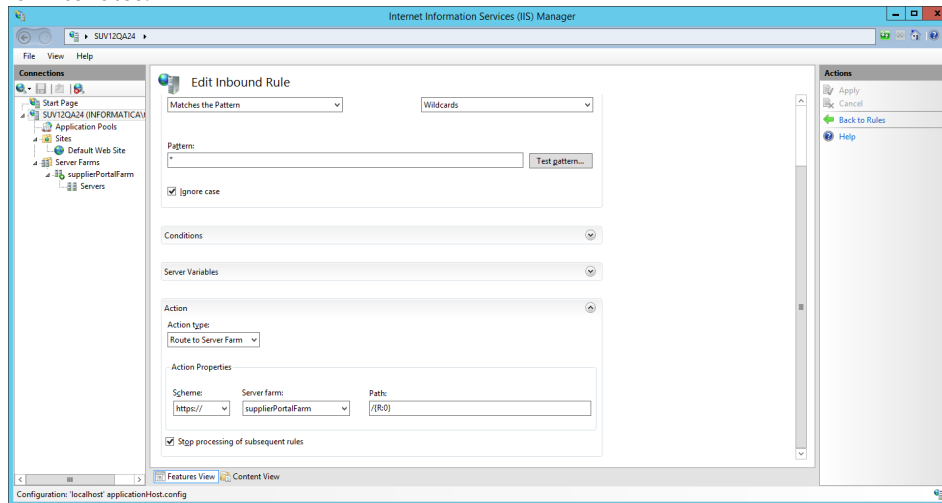
You need to do the following steps to handle SAML Authentication over your IIS load balancer (tested with IIS and ARR on windows 2012 R2 server).

Additionally to the default IIS load balancing settings you need to take care of the following settings for the Supplier Portal:

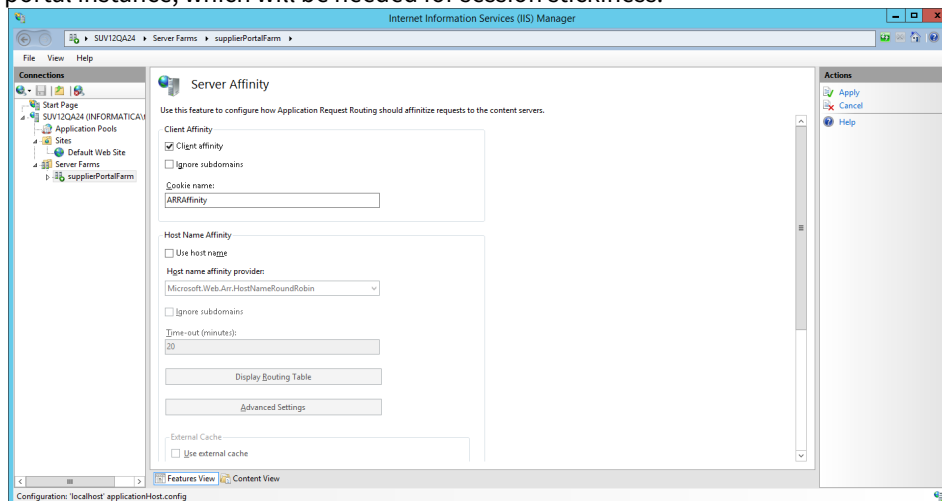
1. Install Application Request Routing and URL Rewriting on your IIS server.
2. Create server farm with the appropriate Supplier Portal server instances (especially with their appropriate port settings, which are configured in your supplier portal `configuration.properties` file). Add HTTP and HTTPS 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 <code>plugin_customization.ini</code> : <code>com.heiler.ppm.webservice.server/accessTokenExpirationTime.SAML</code>	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.
PIM Supplier Portal Session	120 minutes	in <code>web.xml</code> : <code><session-config></code> <code><session-timeout>120</session-timeout></code> <code>...</code> <code></session-config></code>	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 \(see page 348\)](#)".
 - 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 \(see page 348\)](#)".
 - 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 \(see page 429\)](#)
- [Configure Audit Trail in the Product 360 Application \(see page 430\)](#)
 - [Enable Audit Trail \(see page 430\)](#)
 - [Configure Audit Trail view \(see page 433\)](#)
 - [Start Product 360 Server \(see page 433\)](#)
- [Repository Based Configuration \(see page 433\)](#)
 - [Short Identifier \(see page 433\)](#)
 - [Audit Trail Settings \(see page 434\)](#)
 - [Supports Audit Trail Property \(see page 437\)](#)
- [Index policies and templates \(see page 437\)](#)
 - [Lifecycle Policies \(see page 437\)](#)
 - [Index Templates \(see page 439\)](#)
- [Configure Audit Trail logs in Product 360 \(see page 439\)](#)

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	
<code>system.name</code>	✓	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 <code>_</code> . Best practice: use 0-9A-Za-z.-
<code>audittrail.rest.url</code>	✓	URL path to the Elasticsearch REST server. E.g. <code>audittrail.rest.url = http://localhost:9200,http://localhost:9201</code>
<code>audittrail.rest.user</code>	✗	Login name of the Elasticsearch REST server.
<code>audittrail.rest.password</code>	✗	Login password of the Elasticsearch REST server.
<code>audittrail.rest.allow.self-signed.certificate</code>	✗	Allows self-signed certificate only if you use <code>https</code> .

General settings	Mandatory									
<code>audittrail.mode</code>		<p>The Audit Trail can be set up with the below modes</p> <table><tr><th>Mode</th><th></th></tr><tr><td><code>PRODUCTI ON</code></td><td>(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.</td></tr><tr><td><code>CLEAN_SL ATE</code></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><code>DISABLED</code></td><td>The Audit Trail will be disabled. This setting is only for development environments! With disabled audit trail the delivery of trigger messages to Apache Active MQ is not guaranteed. The audit trail documents are used in failover or high-load/overload scenarios to guarantee that they are delivered.</td></tr></table>	Mode		<code>PRODUCTI ON</code>	(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.	<code>CLEAN_SL ATE</code>	(Only for testing, use with caution) All Audit Trail data will be erased when Product 360 - Server is restarted.	<code>DISABLED</code>	The Audit Trail will be disabled. This setting is only for development environments! With disabled audit trail the delivery of trigger messages to Apache Active MQ is not guaranteed. The audit trail documents are used in failover or high-load/overload scenarios to guarantee that they are delivered.
Mode										
<code>PRODUCTI ON</code>	(Recommended) All Audit Trail data will remain intact even if Product 360 - Server is restarted.									
<code>CLEAN_SL ATE</code>	(Only for testing, use with caution) All Audit Trail data will be erased when Product 360 - Server is restarted.									
<code>DISABLED</code>	The Audit Trail will be disabled. This setting is only for development environments! With disabled audit trail the delivery of trigger messages to Apache Active MQ is not guaranteed. The audit trail documents are used in failover or high-load/overload scenarios to guarantee that they are delivered.									

General settings	Mandatory													
<code>audittrail.installation.type</code>	✓	<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><code>elastic-standalone</code></td><td><code>conf/audittrail/elastic-standalone</code></td><td>On-premise installation of Elasticsearch for PROD</td></tr> <tr> <td><code>elastic-aws</code></td><td><code>conf/audittrail/elastic-aws</code></td><td>AWS Elasticsearch Service</td></tr> <tr> <td><code>elastic-test</code></td><td><code>conf/audittrail/elastic-test</code></td><td>On-premise installation of Elasticsearch for DEV, QA</td></tr> </table>	Installation type	Configuration folder		<code>elastic-standalone</code>	<code>conf/audittrail/elastic-standalone</code>	On-premise installation of Elasticsearch for PROD	<code>elastic-aws</code>	<code>conf/audittrail/elastic-aws</code>	AWS Elasticsearch Service	<code>elastic-test</code>	<code>conf/audittrail/elastic-test</code>	On-premise installation of Elasticsearch for DEV, QA
Installation type	Configuration folder													
<code>elastic-standalone</code>	<code>conf/audittrail/elastic-standalone</code>	On-premise installation of Elasticsearch for PROD												
<code>elastic-aws</code>	<code>conf/audittrail/elastic-aws</code>	AWS Elasticsearch Service												
<code>elastic-test</code>	<code>conf/audittrail/elastic-test</code>	On-premise installation of Elasticsearch for DEV, QA												
<code>audittrail.threadpool.size</code>	✓	<p>This property should have a value that is the same as <code>db.default.pool.maxPoolSize</code></p>												
<code>audittrail.backup.restoration.mode</code>	✗	<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>												

 **For AWS managed Elasticsearch**

`policy_id` in template is deprecated in the AWS Elasticsearch update of April 2021 which is used by Product 360 for Index Lifecycle Management. To make the application compatible, the below flag is introduced in the `plugin_customization.ini` file

`com.heiler.ppm.audittrail.server/auditTrail.aws.policyIdDeprecated=true`

This should only be made false in case April 2021 update is not applied to AWS Elasticsearch.

Note : This flag is introduced from Product 360 versions 10.1.0.00.12, 10.1.0.01.05, 10.1.0.02.01

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 <code>longterm_policy</code> and <code>longterm_template</code> 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 <code>shortterm_policy</code> and <code>shortterm_template</code> 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 <code>longterm_policy</code> and <code>longterm_template</code> 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 <code>shortterm_policy</code> and <code>shortterm_template</code> from the audittrail configuration folder will be used to create policy and index </div>
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Property	Value								
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								
Use Own Index	<p>Below values can be set for this property</p> <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.



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.</p> <p>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 style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <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> <p><i>This rollover job is deprecated from Product 360 versions 10.1.0.00.08, 10.1.0.01.03, 10.1.0.02.00</i></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 plugin_customization.ini 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> <p><i>These rollover settings are deprecated from Product 360 versions 10.1.0.00.08, 10.1.0.01.03, 10.1.0.02.00</i></p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p> Policy rollover time must be more than double of rollover time given in plugin_customization.ini 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>
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>

Phases	
Delete	Delete phase deletes the index once it reaches the time defined in min_age. <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.

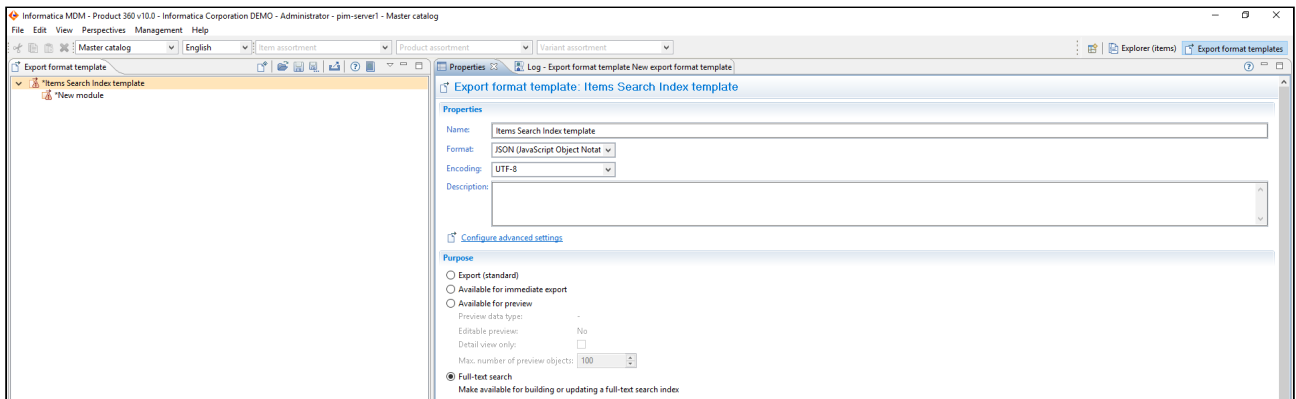
Tip

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.

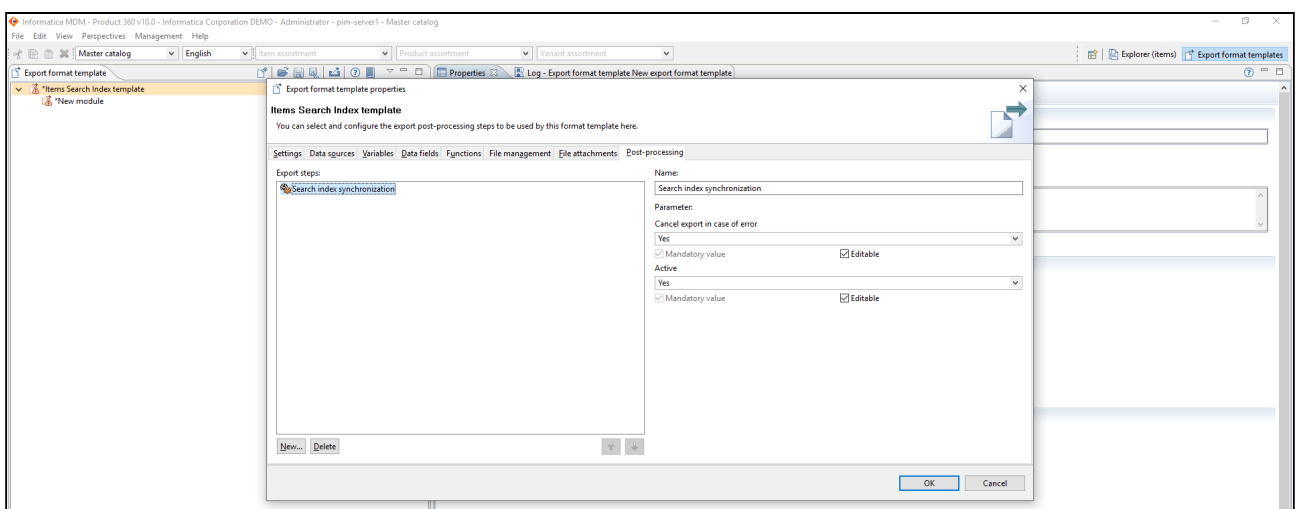
9.2 Export Template

9.2.1 Purpose

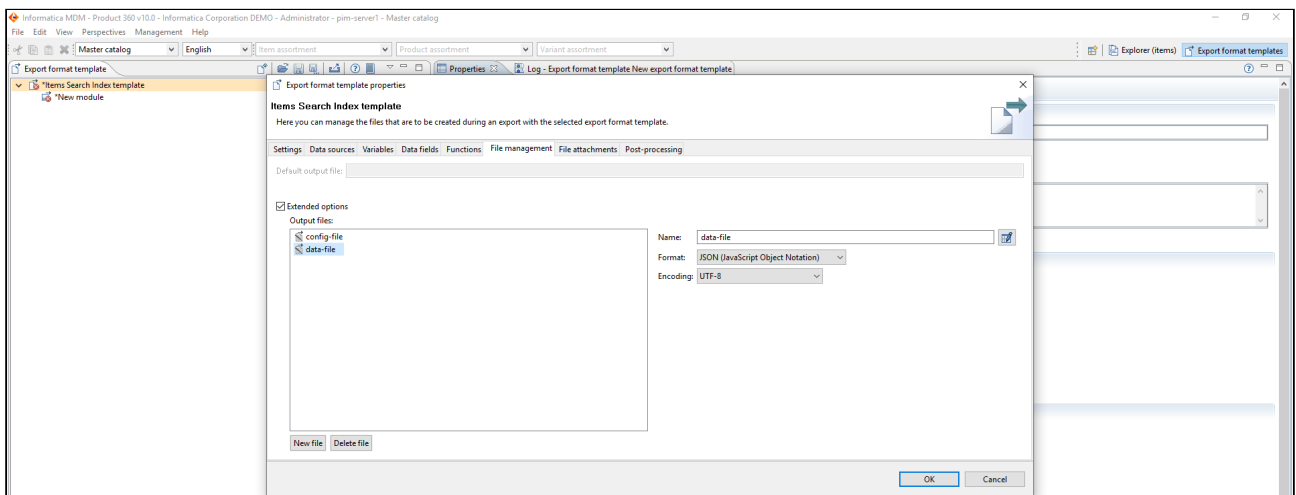
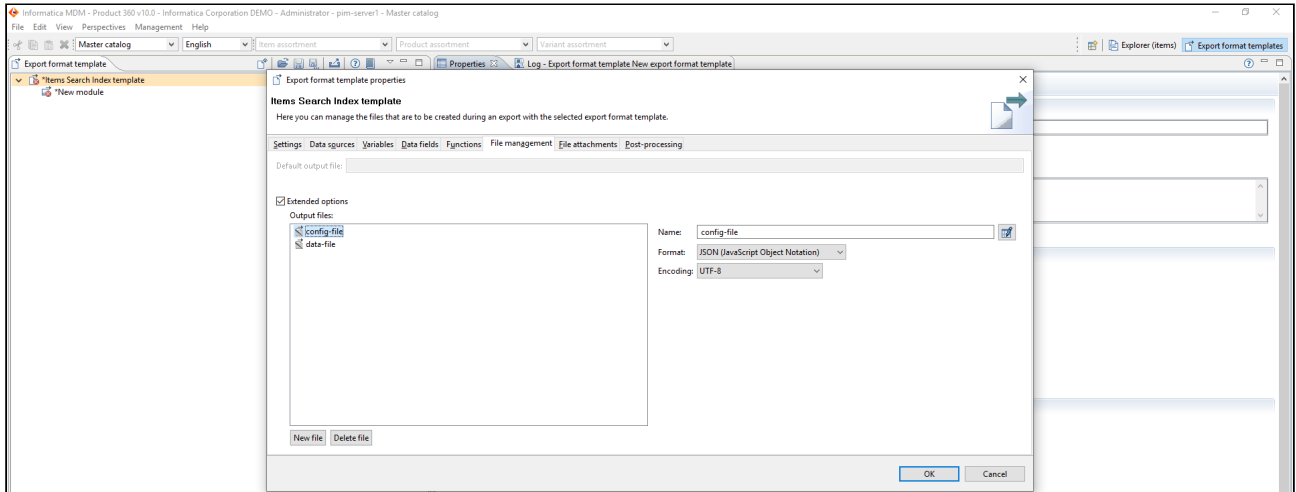
There is special purpose defined for the Web Search which provides automatic functionalities like adding a search indexing post step.



9.2.2 Post Step



9.2.3 Output Files




Key	Type	Mandatory (M) Optional (O)	Description	Example
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	
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

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	
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": ["g"]
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.	



Key	Type	Mandatory (M) Optional (O)	Description	Example
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

Key	Type	Mandatory (M) Optional (O)	Description	Example
dataType	String	O	Data type of the field to be used in Elasticsearch.  If not specified, the dataType of the encapsulating object will be used.	text, keyword
boostFactor	Float	O	Improves scoring  If not specified, the boostFactor of the encapsulating object will be used.	

9.3.2.2

Index Settings

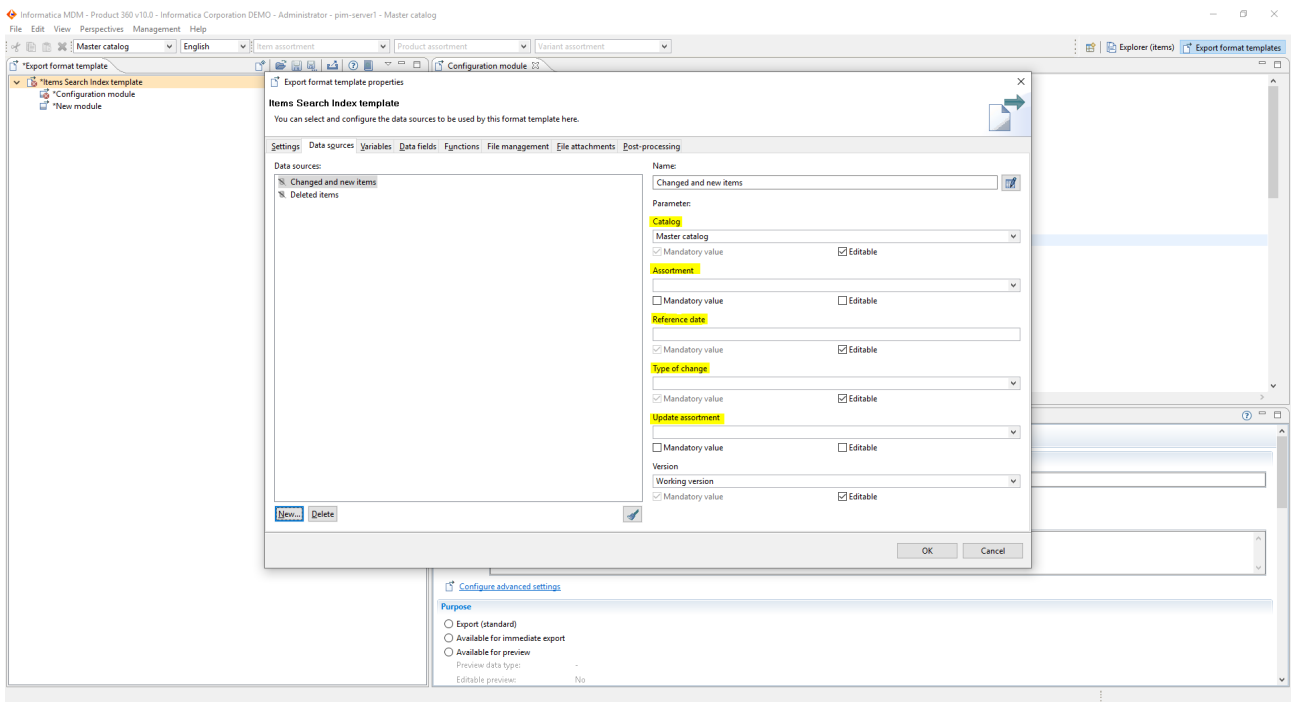
Every Elasticsearch index can have its own settings like the analyzers that can be used by fields, how many replicas and shards should be created and maximal number of search results, etc.

9.3.2.3 Search Settings

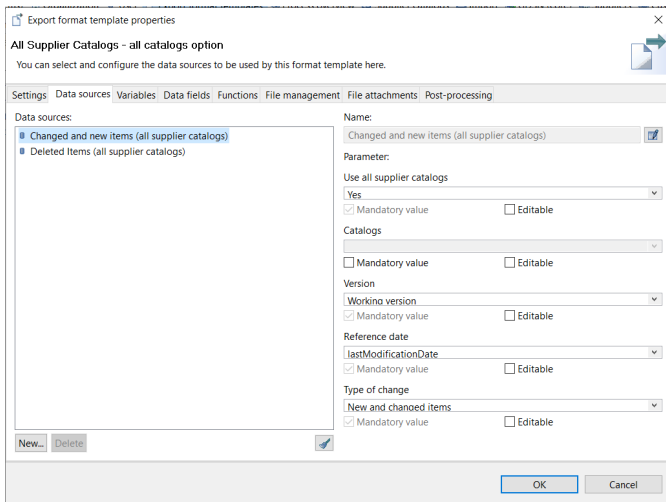
These are advanced settings to tweak search process. It is recommended to keep this untouched.

9.3.3 Data Sources

We need to define the data-providers for the export template. Depending on 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.



If you want to create a cross-catalog search index, i.e. a search index that contains items for multiple supplier catalogs, you can use the corresponding data-providers "Changed and new items (supplier catalogs)" and "Deleted items (supplier catalogs)". There are two alternatives to configure the data-providers, either you define a specific list of catalogs or you choose the option "Use all supplier catalogs". By doing it the second way, all items in new supplier catalogs will be automatically added to the search index.

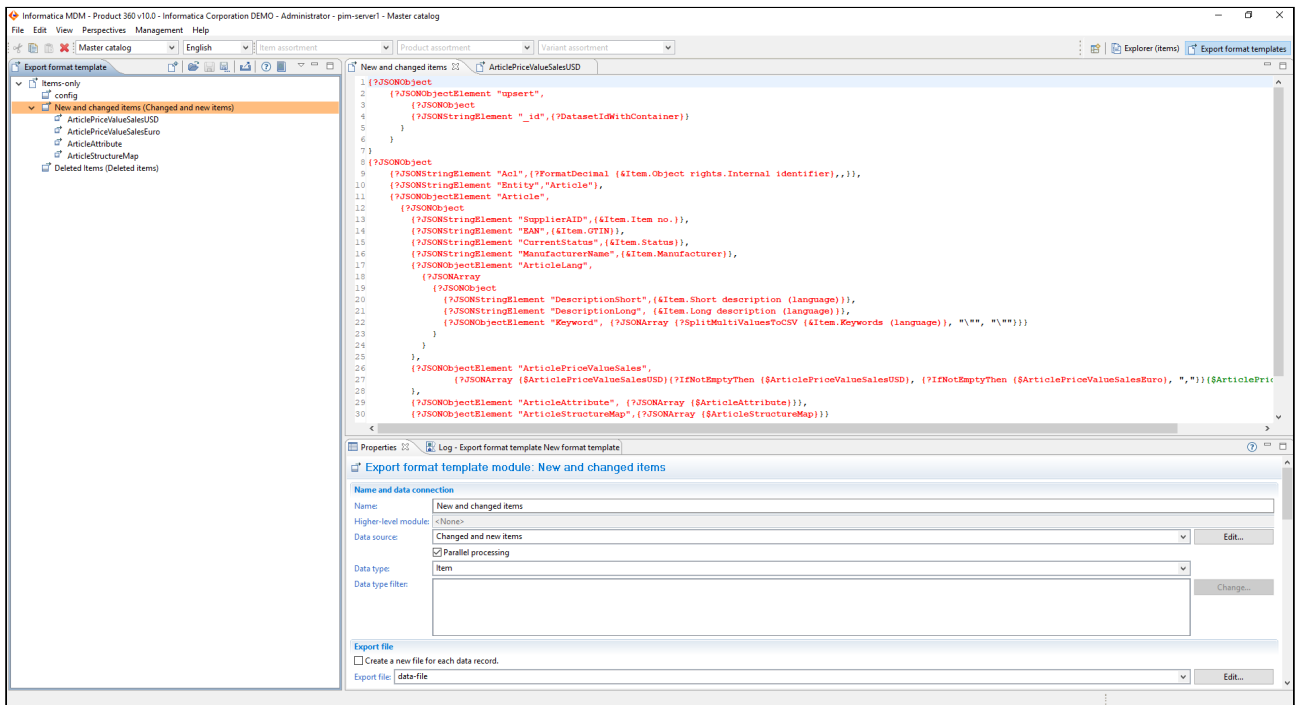



9.4 Index Data Module

9.4.1 Export Data File

9.4.1.1 Modules and Sub-modules

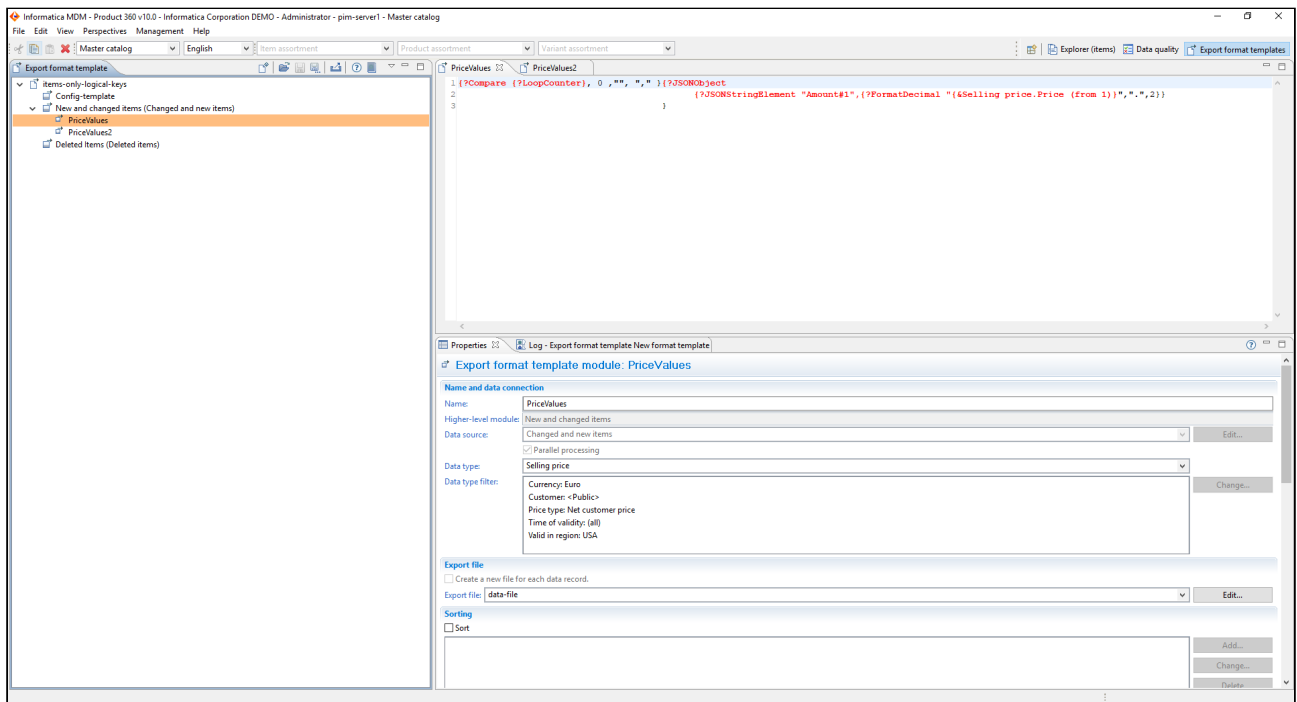
Each operation on a root entity needs to have a module.




 At the end of the module, a line break is mandatory.

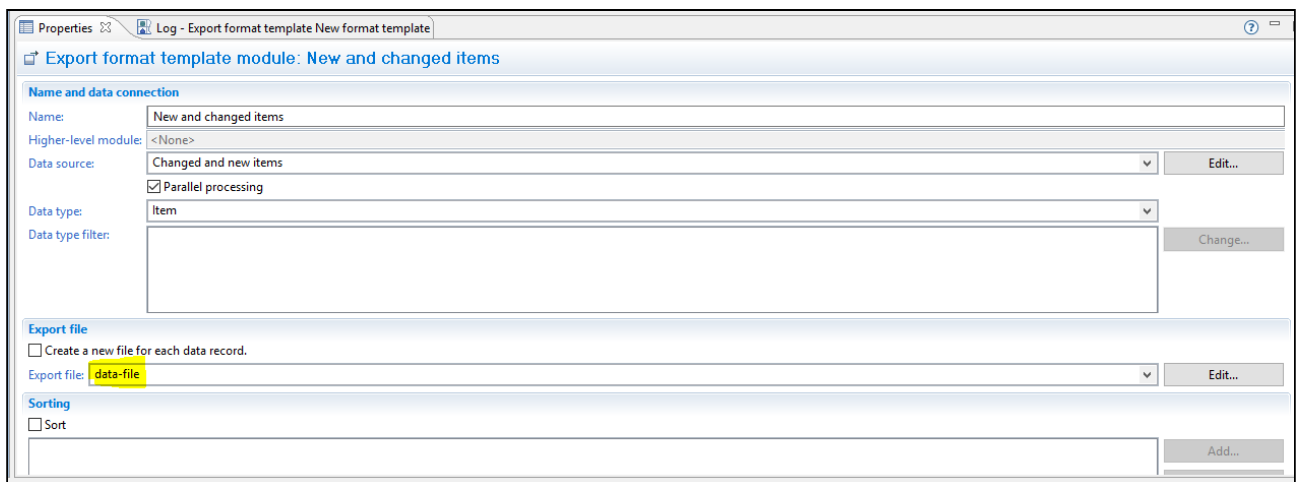
Each sub-entity needs to be a sub-module with-in the module.

Depending on the logical key selection we can have multiple such sub-modules.



 At the end of the sub-module, a line break should not be added.

Both module and sub-module should have export file.



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.

9.5 Reconfiguring/updating an index



Any changes or updates to the structure of the index, requires one to drop the existing index from elasticsearch, setup a new export profile and run the export for creating a new index. Make sure not to execute the export with the same profile twice but set it up initially as scheduled and not touch it manually again. In case, a manual re-trigger is required the same can be done through process overview again and not directly on export profile as this may fire another instance causing a mix up in index generation.

9.6 Configuring the language of index

Once an index is created using a "*language*". This language can't be changed anymore for the index.



It is not recommended to create an index with multiple languages. Each index should work with just 1 language for it's lifetime.

9.7 Deleting an index

In order to delete an index, simply delete the full-text search profile which was used to create the corresponding index. Follow the following steps in order to delete a full-text search profile.

- Right click on the *full-text search profile*
- Select *Manage export profile...*
- Select the profile from the given list
- Press *Delete* and select *Ok*.

10 Informatica BPM (AVOS)

This page provides additional configuration aspects for the actual Informatica BPM application. As Informatica BPM is a stand alone product we refer to it's own installation and operation manuals. This page just summarizes some how tos which we found useful.

How to create and configure a workflow which interacts with Product 360 is described in the Knowledge Base: Business Process Management

10.1 How to configure a secure database connection for Product 360 BPM

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

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