



Informatica®
10.1.1

New Features Guide

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Preface

The *Informatica New Features and Enhancements Guide* is written for all Informatica software users. This guide lists the new features and enhancements in Informatica products.

Informatica Resources

Informatica Network

Informatica Network hosts Informatica Global Customer Support, the Informatica Knowledge Base, and other product resources. To access Informatica Network, visit <https://network.informatica.com>.

As a member, you can:

- Access all of your Informatica resources in one place.
- Search the Knowledge Base for product resources, including documentation, FAQs, and best practices.
- View product availability information.
- Review your support cases.
- Find your local Informatica User Group Network and collaborate with your peers.

Informatica Knowledge Base

Use the Informatica Knowledge Base to search Informatica Network for product resources such as documentation, how-to articles, best practices, and PAMs.

To access the Knowledge Base, visit <https://kb.informatica.com>. If you have questions, comments, or ideas about the Knowledge Base, contact the Informatica Knowledge Base team at KB_Feedback@informatica.com.

Informatica Documentation

To get the latest documentation for your product, browse the Informatica Knowledge Base at https://kb.informatica.com/_layouts/ProductDocumentation/Page/ProductDocumentSearch.aspx.

If you have questions, comments, or ideas about this documentation, contact the Informatica Documentation team through email at infa_documentation@informatica.com.

Informatica Product Availability Matrixes

Product Availability Matrixes (PAMs) indicate the versions of operating systems, databases, and other types of data sources and targets that a product release supports. If you are an Informatica Network member, you can access PAMs at

<https://network.informatica.com/community/informatica-network/product-availability-matrices>.

Informatica Velocity

Informatica Velocity is a collection of tips and best practices developed by Informatica Professional Services. Developed from the real-world experience of hundreds of data management projects, Informatica Velocity represents the collective knowledge of our consultants who have worked with organizations from around the world to plan, develop, deploy, and maintain successful data management solutions.

If you are an Informatica Network member, you can access Informatica Velocity resources at <http://velocity.informatica.com>.

If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

Informatica Marketplace

The Informatica Marketplace is a forum where you can find solutions that augment, extend, or enhance your Informatica implementations. By leveraging any of the hundreds of solutions from Informatica developers and partners, you can improve your productivity and speed up time to implementation on your projects. You can access Informatica Marketplace at <https://marketplace.informatica.com>.

Informatica Global Customer Support

You can contact a Global Support Center by telephone or through Online Support on Informatica Network.

To find your local Informatica Global Customer Support telephone number, visit the Informatica website at the following link:

<http://www.informatica.com/us/services-and-training/support-services/global-support-centers>.

If you are an Informatica Network member, you can use Online Support at <http://network.informatica.com>.

CHAPTER 1

New Products (10.1.1)

This chapter includes the following topics:

- [Intelligent Streaming, 8](#)
- [PowerExchange Adapters, 9](#)

Intelligent Streaming

With the advent of big data technologies, organizations are looking to derive maximum benefit from the velocity of data, capturing it as it becomes available, processing it, and responding to events in real time. By adding real-time streaming capabilities, organizations can leverage the lower latency to create a complete, up-to-date view of customers, deliver real-time operational intelligence to customers, improve fraud detection, reduce security risk, improve physical asset management, improve total customer experience, and generally improve their decision-making processes by orders of magnitude.

In 10.1.1, Informatica introduces Intelligent Streaming, a new product to help IT derive maximum value from real-time queues by streaming data, processing it, and extracting meaningful business value in near real time. Customers can process diverse data types and from non-traditional sources, such as website log file data, sensor data, message bus data, and machine data, in flight and with high degrees of accuracy.

Intelligent Streaming is built as a capability extension of Informatica's Intelligent Data Platform and provides the following benefits for IT:

- Create and run streaming (continuous-processing) mappings.
- Collect events from real-time queues such as Apache Kafka and JMS.
- Transform the data, create business rules for the transformed data, detect real-time patterns, and drive automated responses or alerts.
- Provide management and monitoring capabilities of streams at runtime.
- Provide at-least-once delivery guarantees.
- Granulate lifecycle controls based on number of rows processed or time of execution.
- Reuse and maintain event processing logic, including batch mappings (after some modifications).

Intelligent Streaming has the following features:

Capture and Transport Stream Data

You can stream the following types of data from sources such as Kafka or JMS, in JSON, XML, or Avro formats:

- Application and infrastructure log data

- Change data capture (CDC) from relational databases
- Clickstreams from web servers
- Social media event streams
- Time-series data from IoT devices
- Message bus data
- Programmable logic controller (PLC) data
- Point of sale data from devices

In addition, Informatica customers can leverage Informatica's Vibe Data Stream (licensed separately) to collect and ingest data in real time, for example, data from sensors, and machine logs, to a Kafka queue. Intelligent Streaming can then process this data.

Refine, Enrich, Analyze, and Process Stream Data

Use the underlying processing platform to run the following complex data transformations in real time without coding or scripting:

- Window Transformation for Streaming use cases with the option of sliding and tumbling windows.
- Filter, Expression, Union, Router, Aggregate, Joiner, Lookup, Java, and Sorter transformations can now be used with Streaming mappings and are executed on Spark Streaming.
- Lookup transformations can be used with Flat file, HDFS, Sqoop, and Hive.

Publish Data

You can stream data to different types of targets, such as Kafka, HDFS, NoSQL databases, and enterprise messaging systems.

Intelligent Streaming is built on the Informatica Big Data Platform platform and extends the platform to provide streaming capabilities. Intelligent Streaming uses Spark Streaming to process streamed data. It uses YARN to manage the resources on a Spark cluster more efficiently and uses third-parties distributions to connect to and push job processing to a Hadoop environment.

Use Informatica Developer (the Developer tool) to create streaming mappings. Use the Hadoop run-time environment and the Spark engine to run the mapping. You can configure high availability to run the streaming mappings on the Hadoop cluster.

For more information about Intelligent Streaming, see the *Informatica Intelligent Streaming User Guide*.

PowerExchange Adapters

PowerExchange Adapters for Informatica

This section describes new Informatica adapters in version 10.1.1.

PowerExchange for Amazon S3

Effective in version 10.1.1, you can create an Amazon S3 connection to specify the location of Amazon S3 sources and targets you want to include in a data object. You can use the Amazon S3 connection in data object read and write operations. You can validate and run mappings in the native environment or on the Blaze engine in the Hadoop environment.

For more information, see the *Informatica PowerExchange for Amazon S3 10.1.1 User Guide*.

CHAPTER 2

New Features (10.1.1)

This chapter includes the following topics:

- [Application Services, 10](#)
- [Big Data, 11](#)
- [Business Glossary , 15](#)
- [Command Line Programs, 15](#)
- [Enterprise Information Catalog, 17](#)
- [Informatica Analyst, 20](#)
- [Informatica Installation, 20](#)
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- [Mappings , 22](#)
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- [Security, 25](#)
- [Transformations, 25](#)
- [Web Services , 29](#)
- [Workflows, 29](#)

Application Services

This section describes new application service features in version 10.1.1.

Analyst Service

Effective in version 10.1.1, you can configure an Analyst Service to store all audit data for exception management tasks in a single database. The database stores a record of the work that users perform on Human task instances in the Analyst tool that the Analyst Service specifies.

Set the database connection and the schema for the audit tables on the Human task properties of the Analyst Service in the Administrator tool. After you specify a connection and schema, use the **Actions** menu options in the Administrator tool to create the audit database contents. Or, use the `infacmd` as commands to set the database and schema and to create the audit database contents. To set the database and the schema, run `infacmd` as `updateServiceOptions`. To create the database contents, run `infacmd` as `createExceptionAuditTables`

If you do not specify a connection and schema, the Analyst Service creates audit tables for each task instance in the database that stores the task instance data.

For more information, see the *Informatica 10.1.1 Application Service Guide* and the *Informatica 10.1.1 Command Reference*.

Big Data

This section describes new big data features in version 10.1.1.

Blaze Engine

Effective in version 10.1.1, the Blaze engine has the following new features:

Hive Sources and Targets on the Blaze Engine

Effective in version 10.1.1, Hive sources and targets have the following additional support on the Blaze engine:

- Hive decimal data type values with precision 38
- Quoted identifiers in Hive table names, column names, and schema names
- Partitioned Hive tables as targets
- Bucketed Hive tables as source and targets
- SQL overrides for Hive sources
- Table locking for Hive sources and targets
- Create or replace target tables for Hive targets
- Truncate target table for Hive targets and Hive partitioned tables

For more information, see the "Mapping Objects in the Hadoop Environment" chapter in the *Informatica Big Data Management® 10.1.1 User Guide*.

Transformation Support on the Blaze Engine

Effective in version 10.1.1, transformations have the following additional support on the Blaze engine:

- Lookup transformation. You can use SQL overrides and filter queries with Hive lookup sources.
- Sorter transformation. Global sorts are supported when the Sorter transformation is connected to a flat file target. To maintain global sort order, you must enable the Maintain Row Order property in the flat file target. If the Sorter transformation is midstream in the mapping, then rows are sorted locally.
- Update Strategy transformation. The Update Strategy transformation is supported with some restrictions.

For more information, see the "Mapping Objects in the Hadoop Environment" chapter in the *Informatica Big Data Management 10.1.1 User Guide*.

Blaze Engine Monitoring

Effective in Version 10.1.1, more detailed statistics about mapping jobs are available in the Blaze Summary Report. In the Blaze Job Monitor, a green summary report button appears beside the names of successful grid tasks which opens the Blaze Summary Report.

The Blaze Summary Report contains the following information about a mapping job:

- Time taken by individual segments. A pie chart of segments within the grid task.

- Mapping properties. A table containing basic information about the mapping job.
- Tasklet execution time. A time series graph of all tasklets within the selected segment.
- Selected tasklet information. Source and target row counts and cache information for each individual tasklet.

Note: The Blaze Summary Report is in beta. It contains most of the major features, but is not yet complete.

Blaze Engine Logs

Effective in version 10.1.1, the following error logging enhancements are available on the Blaze engine:

- Execution statistics are available in the LDTM log when the log tracing level is set to verbose initialization or verbose data. The log includes the following mapping execution details:
 - Start time, end time, and state of each task
 - Blaze Job Monitor URL
 - Number of total, succeeded, and failed/cancelled tasklets
 - Number of processed and rejected rows for sources and targets
 - Data errors, if any, for transformations in each executed segment
- The LDTM log includes the following transformation statistics:
 - Number of output rows for sources and targets
 - Number of error rows for sources and targets
- The session log also displays a list of all segments within the grid task with corresponding links to the Blaze Job Monitor. Click on a link to see the execution details of that segment.

For more information, see the "Monitoring Mappings in a Hadoop Environment" chapter in the *Informatica Big Data Management 10.1.1 User Guide*.

Installation and Configuration

This section describes new features related to big data installation and configuration.

Address Reference Data Installation

Effective in version 10.1.1, Informatica Big Data Management installs with a shell script that you can use to install address reference data files. The script installs the reference data files on the compute nodes that you specify.

When you run an address validation mapping in a Hadoop environment, the reference data files must reside on each compute node on which the mapping runs. Use the script to install the reference data files on multiple nodes in a single operation.

The shell script name is `copyRefDataToComputeNodes.sh`.

Find the script in the following directory in the Informatica Big Data Management installation:

```
[Informatica installation directory]/tools/dq/av
```

When you run the script, you can enter the following information:

- The current location of the reference data files.
- The directory to which the script installs the files.
- The location of the file that contains the compute node names.
- The user name of the user who runs the script.

If you do not enter the information, the script uses a series of default values to identify the file locations and the user name.

For more information, see the *Informatica Big Data Management 10.1.1 Installation and Configuration Guide*.

Hadoop Configuration Manager in Silent Mode

Effective in version 10.1.1, you can use the Hadoop Configuration Manager in silent mode to configure Big Data Management.

For more information about configuring Big Data Management in silent mode, see the *Informatica Big Data Management 10.1.1 Installation and Configuration Guide*.

Installation in an Ambari Stack

Effective in version 10.1.1, you can use the Ambari configuration manager to install Big Data Management as a service in an Ambari stack.

For more information about installing Big Data Management in an Ambari stack, see the *Informatica 10.1.1 Big Data Management Installation and Configuration Guide*.

Script to Populate HDFS in HDInsight Clusters

Effective in version 10.1.1, you can use a script to populate the HDFS file system on an Azure HDInsight cluster when you configure the cluster for Big Data Management.

For more information about using the script to populate the HDFS file system, see the *Informatica Big Data Management 10.1.1 Installation and Configuration Guide*.

Spark Engine

Effective in version 10.1.1, the Spark engine has the following new features:

Binary Data Types

Effective in version 10.1.1, the Spark engine supports binary data type for the following functions:

- DEC_BASE64
- ENC_BASE64
- MD5
- UUID4
- UUID_UNPARSE
- CRC32
- COMPRESS
- DECOMPRESS (ignores precision)
- AES Encrypt
- AES Decrypt

Note: The Spark engine does not support binary data type for the join and lookup conditions.

For more information, see the "Function Reference" chapter in the *Informatica Big Data Management 10.1.1 User Guide*.

Transformation Support on the Spark Engine

Effective in version 10.1.1, transformations have the following additional support on the Spark engine:

- The Java transformation is supported with some restrictions.
- The Lookup transformation can access a Hive lookup source.

For more information, see the "Mapping Objects in the Hadoop Environment" chapter in the *Informatica Big Data Management 10.1.1 User Guide*.

Run-time Statistics for Spark Engine Job Runs

Effective in version 10.1.1, you can view summary and detailed statistics for mapping jobs run on the Spark engine.

You can view the following Spark summary statistics in the **Summary Statistics** view:

- Source. The name of the mapping source file.
- Target. The name of the target file.
- Rows. The number of rows read for source and target.

The **Detailed Statistics** view displays a graph of the row counts for Spark engine job runs.

For more information, see the "Mapping Objects in the Hadoop Environment" chapter in the *Informatica Big Data Management 10.1.1 User Guide*.

Security

This section describes new big data security features in version 10.1.1.

Fine-Grained SQL Authorization Support for Hive Sources

Effective in version 10.1.1, you can configure a Hive connection to observe fine-grained SQL authorization when a Hive source table uses this level of authorization. Enable the **Observe Fine Grained SQL Authorization** option in the Hive connection to observe row and column-level restrictions that are configured for Hive tables and views.

For more information, see the Authorization section in the "Introduction to Big Data Management Security" chapter of the *Informatica 10.1.1 Big Data Management Security Guide*.

Spark Engine Security Support

Effective in version 10.1.1, the Spark engine supports the following additional security systems:

- Apache Sentry on Cloudera CDH clusters
- Apache Ranger on Hortonworks HDP clusters
- HDFS Transparent Encryption on Hadoop distributions that the Spark engine supports
- Operating system profiles on Hadoop distributions that the Spark engine supports

For more information, see the "Introduction to Big Data Management Security" chapter in the *Informatica Big Data Management 10.1.1 Security Guide*.

Sqoop

Effective in version 10.1.1, you can use the following new features when you configure Sqoop:

- You can run Sqoop mappings on the Blaze engine.
- You can run Sqoop mappings on the Spark engine to read data from or write data to Oracle databases.
- When you run Sqoop mappings on the Blaze and Spark engines, you can configure partitioning. You can also run the mappings on a Hadoop cluster that uses Kerberos authentication.
- When you run Sqoop mappings on the Blaze engine to read data from or write data to Teradata, you can use the following specialized connectors:
 - Cloudera Connector Powered by Teradata
 - Hortonworks Connector for Teradata

These specialized connectors use native protocols to connect to the Teradata database.

For more information, see the *Informatica 10.1.1 Big Data Management User Guide*.

Business Glossary

This section describes new Business Glossary features in version 10.1.1.

Export Rich Text as Plain Text

Effective in version 10.1.1, you can export rich text glossary content as plain text. The export option is available in the glossary export wizard and in the command line program.

For more information, see the "Glossary Administration " chapter in the *Informatica 10.1.1 Business Glossary Guide*.

Include Rich Text Content for Conflicting Assets

Effective in version 10.1.1, you can choose to import properties that are formatted as rich text or are of long string data type, from the import file, when the Analyst tool detects conflicting assets.

The import option is available in the glossary import wizard and in the command line program.

For more information, see the "Glossary Administration" chapter in the *Informatica 10.1.1 Business Glossary Guide*.

Command Line Programs

This section describes new commands in version 10.1.1.

infacmd as Commands

The following table describes new infacmd as commands:

Command	Description
CreateExceptionAuditTables	Creates the audit tables for the Human task instances that the Analyst Service specifies.
DeleteExceptionAuditTables	Deletes the audit tables for the Human task instances that the Analyst Service specifies.

The following table describes new options for infacmd as commands:

Command	Description
UpdateServiceOptions	<ul style="list-style-type: none">- HumanTaskDataIntegrationService.exceptionDbName Identifies the database to store the audit trail tables for exception management tasks.- HumanTaskDataIntegrationService.exceptionSchemaName Identifies the schema to store the audit trail tables for exception management tasks.

For more information, see the "Infacmd as Command Reference" chapter in the *Informatica 10.1.1 Command Reference*.

infacmd dis command

The following table describes new infacmd dis command:

Command	Description
replaceMappingHadoopRuntimeConnections	Replaces the Hadoop connection of all mappings in deployed applications with another Hadoop connection. The Data Integration Service uses the Hadoop connection to connect to the Hadoop cluster to run mappings in the Hadoop environment.

For more information, see the "infacmd dis Command Reference" chapter in the *Informatica 10.1.1 Command Reference*.

infacmd mrs command

The following table describes new infacmd mrs command:

Command	Description
replaceMappingHadoopRuntimeConnections	Replaces the Hadoop connection of all mappings in the repository with another Hadoop connection. The Data Integration Service uses the Hadoop connection to connect to the Hadoop cluster to run mappings in the Hadoop environment.

For more information, see the "infacmd mrs Command Reference" chapter in the *Informatica 10.1.1 Command Reference*.

pmrep Commands

The following table describes an updated option for a pmrep command:

Command	Description
Validate	<p>Contains the following updated option:</p> <p>-n (object_name). Required. Name of the object to validate. Do not use this option if you use the -i argument.</p> <p>When you validate a non-reusable session, include the workflow name. Enter the workflow name and the session name in the following format:</p> <p><workflow name>.<session instance name></p> <p>When you validate a non-reusable session in a non-reusable worklet, enter the workflow name, worklet name, and session name in the following format:</p> <p><workflow name>.<worklet name>.<session instance name></p>

For more information, see the "pmrep Command Reference" chapter in the *Informatica 10.1.1 Command Reference*.

Enterprise Information Catalog

This section describes new features in Enterprise Information Catalog version 10.1.1.

Business Glossary Integration

Effective in version 10.1.1, Analyst tool business glossaries are fully integrated with Enterprise Information Catalog.

You can perform the following tasks with business glossary assets:

View business glossary assets in the catalog.

You can search for and view the full details for a business term, category, or policy in Enterprise Information Catalog. When you view the details for a business term, Enterprise Information Catalog also displays the glossary assets, technical assets, and other assets, such as Metadata Manager objects, that the term is related to.

When you view a business glossary asset in the catalog, you can open the asset in the Analyst tool business glossary for further analysis.

Associate an asset with a business term.

You can associate a business term with a technical asset to make an asset easier to understand and identify in the catalog. For example, you associate business term "Movie Details" with a relational table named "mv_dt." Enterprise Information Catalog displays the term "Movie Details" next to the asset name in the search results, in the Asset Details view, and optionally, in the lineage and impact diagram.

When you associate a term with an asset, Enterprise Information Catalog provides intelligent recommendations for the association based on data domain discovery.

For more information about business glossary assets, see the "View Assets" chapter in the *Informatica 10.1.1 Enterprise Information Catalog User Guide*.

Column Similarity Profiling

Effective in version 10.1.1, you can configure and perform column similarity profiling. Column similarity profiling implies preparing metadata extracted from data sources for discovering similar columns in your enterprise data. You can then attach data domains to similar columns for faster and efficient searches for similar data in Enterprise Information Catalog.

Enterprise Information Catalog supports column similarity profiling for the following resource scanners:

- Amazon Redshift
- Amazon S3
- Salesforce
- HDFS
- Hive
- IBM DB2
- IBM DB2 for z/OS
- IBM Netezza
- JDBC
- Microsoft SQL Server
- Oracle
- Sybase
- Teradata
- SAP

Data Domains and Data Domain Groups

Effective in version 10.1.1, you can create data domains and data domain groups in Enterprise Information Catalog. You can group logical data domains in a data domain group.

A data domain is a predefined or user-defined Model repository object based on the semantics of column data or a column name. Examples include Social Security number, phone number, and credit card number.

You can create data domains based on data rules or column name rules defined in the Informatica Analyst Tool or the Informatica Developer Tool. Alternatively, you can create data domains based on existing columns in the catalog. You can define proximity rules to configure inference for new data domains from existing data domains configured in the catalog.

Lineage and Impact Analysis

Effective in version 10.1.1, lineage and impact diagrams have expanded functionality. The Lineage and Impact view also contains a tabular impact summary that lists the assets that impact and are impacted by the asset that you are studying.

The Lineage and Impact view has the following enhancements:

Diagram enhancements

The lineage and impact diagram has the following enhancements:

- By default, the lineage and impact diagram displays the origins, the asset that you are studying, and the destinations for the data. You can use the slider controls to reveal intermediate assets one at-a-time by distance from the seed asset or to fully expand the diagram. You can also expand all assets within a particular data flow path.
- You can display the child assets of the asset that you are studying, all the way down to the column or field level. When you drill-down on an asset, the diagram displays the child assets that you select and the assets to which the child assets are linked.
- You can display the business terms that are associated with the technical assets in the diagram.
- You can print the diagram and export it to a scalable vector graphics (.svg) file.

Impact analysis

When you open the Lineage and Impact view for an asset, you can switch from the diagram view to the tabular asset summary. The tabular asset summary lists all of the assets that impact and are impacted by the asset that you are studying. You can export the asset summary to a Microsoft Excel file to create reports or further analyze the data.

For more information about lineage and impact analysis, see the "View Lineage and Impact" chapter in the *Informatica 10.1.1 Enterprise Information Catalog User Guide*.

Permissions for Users and User Groups

Effective in version 10.1.1, you can configure permissions for users and user groups on resources configured in Enterprise Information Catalog. You can specify permissions to view the resource metadata in Enterprise Information Catalog or view and enrich the resource metadata in Enterprise Information Catalog. You can also deny permissions to view or enrich resource metadata in Enterprise Information Catalog for specific users and user groups.

New Resource Types

Effective in version 10.1.1, you can create resource for the the following data source types:

Oracle Business Intelligence

Extract metadata from the Business intelligence tool from Oracle that includes analysis and reporting capabilities.

Informatica Master Data Management

Extract metadata about critical information within an organization from Informatica Master Data Management.

Microsoft SQL Server Integration Service

Extract metadata about data integration and workflow applications from Microsoft SQL Server Integration Service.

SAP

Extract metadata from SAP application platform that integrates multiple business applications and solutions.

Hive on Amazon Elastic MapReduce

Extract metadata from files in Amazon Elastic MapReduce using a Hive resource.

Hive on Azure HDInsight

Extract metadata from files in Azure HDInsight using a Hive resource.

Synonym Definition Files

Effective in version 10.1.1, you can upload synonym definition files to Enterprise Information Catalog. Synonym definition files include synonyms defined for table names, column names, data domains and other assets in the catalog. You can search for the assets in the Enterprise Information Catalog using the defined synonyms.

Universal Connectivity Framework

Effective in version 10.1.1, Enterprise Information Catalog introduces the Universal Connectivity Framework. Using the framework, you can build custom resources to extract metadata from a range of data sources supported by MITI.

Informatica Analyst

This section describes new Analyst tool features in version 10.1.1.

Profiles

This section describes new Analyst tool features for profiles and scorecards.

[Drilldown on Scorecards](#)

Effective in version 10.1.1, when you click a data series or data point in the scorecard dashboard, the scorecards that map to the data series or data point appears in the assets list pane.

For more information about scorecards, see the "Scorecards in Informatica Analyst" chapter in the *Informatica 10.1.1 Data Discovery Guide*.

Informatica Installation

This section describes new installation features in version 10.1.1.

Informatica Upgrade Advisor

Effective in version 10.1.1, you can run the Informatica Upgrade Advisor to check for conflicts and deprecated services in the domain before you perform an upgrade.

For more information about the upgrade advisor, see the *Informatica Upgrade Guides*.

Intelligent Data Lake

This section describes new Intelligent Data Lake features in version 10.1.1.

Data Preview for Tables in External Sources

Effective in version 10.1.1, you can preview sample data for external (outside Hadoop data lake) tables if these sources are cataloged. The administrator needs to configure JDBC connections with Sqoop and provide the analysts with requisite permissions. The analyst can connect to the data source using these connections to view the data from assets that are not in the data lake.

For more information, see the "Discover Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Importing Data From Tables in External Sources

Effective in version 10.1.1, you can import data from tables in external sources (outside Hadoop data lake), such as Oracle and Teradata, into the data lake if these sources are already cataloged. The administrator needs to configure JDBC connections with Sqoop to the external sources and provide access to the analyst. The analyst can use these connections to preview the data asset and import into the lake based on their needs.

For more information, see the "Discover Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Exporting Data to External Targets

Effective in version 10.1.1, you can export a data asset or a publication to external targets (outside Hadoop data lake), such as Oracle and Teradata. The administrator needs to configure the JDBC connections with Sqoop to the external sources and provide access to the analyst. The analyst can use these connections to export the data asset to the external database.

For more information, see the "Discover Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Configuring Sampling Criteria for Data Preparation

Effective in version 10.1.1, you can specify sampling criteria that best suits your needs for data preparation for a given data asset. You can choose to include only a few columns during preparation and filter the data, choose number of rows to sample, and select Random or First N rows as sample.

For more information, see the "Prepare Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Performing a Lookup on Worksheets

Effective in version 10.1.1, you can perform a lookup. Use the lookup function to lookup a key column in another sheet and fetch values in corresponding other columns in that looked up sheet.

For more information, see the "Prepare Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Downloading as a TDE File

Effective in version 10.1.1, you can download data in data lake assets as a TDE file. You can directly open the downloaded file in Tableau. You can search for any data asset and download it as a CSV file or TDE file.

For more information, see the "Discover Data" chapter in the *10.1.1 Intelligent Data Lake User Guide*.

Sentry and Ranger Support

Effective in version 10.1.1, Intelligent Data Lake supports Sentry and Ranger on Cloudera and Hortonworks. Ranger and Sentry offer a centralized security framework to manage granular level access control on Cloudera and Hortonworks. You can create authorization rules or policies to control the access of data. Sentry and Ranger support SQL-based authorization for data lake assets.

Mappings

This section describes new mapping features in version 10.1.1.

Informatica Mappings

This section describes new Informatica mappings features in version 10.1.1.

Export Parameters to a Parameter File

You can export a mapping parameter file or a workflow parameter file from the Developer tool. You can export a parameter file that contains mapping parameters or workflow parameters that you define in the Developer tool. The Developer tool creates a parameter file in .xml format. Export parameters from the mapping **Parameters** tab or from the workflow **Parameters** tab. Use the parameter file when you run deployed mappings or workflows.

For more information, see the "Mapping Parameters" chapter in the *Informatica Developer 10.1.1 Mapping Guide* or the "Workflow Parameters" chapter in the *Informatica Developer 10.1.1 Workflow Guide*.

Metadata Manager

This section describes new Metadata Manager features in version 10.1.1.

Dataset Extraction for Cloudera Navigator Resources

Effective in version 10.1.1, Metadata Manager can extract HDFS datasets from Cloudera Navigator. Metadata Manager displays the datasets in the metadata catalog within the HDFS Datasets logical group.

For more information about Cloudera Navigator resources, see the "Database Management Resources" chapter in the *Informatica 10.1.1 Metadata Manager Administrator Guide*.

Mapping Extraction for Informatica Platform Resources

Effective in version 10.1.1, Informatica Platform resources can extract metadata for mappings in deployed workflows.

Informatica Platform resources that are based on version 10.1.1 applications can extract metadata for mappings in deployed workflows in addition to mappings that are deployed directly to the application.

When Metadata Manager extracts a mapping in a deployed workflow, it adds the workflow name and Mapping task name to the mapping name as a prefix. Metadata Manager displays the mapping in the metadata catalog within the Mappings logical group.

For more information about Informatica Platform resources, see the "Data Integration Resources" chapter in the *Informatica 10.1.1 Metadata Manager Administrator Guide*.

PowerExchange Adapters

This section describes new PowerExchange adapter features in version 10.1.1

PowerExchange® Adapters for Informatica

This section describes new Informatica adapter features in version 10.1.1.

PowerExchange for Amazon Redshift

Effective in version 10.1.1, you can enable PowerExchange for Amazon Redshift to run a mapping on the Blaze engine. When you run the mapping, the Data Integration Service pushes the mapping to a Hadoop cluster and processes the mapping on the Blaze engine, which significantly increases the performance.

For more information, see the *Informatica PowerExchange for Amazon Redshift 10.1.1 User Guide*.

PowerExchange for Cassandra

Effective in version 10.1.1, PowerExchange for Cassandra supports the following features:

- You can use the following advanced ODBC driver configurations with PowerExchange for Cassandra:
 - Load balancing policy. Determines how the queries are distributed to nodes in a Cassandra cluster based on the specified DC Aware or Round-Robin policy.
 - Filtering. Limits the connections of the drivers to a predefined set of hosts.
- You can enable the following arguments in the ODBC driver to optimize the performance:
 - Token Aware. Improves the query latency and reduces load on the Cassandra node.
 - Latency Aware. Ignores the slow performing Cassandra nodes while sending queries.
 - Null Value Insertion. Enables you to specify null values in an INSERT statement.
 - Case Sensitive. Enables you to specify schema, table, and column names in a case-sensitive fashion.
- You can process Cassandra sources and targets that contain the date, smallint, and tinyint data types

For more information, see the *Informatica PowerExchange for Cassandra 10.1.1 User Guide*.

PowerExchange for HBase

Effective in version 10.1.1, you can enable PowerExchange for HBase to run a mapping on a Blaze or Spark engine. When you run the mapping, the Data Integration Service pushes the mapping to a Hadoop cluster and processes the mapping on the selected engine, which significantly increases the performance.

For more information, see the *Informatica PowerExchange for HBase 10.1.1 User Guide*.

PowerExchange for Hive

Effective in version 10.1.1, you can configure the Lookup transformation on Hive data objects in mappings in the native environment.

For more information, see the *Informatica PowerExchange for Hive 10.1.1 User Guide*.

PowerExchange Adapters for PowerCenter®

This section describes new PowerCenter adapter features in version 10.1.1.

PowerExchange for Amazon Redshift

Effective in version 10.1.1, you can perform the following tasks with PowerExchange for Amazon Redshift:

- You can configure partitioning for Amazon Redshift sources and targets. You can configure the partition information so that the PowerCenter Integration Service determines the number of partitions to create at run time.
- You can include a Pipeline Lookup transformation in a mapping.
- The PowerCenter Integration Service can push expression, aggregator, operator, union, sorter, and filter functions to Amazon Redshift sources and targets when the connection type is ODBC and the ODBC Subtype is selected as Redshift.
- You can configure advanced filter properties in a mapping.
- You can configure pre-SQL and post-SQL queries for source and target objects in a mapping.
- You can configure a Source transformation to select distinct rows from the Amazon Redshift table and sort data.
- You can parameterize source and target table names to override the table name in a mapping.
- You can define an SQL query for source and target objects in a mapping to override the default query. You can enter an SQL statement supported by the Amazon Redshift database.

For more information, see the *Informatica 10.1.1 PowerExchange for Amazon Redshift User Guide for PowerCenter*.

PowerExchange for Cassandra

Effective in version 10.1.1, PowerExchange for Cassandra supports the following features:

- You can use the following advanced ODBC driver configurations with PowerExchange for Cassandra:
 - Load balancing policy. Determines how the queries are distributed to nodes in a Cassandra cluster based on the specified DC Aware or Round-Robin policy.
 - Filtering. Limits the connections of the drivers to a predefined set of hosts.
- You can enable the following arguments in the ODBC driver to optimize the performance:
 - Token Aware. Improves the query latency and reduces load on the Cassandra node.
 - Latency Aware. Ignores the slow performing Cassandra nodes while sending queries.
 - Null Value Insertion. Enables you to specify null values in an INSERT statement.
 - Case Sensitive. Enables you to specify schema, table, and column names in a case-sensitive fashion.
- You can process Cassandra sources and targets that contain the date, smallint, and tinyint data types.

For more information, see the *Informatica PowerExchange for Cassandra 10.1.1 User Guide for PowerCenter*.

PowerExchange for Vertica

Effective in version 10.1.1, PowerExchange for Vertica supports compressing data in GZIP format. When you use bulk mode to write large volumes of data to a Vertica target, you can configure the session to create a staging file. On UNIX operating systems, when you enable file staging, you can also compress the data in a GZIP format. By compressing the data, you can reduce the size of data that is transferred over the network and improve session performance.

To compress data, you must re-register the PowerExchange for Vertica plug-in with the PowerCenter repository.

For more information, see the *Informatica PowerExchange for Vertica 10.1.1 User Guide for PowerCenter*.

Security

This section describes new security features in version 10.1.1.

Custom Kerberos Libraries

Effective in version 10.1.1, you can configure custom or native database clients and Informatica processes within an Informatica domain to use custom Kerberos libraries instead of the default Kerberos libraries that Informatica uses.

For more information, see the "Kerberos Authentication Setup" chapter in the *Informatica 10.1.1 Security Guide*.

Scheduler Service Support in Kerberos-Enabled Domains

Effective in version 10.1.1, you can use the Scheduler Service to run mappings, workflows, profiles and scorecards in a domain that uses Kerberos authentication.

Single Sign-on for Informatica Web Applications

Effective in version 10.1.1, you can configure single sign-on (SSO) using Security Assertion Markup Language (SAML) to log into the Administrator tool, the Analyst tool and the Monitoring tool.

Security Assertion Markup Language is an XML-based data format for exchanging authentication and authorization information between a service provider and an identity provider. In an Informatica domain, the Informatica web application is the service provider. Microsoft Active Directory Federation Services (AD FS) 2.0 is the identity provider, which authenticates web application users with your organization's LDAP or Active Directory identity store.

For more information, see the "Single Sign-on for Informatica Web Applications" chapter in the *Informatica 10.1.1 Security Guide*.

Transformations

This section describes new transformation features in version 10.1.1.

Informatica Transformations

This section describes new features in Informatica transformations in version 10.1.1.

Address Validator Transformation

This section describes the new Address Validator transformation features.

The Address Validator transformation contains additional address functionality for the following countries:

All Countries

Effective in version 10.1.1, you can add the Count Number port to an output address. The Count Number port value indicates the position of each address in a set of suggestions that the transformation returns in interactive mode or suggestion list mode.

For example, the Count Number port returns the number 1 for the first address in the set. The port returns the number 2 for the second address in the set. The number increments by 1 for each address that address validation returns.

Find the Count Number port in the Status Info port group.

China

Multi-language address parsing and verification

Effective in version 10.1.1, you can configure the Address Validator transformation to return the street descriptor and street directional information in a valid China address in a transliterated Latin script (Pinyin) or in English. The transformation returns the other elements in the address in the Hanzi script.

To specify the output language, set the Preferred Language advanced property on the transformation.

Single-line verification of China addresses in suggestion list mode

Effective in version 10.1.1, you can configure the Address Validator transformation to return valid suggestions for a China address that you enter on a single line in fast completion mode. To enter an address on a single line, select a Complete Address port from the Multiline port group. Enter the address in the Hanzi script.

When you enter a partial address, the transformation returns one or more address suggestions for the address that you enter. When you enter a complete valid address, the transformation returns the valid version of the address from the reference database.

Ireland

Multi-language address parsing and verification

Effective in version 10.1.1, you can configure the Address Validator transformation to read and write the street, locality, and county information for an Ireland address in the Irish language.

An Post, the Irish postal service, maintains the Irish-language information in addition to the English-language addresses. You can include Irish-language street, locality, and county information in an input address and retrieve the valid English-language version of the address. You can enter an English-language address and retrieve an address that includes the street, locality, and county information in the Irish language. Address validation returns all other information in English.

To specify the output language, set the Preferred Language advanced property on the transformation.

Rooftop geocoordinates in Ireland addresses

Effective in version 10.1.1, you can configure the Address Validator transformation to return rooftop geocoordinates for an address in Ireland.

To return the geocoordinates, add the Geocoding Complete port to the output address. Find the Geocoding Complete port in the Geocoding port group. To specify Rooftop geocoordinates, set the Geocode Data Type advanced property on the transformation.

Support for preferred descriptors in Ireland addresses

Effective in version 10.1.1, you can configure the Address Validator transformation to return the short or long forms of the following elements in the English language:

- Street descriptors

- Directional values

To specify a preference for the elements, set the Global Preferred Descriptor advanced property on the transformation,

Note: The Address Validator transformation writes all street information to the street name field in an Irish-language address.

Italy

Effective in version 10.1.1, you can configure the Address Validator transformation to add the ISTAT code to a valid Italy address. The ISTAT code contains characters that identify the province, municipality, and region to which the address belongs. The Italian National Institute of Statistics (ISTAT) maintains the ISTAT codes.

To add the ISTAT code to an address, select the ISTAT Code port. Find the ISTAT Code port in the IT Supplementary port group.

Japan

Geocoding enrichment for Japan addresses

Effective in version 10.1.1, you can configure the Address Validator transformation to return standard geocoordinates for addresses in Japan.

The transformation can return geocoordinates at multiple levels of accuracy. When a valid address contains information to the Ban level, the transformation returns house number-level geocoordinates. When a valid address contains information to the Chome level, the transformation returns street-level geocoordinates. If an address does not contain Ban or Chome information, Address Verification returns locality-level geocoordinates.

To return the geocoordinates, add the Geocoding Complete port to the output address. Find the Geocoding Complete port in the Geocoding port group.

Single-line verification of Japan addresses in suggestion list mode

Effective in version 10.1.1, you can configure the Address Validator transformation to return valid suggestions for a Japan address that you enter on a single line in suggestion list mode. You can retrieve suggestions for an address that you enter in the Kanji script or the Kana script. To enter an address on a single line, select a Complete Address port from the Multiline port group.

When you enter a partial address, the transformation returns one or more address suggestions for the address that you enter. When you enter a complete valid address, the transformation returns the valid version of the address from the reference database.

South Korea

Support for Revised Romanization transliteration in South Korea addresses

Effective in version 10.1.1, the Address Validator transformation can use the Revised Romanization system to transliterate an address between Hangul and Latin character sets. To specify a character set for output addresses from South Korea, use the Preferred Script advanced property.

Updates to post code verification in South Korea addresses

Effective in version 10.1.1, the Address Validator transformation adds a five-digit post code to a fully valid input address that does not include a post code. The five-digit post code represents the current post code format in use in South Korea. The transformation can add the five-digit post code to a fully valid lot-based address and a fully valid street-based address.

To verify addresses in the older, lot-based format, use the Matching Extended Archive advanced property.

Spain

Effective in version 10.1.1, you can configure the Address Validator transformation to add the INE code to a valid Spain address. The INE code contains characters that identify the province, municipality, and street in the address. The National Institute of Statistics (INE) in Spain maintains the INE codes.

To add an INE code to an address, select one or more of the following ports:

- INE Municipality Code
- INE Province Code
- INE Street Code

Find the INE Code ports in the ES Supplementary port group.

United States

Support for CASS Cycle O requirements

Effective in version 10.1.1, the Address Validator transformation adds features that support the proposed requirements of the Coding Accuracy Support System (CASS) Cycle O standard.

To prepare for the Cycle O standard, the transformation includes the following features:

- Private mailbox and commercial mail receiving agency identification

The United States Postal Service updates the CASS requirements for private mailbox (PMB) addresses and commercial mail receiving agency (CMRA) addresses in Cycle O. To meet the Cycle O standard, the Address Validator transformation adds PMB as a prefix before a private mailbox number in a CMRA address. If a pound sign (#) precedes a private mailbox number in the address, the transformation converts the pound sign to PMB. To comply with the Cycle O standard, the transformation does not use the PMB number to verify Delivery Point Validation (DPV) data for an address.

- DPV PBSA Indicator port for post office box street address (PBSA) identification

The United States Postal Service can recognize post office box addresses in a street address format. To identify PBSA addresses in an address set, use the DPV PBSA Indicator port. Find the DPV PBSA Indicator port in the US Specific port group.

For example, the following address identifies post office box number 3094 at a post office on South Center Street:

```
131 S Center St Unit 3094  
Collierville TN 38027-0419
```

- DPV ZIP Code Validation port for Form 3553 completion

The DPV ZIP Code Validation port indicates whether an address is valid for inclusion in the total address count on CASS Form 3553. If an address passes delivery point validation but does not include a deliverable ZIP+4 Code, you cannot include the address in the total address count. Find the DPV ZIP Code Validation port in the US Specific port group.

Improved parsing of non-standard first-line data in United States addresses

Effective in version 10.1.1, the Address Validation transformation parses non-standard mailbox data into sub-building elements. The non-standard data might identify a college campus mailbox or a courtroom at a courthouse.

Support for global preferred descriptors in United States addresses

Effective in version 10.1.1, you can return the short or long forms of the following elements in a United States address:

- Street descriptors

- Directional values
- Sub-building descriptors

To specify the format of the elements that the transformation returns, set the Global Preferred Descriptor advanced property on the transformation.

For more information, see the *Informatica 10.1.1 Developer Transformation Guide* and the *Informatica 10.1.1 Address Validator Port Reference*.

Write Transformation

Effective in version 10.1.1, when you create a Write transformation from an existing transformation in a mapping, you can specify the type of link for the input ports of the Write transformation.

You can link ports by name. Also, in a dynamic mapping, you can link ports by name, create a dynamic port based on a mapping flow, or link ports at run time based on a link policy.

For more information, see the "Write Transformation" chapter in the *Informatica 10.1.1 Developer Transformation Guide*.

Web Services

This section describes new web services features in version 10.1.1.

Informatica Web Services

This section describes new Informatica web service features in version 10.1.1.

REST Web Services

You can create an Informatica REST web service that returns data to a web service client in JSON or XML format.

An Informatica REST web service is a web service that receives an HTTP request to perform a GET operation. A GET operation retrieves data. The REST request is a simple URI string from an internet browser. The client limits the web service output data by adding filter parameters to the URI.

Define a REST web service resource in the Developer tool. A REST web service resource contains the definition of the REST web service response message and the mapping that returns the response. When you create an Informatica REST web service, you can define the resource from a data object or you can manually define the resource.

Workflows

This section describes new workflow features in version 10.1.1.

Informatica Workflows

This section describes new features in Informatica workflows in version 10.1.1.

Terminate Event

Effective in version 10.1.1, you can add a Terminate event to a workflow. A Terminate event defines a point before the End event at which the workflow can end. A workflow can contain one or more Terminate events.

A workflow terminates if you connect a task or a gateway to a Terminate event and the task output satisfies a condition on the sequence flow. The Terminate event aborts the workflow before any further task in the workflow can run.

Add a Terminate event to a workflow if the workflow data can reach a point at which there is no need to run additional tasks. For example, you might add a Terminate event to end a workflow that contains a Mapping task and a Human task. Connect the Mapping task to an Exclusive gateway, and then connect the gateway to a Human task and to a Terminate event. If the Mapping task generates exception record data for the Human task, the workflow follows the sequence flow to the Human task. If the Mapping task does not generate exception record data, the workflow follows the sequence flow to the Terminate event.

For more information, see the *Informatica 10.1.1 Developer Workflow Guide*.

User Permissions on Human Tasks

Effective in version 10.1.1, you can set user permissions on Human task data. The permissions specify the data that users can view and the types of action that users can perform in Human task instances in the Analyst tool. You can set the permissions within a step in a Human task when you design a workflow. The permissions apply to all users who can view or edit a task instance that the step defines.

By default, Analyst tool users can view all data and perform any action in the task instances that they work on.

You can set viewing permissions and editing permissions. The viewing permissions define the data that the Analyst tool displays for the task instances that the step defines. The editing permissions define the actions that users can take to update the task instance data. Viewing permissions take precedence over editing permissions. If you grant editing permissions on a column and you do not grant viewing permissions on the column, Analyst tool users cannot edit the column data.

For more information, see the *Informatica 10.1.1 Developer Workflow Guide*.

Workflow Variables in Human Task Instance Notifications

Effective in version 10.1.1, you can use workflow variables to write information about a Human task instance to an email notification. The variables record information about the task instance when a user completes, escalates, or reassigns a task instance.

To display the list of variables, open the Human task and select the step that defines the Human task instances. On the **Notifications** view, select the message body of the email notification and press the \$+CTRL+SPACE keys.

The email message displays the following variables:

\$taskEvent.eventTime

The time that the workflow engine performs the user instruction to escalate, reassign, or complete the task instance.

\$taskEvent.startOwner

The owner of the task instance at the time that the workflow engine escalates or completes the task. Or, the owner of the task instance after the engine reassigns the task instance.

\$taskEvent.status

The task instance status after the engine performs the user instruction to escalate, reassign, or complete the task instance. The status names are READY and IN_PROGRESS.

\$taskEvent.taskEventType

The type of instruction that the engine performs. The variable values are escalate, reassign, and complete.

\$taskEvent.taskId

The task instance identifier that the Analyst tool displays.

For more information, see the *Informatica 10.1.1 Developer Workflow Guide*.