SAP BusinessObjects Metadata Management User's Guide
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Introduction
About this guide

This guide describes the purpose, installation, configuration, and usage of SAP® BusinessObjects™ Metadata Management.

The expected audience for this technical information include:

- Application developers, business report designers, consultants, and database administrators who perform any of the following tasks:
  - Browse and search metadata to determine relationships and analyze the impact of changes to source data.
  - Define and maintain Business Intelligence reports.
  - Extract data, build and maintain data warehouses, or integrate data from multiple sources.
  - Define, organize, and maintain business terms.

SAP BusinessObjects Metadata Management overview

SAP BusinessObjects Metadata Management is a Web-based application that provides an integrated view of metadata and their relationships across all of the products used in a Business Intelligence project.

Metadata is definitional data that provides information about data managed within an application or system. Metadata includes the following information:

- **Attributes** such as name, size, data type
- **Structures** such as length, fields, columns
- **Properties** such as where it is located, how it is associated, ownership
- **Descriptive information** about the context, quality and condition, or characteristics of the data

As the following diagram illustrates, the software collects and unifies metadata from data sources such as:
• Business Intelligence (BI) systems
• Databases
• Data Integration technologies, such as SAP BusinessObjects Data Services and SAP BusinessObjects Data Federator
• Modeling utilities

You can enrich the collected metadata with the following information, which you can use to search for objects and perform analysis on the resulting objects.
• Annotations—You can add user notes to any object.
• Custom attributes—You can define custom attributes to do tasks such as assign a data steward to objects and tag objects as containing sensitive information.
• Metapedia terms and categories—You can implement a business glossary of terms related to your business data and organize the terms hierarchically.

You can export relational objects from the SAP BusinessObjects Metadata Management repository to a Common Warehouse Modeling (CWM) XML file. You can then import the CWM XML file into SAP BusinessObjects Enterprise to create a universe.
Product benefits

With SAP BusinessObjects Metadata Management, you can do the following:

• View all metadata associated with your Business Intelligence systems, database sources, data integration systems, and modeling utilities.
• Analyze lineage to understand where the data came from and what sources provide data for your Business Intelligence reports.
• Analyze the impact of changing a source table, column, or report field on your Business Intelligence reports.
• Detect and analyze relationships (such as Is Same As, Is Related To) across metadata sources.
• Define standard business terms in a business glossary, relate business terms to objects, and search for metadata objects using familiar business terms.
• Analyze the metadata to determine usage of objects by other objects, such as how many reports are based on this universe or what tables are in this universe.

These capabilities provide the following benefits:

• Lower your total cost of ownership (TCO) because you can do the following:
  • Track usage of data and reports
    For example, you can determine which data in your data warehouse is never used in your Business Intelligence reports or which reports are never viewed by users.
  • Manage change
    For example, you can determine which Business Intelligence reports would be affected if you modified your source tables and you can identify the users of the affected reports.

• Determine the source of the data in your documents and reports.
  For example, you can determine the source of any number in any report.
• Determine what Business Intelligence information a user can access.
  For example, you can determine what privileges a user or user group has for accessing reports or data universes.
• Enable the discovery, common understanding, and consistent implementation of business concepts through Metapedia, bridging the gap of understanding between an organization's business users and IT staff.

• Understand your entire Business Intelligence project because you can view the relationships (such as impact and lineage) of all metadata objects from your data integration system to your relational databases to your Business Intelligence reports.

**Product documentation**

Your product CD provides the SAP BusinessObjects Metadata Management documentation in PDF format. You can read PDF files using the latest version of Adobe Acrobat Reader (download instructions at the Adobe website [http://www.adobe.com/products/acrobat/readstep2.html](http://www.adobe.com/products/acrobat/readstep2.html)).

To view these documents after you install the software, go to the **Start** menu, select **Programs > BusinessObjects XI 3.1 > BusinessObjects Metadata Management**, and choose:

- **Release Notes**—Opens the Release Notes PDF document, which includes supported configurations and known problems in the associated software release.
- **User's Guide**—Opens this document, which describes the purpose, installation, configuration, and usage of the software.


**SAP BusinessObjects information resources**

A global network of SAP BusinessObjects technology experts provides customer support, education, and consulting to ensure maximum business intelligence benefit to your business.

Useful addresses at a glance:

<table>
<thead>
<tr>
<th>Address</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>Content</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| Customer Support, Consulting, and Education services  
[http://service.sap.com/](http://service.sap.com/) | Information about Technical Customer Assurance programs, as well as links to technical articles, downloads, and online forums. Consulting services can provide you with information about how SAP BusinessObjects can help maximize your business intelligence investment. Education services can provide information about training options and modules. From traditional classroom learning to targeted e-learning seminars, SAP BusinessObjects can offer a training package to suit your learning needs and preferred learning style. |
| SAP BusinessObjects Data Services Community  
[https://www.sdn.sap.com/irj/boc/ds](https://www.sdn.sap.com/irj/boc/ds) | Get online and timely information about SAP BusinessObjects Data Services, including tips and tricks, additional downloads, samples, and much more. All content is to and from the community, so feel free to join in and contact us if you have a submission. |
| Forums on SCN (SAP Community Network)  
[https://www.sdn.sap.com/irj/scn/forums](https://www.sdn.sap.com/irj/scn/forums) | Search the SAP BusinessObjects forums on the SAP Community Network to learn from other SAP BusinessObjects Data Services users and start posting questions or share your knowledge with the community. |
| Blueprints  
[http://www.sdn.sap.com/irj/boc/blueprints](http://www.sdn.sap.com/irj/boc/blueprints) | Blueprints for you to download and modify to fit your needs. Each blueprint contains the necessary SAP BusinessObjects Data Services project, jobs, data flows, file formats, sample data, template tables, and custom functions to run the data flows in your environment with only a few modifications. |
| Product documentation  
| Products Availability Report  
[https://service.sap.com/bosap-support](https://service.sap.com/bosap-support) | Get information about supported platforms for SAP BusinessObjects Data Services.  
In the left panel of the window, navigate to Documentation > Supported Platforms > BusinessObjects XI 3.x. Click the BusinessObjects Data Services link in the main window. |
Architecture
SAP BusinessObjects Metadata Management runs on the SAP BusinessObjects Enterprise platform which is designed for high performance across a broad spectrum of user and deployment scenarios. You can offload processor intensive scheduling and processing to dedicated servers to improve performance. The architecture is designed to meet the needs of virtually any business intelligence (BI) deployment.

This section describes how the components of SAP BusinessObjects Metadata Management fit into the overall platform architecture and individual services and components that make up SAP BusinessObjects Enterprise. This information will help administrators understand how to plan the deployment, management, and maintenance of the metadata management application.

Related Topics
• Architecture overview on page 20
• Metadata Management on BusinessObjects Enterprise components on page 28

Architecture overview

The following diagram shows the SAP BusinessObjects Enterprise (BOE) components that SAP BusinessObjects Metadata Management (BOMM) uses.
The following table shows each SAP BusinessObjects Metadata Management component and which BusinessObjects Enterprise component it runs on.

<table>
<thead>
<tr>
<th>SAP BusinessObjects Metadata Management component</th>
<th>SAP BusinessObjects Enterprise component on which it runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration and Explorer applications</td>
<td>BusinessObjects Enterprise Platform Application Server</td>
</tr>
<tr>
<td>Metadata Management CMS Repository Objects</td>
<td>Central Management System (CMS)</td>
</tr>
<tr>
<td>Metadata Integrators and utilities</td>
<td>• Metadata Management Job Server (Adaptive Job Server)</td>
</tr>
<tr>
<td></td>
<td>• Adaptive Processing Server</td>
</tr>
</tbody>
</table>
Central Management System repository objects for Metadata Management

The Central Management System (CMS) stores information that describes the SAP BusinessObjects Metadata Management application and the operations of the servers that Metadata Management uses for processing. CMS uses these repository objects to manage SAP BusinessObjects Enterprise, including the following tasks for Metadata Management:

- **Managing security**
  
  The CMS manages security information, such as user accounts, group memberships, and object rights that define user and group privileges to access the different features of Metadata Management.

- **Managing servers**
  
  When you define multiple Job Servers to run metadata integrators, the CMS monitors these server and distributes the work processes among them. The CMS handles load balancing and automated clustering to avoid bottlenecks and maximize hardware efficiency.

For more information about CMS, refer to the *BusinessObjects Enterprise Administrator’s Guide*. 

---

### Related Topics

- *Web Application Server* on page 23
- *Central Management System repository objects for Metadata Management* on page 22
- *Metadata integrators* on page 25
- *Search Server* on page 27

### Table: SAP BusinessObjects Metadata Management component and SAP BusinessObjects Enterprise component on which it runs

<table>
<thead>
<tr>
<th>SAP BusinessObjects Metadata Management component</th>
<th>SAP BusinessObjects Enterprise component on which it runs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship Server</td>
<td>Adaptive Processing Server</td>
</tr>
<tr>
<td>Search Server</td>
<td>Adaptive Processing Server</td>
</tr>
</tbody>
</table>

---

**Central Management System repository objects for Metadata Management**

The Central Management System (CMS) stores information that describes the SAP BusinessObjects Metadata Management application and the operations of the servers that Metadata Management uses for processing. CMS uses these repository objects to manage SAP BusinessObjects Enterprise, including the following tasks for Metadata Management:

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  The CMS manages security information, such as user accounts, group memberships, and object rights that define user and group privileges to access the different features of Metadata Management.

- **Managing servers**
  
  When you define multiple Job Servers to run metadata integrators, the CMS monitors these server and distributes the work processes among them. The CMS handles load balancing and automated clustering to avoid bottlenecks and maximize hardware efficiency.

For more information about CMS, refer to the *BusinessObjects Enterprise Administrator’s Guide*. 

---

**Architecture overview**

2

 Related Topics

- *Web Application Server* on page 23
- *Central Management System repository objects for Metadata Management* on page 22
- *Metadata integrators* on page 25
- *Search Server* on page 27

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22 SAP BusinessObjects Metadata Management User's Guide
Web Application Server

SAP BusinessObjects Metadata Management requires a Java or Servlet web application server to process the server-side scripts that make up web applications that:

- perform administrative tasks on the Central Management Console (CMC).
- comprise the Explorer through which you can view and analyze relationships such as impact and lineage.

The supported web application servers include the following:

- Apache Tomcat
- WebSphere
- WebLogic
- Oracle Application Server

**Note:**

Related Topics

- Administration on page 23
- SAP BusinessObjects Metadata Management Explorer on page 24

Administration

You use the Central Management Console (CMC) to perform SAP BusinessObjects Metadata Management administrative tasks such as the following:

- Configure and run metadata integrators
- Define source groups to subset the metadata when viewing relationships such as Same As, Impact, and Lineage
• Administer security for the SAP BusinessObjects Metadata Management Explorer, Metapedia, metadata integrators, and source groups
• Run SAP BusinessObjects Metadata Management utilities

Related Topics
• Metadata Management administration overview on page 118

SAP BusinessObjects Metadata Management Explorer

The SAP BusinessObjects Metadata Management Explorer is a web-based interface through which you can:
• View the metadata from the different sources in an organized and easy to understand way.
• Search for objects without the need to know the source or application in which it exists.
• Define Metapedia terms related to your business data and organize the terms into categories.
• Add annotations to an object.
• Define custom attributes and values for an objects.
• Run pre-defined reports that answer typical business questions such as "Which Universe objects are not used in my reports?" or "Which reports are using my tables?"
• View relationships between objects, reports and documents that you create with BusinessObjects Business Intelligence products. Relationships include the following:
  • Same As - Allows you to determine if an object in one source is the same as an object in another source.
  • Related To - Allows you to determine if an object in one source is related to an object in another source.
• View impact and lineage of objects within the same source or within different sources.
  • Impact analysis - Allows you to identify which objects will be affected if you change or remove other connected objects.
  • Lineage analysis - Allows you to trace back from a target object to the source object.
• Create user-defined relationships for objects.
Metadata integrators

Metadata integrators are programs that do the following:
- Collect metadata from source systems and store the collected metadata into the SAP BusinessObjects Metadata Management Repository.
- Can be scheduled to run at regular intervals.
- Update the existing metadata.
- Can run on one job server or multiple job servers for load balancing and availability.
- Each run as a separate process.

SAP BusinessObjects Metadata Management provides the following metadata integrators:

<table>
<thead>
<tr>
<th>Metadata integrator name</th>
<th>Metadata collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP BusinessObjects Enterprise Metadata Integrator</td>
<td>Collects metadata about objects such as universes, Crystal Reports, Web Intelligence documents, and Desktop Intelligence documents.</td>
</tr>
<tr>
<td>SAP NetWeaver Business Warehouse Metadata Integrator</td>
<td>Collects metadata about objects such as Queries, InfoProviders, InfoObjects, Transformations, and DataSources from an SAP NetWeaver Business Warehouse system.</td>
</tr>
<tr>
<td>Common Warehouse Model (CWM) Metadata Integrator</td>
<td>Collects metadata about objects such as catalogs, schemas, and tables from the CWM Relational Package.</td>
</tr>
<tr>
<td>SAP BusinessObjects Data Federator Metadata Integrator</td>
<td>Collects metadata about objects such as projects, catalogs, datasources, and mapping rules from a Data Federator repository.</td>
</tr>
</tbody>
</table>
### Metadata integrator name

<table>
<thead>
<tr>
<th>Metadata integrator name</th>
<th>Metadata collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP BusinessObjects Data Services Metadata Integrator</td>
<td>Collects metadata about objects such as source tables, target tables, and column mappings from a Data Services repository.</td>
</tr>
</tbody>
</table>
| Meta Integration Metadata Bridge (MIMB) Metadata Integrator (also known as MITI Integrator) | Collects metadata from other third-party sources such as the following:  
  - Data Modeling metadata such as Sybase Power Designer, Embarcadero ER/Studio, and Oracle Designer  
  - Extract, Transform, and Load (ETL) metadata such as Oracle Warehouse Builder, and Microsoft SQL Server Integration Services (SSIS)  
  - OLAP and BI metadata such as IBM DB2 Cube Views, Oracle OLAP, and Cognos BI Reporting |
| Relational databases Metadata Integrator | Collects metadata from relational database management systems (RDBMS) which can be DB2, MySQL, Oracle, SQL Server, Java Database Connectivity (JDBC), or a BusinessObjects Universe connection. Collected metadata includes the definition of objects such as tables, view, synonyms, and aliases. |

You can also obtain third-party metadata integrators for other data sources. For more information about third-party metadata integrators, contact your sales representative.

### Related Topics
- [SAP BusinessObjects Enterprise metadata objects](#) on page 273
- [Exploring Data Modeling metadata](#) on page 336
- [Data Federator objects](#) on page 371
- [BusinessObjects Data Services objects](#) on page 348
Relationship Server

The Relationship Server computes metadata object relationships (such as data lineage and change impact analysis). The SAP BusinessObjects Metadata Management Explorer uses the results of these computed relationships to display metadata relationship diagrams.

It is recommended that you install the Relationship Server on a different computer than the web application server. An Adaptive Processing Server of SAP BusinessObjects Enterprise must already be installed on that computer.

You can deploy multiple Relationship Servers for load balancing and availability.

Related Topics
• Architecture overview on page 20
• Deployment scenarios on page 36

Search Server

The Search Server allows you to find an object that exists in any source while viewing metadata on the SAP BusinessObjects Metadata Management Explorer. It uses the Lucene Search Engine.

The Search Server runs on an Adaptive Processing Server of SAP BusinessObjects Enterprise. You can deploy multiple search servers for load balancing and availability.

The Search Server constructs the search index during the execution of the Metadata Integrators, and the File Repository Server stores the compressed search index. The Search Server also updates the search index for changes to Metapedia terms and categories, custom attributes, and annotations. If the Search Server is not available during the construction and update processes, the search might return incorrect results. For these situations,
Metadata Management provides a utility to reconstruct the search index. For details, see *Recreating search indexes* on page 185.

**Related Topics**
- "Metadata Management Architecture"
- *Deployment scenarios* on page 36

## Metadata Management on BusinessObjects Enterprise components

The following table describes how SAP BusinessObjects Metadata Management uses each pertinent SAP BusinessObjects Enterprise component.

<table>
<thead>
<tr>
<th>SAP BusinessObjects Enterprise component</th>
<th>How SAP BusinessObjects Metadata Management uses component</th>
</tr>
</thead>
</table>
| SAP BusinessObjects Enterprise Application Server | Deploys the SAP BusinessObjects Metadata Management application which consists of:  
• Metadata Management on CMC  
• Metadata Management Explorer |
| Central Management Console (CMC) | Manages the following for SAP BusinessObjects Metadata Management:  
• Metadata Management servers  
• Metadata integrator source configurations  
• Source group configurations  
• Metadata Management utilities  
• Security (authentication and authorization) |
<table>
<thead>
<tr>
<th>SAP BusinessObjects Enterprise component</th>
<th>How SAP BusinessObjects Metadata Management uses component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Management Server (CMS)</td>
<td>Responsible for maintaining a database of information about your SAP BusinessObjects Enterprise system. The data stored by the CMS includes information about users and groups, security levels, SAP BusinessObjects Enterprise content, and servers. For more information about the CMS, see <em>SAP BusinessObjects Enterprise Administrator's Guide</em>. When you create a configuration for a metadata integrator source, SAP BusinessObjects Metadata Management stores the configuration in CMS.</td>
</tr>
<tr>
<td>Metadata Management Job Server</td>
<td>Launches the scheduled execution of a metadata integrator or a Metadata Management utility. When you install SAP BusinessObjects Metadata Management on an Adaptive Job Server, you also install metadata integrator types for sources installed in CMS.</td>
</tr>
</tbody>
</table>
| Adaptive Processing Server             | Runs the following for SAP BusinessObjects Metadata Management:  
- Relationship Service  
- Search Service  
- Test Connection Service for integrator sources |
| File Repository Server                 | Stores files associated with the execution of a metadata integrator or a search. These files include the metadata integrator definitions, history logs, and search indexes. |
Metadata Management on BusinessObjects Enterprise components
Deployment
Deployment

To provide flexibility, reliability, and scalability, you can install the components that make up SAP BusinessObjects Enterprise on one or many machines. You can also install the components of SAP BusinessObjects Metadata Management on one or many machines to take advantage of the same benefits.

Server processes can be "vertically scaled" (where one computer runs several, or all, server-side processes) to reduce cost, or "horizontally scaled" (where server processes are distributed between two or more networked machines) to improve performance. You can also run duplicate instances of a server process on the same machine, or across several networked machines.

For example with Metadata Management, you can install multiple Adaptive Job Servers to run Metadata Integrators on separate computers to distribute the workload and improve performance. You can also install the Search Server on an Adaptive Processing Server on a different computer from the Adaptive Job Servers. For sample deployments, see Deployment scenarios on page 36.

Related Topics
• Planning your Metadata Management deployment on page 32
• Deployment guidelines on page 33
• Deployment scenarios on page 36

Planning your Metadata Management deployment

This section provides guidelines for assessing your organization's needs and suggestions for deployment scenarios. By evaluating your needs before you deploy your SAP BusinessObjects Metadata Management system, you can keep troubleshooting to a minimum.

The section includes examples and suggestions for deployment, but it is important to note that each deployment is unique. The flexibility of the SAP BusinessObjects Enterprise service-based architecture allows you to tailor the deployment to serve your organization's requirements as precisely as possible.
Planning your deployment involves the following steps:


2. Review the key concepts you need to consider for your deployment, including operating system, database, and application server considerations, in addition to security, performance and scalability, and high availability. See "Assessing your organization's environment" in the SAP BusinessObjects Enterprise XI 3.0 Deployment Planning Guide.

3. Choose an initial deployment architecture. Which deployment architecture will serve your needs within the limits of your resources?

   For suggestions and common configurations, see Deployment scenarios on page 36.

---

**Deployment guidelines**

Guidelines to deploy SAP BusinessObjects Metadata Management components include the following:

- The Metadata Management Web applications should be on a separate computer than the Metadata Integrators.
- The Metadata Management repository should be on a separate computer from the Metadata Management Web applications, Adaptive Processing Server, and Adaptive Job Servers to obtain a higher throughput.
- To improve database throughput, the Metadata Management repository should be near the job server that processes the largest amount of data. Therefore, you can install the repository on the same computer as the Metadata Integrator that processes the largest amount of data.
- The Relationship Server should be on a separate computer than the web application server to obtain higher throughput.
- The Relationship Server can be combined with any Metadata Integrator (Job Server), or it can be on its own computer. The rationale for this combination is that Metadata Integrators usually run at night or other non-business hours, and the Relationship Server runs during normal business hours when users are viewing relationships (such as impact and lineage) on the Metadata Management Explorer.
- The Search Server can be combined with any Job Server or other server, or it can be on its own computer. The rationale for this combination is that Metadata Integrators usually run at night or other non-business hours,
and the Search Server runs during normal business hours when users are searching on the Metadata Management Explorer.

• If your Metadata Integrators runs are constrained by a small execution window, deploy each Metadata Integrator on a separate computer.

• For high availability, you can deploy a Metadata Integrator on multiple computers. For more details, see the SAP BusinessObjects Enterprise XI 3.0 Deployment Planning Guide.

Prerequisites for each component

To deploy a subset of SAP BusinessObjects Metadata Management components on each computer, you must have the necessary software already installed on that computer. The following table shows the prerequisite software for each component.

<table>
<thead>
<tr>
<th>Feature category</th>
<th>Prerequisite software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Metadata Management CMS</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Repository Objects</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>You must install this component first (to build the Metadata Management repository). Then you can install the rest of the Metadata Management components in any order on any computer.</td>
</tr>
<tr>
<td><strong>The CMS component of SAP BusinessObjects Enterprise XI 3.0.1 and above</strong></td>
<td></td>
</tr>
<tr>
<td>Feature category</td>
<td>Prerequisite software</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Metadata Integrators                    | - Metadata Management CMS Repository Objects component must already be installed (not necessarily on this computer)  
  - Following components of SAP BusinessObjects Enterprise XI 3.0.1 and above:  
    • Adaptive Job Server  
    • Adaptive Processing Server  
  - Client libraries for the source system installed on this computer. For example, the SAP BusinessObjects Enterprise Metadata Integrator requires SAP BusinessObjects Enterprise Full Client installed on this computer.  
  - For the BusinessObjects Enterprise Metadata Integrator to collect Crystal Reports or universes whose sources are SAP NetWeaver BW objects, you must install the BusinessObjects XI Integration for SAP Solutions on SAP BusinessObjects Enterprise (BOE). This requirement is for reports that were created with the **Refresh on Open** option because when the Metadata Integrator collects the metadata from the BOE system, the BOE system will connect to the source BW system to refresh the data automatically.  
    • The BusinessObjects Enterprise Metadata Integrator supports two drivers: SAP BW MDX Query and SAP Operational Data Store.  
    • The BusinessObjects XI Integration for SAP Solutions has prerequisites that you must install. For more information, see the BusinessObjects XI Integration for SAP Installation Guide.  
  Installing this Metadata Integrator installs the Metadata Management Job Server (MMJobServer). |
| Metadata Management Relationship Server  | - Metadata Management CMS Repository Objects component must already be installed (not necessarily on this computer)  
  - Adaptive Processing Server component of SAP BusinessObjects Enterprise XI 3.0.1 and above |
<table>
<thead>
<tr>
<th>Feature category</th>
<th>Prerequisite software</th>
</tr>
</thead>
</table>
| **Metadata Management Search Server** | • Metadata Management CMS Repository Objects component must already be installed (not necessarily on this computer)  
• Adaptive Processing Server component of SAP BusinessObjects Enterprise XI 3.0.1 and above |
| **Web Application**                 | • Metadata Management CMS Repository Objects component must already be installed (not necessarily on this computer)  
• Web Application Server where SAP BusinessObjects Enterprise applications are deployed  
**Note:** If you are manually installing the Web Application, you must copy a .war file. |
Scenario 1: Performance in small execution window

This scenario illustrates a situation in which your Metadata Integrators run might take several hours to complete, and you want to ensure it has enough resources to complete as fast as possible. The following diagram shows how the components of SAP BusinessObjects Enterprise (BOE) and SAP BusinessObjects Metadata Management (BOMM) are deployed on seven computers.

The diagram shows:
- 1 back-end server to host CMS framework servers (SJ-CMS-01).
- 1 processing server to host the Metadata Management Search Server (SJ-PS-01).
- 4 processing servers to host the Metadata Integrators. The assumptions are that:
- The CWM Integrator is run very infrequently. Therefore, the CWM Metadata Metadata Integrator and RDBMS Metadata Integrator can be installed on the same computer (SJ-PS-02).
- The Relationship Server is run during the day and can be installed on a computer with any Metadata Integrator, which is usually run at night. The SAP NetWeaver BW Metadata Integrator (BW Integrator) is run frequently and processes a large amount of metadata. Therefore, it is installed on its own computer with the Relationship Server (SJ-PS-03).
- The Data Services Metadata Integrator (DS Integrator) is run frequently and processes a large amount of metadata. Therefore, it is installed on its own computer (SJ-PS-04).
- The BusinessObjects Enterprise Metadata Integrator (BOE Integrator) is run frequently and processes a large amount of metadata. Therefore, it is installed on its own computer (SJ-PS-05).
- 1 web application server (SJ-WS-01) to host CMC applications, including the Metadata Management application.
- 1 back-end database server for the Metadata Management repository (SJ-DB-01).

### Scenario 2: Performance and small number of computers

This scenario illustrates a situation in which your Metadata Integrators run might take several hours to complete, but you have a limited number of computers. The following diagram shows how the components of SAP BusinessObjects Enterprise and SAP BusinessObjects Metadata Management are deployed on four computers.
The diagram shows:

- 1 back-end server (SJ-CMS-01) to host CMS framework servers.
- 1 processing server (SJ-PS-01) to host the Metadata Management Search Server, the SAP BusinessObjects Data Services Metadata Integrator, RDBMS Metadata Integrator, and the SAP NetWeaver Business Warehouse (BW) Metadata Integrator.

The rationale to combine these components is that the execution time is not very long for each of these Metadata Integrator and they can be scheduled to run at different times.
• 1 processing server (SJ-PS-02) to host the CWM Metadata Integrator, SAP BusinessObjects Enterprise Metadata Integrator (BOE Integrator), the Relationship Server, and SAP BusinessObjects Metadata Management repository (BOMM Repository). The assumption is that the CWM Integrator runs very infrequently compared to the BusinessObjects Enterprise Integrator.

**Note:**
To improve database throughput, the Metadata Management repository should be near the job server that processes the largest amount of data. Therefore, you can install the repository on the same computer as the Metadata Integrator that processes the largest amount of data.

• 1 web application server (SJ-WS-01) to host CMC applications, including the Metadata Management application.

**Scenario 3: High availability**

This example shows a scenario in which you want to ensure that computers are always available to run Metadata Integrators and the Relationship Server, and therefore you have redundant installations. The following diagram shows a possible deployment of redundant Metadata Integrators and Relationship Servers across multiple computers.
This diagram shows the following:

- The SAP BusinessObjects Data Services (DS), Relational Database (RDBMS), and SAP NetWeaver Business Warehouse (BW) Metadata Integrators are replicated on two processing servers (SJ-PS-01 and SJ-PS-03).
- The CWM and SAP BusinessObjects Enterprise Metadata Integrators are replicated on two processing servers (SJ-PS-02 and SJ-PS-04).
- The Relationship Server is replicated on two processing servers (SJ-PS-02 and SJ-PS-03).
Installation for Windows
Preparing to install Metadata Management

Pre-installation overview

SAP BusinessObjects Metadata Management provides an open and flexible architecture that supports a multitude of deployment and configuration scenarios. Before you install the product you should:

- Ensure that your network and systems meet the basic requirements for an SAP BusinessObjects Metadata Management installation.
- Obtain the product software by electronic download or on CD/DVD, as well as any required licensing keycodes.
- Ensure that the user who will run the installation setup program has adequate permissions to complete the installation tasks.
- Determine where the product components should be installed and consider how you should prepare your infrastructure and set up your environment, including server locations.
- Decide the database server to use for the SAP BusinessObjects Metadata Management repository and prepare the database.
- Determine your installation method.

The following sections list the software and system requirements and the install methods available to you for installing SAP BusinessObjects Metadata Management.

Note:
The following Metadata Management components can only be installed on Windows (you cannot install them on UNIX):

- Metadata Integrators
- Search Server (provides ability to search metadata on the Metadata management Explorer)
- Relationship Server

Related Topics
- Architecture on page 19
License keys on page 97

System requirements

For a detailed list of supported environments and hardware requirements, refer to the Products Availability Report in the SAP BusinessObjects Support > Supported Platforms section of the SAP Service Marketplace: http://service.sap.com/bosap-support. This document includes specific version and patch-level requirements for databases, applications, web application servers, web browsers, and operating systems.

Generally, the following components must be preinstalled and configured correctly before you can install SAP BusinessObjects Metadata Management:

- Microsoft Windows 2003 operating system - Required for the Metadata Integrators and Search Server components of Metadata Management.
- Solaris, AIX, or Linux operating system - Optional for the Metadata Management CMS Repository Objects and Web Applications components.
- Microsoft Internet Explorer
- SAP BusinessObjects Enterprise XI 3.0 FP1 required components for the specific Metadata Management component to be installed on this computer. See Prerequisites for each component on page 34.

Metadata Management uses the Web application server and Java 2 Software Development Kit (JDK) that BusinessObjects Enterprise uses.

Note: For UNIX, you must increase the memory setting for Web Logic in the following directory: Weblogic_install/wlserver_10.0/samples/domains/wl_server/bin/setDomainEnv.sh. Change the value of the parameter -XX:MaxPermSize from 128m to 256m.

Note: To install Metadata Management, you must be the BusinessObjects Enterprise Administrator.

Network requirements

When installing SAP BusinessObjects Metadata Management on multiple computers, you must ensure that:
• each target machine can communicate over TCP/IP with the machine running the Central Management Server (CMS).
• the target machines can communicate over TCP/IP with each other. In particular:
  • your Metadata Integrators must be able to communicate with the machine that is running the Metadata Management repository.
  • your Search Server must be able to communicate with the machine that is running the web application server for the Metadata Management Explorer and machines where Metadata Integrators are deployed.

For more information on the communication between components, refer to Architecture on page 19.

User permissions for installing Metadata Management

To successfully install SAP BusinessObjects Metadata Management on Windows, the user running the setup program must have the permissions listed in the table below:
Choose components and determine component distribution

You can choose to install SAP BusinessObjects Metadata Management components on one or more computers based on available resources and your deployment planning. For guidelines and suggested scenarios to distribute the software components, see Deployment on page 32.

**Note:**
- You must install the Metadata Management CMS Repository Objects on the same computer as the SAP BusinessObjects Enterprise CMS.
- You can install the Metadata Management CMS Repository Objects and Web Application on Windows, UNIX, or Linux platforms.
- You must install the Metadata Integrators, Relationship Server, and Search Server on a supported Windows platform that already has the Adaptive Processing Server installed on it.

The following table shows the software components and their sub-components that you can choose.

<table>
<thead>
<tr>
<th>Category</th>
<th>Required permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Administrative privileges on the local machine.</td>
</tr>
<tr>
<td>Network</td>
<td>TCP/IP access to all machines where you want to install components - all specified ports must be available.</td>
</tr>
<tr>
<td>SAP BusinessObjects Enterprise</td>
<td>You must be the SAP BusinessObjects Enterprise Administrator.</td>
</tr>
<tr>
<td>Database</td>
<td>Rights to add and drop database objects (such as tables and views), plus rights to read, write, and edit table rows.</td>
</tr>
<tr>
<td>Web application server</td>
<td>It is recommended that you use the same user account for installing BusinessObjects Enterprise and your web application server. To deploy Metadata Management web applications using a user account different from the one used to install the web application server, see &quot;Minimum user rights for deploying web applications&quot; in the BusinessObjects Enterprise XI 3 Installation and Configuration Guide.</td>
</tr>
</tbody>
</table>
## Installation for Windows

### Preparing to install Metadata Management

<table>
<thead>
<tr>
<th>Feature category</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Management CMS Repository Objects</td>
<td>Metadata Management CMS Repository Objects</td>
<td>Includes definitions and location information for the SAP BusinessObjects Metadata Management application, repository, and other objects.</td>
</tr>
<tr>
<td>Feature category</td>
<td>Component</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>SAP BusinessObjects Enterprise Metadata Integrator</td>
<td>Extracts information from an SAP BusinessObjects Enterprise repository that includes metadata objects such as SAP BusinessObjects Crystal Reports, Web Intelligence documents, and Desktop Intelligence documents.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>SAP NetWeaver Business Warehouse Metadata Integrator</td>
<td>Extracts information from a NetWeaver Business Warehouse system which includes metadata objects such as Queries, InfoProviders, InfoObjects, Transformations, and DataSources.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>Common Warehouse Model (CWM) Metadata Integrator</td>
<td>Extracts information from the CWM Relational Package that includes definitions of metadata objects such as catalogs, schemas, and tables.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>Relational Databases (RDBMS) Metadata Integrator</td>
<td>Extracts information from an RDBMS that includes definitions of metadata objects such as catalogs, schemas, stored procedures, and aliases. Supported relational databases include DB2, MySQL, Oracle, SQL Server, Teradata, or a Universe connection using JDBC or ODBC. For complete details, see the Supported Platforms document.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>SAP BusinessObjects Data Services Metadata Integrator</td>
<td>Extracts information from an SAP BusinessObjects Data Services repository which includes definitions of metadata objects such as source tables and columns for ETL jobs, datastores and configurations, and flat files.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>SAP BusinessObjects Data Federator Metadata Integrator</td>
<td></td>
</tr>
</tbody>
</table>

Installation for Windows
Preparing to install Metadata Management
<table>
<thead>
<tr>
<th>Feature category</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meta Integration Metadata Bridge (MIMB)</td>
<td>Extracts information from an SAP BusinessObjects Data Federator repository which includes definitions of metadata objects such as projects, catalogs, datasources, and mapping rules.</td>
</tr>
<tr>
<td></td>
<td>Metadata Management Integrator</td>
<td>Extracts the following metadata from other sources:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Data Modeling metadata such as Sybase Power Designer, Embarcadero ER/Studio, and Oracle Designer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ETL metadata such as Oracle Warehouse Builder, and Microsoft SQL Server Integration Services (SSIS)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OLAP and BI metadata such as IBM DB2 Cube Views, Oracle OLAP, and Cognos 8 BI Reporting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For more information, see <a href="http://www.metaintegration.net/Products/MIMB/Documentation/">http://www.metaintegration.net/Products/MIMB/Documentation/</a>.</td>
</tr>
<tr>
<td></td>
<td>Metadata Management Relationship Server</td>
<td>Processes object relationships (for example, impact and lineage).</td>
</tr>
<tr>
<td></td>
<td>Metadata Management Search Server</td>
<td>Provides search capability on SAP BusinessObjects Metadata Management Explorer.</td>
</tr>
</tbody>
</table>
Web Application

<table>
<thead>
<tr>
<th>Feature category</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides web applications that:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• administer SAP BusinessObjects Metadata Management on the Central Management Console (CMC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• comprise the SAP BusinessObjects Metadata Management Explorer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
If SAP BusinessObjects Enterprise has manually deployed the web application, follow the steps in the Manually deploy web application procedure.

### Related Topics
- [Architecture overview](#) on page 20

## Repository database requirements and preparation

The SAP BusinessObjects Metadata Management repository is a database that stores all metadata that the Metadata Integrators collect. You use the information in the repository to analyze relationships between objects, as well as to analyze impact and lineage between objects. For example, you can find the tables and columns used by your Business Intelligence reports and documents.

You can either create a new database for the repository or use an existing repository. The SAP BusinessObjects Metadata Management installation process will either create new tables or upgrade the existing tables within the repository.

### Related Topics
- [Setting up a new database](#) on page 52
- [Exploring SAP BusinessObjects Enterprise metadata](#) on page 272
Setting up a new database

This procedure creates a SAP BusinessObjects Metadata Management Repository database and configures it for the user who will connect to it. The installation process will create the tables within the Metadata Management Repository.

1. Create a new database on your database server.
   Compatible database types include DB2, Microsoft SQL Server, MySQL, Oracle, and Oracle RAC. For the most current list of supported database software and version requirements, see the Products Availability Report available on the SAP support site: https://service.sap.com/bosap-support.

   **Note:**
   • If you create a new DB2 8.x database:
     • In the creation wizard, set the code set to UTF-8.
     • Create three buffer pools, one for each page size: 8K, 16K and 32K. The buffer pool size should be set to 1000.
     • Create one temporary system table space for the 32K buffer pool.
     • Create one regular table space for the 32K buffer pool.
   • If you create a new DB2 9.x database:
     • In the creation wizard, set the code set to UTF-8 and the default buffer pool and table space page size to 32K.

2. Create a new user and assign a secure password.

3. Ensure that the new user has permission to create, modify, and delete database objects so that Metadata Management can modify the database as required.

   **Note:**
   If you are not the owner of the database, you must have permissions to perform the necessary operations.

**Related Topics**
• To configure your Metadata Management repository on page 59
Installation scenarios

The following installation methods are available to you for installing SAP BusinessObjects Metadata Management on Windows:

• Standard installation – Installs from the installation wizard.
• Migration – Upgrades an existing SAP BusinessObjects Metadata Management repository during installation.
• Remote Job Server installation – Installs a Remote Job Server component for a Metadata Integrator to collect metadata from an SAP BusinessObjects Enterprise XI R2 system.
• Copy integrator configurations – Copies integrator source configurations from a development to test environment or from a test to production environment.
• Back up and restore configurations -- Backs up and restores integrator source configurations Metadata Management utility configurations, and integrator source groups.
• Distributed deployment – Installs a subset of Metadata Management components on each computer that has the prerequisite software.

Related Topics
• Standard installation of Metadata Management on page 54
• Remote Job Server Installation on page 76
• Migration on page 111
• Deployment on page 32

License keys

You purchase a license key for the SAP BusinessObjects Metadata Management features that you want.

To purchase license keys:
• Contact your sales representative.
• Contact your regional office.

Related Topics
• To enter product key code on page 100
Standard installation of Metadata Management

Before beginning your installation, review the Pre-installation overview to ensure that you have prepared all necessary systems.

The following instructions lead you through the standard installation steps of setting up your SAP BusinessObjects Metadata Management on Windows:

1. **To begin running the installation program** on page 54
2. **To accept the license agreement** on page 55
3. **To enter user information and a product key code** on page 55
4. **To specify the CMS log on information** on page 56
5. **To select components to install** on page 57
6. **To configure your Metadata Management repository** on page 59
7. **To configure your existing Web application server** on page 60
8. **To start the installation** on page 61
9. **To manually deploy web application server components** on page 62

After your installation successfully completes, you access Metadata Management from the Central Management Console (CMC) of SAP BusinessObjects Enterprise.

**Related Topics**
- Pre-installation overview on page 88
- Accessing Metadata Management for administrative tasks on page 119

**To begin running the installation program**

To run the SAP BusinessObjects Metadata Management installation program:

1. Log on to your computer using an account with local Windows administrator privileges and access to your network.
2. If you downloaded SAP BusinessObjects Metadata Management from Electronic Software Delivery, open the Setup.exe file or Autorun.exe. Or, insert the SAP BusinessObjects Metadata Management Installation CD
into your CD-ROM drive (if the installer does not automatically open, open Autorun.exe from the top level of the CD contents).

3. On the "Welcome to the BusinessObjects Metadata Management Installation Wizard" window, click **Next**.

**Related Topics**
- *Pre-installation overview* on page 88

---

### To accept the license agreement

At the "License Agreement" window, review and accept the license agreement for SAP BusinessObjects Metadata Management. You must accept the agreement to continue with the installation setup.

1. Review the License Agreement.
2. Select **I accept the License Agreement**.
   You cannot continue unless you accept the License Agreement.
3. Click **Next** to continue the installation setup.
   The "User Information" screen displays.

---

### To enter user information and a product key code

On the "User Information" screen, enter user information and provide a product code for your SAP BusinessObjects Metadata Management installation.

1. Provide your user credentials in the **Full Name** and **Organization** fields.
   This information personalizes your installation and is recorded in the registry.
2. Enter a valid code in the **Product Keycode** field.
   **Note:**
   You enter a single product keycode during Metadata Management installation. If you need to change the keycode after installation, use the "License Keys" management area of the Central Management Console (CMC).
3. Click **Next**.
To specify the CMS log on information

At the "BusinessObjects Enterprise Server Login" window, specify connection information for the SAP BusinessObjects Central Management Server (CMS). If applicable, you also specify values for Secure Sockets Layer (SSL) options.

1. Specify the following connection information to log on to the Central Management Server (CMS).

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Server Name</strong></td>
<td>Host name of the CMS (Central Management Server). This value is required. The CMS is responsible for maintaining a database of information about your SAP BusinessObjects Enterprise system. The data stored by the CMS includes information about users and groups, security levels, BusinessObjects Enterprise content, and servers. For more information about the CMS, see SAP BusinessObjects Enterprise Administrator’s Guide.</td>
</tr>
<tr>
<td><strong>Enable SSL</strong></td>
<td>If you use the Secure Sockets Layer (SSL) protocol for all network communication between clients and servers in your BusinessObjects Enterprise deployment, select the Enable SSL.</td>
</tr>
<tr>
<td><strong>User</strong></td>
<td>The CMS user name to connect to the CMS server. The default value is Administrator.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Password</td>
<td>The password to connect to the CMS server to register and run the Metadata Integrator.</td>
</tr>
<tr>
<td>Authentication Mode</td>
<td>The CMS authentication mode. The default value is Enterprise. See the SAP Business Objects Administrator's Guide for available modes.</td>
</tr>
</tbody>
</table>

2. If you selected **Enable SSL**, fill in the values for the following options on the SSL window:
   - SSL Certificates Folder
   - Server SSL Certificate File
   - SSL Trusted Certificate File
   - SSL Private Key File
   - SSL Private Key File Passphrase File

   For more information, see "Configuring servers for SSL" in your SAP BusinessObjects Enterprise Administrator's Guide.

3. Click **Next**.
   The "Select Features" screen displays.

**To select components to install**

At the "Select Features" window, select or deselect SAP BusinessObjects Metadata Management components that you want to install on this computer. For a description of the feature categories and components that you can select or deselect, see *Choose components and determine component distribution* on page 91.

**Note:**
The Installation Wizard displays the Metadata Management components that you can install and cannot install, based on the prerequisite software that is installed on this computer. For details, see *Prerequisites for each component* on page 34.

1. Click the icon for a component you want to select or deselect.
Each component displays a drop-down menu that allows you to choose from the following options:

- Selected components will be installed on local hard drive — Installs only the selected component in the tree for that feature.
- Entire feature will be installed on local hard drive — Installs all components in the tree for that feature.
- Entire feature will be unavailable — No components for that feature are installed. An X appears next to the deselected component.

**Note:**

- If you deselect the Metadata Management Relationship Server, ensure that it is installed on at least one computer in your enterprise deployment. The Relationship Server is required to process relationships (such as impact and lineage) of metadata objects.
- The Metadata Management web application option is available if you have installed the Web Application option in the SAP BusinessObjects Enterprise software. The web application installation method is the same in both BusinessObjects Enterprise and Metadata Management. Therefore, the installer checks whether you have manually or automatically installed web services, and automatically chooses the same installation option in Metadata Management. If you have manually deployed the web application in BusinessObjects Enterprise, follow the *Manually deploy web application server components* procedure in this guide to manually deploy the web application in Metadata Management.
2. To calculate whether sufficient disk space is available for your selected components, click **Disk Cost**.

   In a new window the software displays storage space available on the local machine and mapped network drives. Drives that do not have enough disk space for the currently selected components are highlighted. Click **OK** to return to the "Select Features" window.

3. If you want to revert to the original configuration of the component list, click **Reset**.

4. Click **Next**.

   If you selected the CMS InfoObjects component, the "Configure BusinessObjects Metadata Management Repository database" window opens.

---

**To configure your Metadata Management repository**

The "Configure BusinessObjects Metadata Management Repository database" window appears if you selected the CMS Repository Objects component.
On the "Configure BusinessObjects Metadata Management Repository database" window, enter the connection information for your SAP BusinessObjects Metadata Management Repository. Then you can create the repository, upgrade it, or make no changes to it.

1. Select the database type from the **Connection type** drop-down list.
2. Enter the connection information for the database type.
   - If your database type is Oracle RAC, enter the connection string. After installation, if you want to improve performance, you can change the connection string in the Central Management Console. For details, see *Viewing and editing repository information* on page 189.
3. Enter the **User name** and **Password** for the Metadata Management Repository.
4. Click **Next** (this action also validates your input values).
   - The "Repository status " window appears
5. The first time you run the installation program, the Repository status window selects the **Create repository** option by default. The installation program will create the Metadata Management tables in the specified database.
   - If you run the installation program again and want to preserve the existing Metadata Management Repository, select **Skip repository configuration**. If you want to create a new repository (either in the same database or a new database) select the **Create repository** checkbox.
6. Click **Next** to continue with the installation setup.
   - The "Configure Web Application Server " window appears if your Web Application Server is Tomcat.

**Related Topics**
- *Viewing and editing repository information* on page 189

**To configure your existing Web application server**

The "Configure Web Application Server" window appears if you selected the Web Application component.

As part of the installation setup, you provide information about the web application server that will work with your SAP BusinessObjects Metadata
Management applications to perform administrative tasks on the Central Management Console or to view metadata relationships on the Metadata Management Explorer.

The Metadata Management installation wizard detects the web application server that your SAP BusinessObjects Enterprise system is using on this computer. Therefore, most of the information is pre-populated in the fields on the "Configure Web Application Server configuration" window. To properly install web components on your web application server, you must provide the password for your existing web application server.

1. If your web application server is Apache Tomcat, you must provide the name of the current web application server instance (for example “localhost”) in the Instance field.

2. If your web application server is WebLogic, WebSphere, or Oracle Application Server, you must provide the Admin password.

3. Click Next to continue with the installation setup.
   The "Start Installation" screen displays.

To start the installation

The "Start Installation" window is the final screen in the installation setup.

1. Review the components that will be installed and any associated settings.

2. If you want to make changes, use the Back button. All entries are retained; you do not need to re-enter any information.

   Note:

   If you are running the setup.exe program from the command line, and have the -w filename parameter switch enabled, this is the point at which you can Cancel the installation process to have the .ini file written with all the installation parameter information. This .ini file can then be used in silent and scripted installations.

3. Click the Next button to start the installation process.
   The "Updating System" window shows the progress of copying the files.
To manually deploy web application server components

To manually deploy the web application server components (WAR files), you must also have manually deployed the web application server components in SAP BusinessObjects Enterprise. You must create a web application-specific WAR file using the wdeploy tool, and then manually deploy the web application server components. The following section describes how to manually deploy the web application server components on a Tomcat application server.

**Note:**
If you are manually deploying the SAP BusinessObjects Enterprise Web Application Server, you must also manually install those web application server components. For the list of WAR files to deploy, see the most recent version of the [SAP BusinessObjects Enterprise Installation and Deployment Guide for Windows and UNIX](https://www.sap.com). For information about deploying on administrative consoles such as WebLogic, Websphere, and SAP Application Server, see the [SAP BusinessObjects Enterprise Web Application Deployment Guide for Windows](https://www.sap.com) or the [SAP BusinessObjects Enterprise Web Application Deployment Guide for UNIX](https://www.sap.com).

**Note:**
The following procedure assumes that you have installed the same versions of SAP BusinessObjects Metadata Management and SAP BusinessObjects Enterprise into the default installation folder. You must have the same version numbers to ensure that both web application server components work seamlessly. This procedure also assumes that you do not have previous versions of the software installed on the same machine.

1. In the wdeploy tool on the machine where you installed SAP BusinessObjects Metadata Management, run the `wdeploy predeploy` command to prepare a single web application, or `wdeploy predeployall` to prepare all web applications. WAR files are typically installed to `<LINK_DIR>/BusinessObjects Metadata Management 12.1/java/applications`.
   For example, to create Tomcat WAR files, enter the following:

   ```
wdeploy tomcat6 -DAPP=bomm predeploy
wdeploy tomcat6 -DAPP=metadatamanagement predeploy
   ```
2. Copy the following directories to the machine where the web server is running (for example, Tomcat), maintaining the directory structure exactly.
   - Deployment directory. For example, <LINK_DIR>/Business Objects/deployment.
   - WAR files: `bomm.war` and `metadatamanagement.war`. For example, <LINK_DIR>/Business Objects/BusinessObjects Metadata Management 12.1/java/applications.
   - JAVA SDK. For example, <LINK_DIR>/Business Objects/javasdk.

3. Modify the web server configuration file with the correct information, such as the port server number. For example you can find the Tomcat configuration file in <LINK_DIR>/Business Objects/deployment/config.tomcat6.

4. On the application server using the `wdeploy` tool, run the `wdeploy deployonly` command.
   For example, to deploy the Tomcat processed WAR files, type the following:
   ```
   wdeploy tomcat6 -DAPP=bomm deployonly
   wdeploy tomcat6 -DAPP=metadatamanagement deployonly
   ```

   **Note:**
   The `wdeploy` tool does not detect whether SAP BusinessObjects Enterprise web application is installed on the same version of the application server.

---

**Silent installation**

A silent installation is one that you run from the command line to install SAP BusinessObjects Metadata Management, rather than following the install wizard. When you run a silent installation, you specify the parameters to be used for the install either on the command line or in an input file (also called a response file).

Silent installation is particularly useful when you need to perform multiple installations, as you can save time and avoid being prompted for information by the installation program.

You can also use the silent installation command in your own scripts. For example, if your organization uses scripts to install software on machines, you can insert the silent installation command into your scripts.
The silent install command line includes a series of parameters that provide information for installation settings and directory paths. You can also specify options that control the level of prompts during an install.

Related Topics

- To create a response file on page 107
- To start the silent installation on page 110

To create a response file

You run the installation setup program to write the installation settings to a specified response file. The file is generated once the installation setup program is ready to start the installation.

To create the response file:

1. Open a command line console and navigate to the folder that contains the installation files.
2. Mount the device that contains the installation files.

   **Note:**
   If you run the installation script without copying the files to a temporary location, you will be prompted to specify a temporary location for the installation.

3. In the command line, type the silent installation command.
   - For Windows:
     Type `setup.exe -w` and the file path for the response file you want to generate.

     ```
     setup.exe -w responseFilePath
     ```
   - For UNIX:
     Type `./install.sh -w` and the file path for the response file you want to generate.

     ```
     ./install.sh -w responseFilePath
     ```
4. Press Enter to launch the installation setup program.
5. Follow the instructions on the screen to enter your preferred installation settings until you reach the final screen of the setup program.

   **Note:**
   The installation program validates the settings that you enter on each screen, and then records the settings in the response file at the final screen. If the values for any settings change after installation, run the setup program again to validate the settings.

6. Stop the installation setup when you reach the final screen in the installation setup program.
   - For Windows:
     Click Cancel to abort the installation setup.
   - For UNIX:
     Press CTRL + X to abort the installation setup.

You can access the response file from the directory you specified in step 2.

**To start the silent installation**

You need a response file residing in a known directory. The MACHINE NAME parameter must be specified in the response file if you are replicating an installation. If the parameter is not specified, the local server name will be used by default.

1. Open a command line console and navigate to the folder that contains the installation files.
2. In the command line, type the following information:
   - For Windows:
     
     `setup.exe -r responsefile`
   - For UNIX:
     
     `./install.sh -r responsefile`
-r responsefile Specifies the name of the response file you want the installation setup program to read for installation parameters.

3. If you want to override values in the response file, type the parameters in the command line.

   For example, if you want to override the license key, type the PIDKEY parameter and value in the command as follows:
   
   - For Windows:
     ```
     setup.exe -r responseFilePath
     \install.ini PIDKEY=1111-2222-3333-444
     ```
   
   - For UNIX:
     ```
     ./install.sh -r responseFilePath/install.ini
     PIDKEY=1111-2222-3333-444
     ```

4. Press Enter to launch the installation.

   The installation setup program runs in the background.

Related Topics
- To create a response file on page 107

Silent install parameters

The following table lists the most common parameters used in a silent installation of SAP BusinessObjects Metadata Management. To use a parameter, place it on the command line after the installation command and after the path for the installation files. Or, you may use these parameters in the installation .ini file.

Note:
These parameters are case sensitive.
<table>
<thead>
<tr>
<th>Installation parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/qn+</td>
<td>Specifies that the user is only prompted when the installation is complete.</td>
</tr>
<tr>
<td>/qn</td>
<td>Specifies that the user is not prompted during the install, or when the install is complete.</td>
</tr>
<tr>
<td>/qa /qb</td>
<td>Specifies that the user is not prompted during the install, or when the install is complete.</td>
</tr>
</tbody>
</table>
| INSTALLDIR             | Specifies the machine and directory where you want to install the product components.  
                          For example, C:\Program Files\Business Objects |
| PIDKEY                 | Specifies your base product activation keycode. |
| DATABASEPORT           | Specifies the port used for the database type. Each database type has a default port number if it is not specified. |
| ADDLOCAL               | Specifies which components will be installed. Each component is specified, comma separated and grouped within quotes. |
Related Topics
• To start the silent installation on page 110

Migration

When you install SAP BusinessObjects Metadata Management 12.1, you can upgrade your version 11.7 or 12.0 repository to version 12.1 to preserve your existing metadata source definitions.

Related Topics
• Objects that migrate on page 111
• Migrating a Metadata Management repository on page 70

Migrating from 11.7 to 12.x

When you upgrade a BusinessObjects Metadata Manager 11.7 repository to SAP BusinessObjects Metadata Management 12.x, the following objects migrate to the Central Management Server (CMS) repository:
• Metadata Integrator configurations
• Configurations for Metadata Management utilities (compute the lineage staging table and recreate the search index)
• Schedules to run the Metadata Integrators and utilities

Annotations, custom attributes, and preferences that you defined in version 11.7 migrate to the version 12.x repository.

If you migrate from Metadata Management 11.7 to 12.x, the following objects do not migrate:
• Users – Metadata Management 12.x uses the security services that SAP BusinessObjects Enterprise provides. Therefore, you must define and manage users of Metadata Management through the Central Management Console (CMC).
• Log files from Metadata Integrator and utility runs – Metadata Management 12.x uses the scheduling and file repositories that BusinessObjects Enterprise provides. Therefore, the logs are now managed as part of the instance of the scheduled run.
Note:
If you upgrade from version 11.7, you must install the Relationship Server on a Windows computer that has an Adaptive Processing Server installed. The Relationship Server component is new with version 12.1 of SAP BusinessObjects Metadata Management. It provides object relationship analysis such as impact and lineage.

Related Topics
• Migrating a Metadata Management repository on page 70

Migrating from 12.x to 12.x

When you move to a different BusinessObjects Enterprise system (same version or different version), you can preserve your existing SAP BusinessObjects Metadata Management metadata source definitions by using the Metadata Management installer and using the same Metadata Management repository.

Note:
If you upgrade from version 12.0, you must install the Relationship Server on a Windows computer that has an Adaptive Processing Server installed. The Relationship Server component is new with version 12.1 of Metadata Management. It provides object relationship analysis such as impact and lineage.

If you move to a new BusinessObjects Enterprise system (either upgrade the version or not) the following objects migrate:
• Metadata integrator source configurations
• Metadata Management utility configurations
• Annotations
• Custom attributes
• Metapedia terms
• Metadata Management Explorer preferences

The following objects do not migrate when you move to a new BusinessObjects Enterprise system:
• Schedules and metadata integrator history runs
• Users and permissions
• Integrator source groups
When you install SAP BusinessObjects Metadata Management version 12.1, you can upgrade an 11.7 or 12.0 repository to version 12.1. Perform this Metadata Management repository migration on a computer that has SAP BusinessObjects Enterprise XI 3.1 Central Management Server (CMS) installed.

1. Review Release Notes for the version of SAP BusinessObjects Metadata Management you will be installing.
2. Use your database backup utilities program to back up your existing SAP BusinessObjects Metadata Management repository.
3. Start the installation setup.
   After you downloaded the product from Service Marketplace, open the setup.exe file.
4. On the "Welcome to the SAP BusinessObjects Metadata Management Installation Wizard" window, click Next.
5. Go through the following steps of a standard installation:
   a. To accept the license agreement on page 55
   b. To enter user information and a product key code on page 55
   c. To specify the CMS log on information on page 56
6. At the "Select Features" window, select the components that you want to install on this computer.
   a. Select the Metadata Management CMS Repository Objects component. You must install this component first.
   b. You must install at least one Relationship Server on the Central Management System cluster, not necessarily on the same computer as the Metadata Management CMS Repository Objects component. When you upgrade from a previous version, the Relationship Server is not selected by default.

Note:
The Relationship Server component is new with version 12.1 of SAP BusinessObjects Metadata Management. It provides object relationship analysis such as impact and lineage. You must install the Relationship Server component if you want to perform these analyses.
Server on a Windows computer that has an Adaptive Processing Server installed.

c. You can select other components if you want to install them on this same computer.
d. Click Next.
The "Configure SAP BusinessObjects Metadata Management Repository database" window appears.

7. To upgrade an existing repository, enter the following information:
   a. Select the database type from the Connection type drop-down list.
b. Enter the connection information for the database type.
c. Enter the user and password for the existing repository.
d. Click Next (this action also validates your input values).

8. The "Repository Status" window appears. The option selected by default depends on the version of the repository you specified and the version you are installing.
   a. If you specify a repository whose version is older than the version that you are installing, the "Repository Status" window displays the Upgrade repository option selected by default.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to upgrade the repository and preserve the data.</td>
<td>Select Upgrade repository.</td>
</tr>
<tr>
<td>You want to delete the existing repository and create a new one in the same database.</td>
<td>Select Create repository.</td>
</tr>
</tbody>
</table>

b. If you specify a repository that is the same version as the version you are installing, the Repository status window displays the Skip repository configuration option selected by default.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to keep the repository and preserve the data.</td>
<td>Select Skip repository configuration.</td>
</tr>
<tr>
<td>Situation</td>
<td>Action</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>You want to delete the existing repository and create a new one in the same database.</td>
<td>Select <strong>Create repository</strong>.</td>
</tr>
</tbody>
</table>

- If you specify a repository that is a later version than the version you are installing, the Repository status window displays the **Create repository** option selected by default. **Create repository** is your only choice because the repository needs to match the version.

9. In the "Installation Completed" window, click **OK**.

**Related Topics**

- **Objects that migrate** on page 111

**Migrating Metadata Management objects to a different CMS**

Use this procedure when you want to move your SAP BusinessObjects Metadata Management system to a different SAP BusinessObjects Enterprise system. The source and target BusinessObjects Enterprise system should be 12.x.

1. Go through the following steps of a standard installation:
   
   - **To accept the license agreement** on page 55
   - **To enter user information and a product key code** on page 55
   - **To specify the CMS log on information** on page 56

2. At the "BusinessObjects Enterprise Server Login" window, specify connection information for the different CMS.

3. Follow the procedure in **To select components to install** on page 57

4. At the "Configure SAP BusinessObjects Metadata Management Repository database" window, specify the connection information for your existing Metadata Management repository.
5. At the "Repository Status" window, select the **Skip repository configuration** option.

6. In the installation completed window, click **OK**.

7. If you want to use the same users and user groups, use the Import Wizard to export them from the existing CMS and import them on the target CMS.
   a. In the Import Wizard on the source CMS, specify a BIAR file that is accessible to both the source and target CMS machines, and select the users and groups that have permissions to the Metadata Management integrator source configurations. You can deselect objects that you do not want to export.
   b. On the target CMS, import the BIAR file, select "Import users and users groups" on "Select objects to import" screen. You can deselect objects that you do not want to import.
   • Recreate the users and groups and grant permissions to the Metadata Management objects.

**Related Topics**
• *Adding users and assigning access levels to a group* on page 131

**Copying integrator configurations**

Use this procedure if you want to copy your integrator source configurations from a development environment to a test environment, or from test environment to a production environment.

**Note:**
Life Cycle Management is not supported for promoting integrator source configurations.

You must have Metadata Management version 3.1 on both the source and target CMS machines.

1. Use the SAP BusinessObjects Enterprise Import Wizard to create an output BIAR file for Metadata Management integrator source configuration on the source CMS.
   a. On the "Destination environment" screen, specify a BIAR file that is accessible to both the source and target CMS machines.
   b. On the "Select objects to import" screen, select only the **Import application folders and objects** option.
   c. On the "Select application folders and objects" screen, select only **Integrator Sources** under Metadata Management.
Note:
You can select which integrator sources you want to backup (export).

d. Optionally on the "Select objects to import" screen, select the users and groups that have permissions to the Metadata Management integrator source configurations.

2. On the target CMS, use the Import Wizard to import the generated BIAR file.

3. Do the following steps for each imported integrator source.
   a. On the Central Management Console, go to the Metadata Management area and select the "Integrator Sources" node.
   b. Double-click the name of each integrator source configuration to open the Properties page.
   c. Save the Properties page.
      This action allocates the correct MMJobServer and updates the configuration information.

4. Restart the CMS system and Web application.

Backing up and restoring Metadata Management configurations

Use these procedures when you want to backup and restore configurations from one SAP BusinessObjects Metadata Management system to another.

Note:
Use the backup utility in your Relational Database Management System to back up the Metadata Management repository which contains the following objects:

- Annotations
- Collected metadata
- Custom attributes
- Metapedia terms

Related Topics
- Backing up configurations on page 75
- Restoring configurations on page 75
Backing up configurations

You must have SAP BusinessObjects Metadata Management version 3.1 on both the source and target SAP BusinessObjects Enterprise machines.

To back up your configurations, use the SAP BusinessObjects Enterprise Import Wizard to create an output BIAR file for Metadata Management configuration information on the source BusinessObjects Enterprise system:

1. On the "Destination environment" screen, specify a BIAR file that is accessible to both the source and target BusinessObjects Enterprise machines.
2. On the "Select objects to import" screen, select only the Import application folders and objects option.
3. On the "Select application folders and objects" screen, select Metadata Management.
4. On the "Select objects to import" screen, select the users and groups that have permissions to the Metadata Management integrator source configurations.
5. On the next screen, select the users and groups that have permissions to the Metadata Management integrator source configurations.

The following configuration information is backed up as a result of this procedure:

- CMS repository properties
- Metadata Integrator source configuration
- Metadata Management utilities configurations
- Source groups
- Security information (users, groups, and their permissions)

Restoring configurations

You must have SAP BusinessObjects Metadata Management version 3.1 on both the source and target SAP BusinessObjects Enterprise machines.

To restore the configurations on the target BusinessObjects Enterprise system:

1. Use the Import Wizard to import the generated BIAR file.
2. Do the following steps for each imported integrator source.
   a. On the Central Management Console, go to the Metadata Management area and select the "Integrator Sources" node. The list of integrator source configurations displays by default.
   b. Double-click the name of each integrator source configuration to open the Properties page.
   c. Save the Properties page. This action allocates the correct MMJobServer and updates the configuration information.

3. Restart the BusinessObjects Enterprise system and Web application.

Remote Job Server Installation

SAP BusinessObjects Metadata Management XI 3 can collect metadata from an SAP BusinessObjects Enterprise XI R2 system by using the Remote Job Server. The following diagram shows the relationship of this Remote Job Server component to the other SAP BusinessObjects Metadata Management (BOMM) components and the SAP BusinessObjects Enterprise (BOE) components.
If you want to collect metadata from a BusinessObjects Enterprise XI R2 system, you must:

1. Install the BOMM Remote Job Server and the BOE Metadata Integrator on a computer that has BOE XI Release 2 client or server components installed.

   **Note:**
   If any of your Crystal Reports or Web Intelligence documents were created with the **Refresh on Open** option, you must also configure the database clients to connect to the source databases. This connection is required because whenever the report or document is opened (even to read the metadata when the BOE Metadata Integrator collects the metadata), BOE XI Release 2 automatically refreshes the data.

2. During installation, configure the Remote Job Service to accept requests from BusinessObjects Enterprise XI 3 to run the BOE Metadata Integrator on BusinessObjects Enterprise XI R2.

3. Rename the Input and Output File Repository Servers on BusinessObjects Enterprise XI 3 to conform to the naming conventions on BusinessObjects Enterprise XI R2.

**Related Topics**
- **Installing a Remote Job Server** on page 77
- **Renaming File Repository Servers** on page 78
- **Modifying the configuration of a Remote Job Service** on page 79

### Installing a Remote Job Server

Perform this SAP BusinessObjects Metadata Management Remote Job Server installation on a computer that has SAP BusinessObjects Enterprise XI R2 full client or server installed.

During installation, you configure the Metadata Management Remote Job Service to accept requests from BusinessObjects Enterprise XI 3 to run the Metadata Integrator on BusinessObjects Enterprise XI R2.

1. Go through the first five steps of a standard installation:
   a. **To begin running the installation program** on page 54
   b. **To accept the license agreement** on page 55
   c. **To enter user information and a product key code** on page 55
   d. **To specify the CMS log on information** on page 56
**Note:**
You specify the logon information for the CMS system that you will use to configure and schedule integrator source runs.

e. *To select components to install* on page 57
If the Installation Wizard detects that BusinessObjects Enterprise XI R2 is installed on this computer, the "Select Features" window shows only the BusinessObjects Enterprise Metadata Integrator component enabled.

2. Keep the BusinessObjects Enterprise Metadata Integrator component selected and click **Next**.

3. On the "Configure BusinessObjects Metadata Management Remote Job Server service port" screen, verify the port number that the Remote Job Service will use to listen for requests from BusinessObjects Enterprise XI 3 to run the Metadata Integrator. If you do not want the default port number **5005**, enter a new value.

4. Click **Next**.

5. On the "Start Installation" screen, verify that the Remote Job Server displays in the list of "Components selected for installation" and click **Next**.

The "Updating System" window shows the progress of copying the files.

After you install the Remote Job Server, you must rename the Input and Output File Repository Servers on your BusinessObjects Enterprise XI 3 system to follow XI Release 2 naming conventions.

**Related Topics**
- *Standard installation of Metadata Management* on page 54
- *Renaming File Repository Servers* on page 78
- *Modifying the configuration of a Remote Job Service* on page 79

**Renaming File Repository Servers**

For the Remote Job Service to work, you must rename the Input and Output File Repository Servers (FRSs) on your SAP BusinessObjects Enterprise XI 3 system to conform to the naming convention on BusinessObjects Enterprise XI Release 2. In XI Release 2, the Input FRS must start with Input and the Output FRS must start with Output.
1. Log On to the Central Management Console (CMC) of BusinessObjects Enterprise XI 3 with a valid administrator user name and password or a user name that has Full Control access level on the CMC.

2. Click the Servers tab on the left or the Servers link under "Organize".

3. Select "hostname.InputFileRepository" from the "Server Name" list, and select Manage > Properties from the top menu bar.

4. Change the name of the File Repository Server to the following:
   Input.hostname.fileserver

5. Click Save & Close.

6. Restart the renamed server by clicking Actions > Restart Server in the top menu bar.

7. Select "hostname.OutputFileRepository" from the "Server Name" list, and select Manage > Properties from the top menu bar.

8. Change the name of the File Repository Server to the following:
   Output.hostname.fileserver

9. Click Save & Close.

10. Restart the renamed server by clicking Actions > Restart Server in the top menu bar.

Related Topics
- Installing a Remote Job Server on page 77
- Modifying the configuration of a Remote Job Service on page 79

Modifying the configuration of a Remote Job Service

After you install the SAP BusinessObjects Metadata Management Remote Job Server, you can change its configuration.

1. On the computer where SAP Business Objects Enterprise XI R2 resides, launch the Remote Job Service from the Windows Start menu.
   The "Metadata Management Service Configuration" window appears.

2. The "General" tab describes the service and indicates its status. You can set the following options:
Option | Description
--- | ---
**Startup type** | Possible values are Automatic and Manual. The default value is Automatic.

**Service status** | If the service is running, you can click Stop. If the service is stopped, you can click Start.

3. The "Java" tab defines the location of the Java runtime environment used by the Remote Service. You can change the following options:
### Option Description

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Default</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>Java Home</td>
<td>The directory where the Java SDK is installed.</td>
</tr>
<tr>
<td>Java Options</td>
<td>Reserved for future use.</td>
</tr>
<tr>
<td>Initial memory pool (MB)</td>
<td>The default value is 512 MB. Consult your JVM documentation for more info</td>
</tr>
<tr>
<td></td>
<td>about changing your Java memory settings.</td>
</tr>
<tr>
<td>Maximum memory pool (MB)</td>
<td>The default value is 1024 MB. Consult your JVM documentation for more info</td>
</tr>
<tr>
<td></td>
<td>about changing your Java memory settings.</td>
</tr>
</tbody>
</table>

4. The "Listener" tab defines the port to listen for service requests and connectivity to the Central Management Service on BusinessObjects Enterprise XI 3 that will send service requests.

You can set the following options:
### Option | Description
--- | ---
**Application port** | Number of the port that the listener service will use to listen for requests to run the BusinessObjects Enterprise Metadata Integrator.

**CMS Server name** | Host name of the CMS (Central Management Server) on BusinessObjects Enterprise XI 3 that will send requests to run the Metadata Integrator on BusinessObjects Enterprise XI R2.

**User name** | The CMS user name to connect to the CMS server on BusinessObjects Enterprise XI 3.
The default value is Administrator. If you want a user other than Administrator to run the Metadata Integrator, change the value to the appropriate name.

**Password** | The password to connect to the CMS server to register and run the Metadata Integrator. The default is no password.

**Authentication mode** | The CMS authentication mode. The default value is Enterprise. See the *BusinessObjects Enterprise Administrator’s Guide* for available modes.

5. Click **Test port** if you want to verify that the port number is available. The Remote Job Service uses this port to listen for requests from BusinessObjects Enterprise XI 3 to run the Metadata Integrator.

6. Click **Test connection** if you want to verify that the Remote Service can connect successfully to the CMS on BusinessObjects Enterprise XI 3.

**Related Topics**
- *Installing a Remote Job Server* on page 77

---

**After installing Metadata Management**

**Verifying Metadata Management servers are running**

After installing SAP BusinessObjects Metadata Management, verify that the Metadata Management servers are running and enabled.

1. From the CMC Home page, go to the "Servers" management area.
2. Expand the **Service Categories** node and select **Metadata Management**.
   
   The **Servers List** includes a **State** column that provides the status for each server in the list.

3. Verify that the following Metadata Management servers are "Running" and "Enabled."
   - "AdaptiveProcessingServer"
   - "MMJobServer"

4. If a Metadata Management server is not running or enabled, do the following:
   a. Select the server name from the list.
   b. Open the **Actions** drop-down menu and select **Start Server** or **Enable Server**.

**Related Topics**
- *Managing Metadata Management servers* on page 120

**Metadata Integrator server groups**

The SAP BusinessObjects Metadata Management installer creates a new server group when a new Integrator is deployed. For example, the Server Group BusinessObjects Enterprise Metadata Integrator is created for the BusinessObjects Enterprise Integrator. This server group is used by the scheduler to run the integrator process on the correct Metadata Management Job Server.

You must not create, replace or change a deployed Metadata Management Server Group. Doing so could cause the Metadata Management Job Server to stop working. In this case, you must re-install the Integrators.

**Updating the license key**

To update the SAP BusinessObjects Metadata Management license key code in the Central Management Console (CMC), you must have SAP BusinessObjects Enterprise XI 3.0_HF1 installed.

Situations when you might need to update your license key code for Metadata Management include the following:
• Update an expired key code
• Upgrade from a trial version
• Include additional features that you have purchased

To update the license key:

1. Go to the "License Keys" management area of the CMC.
2. If you are upgrading from a trial version of the product, be sure to delete the Evaluation key prior to adding any new license keys or product activation keycodes.
   a. From the list of key codes, select the Evaluation key code.
   b. Click Delete.
3. Type the new key in the Add Key field.
   
   **Note:**
   Key codes are case-sensitive.
4. If you are upgrading from a trial version of the product, be sure to delete the Evaluation key prior to adding any new license keys or product activation keycodes.
5. Click Add.
   The key is added to the list.

**Related Topics**
• To enter product key code on page 100
• To enter user information and a product key code on page 55

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**Uninstalling Metadata Management**

Uninstalling SAP BusinessObjects Metadata Management removes the integrator configurations. If you want to keep your configurations, do not uninstall Metadata Management. To keep the existing integrator configurations, install another version on top of an existing version (for example install Metadata Management 12.1 on top of 12.0) and select the Upgrade repository option.

To uninstall Metadata Management:

1. Go to Start > Settings > Control Panel > Add/Remove Programs (or Change/Remove Programs).
2. Select BusinessObjects Metadata Management, and click Remove.
**Note:**
After you uninstall Metadata Management, the Metadata Management directory in the Business Objects installation directory is not deleted because the following files are not removed:

- zip files in ccmrestore/integrators
- MM/config/infoObjectDelee.list
- files in MM/log
- files in MM/xml
Installation for UNIX
Preparing to install Metadata Management

Pre-installation overview

SAP BusinessObjects Metadata Management provides an open and flexible architecture that supports a multitude of deployment and configuration scenarios. Before you install the product you should:

• Ensure that your network and systems meet the basic requirements for an SAP BusinessObjects Metadata Management installation.
• Obtain the product software by electronic download or on CD/DVD, as well as any required licensing keycodes.
• Ensure that the user who will run the installation setup program has adequate permissions to complete the installation tasks.
• Determine where the product components should be installed and consider how you should prepare your infrastructure and set up your environment, including server locations.
• Decide the database server to use for the SAP BusinessObjects Metadata Management repository and prepare the database.
• Determine your installation method.

The following sections list the software and system requirements and the install methods available to you for installing SAP BusinessObjects Metadata Management.

*Note:*
The following Metadata Management components can only be installed on Windows (you cannot install them on UNIX):

• Metadata Integrators
• Search Server (provides ability to search metadata on the Metadata management Explorer)
• Relationship Server

*Related Topics*

• *Architecture* on page 19
System requirements

For a detailed list of supported environments and hardware requirements, refer to the Products Availability Report in the SAP BusinessObjects Support > Supported Platforms section of the SAP Service Marketplace: http://service.sap.com/bosap-support. This document includes specific version and patch-level requirements for databases, applications, web application servers, web browsers, and operating systems.

Generally, the following components must be preinstalled and configured correctly before you can install SAP BusinessObjects Metadata Management:

- Microsoft Windows 2003 operating system - Required for the Metadata Integrators and Search Server components of Metadata Management.
- Solaris, AIX, or Linux operating system - Optional for the Metadata Management CMS Repository Objects and Web Applications components.
- Microsoft Internet Explorer
- SAP BusinessObjects Enterprise XI 3.0 FP1 required components for the specific Metadata Management component to be installed on this computer. See Prerequisites for each component on page 34.

Metadata Management uses the Web application server and Java 2 Software Development Kit (JDK) that BusinessObjects Enterprise uses.

Note:
For UNIX, you must increase the memory setting for Web Logic in the following directory: `Weblogic_install/wlserver_10.0/samples/domains/wl_server/bin/setDomainEnv.sh`. Change the value of the parameter `-XX:MaxPermSize` from 128m to 256m.

Note:
To install Metadata Management, you must be the BusinessObjects Enterprise Administrator.

Network requirements

When installing SAP BusinessObjects Metadata Management on multiple computers, you must ensure that:
• each target machine can communicate over TCP/IP with the machine running the Central Management Server (CMS).
• the target machines can communicate over TCP/IP with each other. In particular:
  • your Metadata Integrators must be able to communicate with the machine that is running the Metadata Management repository.
  • your Search Server must be able to communicate with the machine that is running the web application server for the Metadata Management Explorer and machines where Metadata Integrators are deployed.

For more information on the communication between components, refer to Architecture on page 19.

**UNIX permissions**

SAP BusinessObjects Metadata Management will be installed in the same directory where SAP BusinessObjects Enterprise is installed. To install Metadata Management on UNIX, the user account under which the install is run must have read, write, and execute permissions to the directory where BusinessObjects Enterprise is installed. Root privileges are not required to install Metadata Management.

**Caution:**
If you attempt an installation with root privileges, you will be unsuccessful.

The following table summarizes all the required permissions for installing Metadata Management.
### Required permissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Required permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Read, write, and execute permissions to the directory where BusinessObjects Enterprise will be installed.</td>
</tr>
<tr>
<td>Network</td>
<td>TCP/IP access to all machines where you want to install components - all specified ports must be available.</td>
</tr>
<tr>
<td>BusinessObjects Enterprise</td>
<td>You must be the BusinessObjects Enterprise Administrator.</td>
</tr>
<tr>
<td>Database</td>
<td>Rights to add and drop database objects (such as tables and views), plus rights to read, write, and edit table rows.</td>
</tr>
<tr>
<td>Web application server</td>
<td>It is recommended that you use the same user account for installing BusinessObjects Enterprise and your web application server.</td>
</tr>
<tr>
<td></td>
<td>To deploy Metadata Management web applications using a user account different from the one used to install the web application server, see &quot;Minimum user rights for deploying web applications&quot; in the <em>BusinessObjects Enterprise XI 3 Installation and Configuration Guide for UNIX</em>.</td>
</tr>
</tbody>
</table>

### Choose components and determine component distribution

You can choose to install SAP BusinessObjects Metadata Management components on one or more computers based on available resources and your deployment planning. For guidelines and suggested scenarios to distribute the software components, see *Deployment* on page 32.

**Note:**
- You must install the Metadata Management CMS Repository Objects on the same computer as the SAP BusinessObjects Enterprise CMS.
- You can install the Metadata Management CMS Repository Objects and Web Application on Windows, UNIX, or Linux platforms.
- You must install the Metadata Integrators, Relationship Server, and Search Server on a supported Windows platform that already has the Adaptive Processing Server installed on it.
The following table shows the software components and their sub-components that you can choose.

<table>
<thead>
<tr>
<th>Feature category</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Management CMS Repository Objects</td>
<td>Metadata Management CMS Repository Objects</td>
<td>Includes definitions and location information for the SAP BusinessObjects Metadata Management application, repository, and other objects.</td>
</tr>
<tr>
<td>Feature category</td>
<td>Component</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>SAP BusinessObjects Enterprise Metadata Integrator</td>
<td>Extracts information from an SAP BusinessObjects Enterprise repository that includes metadata objects such as SAP BusinessObjects Crystal Reports, Web Intelligence documents, and Desktop Intelligence documents.</td>
</tr>
<tr>
<td></td>
<td>SAP NetWeaver Business Warehouse Metadata Integrator</td>
<td>Extracts information from a NetWeaver Business Warehouse system which includes metadata objects such as Queries, InfoProviders, InfoObjects, Transformations, and DataSources.</td>
</tr>
<tr>
<td>Metadata Integrators</td>
<td>Common Warehouse Model (CWM) Metadata Integrator</td>
<td>Extracts information from the CWM Relational Package that includes definitions of metadata objects such as catalogs, schemas, and tables.</td>
</tr>
<tr>
<td></td>
<td>Relational Databases (RDBMS) Metadata Integrator</td>
<td>Extracts information from an RDBMS that includes definitions of metadata objects such as catalogs, schemas, stored procedures, and aliases. Supported relational databases include DB2, MySQL, Oracle, SQL Server, Teradata, or a Universe connection using JDBC or ODBC. For complete details, see the Supported Platforms document.</td>
</tr>
<tr>
<td></td>
<td>SAP BusinessObjects Data Services Metadata Integrator</td>
<td>Extracts information from an SAP BusinessObjects Data Services repository which includes definitions of metadata objects such as source tables and columns for ETL jobs, datastores and configurations, and flat files.</td>
</tr>
<tr>
<td></td>
<td>SAP BusinessObjects Data Federator Metadata Integrator</td>
<td></td>
</tr>
<tr>
<td>Feature Category</td>
<td>Component</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td><strong>Meta Integration Metadata Bridge (MIMB) Metadata Integrator</strong></td>
<td>Extracts information from an SAP BusinessObjects Data Federator repository which includes definitions of metadata objects such as projects, catalogs, datasources, and mapping rules. Extracts the following metadata from other sources: • Data Modeling metadata such as Sybase Power Designer, Embarcadero ER/Studio, and Oracle Designer • ETL metadata such as Oracle Warehouse Builder, and Microsoft SQL Server Integration Services (SSIS) • OLAP and BI metadata such as IBM DB2 Cube Views, Oracle OLAP, and Cognos 8 BI Reporting For more information, see <a href="http://www.metaintegration.net/Products/MIMB/Documentation/">http://www.metaintegration.net/Products/MIMB/Documentation/</a>.</td>
</tr>
<tr>
<td></td>
<td><strong>Metadata Management Relationship Server</strong></td>
<td>Processes object relationships (for example, impact and lineage).</td>
</tr>
<tr>
<td></td>
<td><strong>Metadata Management Search Server</strong></td>
<td>Provides search capability on SAP BusinessObjects Metadata Management Explorer.</td>
</tr>
</tbody>
</table>
### Feature category

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| Web Application | Provides web applications that:  
• administer SAP BusinessObjects Metadata Management on the Central Management Console (CMC)  
• comprise the SAP BusinessObjects Metadata Management Explorer  
**Note:**  
If SAP BusinessObjects Enterprise has manually deployed the web application, follow the steps in the Manually deploy web application procedure. |

### Repository database requirements and preparation

The SAP BusinessObjects Metadata Management repository is a database that stores all metadata that the Metadata Integrators collect. You use the information in the repository to analyze relationships between objects, as well as to analyze impact and lineage between objects. For example, you can find the tables and columns used by your Business Intelligence reports and documents.

You can either create a new database for the repository or use an existing repository. The SAP BusinessObjects Metadata Management installation process will either create new tables or upgrade the existing tables within the repository.

**Related Topics**  
• Setting up a new database on page 52  
• Exploring SAP BusinessObjects Enterprise metadata on page 272
Setting up a new database

This procedure creates a SAP BusinessObjects Metadata Management Repository database and configures it for the user who will connect to it. The installation process will create the tables within the Metadata Management Repository.

1. Create a new database on your database server.

Compatible database types include DB2, MySQL, Oracle, and Oracle RAC. For the most current list of supported database software and version requirements, see the Products Availability Report available on the SAP support site: https://service.sap.com/bosap-support.

Note:

• If you create a new DB2 8.x database:
  • In the creation wizard, set the code set to UTF-8.
  • Create three buffer pools, one for each page size: 8K, 16K and 32K. The buffer pool size should be set to 1000.
  • Create one temporary system table space for the 32K buffer pool.
  • Create one regular table space for the 32K buffer pool.

• If you create a new DB2 9.x database:
  • In the creation wizard, set the code set to UTF-8 and the default buffer pool and table space page size to 32K.

• If you create a new Oracle RAC database:
  • Create a property file to contain the connection string.

Use the following format for each connection string you specify within the property file:

```
Connection_string_id=Oracle_RAC_connection_string
```

Where:

• `Connection_string_id` identifies this specific connection string, and this `Connection_string_id` should not contain the "=" character.
• `Oracle_RAC_connection_string` is the connection string itself, and it must be on one line.
2. Create a new user and assign a secure password.

3. Ensure that the new user has permission to create, modify, and delete database objects so that Metadata Management can modify the database as required.

   **Note:**
   If you are not the owner of the database, you must have permissions to perform the necessary operations.

**Related Topics**
- *To configure your Metadata Management repository* on page 103

### Installation scenarios

The following installation methods are available to you for installing SAP BusinessObjects Metadata Management on UNIX:

- **Standard installation** – Installs from the command line using a response file containing installation setup parameters.
- **Silent installation** – Installs from the command line.
- **Migration** – Upgrades an existing Metadata Management repository during installation.
- **Distributed deployment** – Installs a subset of Metadata Management components on each computer that has the prerequisite software.

**Related Topics**
- *Standard installation of Metadata Management on UNIX* on page 98
- *Migration* on page 111
- *Deployment* on page 32

### License keys

You purchase a license key for the SAP BusinessObjects Metadata Management features that you want.

To purchase license keys:
- Contact your sales representative.
- Contact your regional office.
Standard installation of Metadata Management on UNIX

Before beginning your installation, review the Pre-installation overview to ensure that you have prepared all necessary systems.

The following instructions lead you through the standard installation steps of setting up your SAP BusinessObjects Metadata Management on UNIX:

1. To begin running the installation program on page 98
2. To accept the license agreement on page 99
3. To specify the installation directory on page 99
4. To enter product key code on page 100
5. To specify the CMS log on information on page 100
6. To select components to install on page 102
7. To configure your Metadata Management repository on page 103
8. To configure your existing Web application server on page 104
9. To start the installation on page 104
10. To manually deploy web application server components on page 62

After your installation successfully completes, you access Metadata Management from the Central Management Console (CMC) of SAP BusinessObjects Enterprise.

Related Topics
• Pre-installation overview on page 88
• Accessing Metadata Management for administrative tasks on page 119

To begin running the installation program

To run the SAP BusinessObjects Metadata Management installation program:
1. Log on to your computer using an account that has read, write, and execute permissions to the directory where SAP BusinessObjects Enterprise is installed.

   **Note:**
   You must install Metadata Management in the same directory as BusinessObjects Enterprise because Metadata Management uses some of the same libraries as BusinessObjects Enterprise.

2. Start the installation setup by running ./install.sh.

3. On the "Welcome to the BusinessObjects Metadata Management Installation Wizard" screen, press Enter to begin your installation.

**Related Topics**
- *Pre-installation overview* on page 88

### To accept the license agreement

At the "License Agreement" screen, review and accept the license agreement for SAP BusinessObjects Metadata Management. You must accept the agreement to continue with the installation setup.

1. Review the License Agreement.
2. Select **I accept the License Agreement**.
   You cannot continue unless you accept the License Agreement.
3. Press Y to continue the installation setup.
   The "Specify installation directory" screen displays.

### To specify the installation directory

1. At the "Directory Selection" screen, enter the home directory for your SAP BusinessObjects Enterprise installation.

   **Note:**
   You must install SAP BusinessObjects Metadata Management in the same directory as BusinessObjects Enterprise because Metadata Management uses some of the same libraries as BusinessObjects Enterprise.
2. Press Enter to continue the installation setup.

To enter product key code

At the "Enter Product Keycode" screen, provide a product keycode for your SAP BusinessObjects Metadata Management installation.

1. Enter a valid code in the **Product Keycode** field.

   **Note:**
   You enter a single product keycode during Metadata Management installation. If you need to change the keycode after installation, use the "License Keys" management area of the Central Management Console (CMC).

2. Press **Enter** to continue the installation setup.

**Related Topics**
- *Updating the license key* on page 115

To specify the CMS log on information

At the "BusinessObjects Enterprise Server Login" screen, specify connection information for the SAP BusinessObjects Central Management Server (CMS). If applicable, you also specify values for Secure Sockets Layer (SSL) options.

1. Specify the following connection information to log on to the Central Management Server (CMS).
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CMS Hostname</strong></td>
<td>Host name of the CMS (Central Management Server). This value is required. The default value is <code>localhost</code>. If the CMS is not on the default port number 6400, specify a colon and the port number after the CMS name. For example, <code>mycmsname:6408</code>. The CMS is responsible for maintaining a database of information about your SAP BusinessObjects Enterprise system. The data stored by the CMS includes information about users and groups, security levels, BusinessObjects Enterprise content, and servers. For more information about the CMS, see <em>SAP BusinessObjects Enterprise Administrator's Guide</em>. <strong>Note:</strong> If you are installing the Remote Job Server, specify the CMS that you will use to configure and schedule integrator source runs.</td>
</tr>
<tr>
<td><strong>Enable SSL</strong></td>
<td>If you use the Secure Sockets Layer (SSL) protocol for all network communication between clients and servers in your BusinessObjects Enterprise deployment, select the <strong>Enable SSL</strong>. By default, this option is not selected.</td>
</tr>
<tr>
<td><strong>User name</strong></td>
<td>The CMS user name to connect to the CMS server. The default value is <code>Administrator</code>.</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>The password to connect to the CMS server to register and run the SAP BusinessObjects Metadata Integrator.</td>
</tr>
<tr>
<td><strong>Authentication Type</strong></td>
<td>The CMS authentication mode. The default value is <code>Enterprise</code>. See the <em>SAP Business Objects Administrator's Guide</em> for available modes.</td>
</tr>
</tbody>
</table>
2. If you selected **Enable SSL**, fill in the values for the following options on the SSL screen:
   - **SSL Certificates Folder**
   - **Server SSL Certificate File**
   - **SSL Trusted Certificate File**
   - **SSL Private Key File**
   - **SSL Private Key File Passphrase File**

   For more information, see "Configuring servers for SSL" in your *BusinessObjects Enterprise Administrator's Guide*.

3. Press **Enter**.
   The "Select Features" screen displays.

### To select components to install

At the "Select Features" window, select or deselect SAP BusinessObjects Metadata Management components that you want to install on this computer.

1. Enter an X next to each component you want to select.

   **Note:**
   Only the following Metadata Management components can be installed on UNIX:
   - Metadata Management CMS Repository Objects - This component displays if the CMS server is installed on this computer.
   - Web Application - This component displays if the Web application server is installed with SAP BusinessObjects Enterprise.

   **Note:**
   The Metadata Management web application option is available if you have installed the Web Application option in the SAP BusinessObjects Enterprise software. The web application installation method is the same in both BusinessObjects Enterprise and Metadata Management. Therefore, the installer checks whether you have manually or automatically installed web services, and automatically chooses the same installation option in Metadata Management. If you have manually deployed the web application in BusinessObjects Enterprise, follow the *Manually deploy web application server components* procedure in this guide to manually deploy the web application in Metadata Management.
**Remember:**
You must install the Relationship Server on at least one Windows computer in your enterprise deployment. The Relationship Server is required to process relationships (such as impact and lineage) of metadata objects.

For a description of the components, see *Choose components and determine component distribution* on page 91.

2. Press Enter.

If you selected the CMS Repository Objects component, the "Metadata Management Repository Database Type" screen displays.

### To configure your Metadata Management repository

The "Metadata Management Repository Database Type" screen appears if you selected the CMS Repository Objects component.

1. Select the database type from the numbered list.
2. Press Enter to continue.
3. On the "Metadata Management Repository Information" screen, enter the connection information for the database type.
   
   If your database type is Oracle RAC,
   * Specify the path of the file that contains the connection string in the **Oracle RAC String File Location** text box
   * Specify the connection string ID in the **Oracle RAC SID** text box.

   After installation, if you want to improve performance, you can change the connection string in the Central Management Console. For details, see *Viewing and editing repository information* on page 189.

4. Press Enter (this action also validates your input values).

   The "Repository Status" screen appears.

5. The first time you run the installation program, the Repository status window selects the **Create a new repository** option by default. The installation program will create the Metadata Management tables in the specified database.

   If you run the installation program again and want to preserve the existing SAP BusinessObjects Metadata Management Repository, select **Skip repository configuration**. If you want to create a new repository (either
in the same database or a new database), select **Create a new repository**.

6. Press **Enter** to continue with the installation setup.

   The "Enter Web Application Server configuration" screen appears if your Web Application Server is Tomcat.

---

**To configure your existing Web application server**

The "Enter Web Application Server configuration" screen appears if you selected the Web Application component.

As part of the installation setup, you provide information about the web application server that will work with your SAP BusinessObjects Metadata Management applications to perform administrative tasks on the Central Management Console or to view metadata relationships on the Metadata Management Explorer.

The Metadata Management installation program detects the web application server that your SAP BusinessObjects Enterprise system is using on this computer. Therefore, most of the information is pre-populated in the fields on the "Enter Web Application Server configuration" screen. To properly install web components on your web application server, you must provide the password for your existing web application server.

1. If your web application server is Apache Tomcat, you must provide the name of the current web application server instance (for example "localhost") in the **Instance** field.

2. If your web application server is WebLogic, WebSphere, or Oracle Application Server, you must provide the **Admin password**.

3. Press **Enter** to continue with the installation setup.

---

**To start the installation**

The "BusinessObjects Metadata Management Setup" screen is the final screen in the installation setup.

1. Review the components that will be installed and any associated settings.

2. If you want to make changes, press **Ctrl-B**. All entries are retained; you do not need to re-enter all the information.
Note:
If you are running the ./install.sh program from the command line, and have the -w filename parameter switch enabled, this is the point at which you can Cancel the installation process to have the .ini file written with all the installation parameter information. This .ini file can then be used in silent and scripted installations.

3. Press Enter to start the installation process.
   The "In Progress" screen shows the progress of copying the files.

To manually deploy Web Application Server components on UNIX

To manually deploy the web application server components (WAR files), you must also have manually deployed the web application server components in SAP BusinessObjects Enterprise. You must create a web application-specific WAR file using the wdeploy tool, and then manually deploy the web application server components. The following section describes how to manually deploy the web application server components on a Tomcat application server.

Note:
If you are manually deploying the SAP BusinessObjects Enterprise Web Application Server, you must also manually install those web application server components. For the list of WAR files to deploy, see the most recent version of the SAP BusinessObjects Enterprise Installation and Deployment Guide for Windows and UNIX. For information about deploying on administrative consoles such as WebLogic, Websphere, and SAP Application Server, see the SAP BusinessObjects Enterprise Web Application Deployment Guide for Windows or the SAP BusinessObjects Enterprise Web Application Deployment Guide for UNIX.

Note:
The following procedure assumes that you have installed the same versions of SAP BusinessObjects Metadata Management and SAP BusinessObjects Enterprise into the default installation folder. You must have the same version numbers to ensure that both web application server components work seamlessly. This procedure also assumes that you do not have previous versions of the software installed on the same machine.
1. In the wdeploy tool on the machine where you installed SAP BusinessObjects Metadata Management, run the `wdeploy predeploy` command to prepare a single web application, or `wdeploy predeployall` to prepare all web applications. WAR files are typically installed to `<LINK_DIR>/bobje/enterprise120/java/applications`. For example, to create Tomcat WAR files, enter the following:

```
wdeploy tomcat6 -DAPP=bomm predeploy
wdeploy tomcat6 -DAPP=metadatamanagement predeploy
```

2. Copy the following directories to the machine where the web server is running (for example, Tomcat), maintaining the directory structure exactly.
   - Deployment directory. For example, `<LINK_DIR>/deployment`.
   - WAR files: `bomm.war` and `metadatamanagement.war`. For example, `<LINK_DIR>/bobje/enterprise120/java/applications`.
   - JAVA SDK. For example, `<LINK_DIR>/Business Objects/javasdk`.

3. Modify the web server configuration file with the correct information, such as the port server number. For example you can find the Tomcat configuration file in `<LINK_DIR>/deployment/config.tomcat6`.

4. On the application server using the wdeploy tool, run the `wdeploy deployonly` command.
   For example, to deploy the Tomcat processed WAR files, type the following:

```
wdeploy tomcat6 -DAPP=bomm deployonly
wdeploy tomcat6 -DAPP=metadatamanagement deployonly
```

**Note:**
The wdeploy tool does not detect whether SAP BusinessObjects Enterprise web application is installed on the same version of the application server.

### Metadata Integrator server groups

The SAP BusinessObjects Metadata Management installer creates a new server group when a new Integrator is deployed. For example, the Server Group BusinessObjects Enterprise Metadata Integrator is created for the BusinessObjects Enterprise Integrator. this server group is used by the scheduler to run the integrator process on the correct Metadata Management Job Server.
You must not create, replace or change a deployed Metadata Management Server Group. Doing so could cause the Metadata Management Job Server to stop working. In this case, you must re-install the Integrators.

Silent installation

A silent installation is one that you run from the command line to install SAP BusinessObjects Metadata Management, rather than following the install wizard. When you run a silent installation, you specify the parameters to be used for the install either on the command line or in an input file (also called a response file).

Silent installation is particularly useful when you need to perform multiple installations, as you can save time and avoid being prompted for information by the installation program.

You can also use the silent installation command in your own scripts. For example, if your organization uses scripts to install software on machines, you can insert the silent installation command into your scripts.

The silent install command line includes a series of parameters that provide information for installation settings and directory paths. You can also specify options that control the level of prompts during an install.

Related Topics

• To create a response file on page 107
• To start the silent installation on page 110

To create a response file

You run the installation setup program to write the installation settings to a specified response file. The file is generated once the installation setup program is ready to start the installation.

To create the response file:

1. Open a command line console and navigate to the folder that contains the installation files.
2. Mount the device that contains the installation files.
Note:
If you run the installation script without copying the files to a temporary location, you will be prompted to specify a temporary location for the installation.

3. In the command line, type the silent installation command.
   • For Windows:
     Type `setup.exe -w` and the file path for the response file you want to generate.

     ```
     setup.exe -w responseFilePath
     ```
   • For UNIX:
     Type `./install.sh -w` and the file path for the response file you want to generate.

     ```
     ./install.sh -w responseFilePath
     ```

Note:
When you specify `responseFilePath`, make sure you include the name of the file you want to generate.

4. Press Enter to launch the installation setup program.

5. Follow the instructions on the screen to enter your preferred installation settings until you reach the final screen of the setup program.

Note:
The installation program validates the settings that you enter on each screen, and then records the settings in the response file at the final screen. If the values for any settings change after installation, run the setup program again to validate the settings.

6. Stop the installation setup when you reach the final screen in the installation setup program.
   • For Windows:
     Click Cancel to abort the installation setup.
   • For UNIX:
     Press CTRL + X to abort the installation setup.

You can access the response file from the directory you specified in step 2.
## Silent install parameters

The following table lists the most common parameters used in a silent installation of SAP BusinessObjects Metadata Management. To use a parameter, place it on the command line after the installation command and after the path for the installation files. Or, you may use these parameters in the installation `.ini` file.

**Note:**
These parameters are case sensitive.

<table>
<thead>
<tr>
<th>Installation parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/qn+</td>
<td>Specifies that the user is only prompted when the installation is complete.</td>
</tr>
<tr>
<td>/qn</td>
<td>Specifies that the user is not prompted during the install, or when the install is complete.</td>
</tr>
<tr>
<td>/qa /qb</td>
<td>Specifies that the user is not prompted during the install, or when the install is complete.</td>
</tr>
</tbody>
</table>
| INSTALLDIR             | Specifies the machine and directory where you want to install the product components.  
                         | For example, C:\Program Files\Business Objects |
| PIDKEY                 | Specifies your base product activation keycode. |
### Installation parameter

<table>
<thead>
<tr>
<th>Installation parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATABASEPORT</td>
<td>Specifies the port used for the database type. Each database type has a default port number if it is not specified.</td>
</tr>
<tr>
<td>ADDLOCAL</td>
<td>Specifies which components will be installed. Each component is specified, comma separated and grouped within quotes.</td>
</tr>
</tbody>
</table>

**Related Topics**
- *To start the silent installation* on page 110

## To start the silent installation

You need a response file residing in a known directory. The MACHINE NAME parameter must be specified in the response file if you are replicating an installation. If the parameter is not specified, the local server name will be used by default.

1. Open a command line console and navigate to the folder that contains the installation files.
2. In the command line, type the following information:
   - For Windows:
     ```
     setup.exe -r responsefile
     ```
   - For UNIX:
     ```
     ./install.sh -r responsefile
     ```
     `-r responsefile` Specifies the name of the response file you want the installation setup program to read for installation parameters.
3. If you want to override values in the response file, type the parameters in the command line.
For example, if you want to override the license key, type the PIDKEY parameter and value in the command as follows:

- For Windows:

  ```
  setup.exe -r responseFilePath
  \install.ini PIDKEY=1111-2222-3333-444
  ```

- For UNIX:

  ```
  ./install.sh -r responseFilePath/install.ini
  PIDKEY=1111-2222-3333-444
  ```

4. Press Enter to launch the installation.
   The installation setup program runs in the background.

Related Topics
- To create a response file on page 107

**Migration**

When you install SAP BusinessObjects Metadata Management 12.1, you can upgrade your version 11.7 or 12.0 repository to version 12.1 to preserve your existing metadata source definitions.

Related Topics
- Objects that migrate on page 111
- Migrating a Metadata Management repository on page 70

**Objects that migrate**

When you upgrade a BusinessObjects Metadata Manager 11.7 or 12.0 repository to SAP BusinessObjects Metadata Management 12.1, the following objects migrate to the Central Management Server (CMS) repository:

- Metadata Integrator configurations
- Configurations for Metadata Management utilities (compute the lineage staging table and recreate the search index)
- Schedules to run the Metadata Integrators and utilities
Annotations, custom attributes, and preferences that you defined in version 11.7 or 12.0 migrate to the version 12.1 repository.

If you migrate from Metadata Management 11.7 to 12.x, the following objects do not migrate:

- Users – Metadata Management 12.x uses the security services that SAP BusinessObjects Enterprise provides. Therefore, you must define and manage users of Metadata Management through the Central Management Console (CMC).
- Log files from Metadata Integrator and utility runs – Metadata Management 12.x uses the scheduling and file repositories that BusinessObjects Enterprise provides. Therefore, the logs are now managed as part of the instance of the scheduled run.

If you move to a new CMS (either upgrade the version or not) the following objects migrate:

- Metadata integrator source configurations
- Metadata Management utility configurations
- Annotations
- Custom attributes
- Metapedia terms
- Metadata Management Explorer preferences

The following objects do not migrate when you move to a new CMS:

- Schedules and metadata integrator history runs
- Users and permissions
- Integrator source groups

Related Topics

- Migrating a Metadata Management repository on page 70

Migrating a repository

When you install SAP BusinessObjects Metadata Management version 12.1, you can upgrade an 11.7 or 12.0 repository to version 12.1. Perform this Metadata Management repository migration on a computer that has SAP BusinessObjects Enterprise XI 3.1 Central Management Server (CMS) installed.
1. Review Release Notes for the version of SAP BusinessObjects Metadata Management you will be installing.

2. Use your database backup utilities program to back up your existing SAP BusinessObjects Metadata Management repository.

3. Start the installation setup.
   After you downloaded the product from Service Marketplace, run ./install.sh.


5. Go through the following steps of a standard installation:
   a. To accept the license agreement on page 99
   b. To enter product key code on page 100
   c. To specify the CMS log on information on page 100

6. At the "Select Features" window, select the components that you want to install on this computer.
   a. Select the Metadata Management CMS Repository Objects component. You must install this component first.
   b. You must install at least one Relationship Server on the Central Management System cluster, not necessarily on the same computer as the Metadata Management CMS Repository Objects component. When you upgrade from a previous version, the Relationship Server is not selected by default.

   **Note:**
   The Relationship Server component is new with version 12.1 of SAP BusinessObjects Metadata Management. It provides object relationship analysis such as impact and lineage. You must install the Relationship Server on a Windows computer that has an Adaptive Processing Server installed.
   c. You can select other components if you want to install them on this same computer.
   d. Press Enter.
   The "Configure SAP BusinessObjects Metadata Management Repository database" window appears.

7. Enter the following information to upgrade an existing repository:
   a. Select the database type from the numbered list, and press Enter to continue.
b. On the "Metadata Management Repository Information" screen, enter the connection information for the database type.

c. Enter the user and password for the existing repository.

d. Press Enter (this action also validates your input values).

8. The "Repository Status" screen appears. The option selected by default depends on the version of the repository you specified and the version you are installing.

a. If you specify an existing older version repository than the version you are installing, the Repository status screen displays the **Upgrade repository** option selected by default.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to upgrade the repository and preserve the data.</td>
<td>Select <strong>Upgrade repository</strong>.</td>
</tr>
<tr>
<td>You want to delete the existing repository and create a new one in the same database.</td>
<td>Select <strong>Create repository</strong>.</td>
</tr>
</tbody>
</table>

b. If you specify a repository that is the same version as the version you are installing, the Repository status screen displays the **Skip repository configuration** option selected by default.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>You want to keep the repository and preserve the data.</td>
<td>Select <strong>Skip repository configuration</strong>.</td>
</tr>
<tr>
<td>You want to delete the existing repository and create a new one in the same database.</td>
<td>Select <strong>Create repository</strong>.</td>
</tr>
</tbody>
</table>
c. If you specify a repository that is a later version than the version you are installing, the Repository status screen displays the **Create repository** option selected by default.

**Create repository** is your only choice because the repository needs to match the version.

9. In the "Installation Completed" screen, press Enter.

**Related Topics**
• **Objects that migrate** on page 111

---

**Updating the license key**

To update the SAP BusinessObjects Metadata Management license key code in the Central Management Console (CMC), you must have SAP BusinessObjects Enterprise XI 3.0_HF1 installed.

Situations when you might need to update your license key code for Metadata Management include the following:
• Update an expired key code
• Upgrade from a trial version
• Include additional features that you have purchased

To update the license key:
1. Go to the "License Keys" management area of the CMC.
2. If you are upgrading from a trial version of the product, be sure to delete the Evaluation key prior to adding any new license keys or product activation keycodes.
   a. From the list of key codes, select the Evaluation key code.
   b. Click **Delete**.
3. Type the new key in the **Add Key** field.
   
   **Note:**
   Key codes are case-sensitive.

4. If you are upgrading from a trial version of the product, be sure to delete the Evaluation key prior to adding any new license keys or product activation keycodes.
5. Click **Add**.
The key is added to the list.

Related Topics
• To enter product key code on page 100
• To enter user information and a product key code on page 55

Uninstalling Metadata Management on UNIX

To uninstall SAP BusinessObjects Metadata Management:
1. Go to the directory where SAP BusinessObjects Enterprise is installed.
2. Run `AddOrRemoveProducts.sh` and select BusinessObjects Metadata Management.
3. Press Enter.

Note:
After you uninstall Metadata Management, the log files for the integrator source runs and utility runs will not be deleted. These log files are located in the Business Objects installation directory in the following subdirectory `MetadataManager/MM/log`.
Administration
Metadata Management administration overview

SAP BusinessObjects Metadata Management is a web application that extracts metadata about objects from different source systems and stores the metadata in a repository. Source systems include Business Intelligence (SAP BusinessObjects Enterprise and SAP NetWeaver Business Warehouse), Data Modeling, Data Integration (SAP BusinessObjects Data Services and SAP BusinessObjects Data Federation), and Relational Database systems.

When you access SAP BusinessObjects Metadata Management as a user with Full Control access level on the Central Management Console of SAP BusinessObjects Enterprise, you can perform the following tasks:

- Ensure that the SAP BusinessObjects Enterprise servers required to perform Metadata Management tasks are enabled and running (see Managing Metadata Management servers on page 120)
- Configure integrator sources from which to collect metadata (see Configuring sources for Metadata Integrators on page 133)
- Run Integrators to collect metadata (see Running a Metadata Integrator on page 158)
- View the status of Metadata Integrator collection jobs (see Viewing integrator run progress and history on page 175)
- Organize Metadata Integrator Sources into groups for relationship analysis (see Grouping Metadata Integrator sources on page 177)
- Manage user security of Metadata Integrator sources, source groups, Metapedia, and Metadata Management utilities (see Managing security in Metadata Management on page 122)
- Compute and store end-to-end impact and lineage information for Reporting (see Computing and storing lineage information for reporting on page 179)
- Manage the Metadata Management search indexes (see Running the search index recreation utility on page 188)
- View and edit the Metadata Management repository information (see Viewing and editing repository information on page 189)
Accessing Metadata Management for administrative tasks

To perform SAP BusinessObjects Metadata Management administrative tasks, you must have **Full Control** access level on the Central Management Console (CMC) of SAP BusinessObjects Enterprise.

1. Access the CMC in one of the following ways:
   - Type directly into your browser the name of the computer you are accessing.
     
     \[
     \text{http://webserver:8080/CmcApp/}
     \]

     Replace **webserver** with the name of the web server machine. If you changed this default virtual directory on the web server, you need to type your URL accordingly. If necessary, change the default port number to the number you provided when you installed BusinessObjects Enterprise.
   - Select **BusinessObjects Enterprise Central Management Console** from the program group on the Windows Start menu.
     
     \[
     \text{Start} > \text{Programs} > \text{BusinessObjects XI 3.0} > \text{BusinessObjects Enterprise} > \text{BusinessObjects Enterprise Central Management Console.}
     \]

2. Log on to the Central Management Console (CMC) of BusinessObjects Enterprise with a valid administrator user name and password or a user name that has Full Control access level on the Central Management Console of BusinessObjects Enterprise.

   For details, see "To log on to the CMC from your browser" in the *BusinessObjects Enterprise Administrator's Guide*.

3. On the CMC Home page, access Metadata Management in one of the following ways:
   - Click the **Metadata Management** link under the "Organize" area.
   - Click the **Metadata Management** tab on the left of your screen.
   - Select the **Metadata Management** option from the drop-down list at the top of the CMC Home page.
These various links to Metadata Management are circled in the following screen shot of the CMC Home page.

**Related Topics**
- *Accessing Metadata Management Explorer* on page 197

**Managing Metadata Management servers**

The appropriate SAP BusinessObjects Enterprise servers must be running and enabled to perform the SAP BusinessObjects Management Management tasks. The following table shows the required BusinessObjects Enterprise servers to perform each Metadata Management tasks.
### SAP BusinessObjects Metadata Management task

<table>
<thead>
<tr>
<th>Server name</th>
<th>Run BusinessObjects Enterprise Metadata Integrator</th>
<th>Run other Metadata Integrator</th>
<th>Run Report Lineage or Search Index utility</th>
<th>Search on Metadata Management Explorer</th>
<th>View Relationship Diagram such as Impact or Lineage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Processing Server</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Central Management Server</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Input File Repository</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Metadata Management Job Server</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Output File Repository</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Crystal Reports Application Server</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Desktop Intelligence Report Server</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Web Intelligence Report Server</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Related Topics**

- *To ensure that the servers for Metadata Management are running* on page 122
To ensure that the servers for Metadata Management are running

1. From the CMC Home page, go to the "Servers" management area.
2. In the navigation tree on the left, expand the "Service Categories" node and select Metadata Management to view the list of Adaptive Processing Servers and Job Servers configured for Metadata Management.

   The "Servers List" includes the following columns for each server in the list:
   - A "State" column that provides the status for the server.
   - An "Enabled" column that indicates whether the server is enabled or disabled.

3. Verify that the servers required for SAP BusinessObjects Metadata Management have the values "Running" and "Enabled" in these columns.
4. If a required server is not running or enabled, do the following:
   a. Select the server name from the list.
   b. Open the Actions drop-down menu and select Start Server or Enable Server.

Related Topics
- Managing Metadata Management servers on page 120

Managing security in Metadata Management

SAP BusinessObjects Metadata Management uses the security services that SAP BusinessObjects Enterprise provides.

You use BusinessObjects Enterprise security to create users and authorizes user access for the following Metadata Management objects:
- Metadata Management application
- Integrator Sources
- Source Groups
- Metapedia

The CMS manages security information, such as user accounts, group memberships, and object rights that define user and group privileges. When a user attempts an action on a Metadata Management object, the CMS
authorizes the action only after it verifies that the user's account or group membership has sufficient privileges.

Related Topics
• Users and groups on page 123
• Access levels for Metadata Management tasks on page 124

Users and groups

When you set up your system, the CMS allows you to create user accounts and groups within SAP BusinessObjects Enterprise, or reuse existing user accounts and groups that are stored in a third-party system, such as LDAP or Windows Active Directory (AD). The CMS supports third-party authentication, so users can log on to BusinessObjects Enterprise with their current LDAP, or Windows AD credentials.

BusinessObjects Enterprise provides the following default groups:

<table>
<thead>
<tr>
<th>Default group name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>Members of this group have <strong>Full Control</strong> access level on SAP BusinessObjects Metadata Management administrative and Explorer tasks. By default, the <strong>Administrator</strong> group contains only the Administrator user.</td>
</tr>
<tr>
<td>Everyone</td>
<td>Members of this group have only the <strong>View</strong> access level on Metadata Management administrative and Explorer tasks. Each user is a member of the <strong>Everyone</strong> group.</td>
</tr>
</tbody>
</table>

You might want to create Metadata Management groups, as the following table describes.

*Table 6-2: Suggested Metadata Management groups*

| Group                          | Description | |
|-------------------------------|-------------|
| Metadata Management Administrator | Can perform all Metadata Management administrative and Explorer tasks because members of this group have **Full Control** access level on Metadata Management folder. |
### Related Topics

- *Access levels for Metadata Management tasks* on page 124

### Access levels for Metadata Management tasks

Access levels are groups of rights that users frequently need. These groups allow administrators to set common security levels quickly and uniformly rather than require that individual rights be set one by one.

SAP BusinessObjects Enterprise provides predefined access levels that are based on a model of increasing rights. Beginning with **View** and ending with **Full Control**, each access level builds upon the rights granted by the previous level. By default, the Administrator group has **Full Control** access level and the Everyone group has **View** access level.

The following table describes the default rights for each access level.

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Management Operator</td>
<td>Can run and schedule Metadata Integrators.</td>
</tr>
<tr>
<td>Metadata Management Data Steward</td>
<td>Can create custom metadata, edit values of custom attributes and define Metapedia categories and terms. Members of this group have <strong>Full Control</strong> access level on the Metapedia folder.</td>
</tr>
<tr>
<td>Metadata Management Power user</td>
<td>Can define and edit annotations, custom attributes, and their values in the Metadata Management Explorer.</td>
</tr>
<tr>
<td>Metadata Management User</td>
<td>Can only view metadata in the Metadata Management Explorer.</td>
</tr>
</tbody>
</table>
You can also create and customize your own access levels, which can greatly reduce administrative and maintenance costs associated with security.

**Related Topics**
- Type-specific rights for Metadata Management objects on page 125
- "Working with access levels" in the BusinessObjects Enterprise Administrator's Guide.

### Type-specific rights for Metadata Management objects

Type-specific rights affect only specific object types, such as integrator sources or Metapedia objects. The following tables describe the SAP BusinessObjects Metadata Management administration and Explorer tasks that are allowed for each type-specific right.

<table>
<thead>
<tr>
<th>Access level</th>
<th>Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>View</td>
<td>• View objects</td>
</tr>
<tr>
<td></td>
<td>• View instances</td>
</tr>
<tr>
<td>Schedule</td>
<td>• View objects</td>
</tr>
<tr>
<td></td>
<td>• Edit objects</td>
</tr>
<tr>
<td></td>
<td>• Schedule documents</td>
</tr>
<tr>
<td></td>
<td>• Reschedule documents</td>
</tr>
<tr>
<td></td>
<td>• View instances</td>
</tr>
<tr>
<td></td>
<td>• Delete instances</td>
</tr>
<tr>
<td></td>
<td>• Pause and resume document instances</td>
</tr>
<tr>
<td>Full Control</td>
<td>• Add objects</td>
</tr>
<tr>
<td></td>
<td>• View objects</td>
</tr>
<tr>
<td></td>
<td>• Edit objects</td>
</tr>
<tr>
<td></td>
<td>• Modify rights</td>
</tr>
<tr>
<td></td>
<td>• Delete objects</td>
</tr>
<tr>
<td></td>
<td>• Schedule documents</td>
</tr>
<tr>
<td></td>
<td>• Reschedule documents</td>
</tr>
<tr>
<td></td>
<td>• View instances</td>
</tr>
<tr>
<td></td>
<td>• Delete instances</td>
</tr>
<tr>
<td></td>
<td>• Pause and resume document instances</td>
</tr>
</tbody>
</table>
**Note:**
You must be part of the Administrator group to perform any actions in the "Applications" area of the CMC. Because actions on the Metadata Management utilities and repository are in the "Applications" area, you must be part of the Administrator group to do the following tasks:

- Configure, run, modify, or delete Metadata Management utilities
- Change the user name and password for the Metadata Management repository

**Table 6-3: Metadata Management administration tasks allowed for each right**

<table>
<thead>
<tr>
<th>Metadata Management object</th>
<th>Right</th>
<th>Administration tasks allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata Management folder</td>
<td>View objects</td>
<td>• Access the Metadata Management area of the Central Management Console</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Access Metadata Management in the Application area of the Central Management Console</td>
</tr>
<tr>
<td></td>
<td>Edit objects</td>
<td>Change limits for integrator source runs</td>
</tr>
<tr>
<td></td>
<td>Modify rights</td>
<td>Manage user security for Metadata Management</td>
</tr>
<tr>
<td>Integrator Sources folder</td>
<td>View objects</td>
<td>View integrator sources, their run history, their logs, and so on.</td>
</tr>
<tr>
<td></td>
<td>Add objects</td>
<td>Create new integrator sources</td>
</tr>
<tr>
<td>Source Groups folder</td>
<td>View objects</td>
<td>View source groups</td>
</tr>
<tr>
<td></td>
<td>Add objects</td>
<td>Create new source groups</td>
</tr>
<tr>
<td>Metadata Management object</td>
<td>Right</td>
<td>Administration tasks allowed</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
<td>-------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>View objects</td>
<td>View the properties of integrator sources</td>
</tr>
<tr>
<td></td>
<td>Edit objects</td>
<td>• Edit the properties of integrator sources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Edit the schedule parameters (such as log level and run mode)</td>
</tr>
<tr>
<td></td>
<td>Delete objects</td>
<td>Delete integrator sources</td>
</tr>
<tr>
<td></td>
<td>Delete instances</td>
<td>• Delete integrator source instances</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Delete the integrator source schedule</td>
</tr>
<tr>
<td></td>
<td>Schedule documents</td>
<td>• Schedule the integrator source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Run the integrator source now</td>
</tr>
<tr>
<td></td>
<td>Reschedule documents</td>
<td>• Reschedule the integrator source instance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rerun an integrator source instance</td>
</tr>
<tr>
<td></td>
<td>Modify rights</td>
<td>Manage user security for integrator sources</td>
</tr>
<tr>
<td></td>
<td>View instances</td>
<td>• View the history of the integrator source</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• View database log of the integrator source instance</td>
</tr>
<tr>
<td></td>
<td>Pause and resume document instances</td>
<td>• Stop the integrator source instance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pause the integrator source instance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Resume the integrator source instance</td>
</tr>
<tr>
<td>Metadata Management object</td>
<td>Right</td>
<td>Administration tasks allowed</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Source Group</td>
<td>View objects</td>
<td>View the properties of source groups</td>
</tr>
<tr>
<td></td>
<td>Edit objects</td>
<td>Edit the properties of source groups</td>
</tr>
<tr>
<td></td>
<td>Delete objects</td>
<td>Delete the source group</td>
</tr>
<tr>
<td></td>
<td>Modify rights</td>
<td>Manage user security for source groups</td>
</tr>
<tr>
<td>Metapedia folder</td>
<td>Modify rights</td>
<td>Manage user security for Metapedia</td>
</tr>
</tbody>
</table>
Table 6-4: Metadata Management Explorer tasks allowed for each right

<table>
<thead>
<tr>
<th>Metadata Management object</th>
<th>Right</th>
<th>Explorer tasks allowed</th>
</tr>
</thead>
</table>
|                            | View objects  | • Logon to the Metadata Management Explorer  
• View all of the metadata objects and their relationships  
• View the custom attributes and values  
• View the Preferences page  
• Search all metadata sources  
• View Metadata Management lineage from **View Lineage** option on "Documents List" in InfoView. |
|                            | Edit objects  | • Update Preferences page  
• Edit custom attributes and display order  
• Edit custom attribute values  
• Edit annotations  
• Edit user-defined relationships between objects |
|                            | Add objects   | • Create new custom attribute  
• Associate custom attribute to an object type  
• Update Preferences page  
• Create custom attributes and display order  
• Create custom attribute values  
• Create annotations  
• Create user-defined relationships between objects |
|                            | Delete objects| Delete custom attributes                                                                                                                                     |
### Metadata Management administration overview

<table>
<thead>
<tr>
<th>Metadata Management object</th>
<th>Right</th>
<th>Explorer tasks allowed</th>
</tr>
</thead>
</table>
| Metapedia folder           | View objects | • View "Metapedia" window  
  • View Categories  
  • View terms  
  • Export to Excel |
|                            | Edit objects | • Edit Category  
  • Edit Term (including Approval)  
  • Add Terms to Categories  
  • Relate Terms  
  • Associate objects to a Term  
  • Deleted Related Terms  
  • Delete Associated Objects  
  • Delete associated Terms |
|                            | Add objects | • Create Category  
  • Create Term  
  • Import to Excel |
|                            | Delete objects | • Delete Category  
  • Delete Term |

**Related Topics**
- Access levels for Metadata Management tasks on page 124

**Creating Metadata Management users and groups**

To create users and groups for SAP BusinessObjects Metadata Management, you must have **Full Control** access level on the Central Management Console (CMC) of SAP BusinessObjects Enterprise.

1. Log on to the CMC and go to the "Users and Groups" management area.
2. To create a new user:
   a. On the Manage menu, point to New and click New User.
   b. To specify the information on the "New User" dialog box, use the instructions in the topic "To create an Enterprise user account" in the

c. Click Create & Close.

3. To create a new group:
   a. On the Manage menu, point to New and click New Group.
   b. On the "Create New New Group" dialog box, enter the group name and description.
      For example, to create a Metadata Management Operator group, enter "Metadata Management Operator" in Group Name and enter "Users that run and schedule Metadata Integrators" in Description.
   c. Click OK.

Related Topics
• Adding users and assigning access levels to a group on page 131
• Assigning rights to users for a Metadata Management object on page 132

Adding users and assigning access levels to a group

In SAP BusinessObjects Enterprise, you can designate a group to administer other users. For example, in SAP BusinessObjects Metadata Management, you might use the group named "Metadata Management Operator" for the users that you want to run and schedule Metadata Integrators as the following steps show. For more information about delegated administration, refer to the SAP BusinessObjects Enterprise Administration Guide.

To add users to the group and assign access levels:

1. In the "Users and Groups" management area of the CMC, click Group List in the Tree panel.
2. Select the name of the group to which you want to add users.
   For example, select Metadata Management Operator.
4. Click Add Principals to add users.
5. Select the user names that you want in the group, click >, and click Add and Assign Security.
6. Select the access level that you want, click the right arrow button, and click OK.
For example, select **Schedule** for the sample group **Metadata Management Operator**.

7. On the "User Security" page, click **Close**.

**Related Topics**
- **Creating Metadata Management users and groups** on page 130
- **Assigning rights to users for a Metadata Management object** on page 132

**Assigning rights to users for a Metadata Management object**

To assign rights to a group or user for an SAP BusinessObjects Metadata Management object:

1. Go to the Metadata Management area on the CMC.
2. Take one of the following actions to select the Metadata Management object.
   - To assign rights to an individual object instance (for example, a specific integrator source or source group):
     - Select the Metadata Management object from the **Tree** panel.
     - Select the name of the object from the list of names on the right side of the screen.
   - To assign rights to all instances of an object type (for example, all integrator sources or all source groups), select the Metadata Management object from the **Tree** panel.

   When you choose only the object in the tree, the child objects (individual object instances) inherit the rights. For more information, see "Determining effective rights" in the *SAP BusinessObjects Enterprise Administrator's Guide* in the chapter "Setting Rights."

3. On the **Manage** menu, point to **Security**, and click **User Security**.
4. Click **Add Principals**.

   The "Add Principals" page displays both groups and users by default in the "Available users/groups" area.

5. Select the group or user names that you want.

   For example, select the name of your new group **Metadata Management Operator**.
To select more than one user or group name, hold the Ctrl key and click each additional name.

6. Click > to move the selected names to the "Selected users/groups" area, and click Add and Assign Security.

7. Select the access level that you want.
   For the sample group Metadata Management Operator, select Schedule.

8. To assign the access level, click > and click OK.
   The "User Security: Integrator Sources" page now shows the principals and access level that you assigned.


Related Topics
- Creating Metadata Management users and groups on page 130
- Adding users and assigning access levels to a group on page 131
- "Managing security settings for objects in the CMC" in the BusinessObjects Enterprise Administrator's Guide

Configuring sources for Metadata Integrators

SAP BusinessObjects Metadata Integrators extract metadata from repository sources that you configure, and they populate the SAP BusinessObjects Metadata Management Repository with the collected metadata.

When you install SAP BusinessObjects Metadata Management, you can select the following Metadata Integrators:
- SAP BusinessObjects Enterprise Metadata Integrator
- Common Warehouse Metamodel (CWM) Metadata Integrator
- SAP BusinessObjects Data Federator Metadata Integrator
- SAP BusinessObjects Data Services Metadata Integrator
- Relational Database Metadata Integrator
- Meta Integration Metadata Bridge (MIMB) Metadata Integrator - also known as MITI Integrator

You can also obtain third-party metadata integrators for other data sources. For more information about third-party metadata integrators, contact your sales representative.
Configuring sources for SAP BusinessObjects Enterprise Metadata Integrator

This section describes how to configure the SAP BusinessObjects Metadata Integrator for the SAP BusinessObjects Enterprise repository which is managed by SAP BusinessObjects Central Management Server (CMS). This Integrator collects metadata for Universes, Crystal Reports, Web Intelligence documents, and Desktop Intelligence documents.

**Note:**
Ensure that you selected the CMS Metadata Integrator when you installed SAP BusinessObjects Metadata Management.

To configure the BusinessObjects Enterprise Integrator, you must have the Create or Add right on the integrator source.

1. Log on to the CMC and access the Metadata Management area. For details, see Accessing Metadata Management for administrative tasks on page 119.
   
   The "Metadata Management" page opens with the Integrator Sources node selected in the navigation tree on the left.

2. Click the down arrow next to "Manage" in the top menu tool bar and select New > Integrator Source.

3. In the Integrator Type drop-down list, select BusinessObjects Enterprise.

4. On the "New Integrator Source" page, enter the following information.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this metadata integrator source. The maximum length of an integrator source name is 128 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this metadata integrator source.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>CMS Server Name</strong></td>
<td>Host name of the CMS (Central Management Server). This value is required. The CMS is responsible for maintaining a database of information about your BusinessObjects Enterprise system. The data stored by the CMS includes information about users and groups, security levels, BusinessObjects Enterprise content, and servers. For more information about the CMS, see <em>BusinessObjects Enterprise Administrator’s Guide</em>. <strong>Note:</strong> The version of BusinessObjects Enterprise installed on the Metadata Management host must match the version of BusinessObjects Enterprise that this CMS manages.</td>
</tr>
<tr>
<td><strong>User Name</strong></td>
<td>The CMS user name to connect to the CMS server. The default value is <em>Administrator</em>. If you want a user other than <em>Administrator</em> to run the Metadata Integrator, change the value to the appropriate name.</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>The password to connect to the CMS server to register and run the Metadata Integrator.</td>
</tr>
<tr>
<td><strong>Authentication Method</strong></td>
<td>The process that CMS uses to verify the identity of a user who attempts to access the system. The default value is <em>Enterprise</em>. See the <em>BusinessObjects Enterprise Administrator’s Guide</em> for available modes.</td>
</tr>
<tr>
<td><strong>InfoView Integration User</strong></td>
<td>The name of the InfoView user to invoke the Metadata Management lineage diagrams when View Lineage is selected for each document in the &quot;Documents List&quot; of InfoView. The default value is <em>Administrator</em>.</td>
</tr>
</tbody>
</table>
The password of the InfoView user to connect to the Metadata Management Explorer to display the lineage diagram for a document in InfoView. The default is no password.

5. If you want to verify that Metadata Management can connect successfully before you save this source, click **Test connection**.

6. Click **Save**.

The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

**Related Topics**
- *Running a Metadata Integrator immediately* on page 158
- *Defining a schedule to run a Metadata Integrator* on page 159
- *Viewing integrator run progress and history* on page 175

**Checkpointing**

SAP BusinessObjects Metadata Management can run the SAP BusinessObjects Enterprise Metadata Integrator for extended periods of time to collect large quantities of objects. If unexpected problems occur during object collection, Metadata Management automatically records warning, error, and failure incidents in your log file for you to analyze later.

As additional failure management, Metadata Management uses an automatic checkpointing mechanism with preset "safe start" points to ensure that processing restarts from the nearest "safe start" point (instead of from the beginning of the job). Regardless of reason for the failure (power outage, accidental shutdown, or some other incident), the next time you run the BusinessObjects Enterprise Metadata Integrator, it restarts from the safe start point to finish object collection in the least amount of time.

**Configuring sources for SAP NetWeaver Business Warehouse Metadata Integrator**

This section describes how to configure the Metadata Integrator for SAP NetWeaver Business Warehouse.
**Note:**
Ensure that you selected the SAP NetWeaver Business Warehouse Metadata Integrator when you installed SAP BusinessObjects Metadata Management.

To configure an SAP NetWeaver Business Warehouse integrator source, you must have the **Create** or **Add** permission on the integrator source.

1. Log on to the CMC and access the Metadata Management area.
   The "Metadata Management" page opens with the **Integrator Sources** node selected in the tree on the left.

2. Click the down arrow next to **Manage** in the top menu tool bar and select **New > Integrator Source**.

3. In the **Integrator Type** drop-down list, select **SAP NetWeaver Business Warehouse**.

4. On the "New Integrator Source" page, enter the following information.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this integrator source. The maximum length of an integrator source name is 128 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
</tbody>
</table>
| Connection Type      | One of the following connection types for this source:  
  • Custom Application Server  
  • Group/Server Selection |
<p>| Application Server   | SAP Application Server host name when <strong>Connection Type</strong> is Custom Application Server.                                                        |
| Message Server       | SAP NetWeaver BW Message Server host name when <strong>Connection Type</strong> is Group/Server Selection.                                                  |
| Group/Server         | SAP group name when <strong>Connection Type</strong> is Group/Server Selection.                                                                          |
| Client               | ID number for the SAP NetWeaver BW client.                                                                                                   |</p>
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Number</td>
<td>Number for the SAP NetWeaver BW system.</td>
</tr>
<tr>
<td>SAPRouter String</td>
<td>(Optional) String that contains the information required by SAProuter to set up a connection between the Metadata Integrator and the SAP NetWeaver BW system. The string contains the host name, the service port, and the password, if one was given.</td>
</tr>
<tr>
<td>SAP User</td>
<td>Name of the user that will connect to the SAP NetWeaver BW system.</td>
</tr>
<tr>
<td>SAP Password</td>
<td>Password for the user that will connect to the SAP NetWeaver BW system.</td>
</tr>
<tr>
<td>Language</td>
<td>Language to use for the descriptions of SAP NetWeaver BW objects. Specify the 2-character ISO code for the language (for example, en for English).</td>
</tr>
</tbody>
</table>

5. To verify that Metadata Management can connect successfully before you save this source, click **Test connection**.

6. Click **Save**.

The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

**Related Topics**
- [SAP router string information](http://help.sap.com/saphelp_nw70ehp1/helpdata/en/4f/992df1446d11d189700000e8322d00/content.htm)
- [Running a Metadata Integrator immediately](#) on page 158
- [Defining a schedule to run a Metadata Integrator](#) on page 159
- [Viewing integrator run progress and history](#) on page 175
Configuring sources for Common Warehouse Metamodel (CWM) Metadata Integrator

This section describes how to configure the Metadata Integrator for Common Warehouse Metamodel (CWM).

**Note:**
Ensure that you selected the CWM Metadata Integrator when you installed SAP BusinessObjects Metadata Management.

To configure the CWM Integrator, you must have the right to **Create** or **Add** the integrator source.

1. Log on to the CMC and access the Metadata Management area. For details, see *Accessing Metadata Management for administrative tasks* on page 119.
   
   The "Metadata Management" page opens with the **Integrator Sources** node selected in the tree on the left.

2. Click the down arrow next to "Manage" in the top menu tool bar and select **New > Integrator Source**.

3. In the **Integrator Type** drop-down list, select **Common Warehouse Modeling**.

4. On the "CWM Integrator Configuration" page, enter the following information.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source Name</strong></td>
<td>Name that you want to use for this source. The maximum length of an integrator source name is 128 characters.</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>(Optional) Text to describe this source.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| **File Name** | Name of the file with the CWM content. For example: `C:\data\cwm_export.xml`  
This value is required. The file should be accessible from the computer where the Metadata Management web browser is running.  
Click the **Browse** button to find the file.  
**Note:** Metadata Management copies this file to the Input File Repository Server on SAP BusinessObjects Enterprise. Therefore, if the original file is subsequently updated, you must take the following steps to obtain the updates before you run the Integrator again:  
- Update the configuration to recopy the CWM file.  
  a. From the Integrator Sources list, select the CWM integrator source name and click **Action > Properties**.  
  The file name displays in the comments under the **File Name** text box, and the file name has "frs:" prefacing it.  
  b. Browse to the original file again.  
  c. Click **Save**.  
- Create a new schedule for the CWM integrator because the old schedule has a copy of the previous file.  
  a. With the CWM integrator source name still selected in the Integrator Sources list, click **Action > Schedules**.  
  b. Select the Recurrence and Parameter options that you want.  
  c. Click **Schedule**. |

5. Click **Save**.  
The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.
Configuring sources for SAP BusinessObjects Data Federator Metadata Integrator

This section describes how to configure the Metadata Integrator for SAP BusinessObjects Data Federator.

**Note:**
Ensure that you selected the SAP BusinessObjects Data Federator Metadata Integrator when you installed SAP BusinessObjects Metadata Management.

To configure an SAP BusinessObjects Data Federator integrator source, you must have the **Create** or **Add** right on the integrator source.

1. Log on to the CMC and access the Metadata Management area. For details, see [Accessing Metadata Management for administrative tasks](#) on page 119.
   
   The "Metadata Management" page opens with the **Integrator Sources** node selected in the tree on the left.

2. Click the down arrow next to **Manage** in the top menu tool bar and select **New > Integrator Source**.

3. In the **Integrator Type** drop-down list, select **Data Federator**.

4. On the "New Integrator Source" page, enter the following information.
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this source. The maximum length of an integrator source name is 128 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
<tr>
<td>DF Designer Server Address</td>
<td>Name or IP address of the computer where the Data Federator Designer resides. For example, if you installed the Data Federator Designer on the same computer as the Data Federator Integrator, type localhost.</td>
</tr>
<tr>
<td>DF Designer Server Port</td>
<td>Port number for the Data Federator Designer. The default value is 3081.</td>
</tr>
<tr>
<td>User name</td>
<td>Name of the user that will connect to the Data Federator Designer.</td>
</tr>
<tr>
<td>Password</td>
<td>Password for the user that will connect to the Data Federator Designer.</td>
</tr>
</tbody>
</table>

5. If you want to verify that Metadata Management can connect successfully before you save this source, click **Test connection**.

6. Click **Save**.

   The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

**Related Topics**

- *Running a Metadata Integrator immediately* on page 158
- *Defining a schedule to run a Metadata Integrator* on page 159
- *Viewing integrator run progress and history* on page 175

**Configuring sources for SAP BusinessObjects Data Services Metadata Integrator**

This section describes how to configure the Metadata Integrator for SAP BusinessObjects Data Services.

**Note:**

Ensure that you selected the SAP BusinessObjects Data Services Metadata Integrator when you installed SAP BusinessObjects Metadata Management.
To configure the Data Services Integrator, you must have the Create or Add right on the integrator source.

1. Log on to the CMC and access the Metadata Management area. For details, see Accessing Metadata Management for administrative tasks on page 119.
   The "Metadata Management" page opens with the Integrator Sources node selected in the tree on the left.

2. Click the down arrow next to Manage in the top menu tool bar and select New > Integrator Source.

3. In the Integrator Type drop-down list, select Data Services.

4. On the "New Integrator Source" page, in the Integrator Type drop-down list, select BusinessObjects Data Services information.

5. Enter the following Data Services information.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this source. The maximum length of an integrator source name is 128 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
</tbody>
</table>
| Database Type        | The database type of the Data Services repository. The available database types are:  
|                      | • DB2  
|                      | • Microsoft SQL Server  
|                      | • MySQL  
|                      | • Oracle  
|                      | • Sybase |
| Computer Name        | Name of the computer where the Data Services repository resides. |
| Database Port Number | Port number of the database. |
### Option | Description
--- | ---
Datasource, Database Name, or Service name | The name of the database, data source, or service name. Specify the following name for the database type of the Data Services repository:
- DB2 - Data source name
- Microsoft_SQL_Server - Database name
- Oracle - SID/Service name
- Sybase - Database name

Database User | Name of the user that will connect to the Data Services repository.

Database Password | The password for the user that will connect to the Data Services repository.

---

6. If you want to verify that Metadata Management can connect successfully before you save this source click **Test Connection**.

7. Click **Save**.
   
   The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management window.

**Related Topics**

- *Running a Metadata Integrator immediately* on page 158
- *Defining a schedule to run a Metadata Integrator* on page 159
- *Viewing integrator run progress and history* on page 175

**Configuring sources for Meta Integration Metadata Bridge**

**Metadata Integrator**

This section describes how to configure the Metadata Integrator for Meta Integration® Metadata Bridge (MIMB). For a description of the objects collected by the MIMB Integrator, see the MIMB documentation at http://www.metaintegration.net/Products/MIMB/Documentation/.
Note:
Ensure that you selected the Meta Integration Metadata Bridge (MIMB) Metadata Integrator when you installed SAP BusinessObjects Metadata Management.

To configure the MIMB Integrator, you must have the Create or Add right on the integrator source.

1. Log on to the CMC and access the Metadata Management area. For details, see Accessing Metadata Management for administrative tasks on page 119.
   The "Metadata Management" page opens with the Integrator Sources node selected in the tree on the left.

2. Click the down arrow next to Manage in the top menu tool bar and select New > Integrator Source.

3. In the Integrator Type drop-down list, select Meta Integration Metadata Bridge.

4. On the "New Integrator Source" page, enter values for Name and Description. The maximum length of an integrator source name is 128 characters.

5. In the Bridge drop-down list, select the type of integrator source from which you want to collect metadata and follow the instructions on the user interface to configure the connection information.

6. Click Save.
   The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

Related Topics
• Running a Metadata Integrator immediately on page 158
• Defining a schedule to run a Metadata Integrator on page 159
• Viewing integrator run progress and history on page 175

Configuring sources for Relational Database Metadata Integrator

This section describes how to configure and run the Metadata Integrator for a DB2, JDBC, Microsoft SQL Server, MySQL, or Oracle relational database.
Note:
Ensure that you selected the Relational Database System Metadata Integrator
when you installed SAP BusinessObjects Metadata Management.

To configure the Relational Database Integrator, you must have the Create
or Add right on the integrator source.

1. Log on to the CMC and access the Metadata Management area. For
details, see Accessing Metadata Management for administrative tasks
on page 119.
   The "Metadata Management" page opens with the Integrator Sources
   node selected in the tree on the left.

2. To access the "New Integrator Source" page, take one of the following
   actions:
   • Click the left-most icon, "Create an Integrator source", in top menu
     bar.
   • On the Manage menu, point to New and click Integrator Source.
     The "New Integrator Source" page displays.

3. In the Integrator Type drop-down list, select Relational Database.

4. Specify the pertinent connection information for the relational database
   that you specify in Connection Type.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this source. The maximum length of an</td>
</tr>
<tr>
<td></td>
<td>integrator source name is 128 characters.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Connection Type</td>
<td>The type of database for which you want to collect metadata. Select one of the following database types:</td>
</tr>
<tr>
<td></td>
<td>• Universe Connection for secure connections defined in CMS. For options specific to a universe connection source, see <em>Configuring sources for universe connections</em> on page 151.</td>
</tr>
<tr>
<td></td>
<td>• DB2</td>
</tr>
<tr>
<td></td>
<td>• Microsoft SQL Server</td>
</tr>
<tr>
<td></td>
<td>• MySQL</td>
</tr>
<tr>
<td></td>
<td>• Oracle</td>
</tr>
<tr>
<td></td>
<td>• JDBC (Java Database Connectivity) for databases such as Teradata. For options specific to a JDBC source, see <em>Configuring sources for JDBC connections</em> on page 148.</td>
</tr>
<tr>
<td>Connections</td>
<td>The name of the Central Management System (CMS) connection. You must select a value for <strong>Connections</strong> when <strong>Connection Type</strong> is set to <strong>Universe Connection</strong>. The drop-down list displays the secure connections defined in the CMS.</td>
</tr>
<tr>
<td>Computer name</td>
<td>Host name on which the database server is running.</td>
</tr>
<tr>
<td>Database port number</td>
<td>Port number of the database.</td>
</tr>
<tr>
<td>Database Name, or Service name</td>
<td>The name of your DB2 database, Microsoft SQL Server database, MySQL database, or Oracle database service (SID).</td>
</tr>
</tbody>
</table>
### Configuring sources for JDBC connections

If you plan to use a JDBC source (such as Teradata) for the Relational Database Metadata Integrator, do the following steps:

1. **Create a source.**
   - **Option:** Source Name
   - **Description:** Enter a unique name for your JDBC source.

2. **Enter required information.**
   - **Database User**
   - **Database Password**

3. **Specify the database connection details.**
   - **Description:** The name of the user or owner of the database or data source.
   - **Database Password**
   - **Description:** The password of the user for the database or data source.

4. **(Optional) Specify the name of the schema.**
   - **Table Schema**
   - **Description:** (Optional) Specify the name of the schema that you want to import from this source database. If you do not specify a schema name:
     - Metadata Management imports all available schemas for SQL Server or DB2.
     - Metadata Management uses the user name to import the schema for Oracle.

   **Table Schema** applies to the following connection types:
   - DB2
   - Microsoft SQL Server
   - Oracle

5. **Click Test connection if you want to verify that Metadata Management can connect successfully before you save this source.**

6. **Click Save.**
   - The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

### Related Topics
- **Running a Metadata Integrator immediately** on page 158
- **Defining a schedule to run a Metadata Integrator** on page 159
- **Viewing integrator run progress and history** on page 175
1. Obtain the JDBC driver from your database server web site or utilities CD.

2. Unzip the JDBC driver into a folder such as the following:

   c:\temp\teradata

3. Log on to the CMC and access the SAP BusinessObjects Metadata Management area. For details, see Accessing Metadata Management for administrative tasks on page 119.

   The "Metadata Management" page opens with the Integrator Sources node selected in the tree on the left.

4. Take one of the following actions to access the "New Integrator Source" page.
   - Click the left-most icon, "Create an Integrator source", in top menu bar.
   - On the Manage menu, point to New and click Integrator Source. The "New Integrator Source" page displays.

5. In the Integrator Type drop-down list, select Relational Database.

6. Specify the following JDBC connection parameters:

<table>
<thead>
<tr>
<th>JDBC parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this source.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Select JDBC from the drop-down list.</td>
</tr>
<tr>
<td>Driver</td>
<td>Name of the JDBC driver class that you obtained in step 1 above.</td>
</tr>
<tr>
<td>URL</td>
<td>URL address that specifies the JDBC connection to the database.</td>
</tr>
<tr>
<td>Catalog</td>
<td>(Optional) The name of the catalog in the Teradata database.</td>
</tr>
<tr>
<td>JDBC parameter</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Database User</td>
<td>Name of the user or owner of the database.</td>
</tr>
<tr>
<td>Database Password</td>
<td>Password for the user of the database.</td>
</tr>
<tr>
<td>Table Schema</td>
<td>(Optional) Specify the name of the schema that you want to import from this source database.</td>
</tr>
<tr>
<td>Library files</td>
<td>The jar files, separated by semi colons. For example: c:\temp\teradata\tdgssjava.jar;c:\temp\teradata\terajdbc4.jar;c:\temp\teradata\tdgssconfig.jar</td>
</tr>
</tbody>
</table>

**Note:**
In a distributed deployment, you must set **Library Files** to the classpath on the computer where the integrator runs.

7. Click **Test connection** if you want to verify that Metadata Management can connect successfully before you save this source.

8. Click **Save**.

The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

**Related Topics**
- Configuring sources for Relational Database Metadata Integrator on page 145
- Running a Metadata Integrator immediately on page 158
- Defining a schedule to run a Metadata Integrator on page 159
- Viewing integrator run progress and history on page 175
Configuring sources for universe connections

The Relational Database Integrator can collect metadata from secured universe connections that use JDBC and ODBC. For the most current list of supported universe connection types, refer to the Release Notes.

To configure a universe connection source that uses a JDBC or ODBC connection:

1. If you want to configure a universe connection source that uses a JDBC connection, perform the following steps:
   a. Obtain the JDBC driver from your database server web site or utilities CD.
   b. Unzip the JDBC driver into a folder such as the following:

     c:\temp\teradata

2. If you want to configure a universe connection source that uses an ODBC connection, ensure that the ODBC Datasource exists in the computer where the integrator will run.

3. Log on to the CMC and access the SAP BusinessObjects Metadata Management area. For details, see Accessing Metadata Management for administrative tasks on page 119.

   The "Metadata Management" page opens with the Integrator Sources node selected in the tree on the left.

4. Take one of the following actions to access the "New Integrator Source" page.

   • Click the left-most icon, "Create an Integrator source", in top menu bar.
   • On the Manage menu, point to New and click Integrator Source. The "New Integrator Source" page displays.

5. In the Integrator Type drop-down list, select Relational Database.

6. Specify the following universe connection parameters:
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name that you want to use for this source.</td>
</tr>
<tr>
<td>Description</td>
<td>(Optional) Text to describe this source.</td>
</tr>
<tr>
<td>Connection Type</td>
<td>Select <strong>Universe Connection</strong> from the drop-down list.</td>
</tr>
<tr>
<td>Connections</td>
<td>The name of the Central Management System (CMS) connection. The drop-down list displays the secure connections defined in the CMS.</td>
</tr>
</tbody>
</table>
| Table Schema    | (Optional) Specify the name of the schema that you want to import from this source database. If you do not specify a schema name:  
|                 | • Metadata Management imports all available schemas for SQL Server or DB2.  
|                 | • Metadata Management uses the user name to import the schema for Oracle.   |
| Library Files   | The full paths to the Java library files (separated by semicolons) required by the Universe Connection. For example: Note: In a distributed deployment, you must set **Library Files** to the classpath on the computer where the integrator runs. |

7. **Click Test connection** if you want to verify that Metadata Management can connect successfully before you save this source.

8. **Click Save.** The newly configured source appears in the list of Integrator Sources on the right of the Metadata Management page.

**Related Topics**
- *Configuring sources for Relational Database Metadata Integrator* on page 145
- *Running a Metadata Integrator immediately* on page 158
- *Defining a schedule to run a Metadata Integrator* on page 159
- *Viewing integrator run progress and history* on page 175
Managing integrator sources and instances

You manage integrator sources and instances in the SAP BusinessObjects Metadata Management area of the CMC.

From the list of configured integrator sources, you can select an integrator source and perform a task from Manage or Actions in the top menu tool bar.

You can perform the following tasks from the Manage menu.

<table>
<thead>
<tr>
<th>Manage task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>Create a new Integrator Source or Source Group.</td>
</tr>
<tr>
<td>Security</td>
<td>Manage user security for Integrator Sources, Source Groups, or Metapedia objects.</td>
</tr>
<tr>
<td>Refresh</td>
<td>Obtain the latest Integrator Sources information.</td>
</tr>
<tr>
<td>Delete</td>
<td>Delete this source configuration (see Deleting an integrator source on page 156) and its associated schedules, source runs, and logs.</td>
</tr>
<tr>
<td>Purge</td>
<td>Remove all integrator source runs. This option keeps the source configuration, file logs, and schedules.</td>
</tr>
</tbody>
</table>

You can perform the following tasks from the Actions menu.

<table>
<thead>
<tr>
<th>Action task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>View the current and previous executions of this Metadata Integrator source (see Viewing integrator run progress and history on page 175).</td>
</tr>
<tr>
<td>Properties</td>
<td>View and edit the configuration information for this Metadata Integrator source.</td>
</tr>
<tr>
<td>Schedule</td>
<td>Run the Metadata Integrator at regular intervals (see Defining a schedule to run a Metadata Integrator on page 159).</td>
</tr>
</tbody>
</table>
Run the Metadata Integrator immediately (see Running a Metadata Integrator immediately on page 158).

Related Topics
- Viewing and editing an integrator source on page 154
- Deleting an integrator source on page 156
- Changing log level on page 164
- Changing limits on page 156

Viewing and editing an integrator source

You can view and modify the definition of an integrator source in its "Properties" dialog box to change its description, connection information, and other pertinent information for the integrator source.

- To view the definition, you must have the right to View the integrator source.
- To modify the definition, you must have the right to Edit the integrator source.

1. On the "Integrators Sources" page of SAP BusinessObjects Metadata Management, select the integrator source that you want by clicking anywhere on the row except its type.

   **Note:**
   If you click the integrator source type, you display the version and customer support information for the integrator.

2. Access the "Properties" dialog box in one of the following ways:
   - Double-click the row for the integrator source.
   - Click the down arrow next to **Actions** in the top menu tool bar and select **Properties**.

   The following example shows the "Properties" pane of the "Integrator Configuration" page.
3. You can change any property for the integrator source, except its type and name.

4. To verify the database connection information on this "Integrator Source Properties" dialog box, click **Test connection**.

5. Click **Save** to save your changes to the configuration.

6. To change parameters such as **Log Level** or **Update Option** (BusinessObjects Enterprise Integrator only), expand the **Schedule** node in the tree on the left and click **Parameters**.

**Related Topics**
- *Defining a schedule to run a Metadata Integrator* on page 159
Deleting an integrator source

You might want to delete an integrator source in situations such as the following:

• You want to rename your integrator source

  Note:
  If you rename your integrator source, you lose all the previously collected metadata.

• You no longer need your integrator source

To delete an integrator source, you must have the right to Delete the integrator source.

1. On the "Integrators Sources" page of SAP BusinessObjects Metadata Management, select the integrator source that you want by clicking anywhere on the row except its type.

  Note:
  If you click the source type, you display the version and customer support information for the integrator.

2. Click the down arrow next to "Manage" in the top menu tool bar and select Delete > Integrator Source.

  Note:
  If you delete an integrator source, you also delete the metadata from that source that was stored in the Metadata Management repository.

3. Reply to the confirmation prompt.

Changing limits

Each time you run a metadata integrator or SAP BusinessObjects Metadata Management utility, SAP BusinessObjects Metadata Management creates a new instance and log files for it. By default, the maximum number of instances to keep is 100. When this maximum number is exceeded, SAP BusinessObjects Enterprise deletes the oldest instance and its associated log file.
Note:
The Log Cleanup utility deletes the database log in the Metadata Management repository for each instance that was deleted.

To change the limits to delete integrator source instances, you must have Full Control access level on the Metadata Management folder.

1. In CMC home page, select the Metadata Management link or tab on the left.
   The "Metadata Management" page opens with the Integrator Sources node selected in the Tree panel.
2. Select the Metadata Management top node in the Tree panel.
3. On the Action menu, click Limits.
   The "Limits: Metadata Management" window appears.
4. If you want to change the default value of 100 maximum number of instances to keep:
   a. Select the check box for the option Delete excess instances when there are more than N instances.
   b. Enter a new number in the box under this option.
   c. Click Update to save your changes.
5. If you want to specify a maximum number of instances to keep for a specific user or group:
   a. Click the Add button next to Delete excess instances for the following users/groups.
   b. Select the user or group name from the "Available users/groups" pane and click >.
   c. Click OK.
   d. If you want to change the default value of 100 maximum number of instances to keep, type a new number under Maximum instance count per object per user.
   e. Click Update to save your changes.
6. If you want to specify a maximum number of days to keep instances for a specific user or group:
   a. Click the Add button next to Delete instances after N days for the following users or groups.
   b. Select the user or group name from the "Available users/groups" pane and click >.
   c. Click OK.
d. If you want to change the maximum number of instances to keep (default value 100), type a new number under **Maximum instance count per object per user**.

e. Click **Update** to save your changes.

7. To close the "Limits: Metadata Management" window, click the X in the upper right corner.

**Running a Metadata Integrator**

Run the Metadata Integrator to collect the metadata for each source that you configured. When you select the **Integrator Sources** in the **Tree** panel on the left on the SAP BusinessObjects Metadata Management page in the CMC, all configured integrator sources display. When you select an integrator source on the right side of the screen, you can run it immediately or define a schedule to run it.

**Related Topics**

- **Running a Metadata Integrator immediately** on page 158
- **Defining a schedule to run a Metadata Integrator** on page 159

**Running a Metadata Integrator immediately**

To run a Metadata Integrator immediately, you must have the right to **Run** the integrator source.

1. In CMC home page, select the SAP BusinessObjects Metadata Management link or tab on the left.
   
   The Metadata Management page opens with **Integrator Sources** selected in the **Tree** pane on the left.
2. From the list of configured sources that appears on the right, select the integrator source that you want by clicking anywhere on the row except its type.

   **Note:**
   If you click the integrator source type, you display the version and customer support information for the integrator. If you double-click the row, you open the "Properties" dialog box for the integrator source.

3. Click the down arrow next to **Actions** in the top menu tool bar and select **Run Now**.

   **Tip:**
   You can also click the icon "Run selected object(s) now" in the icon bar under **Manage** and **Actions**.

4. To view the progress of the integrator run, select the integrator source, and click **Action > History**.

   **Tip:**
   If you select **Now** in the **Run object** option under **Action > Schedule > Recurrence** and click **Schedule**, the "Integrator History" page automatically displays.

5. Click the Refresh icon to update the status.

   For more details about the "Integrator History" page, see **Viewing integrator run progress and history** on page 175.

6. If you use impact and lineage reports on the Reports tab of the Metadata Management Explorer, you must recompute the contents of the lineage staging table to incorporate changes from the Integrator runs. For more information, see **Computing and storing lineage information for reporting** on page 179.

---

### Defining a schedule to run a Metadata Integrator

To run a Metadata Integrator at regular intervals, define a schedule for it.

To define a schedule for an integrator source, you must have the right to **Schedule** the integrator source.

1. In CMC home page, select the SAP BusinessObjects Metadata Management link or tab on the left.
The Metadata Management page opens with the **Integrator Sources** node selected in the **Tree** panel on the left.

2. From the list of configured sources that appears on the right, select the source from which you want to collect metadata by clicking anywhere on the row except its type.

   **Note:**
   If you click the source type, you display the version and customer support information for the metadata integrator.

3. Click the down arrow next to "Actions" in the top menu tool bar and select **Schedule**.
   The "Instance Title" pane of the "Schedule" page appears with the name of the configured source.

4. If you do not want the default value for **Instance Title**, change it to a unique name that describes this schedule.

5. Select the **Recurrence** node on the left to choose the frequency in the **Run object** drop-down list.
6. Choose the additional relevant values for the selected recurrence option. For details, see *Recurrence options* on page 162.

7. If you want to send notification when the integrator has run, select the **Notification** node on the left. For more information about **Notification**, see the *SAP BusinessObjects Enterprise Administrator's Guide*.

8. If you want to trigger the execution of a Metadata Integrator when an event occurs, select the **Events** node on the left. For more information about **Events**, see the *SAP BusinessObjects Enterprise Administrator's Guide*.
9. Select the **Parameters** node on the left to change the default values for run-time parameters for the metadata integrator. For details, see *Common run-time parameters for metadata integrators* on page 166.

10. Click **Schedule**.

11. If you use impact and lineage reports on the Reports tab of the Metadata Management Explorer, you must recompute the contents of the lineage staging table to incorporate changes from the Integrator runs. Similar to setting up a regular schedule to run an Integrator, you can set up a schedule to compute the lineage staging table at regular intervals. For more information, see *Computing and storing lineage information for reporting* on page 179.

**Recurrence options**

When you schedule an integrator source or an SAP BusinessObjects Metadata Management utility, you can choose the frequency to run it in the **Recurrence** option. The following table describes each recurrence option and shows the additional relevant values that you must select for each recurrence option.

<table>
<thead>
<tr>
<th>Recurrence Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Now</td>
<td>The utility will run when you click <strong>Schedule</strong>.</td>
</tr>
<tr>
<td>Once</td>
<td>The utility will run once only. Select the values for <strong>Start Date/Time</strong>.</td>
</tr>
<tr>
<td>Hourly</td>
<td>The utility will run every N hours and X minutes. Select the values for: • <strong>Hour(N)</strong> • <strong>Minute(X)</strong> • <strong>Start Date/Time</strong> • <strong>End Date/Time</strong></td>
</tr>
<tr>
<td>Daily</td>
<td>The utility will run once every N days. Select the value for <strong>Days(N)</strong>.</td>
</tr>
<tr>
<td>Weekly</td>
<td>The utility will run once every week on the selected days. Select the following values: • Days of the week • <strong>Start Date/Time</strong> • <strong>End Date/Time</strong></td>
</tr>
<tr>
<td>Recurrence Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Monthly                               | The utility will run once every N months. Select the following values:  
  • Month(N)  
  • Start Date/Time  
  • End Date/Time |
| Nth Day of Month                      | The utility will run on the Nth day of each month. Select the following values:  
  • Day(N)  
  • Start Date/Time  
  • End Date/Time |
| First Monday of Month                 | The utility will run on the first Monday of each month. Select the following values:  
  • Start Date/Time  
  • End Date/Time |
| Last Day of Month                     | The utility will run on the last day of each month. Select the following values:  
  • Start Date/Time  
  • End Date/Time |
| X Day of Nth Week of the Month        | The utility will run on the X day of the Nth week of each month. Select the following values:  
  • Week(N)  
  • Day(X)  
  • Start Date/Time  
  • End Date/Time |
| Calendar                              | The utility will run on the days you specified as "run" days on a calendar you have created in the "Calendars" management area of the CMC. |

Related Topics
- *Defining a schedule to run a Metadata Integrator* on page 159
- *Scheduling the lineage report utility* on page 182
Changing log level

For each Metadata Integrator run, SAP BusinessObjects Metadata Management writes information in the following logs:

- **Database Log** - Use the database log as an audit trail. This log is in the Metadata Management Repository. You can view this log while the Metadata Integrator is running.

  The default logging level for the database log is **Information** which writes informational messages, such as number of reports processed, as well as any warning and error messages. It is recommended that you keep the logging level for the database log at a high level so that it does not occupy a large amount of disk space.

- **File Log** - Use the file log to provide more information about a Metadata Integrator run. The Metadata Integrator creates this log in the Business Objects installation directory and copies it to the File Repository Server. You can download this log file after the Metadata Integrator run completed.

  The default logging level for the file log is **Configuration** which writes static configuration messages, as well as informational, warning, and error messages. You can change the logging level for the file log if you want more detailed information. If your logs are occupying a large amount of space, you can change the maximum number of instances or days to keep logs. For details, see *Changing limits* on page 156.

To change the logging level, you must have the **Schedule** right on the integrator source.

1. On the Metadata Management page in the CMC, select the **Integrator Sources** node in the tree on the left to display all configured integrator sources.

2. Select the integrator source for which you want to change the logging level by clicking anywhere on the row except its type.

   **Note:**
   If you click the integrator type, you display the version and customer support information for the integrator.

3. Click the down arrow next to **Actions** in the top menu tool bar and select **Schedule**.

4. Click the **Parameters** node in the tree on the left.
5. From the drop-down list, select the logging level that you want for **Database Log Level** or **File Log Level**. You can choose one of the following levels:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>Turn off logging any messages</td>
</tr>
<tr>
<td>Error</td>
<td>Log messages that indicate a serious failure</td>
</tr>
<tr>
<td>Warning</td>
<td>Log messages that indicate a potential problem</td>
</tr>
<tr>
<td>Information</td>
<td>Log informational messages</td>
</tr>
<tr>
<td>Configuration</td>
<td>Log static configuration messages</td>
</tr>
<tr>
<td>Integrator trace</td>
<td>Log integrator tracing information</td>
</tr>
<tr>
<td>SQL Trace</td>
<td>Log SQL tracing information</td>
</tr>
<tr>
<td>System Trace</td>
<td>Log highly detailed tracing information</td>
</tr>
<tr>
<td>All</td>
<td>Log all messages</td>
</tr>
</tbody>
</table>

Each logging level logs all messages at that level or higher. Therefore, the default logging level Information logs informational, warning, and error messages. If you change the logging level to Warning, Metadata
Management logs warning and error messages. Similarly, if you change the logging level to Integrator trace, Metadata Management logs trace, configuration, informational, warning, and error messages.

6. Click Schedule.

Future runs of the Metadata Integrator for this source system will use the logging level you specified.

Common run-time parameters for metadata integrators

When you schedule an integrator source, you can change the default values of the run-time parameters in the Parameters option. The following table describes the run-time parameters that are applicable to all metadata integrators. For information about run-time parameters that apply to only specific metadata integrators, see the topics in Related Topics below.

<table>
<thead>
<tr>
<th>Run-time parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Log Level</td>
<td>This log is in the SAP BusinessObjects Metadata Management Repository. You can view this log while the Metadata Integrator is running. The default logging level is Information. Usually you can keep the default logging level. However, if you need to provide more detailed information about your integrator run, you can change the level to log tracing information. For a description of log levels, see Changing log level on page 164.</td>
</tr>
<tr>
<td>File Log Level</td>
<td>The Metadata Integrator creates this log in the Business Objects installation directory and copies it to the File Repository Server. You can download this log file after the Metadata Integrator run completed. The default logging level for this log is Configuration. Usually you can keep the default logging level. However, if you need to debug your integrator run, you can change the level to log tracing information. For a description of log levels, see Changing log level on page 164.</td>
</tr>
</tbody>
</table>
### Run-time parameter | Description
---|---
**Update Option:**
- Delete existing objects before starting object collection
- Update existing objects and add newly selected objects

This option only appears for an SAP BusinessObjects Enterprise Metadata Integrator.

In prior versions, the **Full Extract** parameter default value was `true` to delete the current metadata in Metadata Management and collect all metadata from this source.

In version 12.1, the **Full Extract** parameter now provides two choices:
- **Delete existing objects before starting object collection**
  - This choice is the default and is consistent with the prior default behavior of **Full Extract**.
- **Update existing objects and add newly selected objects**

**Note:**
It is recommended that you specify **Delete existing objects before starting object collection** the first time you run the SAP BusinessObjects Enterprise Metadata Integrator, but specify **Update existing objects and add newly selected objects** for subsequent runs.

**JVM Arguments**

The Metadata Management Job Server creates a Java process to perform the metadata collection. Use the **JVM Arguments** parameter to configure run-time parameters for the Java process. For example, if the metadata source is very large, you might want to provide more memory than the default.

**Additional Integrator Arguments**

Optional run-time parameters for the metadata integrator source. For more information, see Run-time parameters for SAP BusinessObjects Enterprise metadata integrator on page 168.

---

**Related Topics**
- Run-time parameters for BusinessObjects Enterprise metadata integrator
Run-time parameters for SAP BusinessObjects Enterprise metadata integrator

User collection

The SAP BusinessObjects Enterprise metadata integrator provides run-time parameters to adjust memory usage when collecting user permissions. You specify these run-time parameters on the "Parameters" page when you schedule a BusinessObjects Enterprise integrator source. To access the "Parameters" page:

1. Choose **Start > Programs > SAP BusinessObjects XI 3.1 > BusinessObjects Enterprise > BusinessObjects Enterprise Central Management Console**.
2. From the drop-down list, choose **Metadata Management**.
3. Select your integrator source.
4. In the "Integrator Source Properties" window, choose **Schedule** and then **Parameters**.

<table>
<thead>
<tr>
<th>Run-time parameter</th>
<th>Description</th>
<th>Default value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ppc</td>
<td>Maximum number of concurrent processes to collect metadata. In a multiprocessor environment, you can increase this value. It is recommended that you set this value to the number of processors on your system. Set this parameter in <strong>Additional Integrator Arguments</strong> on the &quot;Parameters&quot; page.</td>
<td>2</td>
</tr>
<tr>
<td>Run-time parameter</td>
<td>Description</td>
<td>Default value</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
</tbody>
</table>
| pplimit            | Maximum number of requests that can be serviced by the collection process before automatically restarting the process to release memory. If you do not have a large number of users, you can increase this value.  
**Note:** An out-of-memory error occurs if you set this value too high for the number of users on your system.  
Set this parameter in Additional Integrator Arguments on the "Parameters" page. |
|                   |                                                                                                                                             | 25           |
| collectUserPermissions | Enable or disable user permissions collection  
Specify true to enable user permissions collection.  
**Note:** If you disable user permissions collection, Impact analysis for users will not be available.  
Set this parameter in Additional Integrator Arguments on the "Parameters" page. |
|                   |                                                                                                                                             | false        |
| -Xmx               | Maximum memory allocation for the collection process.  
If the amount of memory is available, you can set this value as high as -Xmx1500m, where "m" indicates megabytes.  
Set this parameter in JVM Arguments on the "Parameters" page. |
|                   |                                                                                                                                             | -Xmx1024m     |
The following example changes values for parameters `pplimit` and `ppc` in Additional Integrator Arguments. The default value `-Xmx1024m` appears in JVM Arguments.

Selective CMS object collection

Selective collection of CMS metadata through the SAP BusinessObjects Enterprise Metadata Integrator reduces processing time. To view a complete picture of the information in your BusinessObjects Enterprise system, run the integrator multiple times, specifying a different component for each run. Also, you might want to incrementally collect CMS metadata for a large SAP BusinessObjects Enterprise deployment by using selective collection.

To add metadata to the previous metadata collections, select the **Update existing objects and add newly selected objects** option. For example, if you have collected Web Intelligence documents on the first run, then you collect Crystal Reports on the second run, then you will see the Web Intelligence documents and Crystal Reports metadata together in the SAP BusinessObjects Metadata Management Explorer. The first time you schedule and run a metadata collection for a specific object type, all metadata for that object is collected. Subsequent runs will only collect changes since the last run.

To delete metadata from previous metadata collections, select the **Delete existing objects before starting object collection** option. For example, if you have collected Web Intelligence documents on a previous run, and then choose to collect Crystal Reports on the next run, you will see only Crystal Reports metadata in the Metadata Management Explorer.
You can collect metadata from Universe, Public, or Personal folders. Anyone using the SAP BusinessObjects Metadata Management Explorer can see the contents of these folders. However, you must have the proper permissions to be able to run collections on the objects in these folders. In your Personal folder, only you or an administrator can run a collection on those objects.

Note:
SAP BusinessObjects Enterprise Metadata Integrator does not collect metadata from Inboxes or Categories.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folder Name Expression</td>
<td>Specifies the names of the folders that you want in the collection using a Java Regular Expression. For example,</td>
</tr>
<tr>
<td></td>
<td>• an asterisk (*) means that all folders are collected.</td>
</tr>
<tr>
<td></td>
<td>• folderName collects metadata within a specific folder. It will also collect metadata in any associated subfolders.</td>
</tr>
<tr>
<td></td>
<td>• folderName* an asterisk at the end of a string value includes all folders with that string.</td>
</tr>
<tr>
<td></td>
<td>• folderName</td>
</tr>
<tr>
<td></td>
<td>• ^(?!folderName$) excludes the folder with this specific folder name.</td>
</tr>
<tr>
<td></td>
<td>• ^(?!folderName) excludes any folders that start with this specific folder name.</td>
</tr>
<tr>
<td></td>
<td>• (?!folderName) excludes any folders that has this specific folder name within the name.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Collect Universes</td>
<td>Collect the SAP BusinessObjects Enterprise universe metadata in the folders specified in the Folder Name Expression option.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you uncheck this option, and choose to collect any report that uses a universe, the integrator collects the universe metadata as well.</td>
</tr>
<tr>
<td>Collect Web Intelligence Documents and source Universes</td>
<td>Collects Web Intelligence documents and source universes from Public and/or Personal folders.</td>
</tr>
<tr>
<td>Collect Desktop Intelligence Documents and source Universes</td>
<td>Collects Desktop Intelligence documents and source universes from Public and/or Personal folders.</td>
</tr>
<tr>
<td>Collect Crystal Reports and associated Universes</td>
<td>Collects Crystal Reports and associated universes from Public and/or Personal folders.</td>
</tr>
</tbody>
</table>

**Related Topics**

- *View the collection results* on page 176

### Run-time parameters for SAP NetWeaver BW metadata integrator

The SAP NetWeaver Business Warehouse metadata integrator provides run-time parameters to adjust the number of threads to use when collecting metadata from the SAP system and to filter the queries or workbooks to collect.

To access the "Parameters" page for the integrator source:

1. Choose **Start > Programs > BusinessObjects XI 3.1 > BusinessObjects Enterprise > BusinessObjects Enterprise Central Management Console**.
2. From the drop-down list, choose **Metadata Management**.
3. Select your integrator source.
4. Click the down arrow next to "Actions" in the top menu tool bar and select Schedule.

The "Instance Title" pane of the "Schedule" page appears with the name of the configured source.

5. Select the Parameters node from the tree on the left.

6. You can change the following run-time parameters for the SAP NetWeaver BW metadata integrator.

<table>
<thead>
<tr>
<th>Run-time parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Threads</td>
<td>Specifies the number of threads to use when collecting metadata from the SAP system. You might want to increase the number of threads if your SAP NetWeaver BW system has a large number of objects and it has available work processes. The default value is 5. In a multiprocessor environment, you can increase this value. The number of threads is limited by the number of processors configured on the SAP NetWeaver BW server. If the number of threads is greater than the available processors, the thread is put on a queue and will be processed when a processor becomes available.</td>
</tr>
<tr>
<td>Run-time parameter</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Query Name Expression** | Specifies the names of the queries that you want in the collection using a Java Regular Expression. For example:  
• * an asterisk (*) means that all queries are collected.  
• queryName* an asterisk at the end of a string value includes all queries with that string.  
• queryName|queryName a pipe (also called vertical bar separator) between query names includes one or the other query. For example, Sales|Finance means either the Sales or the Finance query.  
• ^(?!queryName$) excludes the query with this specific query name.  
• ^(?!queryName) excludes any queries that start with this specific query name.  
• (!?queryName) excludes any queries that has this specific query name within the name. |
| **Workbook Name Expression** | Specifies the names of the workbooks that you want the Metadata Integrator to collect using a Java Regular Expression.  
Examples are similar to those for **Query Name Expression** |

**Related Topics**
- *Common run-time parameters for metadata integrators* on page 166
- *Running a Metadata Integrator immediately* on page 158
- *Defining a schedule to run a Metadata Integrator* on page 159
Viewing integrator run progress and history

When you select the Integrator Sources in the Tree panel on the left on the SAP BusinessObjects Metadata Management page in the CMC, all configured integrator sources display. Next to each source name is the date and time when the Integrator was last run for that source.

To view all runs for a metadata integrator source, you must have the right to View integrator sources:

1. From the list of all configured integrator sources, select the name of the source that you want to see the history of runs.
2. Click the down arrow next to "Actions" in the top menu tool bar and select History from the drop-down menu.

3. The "Integrator History" page displays the following information:
   - All "Schedule Names" for the integrator source.
   - Status of each schedule.
   - "Start Time", "End time", and "Duration" of each integrator run.
   - "Log File" for that integrator run.

4. Click the "View the database log" icon (fifth from the left) in the menu bar or click Actions > Database Log to view the progress messages of the integrator run.

By default, Metadata Management writes high-level messages (such as number of universe processed and number of reports processed) to the log. You can change the message level on the configuration page for the integrator source. For details, see Changing log level on page 164.
5. In the top menu bar of the "Integrator History" page, use either the **Actions** drop-down list or the icons to perform any of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run Now</td>
<td>Run this integrator immediately</td>
</tr>
<tr>
<td>Stop</td>
<td>Stop the execution of this integrator instance if it is currently running.</td>
</tr>
<tr>
<td>Pause</td>
<td>Pause the execution of this integrator instance if it has a status of Pending or Recurring.</td>
</tr>
<tr>
<td>Resume</td>
<td>Resume the execution of this integrator instance if it is currently paused.</td>
</tr>
<tr>
<td>Reschedule</td>
<td>Define a new schedule to execute this integrator.</td>
</tr>
<tr>
<td>Database log</td>
<td>View messages that indicate which metadata objects have been collected from the integrator source.</td>
</tr>
<tr>
<td>Refresh</td>
<td>Refresh the status of this integrator instance.</td>
</tr>
<tr>
<td>Delete</td>
<td>Delete this integrator instance from the history list.</td>
</tr>
</tbody>
</table>

**View the collection results**

After you have successfully run a Metadata Integrator, you can view the results in the SAP BusinessObjects Metadata Management Explorer.

1. Choose **Start > Programs > BusinessObjects XI 3.1 > BusinessObjects Metadata Management > Metadata Management Explorer**.
2. Log on to the appropriate system with your username and password, and then click **Log On**.
3. Under the Business Intelligence category, find the integrator source that you used for your object collections.
4. Click the collection object to display more information about it.

**Related Topics**
- *Selective CMS object collection* on page 170
- *Navigating metadata* on page 201
Grouping Metadata Integrator sources

SAP BusinessObjects Metadata Management provides the capability to group Metadata Sources into groups such as Development System, Test System, and Production System. After the groups are defined, you can view impact and lineage diagrams for a specific Source Group.

Related Topics
• Creating source groups on page 177
• Modifying source groups on page 178

Creating source groups

You must have the Add or Create right on the SAP BusinessObjects Metadata Management root folder to create a Metadata Integrator source group.

1. Log on to the Central Management Console (CMC) if you have not already done so. For details, see Accessing Metadata Management for administrative tasks on page 119.
2. Click the Metadata Management link on the CMC Home page.
3. Select Source Groups node in the tree on the left on the "Metadata Management" page.
4. Access the "Source Group" window in one of the following ways:
   • Click the second icon "Create a Source Group" in the menu bar on top.
   • In the menu bar on top, click Manage > New > Source Group.
5. Define the configuration on the Source Group page.
   a. Enter the Name and Description.
   b. Select integrator sources to add to this source group by clicking the check box to the left of each integrator source name.
   c. Click Save.

The new source group name appears on the right side of the "Metadata Management" page.
Modifying source groups

You must have the **Edit** right on the Metadata Integrator source group.

1. Access the SAP BusinessObjects Metadata Management area on the Central Management Console (CMC) if you have not already done so. For details, see *Accessing Metadata Management for administrative tasks* on page 119.
2. Select **Source Groups** node in the tree on the left on the "Metadata Management" page.
3. Select the source group that you want to modify.
4. In the menu bar on top, click **Actions > Properties**.
5. You can change any of the following properties of the source group:
   - **Name**
   - **Description**
   - Integrator sources that you want to remove or add to the source group.
6. Click on User Security to do any of the following tasks:
   - Add principals to this source group.
   - View security for a selected principal.
   - Assign security for a selected principal.
7. Click **Save**.

Deleting source groups

You must have the **Delete** right on the Metadata Integrator source group.

1. Access the SAP BusinessObjects Metadata Management area on the Central Management Console (CMC) if you have not already done so. For details, see *Accessing Metadata Management for administrative tasks* on page 119.
2. Select **Source Groups** node in the tree on the left on the "Metadata Management" page.
3. Select the source group that you want to delete.
4. In the menu bar on top, click **Manage > Delete**.
5. Click **OK** to confirm the deletion.
Managing Metadata Management utilities

SAP BusinessObjects Metadata Management provides the following utilities:

<table>
<thead>
<tr>
<th>Utility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Metadata Management provides a configured Lineage Report utility that you can run without creating a new configuration. You can create a schedule for this configuration or run it immediately.</td>
</tr>
<tr>
<td>Logs Cleanup</td>
<td>After instances of Lineage Report and Search Index utilities have been deleted, deletes the corresponding database logs from the Metadata Management repository.</td>
</tr>
<tr>
<td></td>
<td>Metadata Management provides a configured Logs Cleanup utility for you to run.</td>
</tr>
<tr>
<td>Search Index</td>
<td>Recreates Metadata Management search indexes.</td>
</tr>
<tr>
<td></td>
<td>Metadata Management provides a configured Search Index utility that you can run without creating a new configuration. You can create a schedule for this configuration or run it immediately.</td>
</tr>
</tbody>
</table>

**Related Topics**

- *Computing and storing lineage information for reporting* on page 179
- *Running the search index recreation utility* on page 188

**Computing and storing lineage information for reporting**

The SAP BusinessObjects Metadata Management Repository provides a lineage staging table, MMT_Alternate_Relationship, that consolidates end-to-end impact and lineage information across all sources. You can create reports from this table. To view the reports on the Reports tab of the Metadata
Management Explorer, they must be Crystal Reports (see *Defining custom reports* on page 208).

Before generating reports that rely on this lineage staging table, you should update the lineage information in the lineage staging table. You can either schedule or update the lineage staging table on demand to ensure those reports contain the latest lineage information.

The following activities can change the lineage information, and it is recommended that you run the lineage computation after any of these activities occur:

- Run an Integrator to collect metadata from a source system (see *Running a Metadata Integrator* on page 158).
- Change preferences for relationships between objects (see *Changing preferences for relationships* on page 264). The data in the lineage staging table uses the values in Impact and Lineage Preferences and Object Equivalency Rules to determine impact and lineage relationships across different integrator sources.
- Establish or modify a user-defined relationship of type Impact or Same As (see *Establishing user-defined relationships between objects* on page 260).

**Configuring a lineage report utility**

To configure a lineage report utility, you must be part of the Administrator group.

SAP BusinessObjects Metadata Management provides a default configuration for the Lineage Report utility that has Mode set to Optimized. You might want to configure another Lineage Report utility with Mode set to Full if you want to run this utility to recalculate all of the lineage information in the lineage staging table.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see *Accessing Metadata Management for administrative tasks* on page 119.
2. Select Applications from the navigation list at the top of the CMC Home page.
3. Select Metadata Management in the "Applications Name" list.
4. Click the down arrow next to "Action" in the top menu tool bar and select Manage Utilities.
5. On the "Utilities Configurations" page, click the down arrow next to "Manage" in the top menu tool bar and select **New Utility Configuration**...

6. Select **Lineage Report Utility** from the **Utility Type** drop-down list.

7. Type a **Name** and **Description** for the utility.

8. If you want to recalculate the entire impact and lineage information, change the default **Mode** in which you want to run the utility:
   - **Full** mode recalculates all impact and lineage information and repopulates the entire lineage staging table.
   - **Optimized** is the default mode. **Optimized** mode recalculates impact and lineage information for only the integrator sources that contain changes since the last time the computation was run. For example, if only one Integrator was run, the computation only recalculates impact and lineage information corresponding to that integrator source and updates the lineage staging table.

9. Click **Save**. The new name appears on the new Utility Configurations page.

**Related Topics**
- **Computing and storing lineage information for reporting** on page 179
- **Scheduling the lineage report utility** on page 182
- **Running the lineage report utility on demand** on page 184

**Modifying the configuration of a lineage report utility**

You can modify the **Description** and **Mode** in the configuration of a lineage report utility. To modify the configuration of a lineage report utility, you must be part of the Administrator group.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see **Accessing Metadata Management for administrative tasks** on page 119.

2. Select **Applications** from the navigation list at the top of the CMC Home page.

3. Select **Metadata Management** in the "Applications Name" list.
4. Click the down arrow next to "Action" in the top menu tool bar and select Manage Utilities.
5. On the "Utilities Configurations" page, click the down arrow next to "Action" in the top menu tool bar and select Properties.
6. Select Lineage Report Utility from the Utility Type drop-down list.
7. You can modify the following options:
   - Description
   - Mode
     For a description of these modes, refer to Configuring a lineage report utility on page 180.
8. Click Save.

**Related Topics**
- Computing and storing lineage information for reporting on page 179
- Scheduling the lineage report utility on page 182
- Running the lineage report utility on demand on page 184

**Scheduling the lineage report utility**

To compute the lineage information at regular intervals, define a schedule for it. To schedule the lineage report utility, you must be part of the Administrator group.

1. At the top of the CMC Home page, select Applications from the navigation list.
2. Select Metadata Management in the "Applications Name" list.
3. Click the down arrow next to "Action" in the top menu tool bar and select Manage Utilities.
   A list of utility configurations appear.
4. On the Utility Configurations page, select the name of the utility configuration that you want to schedule.
5. In the top menu tool bar, click the down arrow next to "Actions" and select Schedule.
6. If you do not want the default value lineage utility for Instance Title, change it to a value you want.
7. To define the frequency to execute this utility, expand Recurrence, select the frequency in the Run object drop-down list, and select the additional relevant values for the recurrence option. For a list of the recurrence
8. Optionally, set the **Number of retries** to a value other than the default 0 and change the **Retry interval in seconds** from the default value 1800.

9. If you want to be notified when this utility runs successfully or when it fails, expand **Notification**, and fill in the appropriate information. For more information about **Notification**, see the *BusinessObjects Enterprise Administrator's Guide*.

10. If you want to trigger the execution of this utility when an event occurs, expand **Events**, and fill in the appropriate information. For more information about **Events**, see the *BusinessObjects Enterprise Administrator's Guide*.

11. Click **Schedule**.
Running the lineage report utility on demand

To compute and repopulate the lineage staging table on demand, you must be part of the Administrator group.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see Accessing Metadata Management for administrative tasks on page 119.

2. Select Applications from the navigation list at the top of the CMC Home page.

3. Select Metadata Management in the "Applications Name" list.

4. Click the down arrow next to Action in the top menu tool bar and select Manage Utilities.
   The list of configured utilities displays with the date and time each was last run.

5. From the "Utility Configurations" list, select the name of the utility you want to run.

6. Determine the mode to run the lineage report computation.
   • If you want to compute and repopulate the entire lineage staging table, you can go to the next step because the default value for the Mode option is Full.
   • If you want to recalculate lineage for only the integrator sources that contain changed and new data, do the following:
     a. Double-click the name of the utility to open the "Lineage Report Utility Configuration" page.
     b. Select Optimized in the Mode option.

Note:
If you select Full Mode, the computation can take a long time to run because it recalculates impact and lineage information across all integrator sources.

7. In the top menu tool bar, click Action > Run Now.

Caution:
If an instance of the lineage report utility is still running, do not start another lineage report utility run. Starting another utility run might cause deadlocks or delays. The same behavior might occur if you stop the utility and start another instance right away because the process might still be running in the repository.
8. To view the status of the utility run, select the utility configuration name and click **Action > History**.
   a. To see the progress of the computation run, click the icon for **View the database log** in the top menu bar of the "Utility History" page.
   b. The "Schedule Status" column can contain the following values:
      - Failed
      - Running
      - Success
   c. The "Log File" column contains a **Download** link that you can click to view the log file after the lineage report utility completes.

<table>
<thead>
<tr>
<th>Name</th>
<th>Schedule Status</th>
<th>Start Time</th>
<th>End Time</th>
<th>Duration</th>
<th>Run By</th>
<th>Log File</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Success</td>
<td>Sun May 04 06:27:58 PDT 2008</td>
<td>Sun May 04 06:28:16 PDT 2008</td>
<td>17 Second Administrator</td>
<td>Download</td>
<td></td>
</tr>
</tbody>
</table>

9. To close the "Utility History" page, click the X in the upper right corner.

10. On the "Utility Configurations" page, click the **Refresh** icon to update the "Last Run" column for the utility configuration.

**Recreating search indexes**

The search feature of SAP BusinessObjects Metadata Management Explorer allows you to search for an object that might exist in any metadata integrator source. When you run a metadata integrator source, Metadata Management updates the search index with any changed metadata.

You might need to recreate the search indexes in situations such as the following:

- If the Search Server was disabled and could not create the index while running a metadata integrator source.
- The search index is corrupted.

**Related Topics**

- *Configuring a search index utility* on page 186
- *Running the search index recreation utility* on page 188
Configuring a search index utility

To configure a search index recreation utility, you must be part of the Administrator group.

SAP BusinessObjects Metadata Management provides a default search index utility configuration for all integrator sources. You might want to create another configuration if you want to recreate the search index for only one integrator source.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see Accessing Metadata Management for administrative tasks on page 119.

2. Select Applications from the navigation list at the top of the CMC Home page.

3. Select Metadata Management in the "Applications Name" list.

4. Click the down arrow next to "Action" in the top menu tool bar and select Manage Utilities.

5. On the "Utilities Configurations" page, click the down arrow next to "Manage" in the top menu tool bar and select New Utility Configuration...

6. Select Search Index Utility from the Utility Type drop-down list.

7. Type a Name and Description for the utility.

8. Choose the Integrator Source Name for which you want to run the utility:
   - All Integrator Sources recreates the search index for all integrator sources that you have configured.
   - The specific name of an Integrator Source.
9. Click **Save**.

The new utility name appears on the new Utility Configurations page.

**Related Topics**

- *Recreating search indexes* on page 185
- *Running the search index recreation utility* on page 188

**Modifying the configuration of a search index utility**

You can modify the **Description** and **Integrator Source Name** in the configuration of a search index utility. To modify the configuration of a search index utility, you must be part of the Administrator group.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see *Accessing Metadata Management for administrative tasks* on page 119.

2. Select **Applications** from the navigation list at the top of the CMC Home page.
3. Select **Metadata Management** in the "Applications Name" list.
4. Click the down arrow next to "Action" in the top menu tool bar and select **Manage Utilities**.
5. On the "Utilities Configurations" page, click the down arrow next to "Action" in the top menu tool bar and select **Properties**.
6. Select **Search Index Utility** from the **Utility Type** drop-down list.
7. You can modify the following options:
   - **Description**
   - **Integrator Source Name**
     - **All Integrator Sources** recreates the search index for all integrator sources that you have configured.
     - The specific name of an **Integrator Source**.
8. Click **Save**.

**Related Topics**
- **Recreating search indexes** on page 185
- **Running the search index recreation utility** on page 188

**Running the search index recreation utility**

To recreate search indexes for the Metadata Explorer, you must have **Full Control** access level on the SAP BusinessObjects Metadata Management folder.

1. Login to the Central Management Console (CMC) if you have not already done so. For details, see **Accessing Metadata Management for administrative tasks** on page 119.
2. Select **Applications** from the navigation list at the top of the CMC Home page.
3. Select **Metadata Management** in the "Applications Name" list.
4. Click the down arrow next to "Action" in the top menu tool bar and select **Manage Utilities**.
   A list of utility configurations appear.
5. Select the recreate index utility that you want to run.
6. In the top menu tool bar, click **Action > Run Now**.
7. To view the status of the utility run, select the utility configuration name and click **Action > History**.
a. To see the progress of the computation run, click the icon for **View the database log** in the top menu bar of the "Utility History" page.

b. The "Schedule Status" column can contain the following values:
   - Failed
   - Running
   - Success

c. The "Log File" column contains a **Download** link that you can click to view the log file after the lineage report utility completes.

8. To close the "Utility History" page, click the **X** in the upper right corner.

9. On the "Utility Configurations" page, click the **Refresh** icon to update the "Last Run" column for the utility configuration.

**Viewing and editing repository information**

To view SAP BusinessObjects Metadata Management repository connection information, such as database type and server name, you must have Full Control access level on the Metadata Management folder.

To edit the database user and password for the repository, you must be part of the Administrator group.

If the database type of the repository is an Oracle RAC database, you can change the connection string if you are part of the Administrator group.

1. Access and login to the Central Management Console (CMC) if you have not already done so.

2. Select **Applications** from the navigation list at the top of the CMC Home page.

3. In the "Applications Name" list, select **Metadata Management**.

4. Click the down arrow next to **Action** in the top menu tool bar and select **Configure Repository**.
   
   The connection information for the Metadata Management repository was defined at installation time.

   a. For most of the database types, you can only view the connection information here.

   b. If the database type is Oracle RAC, you can modify the connection string here if you want to add another server or tune parameters for failover.
5. You can change the user name and password for the Metadata Management repository.

   **Caution:**
   You must have the appropriate credentials to access the Metadata Management database. After you change the user name and password, you must restart the Web Application Server and CMS.

**Related Topics**
- *Accessing Metadata Management for administrative tasks* on page 119

### Exporting objects to XML

SAP BusinessObjects Metadata Management provides an XML export utility, MMObjectExporter.bat, which allows you to export repository objects to an XML file. The utility is installed on the machine on which you installed this product. You specify its output by using required and optional command line arguments.

**To export objects to XML**

1. From a command prompt, navigate to the SAP Business Objects installation directory’s subdirectory location `MetadataManagement/MM/bin`.  
2. Invoke the XML export utility by typing and running the command `MMObjectExporter` with the appropriate arguments from the following table.
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>configuration</td>
<td>(Required) Represents the id number of the integrator source configuration to be exported. You can find the configuration id number at the end of the URL displayed in the status bar of the SAP BusinessObjects Metadata Management Explorer when you move the pointer over the integrator source name. Include only the configuration id number for this argument. Do not include the word configuration.</td>
</tr>
<tr>
<td>filename</td>
<td>(Required) Represents the name of the XML file you want Metadata Management to create, including the full path. If this argument contains blank spaces, you must enclose the argument in quotation marks. Include only the full path and file name for this argument. Do not include the word filename.</td>
</tr>
<tr>
<td>boeServer</td>
<td>(Optional) Represents the name of the computer that contains the CMS server. The default value is localhost. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>boeAuthentication</td>
<td>(Optional) Represents the logon authentication method. The default value is secEnterprise. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>boeUser</td>
<td>(Optional) Represents the CMS user name to connect to the CMS server. The default value is Administrator. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>boePassword</td>
<td>(Optional) Represents the password to connect to the CMS server. The default is no password (the empty string &quot;&quot;). Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>mainObject</td>
<td>(Optional) Represents the object type to be exported. The default value is hierarchy. Include both the argument name and the value, separated by a space. If you do not specify this argument, then the utility finds the top level object types from the integrator's <code>&lt;object-hierarchy&gt;</code> element. By default, all other objects related to the object or objects specified by this argument are also included in the XML output. However, this argument has an optional name list to limit the object selection to a specific set of objects. The object type is limited to those shown in the object type XML specification's <code>&lt;object-type&gt;</code> element type attribute in the file <code>MetadataManagement\MM\xml\ObjectTypes.xml</code>, and must be spelled and cased the same. The type attribute is also used to specify the logical name of the table containing objects of that type. If there are no objects found in the repository that meet the mainObject requirements, then the utility exits with an error message. If some but not all of the objects are found, the utility generates the XML file but writes a warning message about the objects that were not found to the log.</td>
</tr>
<tr>
<td>includeNulls</td>
<td>(Optional) Represents a boolean value to indicate whether to include properties with null values. The default value is TRUE. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>includeParents</td>
<td>(Optional) Represents a boolean value to indicate whether to include parents of objects. The default value is TRUE. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>includeChildren</td>
<td>(Optional) Represents a boolean value to indicate whether to include children of objects. The default value is TRUE. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>includeRelationships</td>
<td>(Optional) Represents a boolean value to indicate whether to include object relationships. The default value is TRUE. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>validate</td>
<td>(Optional) Represents a boolean value to indicate whether to validate the exported XML file. The default value is TRUE. Include both the argument name and the value, separated by a space.</td>
</tr>
<tr>
<td>xsdUrl</td>
<td>(Optional) Represents location of the file ObjectExportSchema.xsd. The location of the file is added to the exported XML file as the attribute schemaLocation. Other programs can validate and interpret the exported XML file by reading the value of that attribute. By default, the value of this argument is MetadataManagement/MM/xml/ObjectExportSchema.xml. Use this argument to override the default name or the default location in order to specify a network-accessible location for the XSD file.</td>
</tr>
</tbody>
</table>

After the utility runs, Metadata Management creates an XML file according to the specified arguments.

**Example:**

In this example, at a command prompt positioned in the installation directory's subdirectory location MetadataManagement\MM\bin, the user enters the following command and arguments:

```shell
mmobjectexporter 82 "c:\temp\first exported.xml"
boeUser Jane boePassword My1Password
mainObject Universe
```

The entries represent the following:
<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mmobjectexporter</td>
<td>Invokes the utility.</td>
</tr>
<tr>
<td>82</td>
<td>Uses the configuration argument and represents in this example the ID number of the configuration for export to XML.</td>
</tr>
<tr>
<td>&quot;c:\temp\first exported.xml&quot;</td>
<td>Uses the filename argument and represents the path and name of the created XML file. Here the argument is in quotation marks because the file name contains a space.</td>
</tr>
<tr>
<td>boeUser Jane</td>
<td>Uses the boeUser argument to specify the name of the CMS user.</td>
</tr>
<tr>
<td>boePassword My1Password</td>
<td>Uses the boePassword argument to specify the password for the CMS user.</td>
</tr>
<tr>
<td>mainObject Universe</td>
<td>Uses the mainObject argument to select all Universes in the configuration. Alternatively, the argument could be more specific. For example, using the syntax mainObject &quot;Universe=MyUniverse&quot; selects only the Universe named MyUniverse. Using the syntax mainObject &quot;Universe=MyUniverse,YourUniverse&quot; selects the two Universes named MyUniverse and YourUniverse. The parents and children of these objects would also be included, because the arguments for includeParents and includeChildren are not invoked, and so they default to TRUE.</td>
</tr>
</tbody>
</table>
SAP BusinessObjects Metadata Management Explorer
Metadata Management Explorer

SAP BusinessObjects Metadata Management Explorer is a web application that organizes metadata from different source systems (such as Business Intelligence and Data Integration systems) into a directory structure through which you can easily navigate and analyze the metadata.

This section describes the following tasks that you can perform on Metadata Management Explorer:

- **Accessing Metadata Management Explorer** on page 197
- **Viewing objects in the Metadata Management Explorer** on page 199
- **Searching for objects** on page 202
- **Viewing custom reports** on page 207
- **Defining custom reports** on page 208
- **Viewing relationships between objects** on page 212 (such as Same As, Lineage, and Impact) within a source and between different sources.
- **Metadata Management Metapedia** on page 231
- **Adding annotations for user notes** on page 221
- **Exporting relational objects** on page 245 to a Common Warehouse Modeling (CWM) XML file.
- **Establishing user-defined relationships between objects** on page 260 between objects in the same or different sources.
- **Changing preferences for relationships** on page 264 for impact and lineage and object equivalency.

Metadata Management Administrator configures the source systems and executes programs that extract metadata from the source systems and load it into the Metadata Management Repository. For more information, see **Metadata Management administration overview** on page 118.
Accessing Metadata Management Explorer

To access the SAP BusinessObjects Metadata Management Explorer to explore metadata objects or to view relationships of objects across metadata integrator sources, you must have at least **View** access level on the Metadata Management application.

To perform tasks other than viewing on the Metadata Management Explorer (such as defining a Metapedia term or custom attribute), you must have the appropriate access level. For more information, see *Access levels for Metadata Management tasks* on page 124.

1. Access the Metadata Management Explorer in one of the following ways:
   - Type the name of the computer you are accessing directly into your browser.
     
     http://webserver:8080/bomm/

     Replace `webserver` with the name of the web server machine. If you changed this default virtual directory on the web server, you must type your URL accordingly. If necessary, change the default port number to the number you provided when you installed BusinessObjects Enterprise.
   - In InfoView, click **Open** in the top menu bar and select **Metadata Management Explorer**.

2. On the "Log On to BusinessObjects Metadata Management - Explorer" window, enter a valid user name and password for a user name that has at least **View** access level on the Metadata Management application.

3. If you are viewing the "Document List" window in InfoView, you can select a document from the list and display the Metadata Management lineage diagram for it by taking one of the following actions:
   - Right-click and choose **View Lineage**.
   - Click **Action** in the menu bar and select **View Lineage**.

**Note:**
By default, Metadata Management Explorer sessions time out after 20 minutes of non-use. When the session expires, you must log in again.
## Metadata Management Explorer user interface

Use the following tools to manage the metadata.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Add Annotation: add user notes for objects. See Adding annotations on page 221.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Add Object to Tray: export objects or define relationships between objects. See Selecting objects to export on page 248 and Establishing user-defined relationships between objects on page 260.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Added to Object Tray: indicates that the object is currently in the Object Tray. See Selecting objects to export on page 248 and Establishing user-defined relationships between objects on page 260 for more information.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Relationship attribute: shows relationship type or source to target mapping that exists between two objects. See Graphical view on page 216.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Edit Annotation: edit or delete user notes for objects. See Editing annotations on page 222.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Lookup Object: shows available databases, catalogs, and schemas. See Setting object equivalency rules for Same As relationships on page 267 for more information.</td>
</tr>
</tbody>
</table>
Viewing objects in the Metadata Management Explorer

The SAP BusinessObjects Metadata Management Explorer displays the following top-level categories that represent the different types of integrator sources that can populate the Metadata Management Repository:

- **Business Intelligence** - Source systems include SAP BusinessObjects Enterprise.
- **Data Modeling** - Source systems include CWM (Common Warehouse Modeling).
- **Data Integration** - Source systems include SAP BusinessObjects Data Federator, BusinessObjects Data Integrator, and SAP BusinessObjects Data Services.
- **Relational Databases** - Source systems include DB2, MySQL, Oracle, SQL Server, Java Database Connectivity (JDBC), or an SAP BusinessObjects Universe connection.

A category displays if a source has been configured for the Metadata Integrator belonging to that category. Metadata integrators are programs that extract metadata from the source systems and load it into the Metadata Management Repository. *Metadata Management administration overview* on page 118 describes how to configure a source for each Metadata Integrator.

Directory home page

The Directory home page of the SAP BusinessObjects Metadata Management Explorer shows each configured integrator source, grouped under the category in which it belongs.
This sample Directory page shows:

- The top-level categories
- Under each category are the names of sources that the Metadata Management Administrator configured for each Metadata Integrator.
  - Business Intelligence
    This example shows source name MySales that was configured for the SAP BusinessObjects Enterprise (BOE) Metadata Integrator.
  - Data Integration
    This example shows source names My DF Source and DIREPO that were configured for the Data Integration Metadata Integrator.
  - Relational Databases
    This example shows source names Forenza DW and Forenza Source that were configured for the Relational Databases Metadata Integrator.
  - Data Modeling
    This example shows the CWM Sales source name that was configured for the Common Warehouse Modeling (CWM) Metadata Integrator.
- Under each source name are the first three metadata object types that it contains, and the number in parenthesis indicate the number of instances for that type.
  - The sample shows object types Universes, Reports, and CMS Folders under source MySales.
  - The sample shows object types Projects, Jobs, and Work Flows under source DIREPO.
• The sample shows object types **Server Instances**, **Databases**, and **Schemas** under sources **Forenza DW** and **Forenza Source**.
• The sample shows object types **Databases**, **Schemas**, and **Tables** under source **CWM Sales**.

Click **More** to display all object types in the source. The source page also opens when you click the source name. For a description of the objects types that can exist within sources for each Metadata Integrator, see the following sections:

- **SAP BusinessObjects Enterprise metadata objects** on page 273
- **Exploring CWM objects** on page 338
- **BusinessObjects Data Services objects** on page 348
- **Relational Database objects** on page 395

### Navigating metadata

From the Directory home page of the SAP BusinessObjects Metadata Management Explorer, you can navigate to the metadata object types in each configured integrator source.

Click an object type name under a source to display more information about it. If an object type contains other object types, click each object type name to display its information.

For example, to navigate to the universe object **Total Order Value**:

- Under the Business Intelligence category on the Directory home page, click **Universes(9)** under the **My Sales** source name.
- On the "Universe Clases" list, click **Universe Objects(8)** under **Fact Sales Order**.
- On the "Universe Objects" list, click the measure **Total Order Value** to open the metadata object page onto the Overview tab as follows.
Each metadata object page shows the navigation path at the top. You can click any link in the navigation path to return to that level. This page for the universe object "Total Order Value" shows the following navigation path.

**Directory > Business Intelligence (My Sales) > Universes (MySales) > Universe Classes (Fact Sales Order) > Universes Objects (Total Order Value)**

**Related Topics**
- *Navigating SAP BusinessObjects Enterprise metadata* on page 278

### Searching for objects

The search feature of SAP BusinessObjects Metadata Management Explorer allows you to search for an object that might exist in any source.

You can do a basic search for an object by typing some or all of the following attributes and clicking **Search**:

- Name
- Description
- Annotation
- Custom attributes
- Business terms
- Categories

To search on a variety of conditions including object type, fields, or values, use the advanced search feature.
Search scope

The scope of the search depends on where you are in the SAP BusinessObjects Metadata Management Explorer:

• When you enter the search string on the home page of the Metadata Management Explorer, you search the entire Metadata Management Repository.

• When you navigate into the objects of an Integrator source, you have the option to search only objects within the current integrator source.

Search string parameters

The search string that you enter into the Search text box can consist of:

• One word

• Multiple words

  If you do not enclose the search string in double quotes, SAP BusinessObjects Metadata Management searches for an object type, technical name, business name, description, or annotation that contains at least one of the words.

  The results with all words are more relevant and appear at the beginning of the result list.

• A phrase—Enclose the search string in double quotes to search for the phrase in the same exact order of words.

  The search string can contain single- and multiple-character wild card searches. The wild card character can appear anywhere in the search string.
The search string can contain single- and multiple-character wild card searches. The wild card character can appear anywhere in the search string.

- For a single-character wild card search, use the "?" symbol. For example, to search for "test" or "text", you can use the search string:

  \text{te?t}

- For a multiple-character wild card search, use the "*" symbol. For example, to search for "custom" or "customer", you can use the search string:

  \text{cust*}

- Combination of word and phrase. For example

  "name of" cust*

**Advanced search**

The advanced search function allows you to add multiple conditions to narrow your search. You can define each condition by object type, attribute, match a word, or by a value.

To access the advanced search feature, on the right side of the Search box, click Advanced. The list of available object types depends on the search scope (repositories) selected.

Define the first condition by selecting from any or all of the following drop-down lists:

- Select an object **Type** by which to narrow your search; for example, only Tables.
- Select an **Attribute** by which to narrow your search; for example, only an Name.
  - ANY Field—Searches all fields
  - Name—Searches only Name fields
  - Description—Searches only the Description field for the object
  - Annotation—Searches the Annotation field
  - Custom attributes—Searches on the selected custom attribute
• Business terms—Searches on Metapedia terms
• Categories—Searches on Metapedia categories

Select how to restrict the search on the Value field by selecting one of these options for Match:
• ANY Word—Returns objects that include any of the words in the Value field
• All Words—Returns only objects that include all of the words in the Value field
• Fuzzy match—Returns objects that resemble any of the words in the Value field
• Metapedia keyword—Returns objects that include the Metapedia keyword in the Value field
• Metapedia synonym—Returns objects that resemble the Metapedia synonym in the Value field

• Value—Type a value using the same guidelines described in Search string parameters on page 203.

To add more conditions to further restrict your search, click Add condition and enter the desired values. You can restrict the search for the same object type to meet all of the displayed conditions by selecting Match ALL. To widen the search to include one or more of the conditions, select Match ANY.

Click Search.

Click Clear to return the fields to their default values.

Example:

The following example shows the conditions to search for reports that are Top Secret, with names that contain "Sales" and have a Usage Rating of 4.
Search results

Suppose you search for objects that match the search string cust*.

The left side of the search results page lists the object type categories and the total number of objects found within each category that match the search string. The following example shows these categories: Columns, Custom Functions, Data Flows, Procedures, Reports, Tables, Universe Classes, Universe Objects, and Views.

Each category name is a link to a page that displays the objects found within that category. For example, clicking Tables displays the list of table names containing the search string cust*. 

Search results

<table>
<thead>
<tr>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers (23)</td>
</tr>
<tr>
<td>Custom Functions (3)</td>
</tr>
<tr>
<td>Data Flows (1)</td>
</tr>
<tr>
<td>Procedures (1)</td>
</tr>
<tr>
<td>Report (2)</td>
</tr>
<tr>
<td>Tables (4)</td>
</tr>
<tr>
<td>Universe Classes (1)</td>
</tr>
<tr>
<td>Universe Objects (2)</td>
</tr>
<tr>
<td>Views (1)</td>
</tr>
<tr>
<td>All Results (44)</td>
</tr>
</tbody>
</table>

Results 1-4 of about 4 for Advanced Search.

- **CUSTOMERS**
  - Data Integration (DIRECS) \ Server Instances (s-j-vs-nasigma) \ Databases (ForenzaSource) \ Schemas (DSO) \ Tables (CUSTOMERS)

- **CustomerCustomerDemo**
  - Relational Databases (ForenzaSource) \ Server Instances (ForenzaSource) \ Databases (ForenzaSource) \ Schemas (dbo) \ Tables (CustomerCustomerDemo)

- **Customers**
  - Relational Databases (ForenzaSource) \ Server Instances (ForenzaSource) \ Databases (ForenzaSource) \ Schemas (dbo) \ Tables (Customers)

- **CustomerDemographics**
  - Relational Databases (ForenzaSource) \ Server Instances (ForenzaSource) \ Databases (ForenzaSource) \ Schemas (dbo) \ Tables (CustomerDemographics)
The right side of the search results page is an alphabetic list of object names that match the search string.

The results for each object include:

- Name of the object.
  
  Click the object name to go to the SAP BusinessObjects Metadata Explorer page where you can view information such as the object's impact and lineage details.

  Click Back on the Web browser to return to the search results.

- Short description, if any
- Full path of the object
- Option to add the object to the Object Tray. You use the Object Tray to establish relationships between objects. For details, see Establishing user-defined relationships between objects on page 260.

If the search results exceed 10 objects, use the links at the bottom of the page to display the other results pages.

**Note:**

Changes such as defining custom attributes or setting custom attribute values, adding Metapedia terms, or adding annotations will affect your search results. The Metadata Management Explorer automatically refreshes your search results after a default maximum time of 60 seconds. You can change this default value in the **Delay time before changes in Explorer affects the search results (seconds)** option on the "Preferences" page.

Metadata integrator runs affect the search results as soon as the integrator processes finish.

---

**Viewing custom reports**

SAP BusinessObjects Metadata Management Explorer provides custom reports from the Reports tab on the Metadata Management Explorer. These custom reports help you perform the following analyses and answer typical business questions such as the following:

- Usage analysis - Where are objects used and what are their attributes
  - Which reports use a specific universe?
  - Which universe objects are not used in my reports?
• Which reports are using my tables?
• Which data flows use this table?
• Lineage analysis - Trace objects from target to sources
  • What is the lineage of selected reports?
  • What is the lineage of selected tables?
  • What is the lineage of selected views within a database source?
• Impact analysis - What targets are affected if I change a specific source
  • What is the change impact of the selected tables in a source?
  • What is the change impact of the selected columns in a source?

See the Report tab on the Metadata Management Explorer for a complete list of reports available.

Defining custom reports

You can define your own Crystal Reports on the SAP BusinessObjects Metadata Management tables and view them on the Metadata Management Explorer.

Metadata Management supports the following features in a Crystal Report:
• Tables
• SQL Command objects
• Subreports
• Parameter Prompts

This section includes the following topics:
• Metadata Management Views to query for your Crystal Reports on page 208
• Typical usage scenarios on page 210
• Enabling your reports in Metadata Management Explorer on page 211

Metadata Management Views to query for your Crystal Reports

You can query the following views in the SAP BusinessObjects Metadata Management Repository for your own Crystal Reports.
<table>
<thead>
<tr>
<th>View in Metadata Management Repository</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMRV_Relational_Model</td>
<td>Consolidates various elements of relational databases so that you can obtain all required information about a relational object from a single view.</td>
</tr>
</tbody>
</table>
| MMRV_Universe_Model                   | Consolidates all classes and objects of an SAP Business Objects Universe.  
**Note:**  
This view does not maintain the hierarchical structure of Classes and objects (nested classes and nested objects). |
| MMRV_Flat_File_Model                  | Consolidates all information about flat files, file records and file elements. |
| MMRV_Relationship                    | Consolidates information about the different object types to help you understand object relationships more easily. |
| MMRV_ST_Relationship                  | Consolidates information about source and target relationships. |
| MMRV_Universe_Derived_Table          | Consolidates information about derived tables within a universe and their relationships with other objects. |
| MMRV_Universe_Derived_Column         | Consolidates information about derived columns within a universe and their relationships with other objects. |
| MMRV_Report_Universe                  | Consolidates information about relationships between a universe and reports. |
| MMRV_Report_Columns                   | Consolidates information about relationships between reports and a relational column. |
### Typical usage scenarios

You may want to customize your own Crystal Reports on the SAP BusinessObjects Metadata Management Repository views and tables for typical usage scenarios such as the following:

- **Find the table names and schema names of a given column.**
  
  Use the MMRV_Relational_Model view to query the table names and schema names.

- **Find all the tables and columns with a specific column data type, or find all tables and columns used in a given report.**
  
  Join the MMRV_Relational_Model view and MMD_Relational_Column table to obtain the tables and columns with the specified data type.

- **Find all the databases and schemas used in a given report.**
  
  Use the MMRV_Relational_Model view to query the database and schema names for a given report.

- **Write custom impact and lineage reports.**
  
  Use the MMD_Alternate_Relationship view to query the impact and lineage across sources.
Enabling your reports in Metadata Management Explorer

After you have defined your own Crystal Reports that query the SAP BusinessObjects Metadata Management tables, you enable these reports to display in Metadata Management Explorer.

To enable your reports to appear on the Reports tab:

1. Place your report files in the following directory:

   `%CATALINA_HOME%\webapps\bomm\WEB-INF\reports`

2. In the same directory, create a `reportname.rpt` properties file with the following information that will appear on the Reports tab for each report.

<table>
<thead>
<tr>
<th>Property name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the report. Can contain HTML tags.</td>
</tr>
<tr>
<td>description</td>
<td>(Optional) Description of the report. Can be blank and can contain HTML tags.</td>
</tr>
<tr>
<td>question</td>
<td>(Optional) Question that this report answers. Can be blank and can contain HTML tags.</td>
</tr>
<tr>
<td>categories</td>
<td>(Optional) List of categories (separated by semicolons) for the report. A report can be part of multiple categories.</td>
</tr>
<tr>
<td>source-type</td>
<td>(Optional) Source database for this report. This field specifies whether the source is the Metadata Management Repository or an Integrator source database. The default value is MM_TYPE. Either leave the default value MM_TYPE or specify the technical name for the Integrator.</td>
</tr>
</tbody>
</table>
### Viewing relationships between objects

When you analyze metadata, you often analyze relationships between objects. Each Metadata Integrator obtains the following relationships from a source system and you can view them on the SAP BusinessObjects Metadata Management Explorer.

<table>
<thead>
<tr>
<th>Property name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>connection-handler</td>
<td>(Optional) Class name of the connection handler if your report connects to a data source that is not handled by the default connection handler. The default connection handler supports DB2, MySQL, Oracle, SQL Server, and Sybase data sources. For more information, see the SAP Metadata Management Developer's Guide.</td>
</tr>
<tr>
<td>subreports</td>
<td>(Optional) List of subreports (separated by semicolons) contained in this report.</td>
</tr>
</tbody>
</table>

For example, the properties file might contain the following lines:

```
name=Utilization count by universe
description=For each universe, count the number of reports.
subreports=Utilization count by universe totals
question=How many reports use a universe or a particular object in my universe? Which objects are frequently used or not used at all?
categories=Usage Reports;
```
### Relationship Table

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description</th>
<th>Who defines</th>
<th>Where displayed</th>
</tr>
</thead>
</table>
| **Alias or Synonym** | An alias is another name for an object in a different system. For example, an alias name in one database might refer to a relational table in a different database.  
A synonym is another name for an object in the same system. For example, a synonym for a relational table exists in the same database as the table. | Metadata Integrator     | On Same As tab of the object's Explorer page                                    |
| **Association**    | The meaning of this relationship is specific to the source application.  
For example in the Business Intelligence category, a report can contain multiple universe objects. An association relationship exists between the report and each universe object.  
In the Data Integration category, a job can contain multiple data flows. An association relationship exists between the job and each data flow. | Metadata Integrator     | In the directory structure of the Metadata Management Explorer                  |
<p>| <strong>Related To</strong>     | You define this relationship. For an example, see <em>Establishing user-defined relationships between objects</em> on page 260.                                                                                          | You define.             | On corresponding relationship analysis tab of the object's Explorer page       |</p>
<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description</th>
<th>Who defines</th>
<th>Where displayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same As</td>
<td>The object is the same as another object. This relationship can exist only between objects of the same type. For example, a Same As relationship can exist between each object in a test system and its corresponding object in a production system.</td>
<td>Metadata Integrator&lt;br&gt; You can also define.</td>
<td>On Same As tab in a tabular format&lt;br&gt; On Impact and Lineage tabs with a dashed line between the two objects (each within a different source system) that are the same</td>
</tr>
<tr>
<td>Parent-Child</td>
<td>In a hierarchy, the parent is a level above the child. In a parent-child relationship, a parent can have several children, but a child can have only one parent. For example, a table can have multiple columns, but a column can belong to only one table. In the Business Intelligence category, a universe can have multiple classes, but a class can belong to only one universe.</td>
<td>Metadata Integrator</td>
<td>In the directory structure of the Metadata Management Explorer</td>
</tr>
<tr>
<td>Primary Key - Foreign Key</td>
<td>The primary key is a unique value that identifies an object. A foreign key identifies another object from an object. Foreign keys in other tables must have a matching primary key value.</td>
<td>Metadata Integrator&lt;br&gt; You can also define.</td>
<td>On the Related To tab of the object's Explorer page</td>
</tr>
</tbody>
</table>
Viewing impact and lineage of objects

To view the impact and lineage of objects within a source, you navigate or search through the SAP BusinessObjects Metadata Management Explorer to the object (such as a report, table, or column) and click the Impact or Lineage tab.

The Impact and Lineage tab displays in a graphical view or in a tabular view. For either view, you can select the Show intermediate objects option in Edit Settings to display only the first source and final target objects.

See the following sections for details about the object relationships within each Metadata Integrator source:

- Viewing relationships for universe objects and reports on page 289.
- Viewing relationships of CWM objects on page 340.
- Viewing relationships in a database source on page 401.
- Viewing Data Services object relationships on page 358.

Options to view relationships

When viewing Same As, Related To, Impact, and Lineage relationships, you can toggle between graphical and tabular views, edit the display settings, and maximize the display to better use viewing space.

This section describes these configurable options.

Graphical and tabular views of relationships

Within Same As, Related To, Impact, and Lineage relationship views, the "View" pull-down menu allows you to toggle between graphical and tabular views. You can also switch between these views when you edit the settings to view relationships.

Related Topics

- Understanding settings to view relationships on page 219
Graphical view

By default, the Related To, Impact, and Lineage tabs of the SAP BusinessObjects Metadata Explorer show a graphical view for target and source objects.

Each object displays as a graphic on which you can do the following actions:

- Move the pointer over to display information such as:
  - Universe name and universe class for a universe object
  - Schema name and database name for a table
  - Table name and schema name for a column
- Click an item to display its Metadata Explorer page.

Between two objects there is a relationship attribute icon, over which you can move the pointer to display information such as:

- Selection or aggregation between universe objects and a report in an SAP BusinessObjects Enterprise source
- Transformation name and mapping between source and target columns in a Data Integrator source

For example, the following graphical view shows the Lineage for universe object Total Order Value.

The relationship attribute displays the mapping expression that the DIREPO source system uses to transform the Quantity column.
Tabular view

The tabular view shows a row for each target object and source object with the following information:

<table>
<thead>
<tr>
<th>Column name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
<td>The target object receives the data that has the following characteristics:</td>
</tr>
<tr>
<td></td>
<td>• Was calculated from the source object,</td>
</tr>
<tr>
<td></td>
<td>• Was transformed from the source object, or</td>
</tr>
<tr>
<td></td>
<td>• Comes directly from the source object</td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>The source object provides data that is copied or transformed to become part of the target object. For example, in the Business Intelligence category, a relational column object and a report field object can have a source-target relationship.</td>
</tr>
<tr>
<td><strong>Steps from Target, or</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Steps from Source</strong></td>
<td>The number of objects through which the data passes from this source to the final target, or from this target to the first source.</td>
</tr>
<tr>
<td><strong>Relationship Attributes</strong></td>
<td>Relationship between the source and target</td>
</tr>
<tr>
<td>Column name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| Mapping     | If the target is a measure, this column contains:  
• Transformation name, which is the name of the universe object.  
• Mapping expression which is the calculation to obtain the value for the measure.  
If the source data was transformed from an ETL system, this column contains:  
• Transformation name, which is the data flow name in a Data Integrator source.  
• Mapping expression within the transform. |

**Example:**

The following tabular view shows the Lineage for universe object Total Order Value.

<table>
<thead>
<tr>
<th>Target</th>
<th>Source</th>
<th>Steps from Target</th>
<th>Relationship Attributes</th>
<th>Mapping</th>
</tr>
</thead>
</table>
| TOTAL_ORDER_VALUE  
Table name: FACT_SALES_ORDER  
Scheme name: DBO  
System: MySales  
Universe class: Fact_Sales_Order  
Universe name: MySales  
System: MySales | TOTAL_ORDER_VALUE  
Table name: FACT_SALES_ORDER  
Scheme name: DBO  
System: MySales | 1 | Type: Lineage | Mapping Expression: sum (DBO.FACT_SALES_ORDER.TOTAL_ORDER_VALUE) |
| TOTAL_ORDER_VALUE  
Table name: FACT_SALES_ORDER  
Scheme name: DBO  
System: MySales | TOTAL_ORDER_VALUE  
Table name: FACT_SALES_ORDER  
Scheme name: DBO  
System: MySales | 2 | Type: Same As | |
| TOTAL_ORDER_VALUE  
Table name: FACT_SALES_ORDER  
Scheme name: DBO  
System: MySales | UNITPRICE  
Table name: ORDERDETAILS  
Scheme name: DBO  
System: MySales | 3 | Type: Lineage | Mapping Expression: (ORDERDETAILS.UNITPRICE * ORDERDETAILS.QUANTITY) + (ORDERDETAILS.DISCOUNT * ORDERDETAILS.QUANTITY * ORDERDETAILS.UNITPRICE)) |
| | QUANTITY  
Table name: ORDERDETAILS  
Scheme name: DBO  
System: MySales | 3 | Type: Lineage | |
| | DISCOUNT  
Table name: ORDERDETAILS  
Scheme name: DBO  
System: MySales | 3 | Type: Lineage | |

The Mapping column in this example shows:  
• For the source measure Total Order Value:

   Transformation Name: Total Order Value  
   Mapping Expression: sum (DBO.FACT_SALES_ORDER.TOTAL_ORDER_VALUE)
• For the source columns UNITPRICE, QUANTITY, and DISCOUNT:

Transformation Name: df_SalesOrderFact
Mapping Expression: ("ORDER DETAILS".UNITPRICE * "ORDER DETAILS".QUANTITY) - ("ORDER DETAILS".DISCOUNT * ("ORDER DETAILS".QUANTITY * "ORDER DETAILS".UNITPRICE)))

Understanding settings to view relationships

When viewing the relationships Same As, Related To, Impact, and Lineage, you use the Edit Settings button to change the viewing options that SAP BusinessObjects Metadata Management displays for that view.

You can control the display settings to determine the source group used, whether to show Intermediate objects, Where Clause objects, and User Impact, as well as whether to show a graphical or tabular view.

Note:
Some settings are applicable only to certain views. The options you see depends on which relationship view is displayed.

To change settings when viewing relationships

While viewing the relationships Related To, Impact, or Lineage:

1. Click the Edit Settings button.
   The Settings window appears.

2. Make changes to the following interface elements to control the relationship display settings:
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use source group</strong></td>
<td>From the drop-down list, select a source group. The drop-down list contains names if your administrator has defined source groups to focus relationship analysis on a subset of metadata integrator sources.</td>
</tr>
<tr>
<td><strong>Show intermediate objects</strong></td>
<td>Select the check box to show intermediate objects. If this option is not selected, only the first source object and final target object are displayed.</td>
</tr>
<tr>
<td><strong>Show Where Clause objects</strong></td>
<td>Select the check box to show Where Clause objects.</td>
</tr>
<tr>
<td><strong>Show User Impact</strong></td>
<td>Select the check box to show User Impact.</td>
</tr>
<tr>
<td>View</td>
<td>From the drop-down list, choose &quot;Graphical&quot; or &quot;Tabular&quot; to switch between these types of relationship displays. If you are viewing a table on the Lineage tab, the drop-down list includes &quot;Column Mappings&quot;, which allows you to view the mapping expressions used to obtain values in each column.</td>
</tr>
</tbody>
</table>

**Related Topics**
- Grouping Metadata Integrator sources on page 177
- Impact analysis for users and groups on page 306
- Viewing column mappings for tables on page 366

**Maximize and restore view**

To get a larger view of complex graphs or tables in Related To, Impact, and Lineage relationship views, you can fill the available screen with the current view by clicking the **Maximize View** hyperlink.

When in a maximized view, you can toggle between graphical and tabular view, or edit the settings of the view. All other user interface elements are unavailable until you click the **Restore View** hyperlink to return the view to its original size.
Adding annotations for user notes

You can add user notes to any object. If an object has an annotation, an annotation icon appears next to it. Click the icon to display the annotation. The Overview page of the object also displays the annotation, along with any description.

Adding annotations

To add an annotation to an object:

1. Navigate to an object to which you want to add an annotation.
2. Click **Add Annotation** to open the text box to add your note.
3. Type your note and click **OK**.
4. The annotation appears on the Overview page for the object.
Editing annotations

To edit an annotation for an object:

1. Navigate to an object for which you want to edit an annotation.

   You can either go directly to the Explorer page for the object or to a list of objects that contains the object.

   For example, the following list of columns for the table SALES_CHANNEL shows that the column SALES_CHANNEL_DESC has an annotation.
2. Click the edit annotation icon.
3. To change the annotation, type in the text box and click OK.
4. To delete the annotation, delete the text and click OK.

Custom attributes

Custom attributes allow you to add information to existing objects using the SAP Metadata Management Explorer. For example, you can define a custom attribute to:

- Add additional object descriptions
- Assign a data steward to objects
- Tag objects as containing sensitive information
- Rate object relevancy
- Link an object to a Web site

Users with the right to Add objects to the Metadata Management folder can create custom attributes that apply to object types and enter values for custom attributes. Then users with the right to View the Metadata Management folder can view and search on those custom attributes.

Related Topics
- Creating custom attributes on page 224
- Entering values for custom attributes on page 228
Creating custom attributes

A user with the right to Add objects to the SAP BusinessObjects Metadata Management folder defines a custom attribute, specifies possible values for it, and associates it with an object type.

Related Topics
• Adding, defining, and associating custom attributes on page 224
• Deleting a custom attribute on page 227
• Reordering the display of custom attributes on page 227

Adding, defining, and associating custom attributes

Users with the right to Add objects to the SAP BusinessObjects Metadata Management folder can add a custom attribute, specify possible values for it, and associate the attribute with an object type.

When creating a custom attribute, you specify a name, label (display name), the data type of the information, and optionally valid values.

1. Log in to the Metadata Management Explorer with a user name that has the Administrator role.
2. From the Explorer Directory or Reports tab view, click the Custom Attributes link.
   The Custom Attributes worksheet displays.
3. Click Add.
   Metadata Management adds a row to the worksheet.
4. Select the first cell, type a Name, and press Tab to move to the next cell.
5. Type a Label (display name) and press Enter or press Tab to go to the next cell.
   Metadata Management adds the prefix CA. to the custom attribute name.
6. Optionally type a description for the custom attribute.
7. In the Type column, select a data type from the drop-down list:
   • Boolean
   • Decimal
   • Integer
8. Except for Boolean attribute types, optionally double-click in the **Valid Values** cell to define it (Metadata Management accepts any value by default).

   The Valid values (attribute name) dialog box displays.

9. Select one of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any value</td>
<td>Lets the user configure any value for the attribute (default).</td>
</tr>
<tr>
<td>Range</td>
<td>Enter minimum and maximum values to limit the value to a range. For decimal types, enter a zero before the decimal point.</td>
</tr>
<tr>
<td>List of values</td>
<td>Enter a value and click <strong>Add</strong> to add the value to the list. Repeat for additional values that the attribute will accept.</td>
</tr>
</tbody>
</table>

10. Click **OK**.

   The list of values appears in the cell.

11. Double-click in the cell under the **Apply to** column to select from a list of available object types to which this custom attribute will apply.

    a. Double-click individual object types to move them to the **Add custom attribute to** list. Or, use the Shift and Ctrl keys to select consecutive or nonconsecutive (respectively) object types, then click the right arrow.

    b. Click **OK**.

   The following example shows the custom attribute "Usage Rating" being applied to two object types, Reports and Tables.
12. Click **Save Changes**.

Note that you can change the view by selecting filters from the drop-down list for each column. The filters include:

- Sort Ascending
- Sort Descending
- (Show all)
- (Empty)
- (Not empty)

After an Administrator has defined a custom attribute for an object type, users with the User role can view, enter values for, or search on these custom attributes.

**Related Topics**
- *Entering values for custom attributes* on page 228

**Modifying a custom attribute**

Users with the right to Edit objects to the SAP BusinessObjects Metadata Management folder can modify a custom attribute.

1. From the Explorer Directory or Reports tab view, click the **Custom Attributes** link.

   The Custom Attributes worksheet displays.

2. Edit the label or description by clicking in the cell and editing the text.
3. Add to any Valid Values lists by double-clicking in the cell and adding values. (You cannot delete existing values from the list.) Click OK.

4. To modify which objects this attribute applies, double-click in the cell under the Apply to column.
   a. Double-click individual object types to move them to the Add custom attribute to list. Or, use the Shift and Ctrl keys to select consecutive or nonconsecutive (respectively) object types, then click the right arrow.
   b. Click OK.

5. Click Save Changes.

Deleting a custom attribute

User with the right to Delete objects from the SAP BusinessObjects Metadata Management folder can delete a custom attribute.

1. From the Explorer Directory or Reports tab view, click the Custom Attributes link.
   The Custom Attributes worksheet displays.

2. Select a row by clicking the row number so the row appears highlighted in blue.

3. Click Delete.
   Metadata Management displays a warning message to confirm whether you want to delete the attribute.

   Note:
   Metadata Management deletes the attribute even if values have been entered for associated objects.

Reordering the display of custom attributes

Add custom attributes per Adding, defining, and associating custom attributes on page 224.

Users with the right to Edit or Add objects to the SAP BusinessObjects Metadata Management folder can change the display order of custom attributes within an object type in various views (but not in the object worksheet view).
All custom attributes display in the object overview. However only the top three custom attributes (based on the order you configure) display in object pop-up boxes and other relationship views.

1. On the Custom Attributes worksheet, click the **Custom Attributes Display Order** link.
2. Select an available object type, select a Custom attribute, and click Up or Down to rearrange the order.
3. Click **Save Changes**.

### Entering values for custom attributes

After a user with the right to **Add** objects to the SAP BusinessObjects Metadata Management folder has associated custom attributes to objects, you can then enter values for these attribute(s). You can enter values for an individual object, or you can enter annotations and custom attributes for multiple objects using the object worksheet.

**Related Topics**

- [Entering a value for a custom attribute for an object](#) on page 228
- [Entering values for multiple attributes for an object type](#) on page 229
- [Customizing the object worksheet display](#) on page 230

### Entering a value for a custom attribute for an object

After a user with the right to **Add** objects to the SAP BusinessObjects Metadata Management folder has added, defined, and associated one or more custom attributes to an object, you can then enter values for the attribute(s).

1. Navigate to an object for which you want to enter values for the custom attributes.
2. Click the **Edit Custom Attributes** link.
   A dialog box opens for the attributes that apply to that object.
3. Type or select the values for the attributes to configure and click **OK**.
   Metadata Management adds the custom attribute to the list of attributes for that object. Custom attributes appear in italic text on the Overview tab for the object and in object pop-up boxes in relationships views.
Entering values for multiple attributes for an object type

Users with the right to Add objects to the SAP BusinessObjects Metadata Management folder can enter values for multiple attributes for an object type using the object worksheet.

1. Navigate to the object type for which you want to configure attributes.
2. Click the Edit Objects link.
   The object worksheet displays.
3. Type or select the values in each cell for the attributes to configure including annotations and custom attributes.
   Metadata Management saves the value when you navigate away from the cell (when you press Tab or Enter or click in another cell).
Example:

The following example shows the custom attributes Top Secret, Usage Rating, and Data Steward being set for four reports. The bottom of the worksheet indicates the user who last modified a custom attribute or annotation.

### Customizing the object worksheet display

Users with the right to Add or Edit objects to the SAP BusinessObjects Metadata Management folder can customize the object worksheet display.

You can customize the display of the object worksheet in one of two ways:

- Click **Customize** to display the Show/Hide/Order dialog box.
  
  To show or hide columns, select or clear the check boxes and click OK.

### Related Topics

- [Adding, defining, and associating custom attributes](#) on page 224
- [Entering a value for a custom attribute for an object](#) on page 228
- [Customizing the object worksheet display](#) on page 230
To move a column up or down (corresponds to left or right respectively on the object worksheet), select (highlight) a column name and click Up or Down, then click OK.

- Each worksheet column has a drop-down menu that lets you hide the column. Click Customize to open the Show/Hide/Order dialog box to display hidden columns.

Example:
The following example clears the check boxes in front of columns Keywords and CMS Server to hide them on the worksheet.

---

Metadata Management Metapedia

SAP BusinessObjects Metadata Management Metapedia allows you to implement a business glossary of terms related to your business data and organize the terms hierarchically.
The business glossary you create in Metapedia allows you to form a vocabulary of words and phrases, or notation systems. Initially, you use this vocabulary to describe content, and then later business users can easily search for the content using familiar business vocabulary and synonyms, or efficiently navigate to terms through the Metadata Management Explorer interface.

Using Metapedia promotes a common, consistent understanding of business terms within an organization, allowing business users access to information using terms from the perspective of business users. At the same time, data stewards have an easy mechanism to promote data governance.

You access Metapedia from the Metapedia tab in the Metadata Management Explorer.

This sample of a Metapedia window shows the following elements below the "Metapedia" tab:

- Top row buttons, which are active depending on the context of the current task
- Left-hand pane, here showing All Terms selected and sample categories of Financial and Healthcare created by a user
- Filter terms fields, used for filtering the larger list of terms based on string searching criteria you can set
- Sample terms and their descriptions created by a user

The contents of the Metapedia window change to context-appropriate elements for each task you perform.
Understanding terms and categories

SAP BusinessObjects Metadata Management Metapedia is based on the concept of how terms are associated with metadata objects and organized into categories.

A Metapedia term is a word or phrase that defines a business concept in your organization. You create a term to describe a business concept, giving the term a name and description, and optionally, a list of synonyms and keywords. Then you can associate a metadata object with the term, and relate the term with other terms.

A Metapedia category is the organization system for grouping terms to denote a common functionality. Categories can contain sub-categories, and you can associate terms to more than one category.

**Note:**
The names of terms and categories are not case sensitive. Therefore, term or category names of “Inventory” and “inventory” would functionally be the same.

**Example:**
You create the terms Gross Revenue and Net Revenue, and place them in a category called Financial. However, in your organization, many business users refer to Net Revenue as profit, which you do not intend to use as a Metapedia term. In the creation of the Net Revenue term, the data steward could apply the word profit as a synonym. Then, when a business user searches Metapedia for profit, Metapedia returns the metadata objects associated with Net Revenue.

Further, the data steward could associate Gross Revenue and Net Revenue, so when a business user searches for one of the terms, metadata information about the other is also available.

**Related Topics**
- Working with Metapedia terms and categories on page 234
Data steward and security

The concept of the data steward has important implications on security in SAP BusinessObjects Metatadata Management Metapedia. Only a data steward has Full Access rights to Metapedia, which allows a data steward to do the following:

- Create, edit, and delete terms.
- Approve terms.
- Relate an approved term to other approved terms.
- Associate approved terms with metadata objects (a report, CMS objects, a column, and so on).

A user who is not a data steward can view and search for approved terms.

Related Topics
- Managing security in Metadata Management on page 122

Working with Metapedia terms and categories

The usefulness of SAP BusinessObjects Metadata Management Metapedia is based on the number and quality of your terms and categories. A data steward can add terms and categories to Metapedia, either manually or through the import of an Excel file. This section describes creating and managing terms and categories.

Creating terms

A data steward can create terms to add to the SAP BusinessObjects Metadata Management Metapedia business glossary. To create a term:

1. With "All Terms" selected in the left-hand navigation pane of the Metapedia window, click Create Term.
   The Create Term window appears.

2. Enter a value for the "Name" field. (Non-alphanumeric characters and spaces are permitted in term names.)

3. Enter a value for the "Description" field.
4. Enter a value for the "Synonyms" field. This step is optional.
5. Enter a value for the "Keywords" field. This step is optional.
6. Select a data steward from the "Data Steward" drop-down list. This step is optional.
   When you later view the properties for this term, an email icon appears next to this data steward. The email created is sent to this user name, not the data steward's email address as it is registered in SAP BusinessObjects Enterprise.
7. If you want to approve the term, you can click the "Approved" checkbox to mark the term as Approved. This step is optional.
   Terms that are not approved can be viewed only by data stewards. After a data steward has marked a term as Approved, all users can view the term.
8. Click OK.
   The Properties for Term window is displayed.
   The new term is created and available in the list of terms shown when "All Terms" is selected in the main Metapedia window.

**Editing properties of terms**

After one or more terms have been created, a data steward can edit the properties of a term. To edit the properties of a term:

1. In a window from which the term is available ("All Terms" or the category for which the term is associated), click the name of the term.
   The "Properties for Term" window appears.
2. Click Edit Properties.
   An editable "Properties for Term" window appears. This window contains the same information as the "Create terms" window. The fields for the term's properties are editable and populated with the current values.
3. Make any changes to the properties of the term, and click OK.
   The changes appear in the resulting window.
   The changes to the properties of the term are saved.
Relating terms

After two or more terms have been created, a data steward can relate terms.

To relate terms:

1. In a window from which one of the terms is available ("All Terms" or the category for which the term is associated), click the name of a term. The Properties for Term window appears.
2. Click **Relate Terms**. The Relate Terms window appears.
3. Check the box next to each term you want to associate with this term. You can filter the listed terms to search a large list of terms.
4. Click **OK**. The Properties for Term window appears, showing a listing of related terms.

All the terms you selected are now related terms.

Related Topics

- Filtering terms on page 243

Deleting terms

A data steward can delete terms.

**Note:** There is no undo option after terms are deleted. You must have delete access rights on the SAP BusinessObjects Metadata Management Metapedia folder (set in the Central Management Console) to delete terms.

To delete terms:

1. With All Terms selected in the left-hand navigation pane, check the box for all terms you want to delete and click **Delete Terms**. A confirmation dialog appears.
2. Click **OK**. The list of terms shown when All Terms is selected in the main Metapedia window is repopulated without the deleted terms.
Creating categories

A data steward can create categories or sub-categories to add to the SAP BusinessObjects Metadata Management Metapedia business glossary. To create a category or sub-category:

1. With Categories or a pre-existing category selected in the left-hand navigation pane, click Create Category.

   **Note:**
   If Categories is selected, this process creates a new category. If a pre-existing category is selected, this process creates a sub-category of that category.

   The Create Category window appears.

2. Enter a value for the "Name" field. (Non-alphanumeric characters and spaces are permitted in term names.)
3. Enter a value for the "Description" field. This step is optional.
4. Select a Data Steward from the "Data Steward" drop-down list. This step is optional.
5. Enter a value for the **Keywords** field. This step is optional.
6. Click OK.

   The Properties for Category window is displayed.

The new category or sub-category is created and available in the list of categories.

Editing properties of categories

After one or more categories have been created, a data steward can edit the properties of a category.

To edit the properties of a category:

1. In a window from which the category is available, select the category and click **Edit Category**.
   
   The "Properties for Category" window appears.

2. Make any changes to the properties of the category, and click OK.
The changes appear in the resulting window.

The changes to the properties of the category are saved.

**Deleting a category**

A data steward can delete categories.

**Note:**
There is no undo option after categories are deleted. You must have delete access rights on the Metapedia folder (set in the Central Management Console) to delete categories.

To delete a category:

1. Select the category you want to delete and click **Delete Category**.
   A confirmation dialog appears.

2. Click **OK**.
   The list of categories in the main Metapedia pane is repopulated without the deleted category.

   The selected category is deleted.

**Associating a term with categories**

To organize terms, a data steward can associate each term with one or more categories. To associate terms with one or more categories:

1. With **All Terms** selected in the left-hand pane of the "Metapedia" window, check the box for each term you want to associate with a category.

2. Click the **Add to Category** button.
   The "Add to Category" screen appears.

3. Check the box for each Category to which you want to associate the term or terms.

4. Click **OK**.
   The terms are now associated with the selected categories.
Importing and exporting terms and categories with Excel

SAP BusinessObjects Metadata Management allows data stewards to perform batch import and export of Metapedia terms and categories using Excel spreadsheets. This capability allows you to capture terms and categories in a spreadsheet before placing them in Metapedia and, conversely, to export content from Metapedia to serve as a backup that you can share, modify, and import back into Metapedia.

You can import terms using a standard import, which requires using the standard spreadsheet provided with the installation of Metadata Management, or by using a custom import, in which you structure a spreadsheet in an organized manner of your choice and provide Metadata Management the format of the data through a series of dialogs.

Note:
This implementation supports Excel 97 through Excel 2003 file formats. It does not support the Excel 2007 file format.

Standard import

To use a standard import of terms and categories through Excel, you must have the standard spreadsheet provided with the installation of this product prepared with the data you want to import into SAP BusinessObjects Metadata Management Metapedia.

To import terms and categories from Excel using a standard import:

1. In the "Metapedia" screen, click Import from Excel.
   The "Import from Excel - Select a file" dialog appears.

2. Click Browse.
   A Windows "Choose file" dialog appears.

3. Browse to and select the Excel file for import. Click Open.
   The "Import File" field of the "Import from Excel" dialog is populated with the path and file name of the selected file.

4. Click Next.
   The "Import from Excel - Select options" dialog gives the option to overwrite existing terms and categories with the contents of the Excel file, if any duplicates exist. If you want to overwrite the existing terms and categories, check the box. If not, leave the box empty.
5. Click **Finish**.
   Metadata Management imports the terms and categories from the Excel file, and the "Import from Excel - Finished" dialog appears.

6. Click **Close**.
   Metapedia is populated with the terms and categories from the Excel file.

**Custom import**

If you perform an import from Excel from a spreadsheet other than the standard spreadsheet provided with the installation of this product, you must perform a custom import. To perform a custom import:

1. In the "Metapedia" screen, click **Import from Excel**.
   The "Import from Excel - Select a file" dialog appears.

2. Click **Browse**.
   A Windows "Choose file" dialog appears.

3. Browse to and select the Excel file for import. Click **Open**.
   The "Import File" field of the "Import from Excel" dialog is populated with the path and file name of the selected file.

4. Click **Next**.
   The "Import from Excel - Select a sheet for terms" dialog appears.

5. For the "Sheet Containing Term Mapping Data" pull-down list, select the spreadsheet in the file that defines how terms are to be mapped.

6. Fill in the row numbers for the "Header Row", the "Data Begin Row", and "Data End Row".
   These row numbers define the rows in the spreadsheet that contain the data to import. SAP BusinessObjects Metadata Management will import data only from these rows.

7. Click **Next**.
   The "Import from Excel - Match columns for terms" dialog appears with each pull-down list populated with the data found in the rows defined previously.

8. Select the appropriate properties from the drop-down lists for "Name", "Associated Categories", "Description", "Keywords", "Synonyms", "Data Steward", and "Approved".
The data in these columns is used for the properties of the terms after they are imported to SAP BusinessObjects Metadata Management Metapedia.

9. Click **Next**.
   The "Import from Excel - Select a sheet for categories" dialog appears.

10. If you want to import categories, for the "Sheet Containing Term Mapping Data" pull-down list, select the spreadsheet in the file that defines how categories are to be mapped.

11. Fill in the row numbers for the "Header Row", the "Data Begin Row", and "Data End Row".
    These row numbers define the rows in the spreadsheet that contain the data to import. Metadata Management will import data only from these rows.

12. If you have no categories in your spreadsheet to import, check "Skip importing categories".

13. Click **Next**.
    The "Import from Excel - Match columns for categories" dialog appears with each pull-down list populated with the data found in the rows defined previously.

14. Select the appropriate properties from the drop-down lists for "Name", "Description", "Keywords", and "Data Steward".
    The data in these columns is used for the properties of the terms after they are imported to Metapedia.

15. Click **Next**.
    The "Import from Excel - Select options" dialog gives the option to overwrite existing terms and categories with the contents of the Excel file, if any duplicates exist. If you want to overwrite the existing terms and categories, check the box. If not, leave the box empty.

16. Click **Finish**.
    Metadata Management imports the terms and categories from the Excel file, and the "Import from Excel - Finished" dialog appears.

17. Click **Close**.
    Metapedia is populated with the terms and categories from the Excel file.
Exporting to Excel

A data steward can export SAP BusinessObjects Metadata Management Metapedia terms and categories to Excel. To export to Excel:

1. In the "Metapedia" screen, click **Export to Excel**.
   The "Export to Excel" dialog appears as SAP BusinessObjects Metadata Management creates an Excel file containing the Metapedia data. Upon completion, the Windows "File Download" dialog appears.

2. Click "Save" to save the file
   The Windows "Save As" dialog appears.

3. Choose a path and name for the file, and click **Save**.
   By default, the file name is `Metapedia_<timestamp>.xls`.

4. Click **Close** on the "Export to Excel" dialog.
   The contents of Metapedia are not copied into an Excel file.

Custom attributes in Metapedia

A data steward can add custom attributes to SAP BusinessObjects Metadata Management Metapedia terms and categories through the "Custom Attributes" window. Additionally, you can use custom attributes for other SAP BusinessObjects Metadata Management objects within Metapedia.

Custom attributes associated with a term or category are listed in the Properties window for the term or category.

**Related Topics**
- Custom attributes on page 223

Metapedia search

All SAP BusinessObjects Metadata Management Metapedia users can conduct searches for approved terms in the following ways.
The capability of the SAP Metadata Management Explorer to search for objects through the "Search" box is available in Metapedia, and searches you perform outside of Metapedia also contain Metapedia terms and categories in the search results.

Filtering terms
When viewing terms with "All Terms" showing or when viewing terms associated with a category, you can filter the list of terms to show only terms meeting certain criteria. Filtering operates by matching a string pattern you set on the name, description, or Data Steward of terms.

Quick Search
When you associate objects with terms, Metapedia conducts a quick search in the background to find related documents. If quick search does not find any related documents, you can customize the quick search options or choose to use Metadata Management Explorer Advanced search.

**Note:**
Data stewards have the ability also to conduct searches for terms that are not approved.

**Related Topics**
- *Searching for objects* on page 202
- *Filtering terms* on page 243
- *Object association and quick search* on page 244

### Filtering terms

A useful method of searching for terms is to filter terms to display only the terms that meet criteria you set. To filter terms:

1. In a view that lists terms, set the "By column" drop-down list to Approved (choose Yes or No), Name, Description, or Data Steward.
   The "By column" setting determines the column of the "All Terms" pane on which the filter criteria are applied.

2. For the next drop-down list, set the value to Starts with, Ends with, or Contains.
   This setting determines how the string pattern matching is to be applied.
3. For the "Pattern" field, type the string pattern to search for within the properties of the terms.

4. Click **Filter**.

The pane now lists only terms that meet the filter criteria. If no terms meet the criteria, then no terms are listed.

**Object association and quick search**

After the creation of a business glossary of terms in SAP BusinessObjects Metadata Management Metapedia, a data steward can make the terms even more useful by associating metadata objects with appropriate terms.

One method of object association is to find object to associate to a term using the Metadata Management Object Tray.

A second method of object association is to search for objects. When you attempt to associate objects with terms, Metapedia conducts a Quick Search in the background to find related documents. If the Quick Search finds related documents, you can select the documents and automatically associate the term to them. If Quick Search does not find any suitable related documents, you can customize the search options or choose to use Metadata Management Explorer Advanced search to find other objects.

**Using the Object Tray to associate objects**

To associate an object with a term using the Object Tray:

1. In a screen from which the term is available ("All Terms" or the category for which the term is associated), click the name of the term. The "Properties for Term" screen appears.

2. Click **Associate from Object Tray**.

   The "Associate from Object tray" screen appears. This screen contains a list of the items currently in the Object Tray.

3. Check the box next to each object that you want to associate with this term.

4. Click **OK**.

   The "Properties for Term" screen returns to focus.
The term and each of the objects you selected are now associated.

**Associating objects with Quick Search**

To associate an object with a term using Quick Search:

1. In a screen from which the term is available ("All Terms" or the category for which the term is associated), click the name of the term. The "Properties for Term" screen appears.
2. Click **Associate Objects**.
   SAP BusinessObjects Metadata Management performs a Quick Search for objects that could be associated with the term. The "Associate Objects" screen appears. This screen contains a list of the items found by Quick Search.
3. If Quick Search found objects to associate with the term, check the box next to each object that you want to associate with this term.
4. If Quick Search was unable to find any objects, you can refine the Quick Search options click Search, or you can perform an Advanced Search.
5. Click **OK**.
   The "Properties for Term" screen returns to focus.

The term and each of the objects you selected are now associated.

**Exporting relational objects**

SAP BusinessObjects Metadata Management provides you with the ability to export relational objects from a Data Integration, Relational Database, or Data Modeling source in the Metadata Management repository to one of the following files:

- A general-purpose Common Warehouse Modeling (CWM) XML file that includes all relational object types. You can select the following objects to export to a general-purpose CWM XML file:
  - Database
  - Catalog
  - Schema
  - Table
  - View
• Procedure

A CWM XML file that contains a subset of the relational objects that you import into BusinessObjects Enterprise to create a universe. You can select the following objects to export to a CWM XML file that will be used to create a universe:

• Database - Metadata Management exports a relational database as a catalog.
• Catalog - You can only select one catalog to create a universe. All of the selected schemas, tables, and views must belong to the same catalog.
• Schema
• Table
• View - Metadata Management exports a view as a table when you export to a universe.

Note:
In an RDBMS system, a Server Instance corresponds to a Database and a Database corresponds to a Catalog.

The following table lists the relational objects and metadata that Metadata Management exports for each object.

<table>
<thead>
<tr>
<th>Relational object type</th>
<th>Exported metadata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog</td>
<td>Attributes such as name</td>
</tr>
<tr>
<td>Schema</td>
<td>Attributes such as name</td>
</tr>
<tr>
<td>Table</td>
<td>Attributes such as name</td>
</tr>
<tr>
<td></td>
<td>If Same As relationship exists:</td>
</tr>
<tr>
<td></td>
<td>• Annotation</td>
</tr>
<tr>
<td></td>
<td>• Business name</td>
</tr>
<tr>
<td></td>
<td>• Business description</td>
</tr>
<tr>
<td>Relational object type</td>
<td>Exported metadata</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
</tr>
</tbody>
</table>
| View                   | Attributes such as name  
                        | If Same As relationship exists:  
                        | • Annotation  
                        | • Business name  
                        | • Business description |
| Column                 | Attributes such as name, data type, length  
                        | If Same As relationship exists:  
                        | • Annotation  
                        | • Business name  
                        | • Business description  
                        | If column is a primary key:  
                        | • Constraint reference based on primary key order in columns  
                        | If column is a foreign key:  
                        | • If the target table is included in the export and the target columns are part of the primary key, Metadata Management exports the foreign key  
                        | If lineage information exists and export is for universe creation:  
                        | • Path from server instance, database, schema, table |
| Procedure parameter    | Attributes such as name, data type and parameter type (in, out, inout, return) |
Note:
When you export a parent object, Metadata Management also exports all of its child objects. For example, if you export a table, Metadata Management exports the table and all of the columns it contains. Similarly, if you export a schema, Metadata Management exports the schema and all of the tables (and their columns) contained within the schema.

This section includes the following topics:

- Selecting objects to export on page 248
- Exporting objects to a general-purpose CWM XML file on page 249
- Exporting objects to create a universe on page 253

Selecting objects to export

To select objects to export, you add them to the Object Tray.

To add relational objects to the Object Tray for exporting:

1. Navigate to the first object that you want to export.

   For example, suppose you want to export the DBO schema, a fact table and its dimension tables in a data warehouse. Navigate to DBO schema in the relational database Forenza DW.

   Note:
   You cannot export objects collected by the MIMB Metadata Integrator.

2. Click Add to Object Tray to the right of the schema name.

   An Object Tray icon with a check mark appears next to the schema name.

3. Navigate to Fact_Sales_Order table and click Add to Object Tray to the right of the table name.

   An Object Tray icon with a check mark appears next to the table name.

4. In the navigation path at the top of the page, click the object type to return to the list of objects.

   For the sample navigation path, click Tables to return to the list of tables.

   Directory > Relational Databases(Forenza DW) > Schemas (dbo) > Tables (FACT_SALES_ORDER)
5. Select the next object to add to this relationship.
   In this example, select the DIM_CUSTOMER table.

6. Repeat steps 3 through 5 to add each table that you want in the relationship to the Object Tray.
   In this example, add the DIM_EMPLOYEE, DIM_PRODUCT, and DIM_TIME tables.
   When you return to the list of Tables, notice that the Object Tray icon with a check mark appears next to each table name that you added to the Object Tray.

Exporting objects to a general-purpose CWM XML file

To export objects to a general-purpose CWM XML file:

1. After Selecting objects to export on page 248, click Object Tray (number) in the upper right corner of the Explorer page.
   The number in parenthesis indicates the number of objects in the Object Tray. In the example in the previous procedure, you click Object Tray (6).

2. On the Object Tray, select the objects that you want to export.
   a. To export a subset of objects in the Object Tray, select the check box in front of each object that you want.
   b. If you want to export a schema and all of the tables (and their columns) contained in the schema, select the check box in front of schema name.
   c. If you want all of the objects of an object type, select the check box for the object type.
      For example to select all table objects, select the check box in front of Tables, as the following window shows.
3. Click **Export to CWM**.

4. On the Export to CWM window, in the **Export Name** text box, type a meaningful name for the CWM XML file to which you will export the relational objects.

5. If you selected tables that belong to multiple source systems for which a Same As relationship is available, the **Define search priority for business name and description** area is enabled.

When SAP BusinessObjects Metadata Management exports an object, it also exports the business name and description for the object to the CWM XML file. By default, Metadata Management exports these business values from the source system from which you selected the objects. You might want to change the source systems in the Define search priority for business name and description area for situations such as the following:

- The business name and description do not exist in the source system from which you export.
For example, suppose that the business name and description do not exist in Forenza DW for these tables, but descriptions for them exist in the DIREPO source system.

To use the descriptions from the DIREPO source system, select DIREPO from the Available sources list box and then use the right arrow to move DIREPO to the Search priority box.

Although DIREPO appears second in the priority list, Metadata Management exports the business name and description from it because these values do not exist in the first source system.

• The business name and description exist in the source system from which you exports, but you want to use the business values from a different source system.

For example, you might want to export the business name and description for the tables in the DIREPO source system instead of the values in Forenza DW.

To change the priority order, move all sources from the Search priority box to the Available sources list box. Then move each source to the Search priority box in the order that you want. In this example, move DIREPO first, then Forenza DW.

Note:
The original source from which you selected the objects must appear in the Search priority box.
6. Click **OK**. The Export List window displays the following information:

<table>
<thead>
<tr>
<th>Column name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Specifies the export name.</td>
</tr>
<tr>
<td>For universe creation</td>
<td>Contains a check mark if this export is for universe creation.</td>
</tr>
<tr>
<td>Status</td>
<td>Indicates the status of the export. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• Completed</td>
</tr>
<tr>
<td></td>
<td>• Failed</td>
</tr>
<tr>
<td>Column name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Created</td>
<td>Indicates the date and time that the export file was created.</td>
</tr>
<tr>
<td>Error Message</td>
<td>Contains error messages if any errors occur during the export. If no error occurred, this column does not appear.</td>
</tr>
</tbody>
</table>
| Actions     | Indicates actions you can perform on the CWM XML file. Possible values are:  
  • Download - You can either open the file to view it or save it to a directory.  
  • Delete |

7. Click **Refresh** to update the status.
8. After the export completes, click the action **Download** to view the CWM XML file or save it to a directory.
9. If you viewed the CWM XML file, click the Web browser Back arrow icon to return to the Metadata Management Explorer.

**Exporting objects to create a universe**

When you export objects for universe creation, you can import the CWM XML through the SAP BusinessObjects Enterprise Designer to create or update an existing universe.

To create a universe from the CWM XML file that you export, the objects you export must meet the following universe creation criteria:
• Only catalog, schema, table, or view objects were selected in the object tray.
• Only one catalog is selected.
• All of the selected schema, table and view objects belong to the same catalog.

Including column lineage information

When you export to create a universe, you can specify whether or not to include lineage information for the column from which the exported column obtains its data.

You can choose one of the following three column lineage options:

• **Do not include lineage information** - Choose this option if you do not want to include the column lineage information. This option is the default.

• **Include lineage information from the current sources only** - Choose this option if you want the exported metadata to include where the column data comes from within the same source system.

  For example, the following diagram shows the lineage for table TARGET_REASON across two sources. The current source system is Forenza DW. If you select Include lineage information from the current sources only when you export table TARGET_REASON, you export column lineage information from table FACT_SALES_ORDER (circled in the following diagram).

• **Include lineage information from all of the original sources** - Choose this option if you want the exported metadata to include where the column data comes from in the original source system.

  In the TARGET_REASON example, the original source system is DIREPO. If you select Include lineage information from all of the original sources, you export column lineage information from tables EMPLOYEES, ORDERS, and PRODUCTS (circled in the following diagram).
**Exporting to create a universe**

To export objects to a CWM XML file to create a universe:

1. After *Selecting objects to export* on page 248, click **Object Tray** *(number)* in the upper right corner of the Explorer page.

   The number in parenthesis indicates the number of objects in the Object Tray. In the example in the previous procedure, click **Object Tray (6)**.

2. On the Object Tray, select the objects that you want to export.
   a. To export a subset of objects in the Object Tray, select the check box in front of the each object that you want.
   b. If you want to export a schema and all of the tables (and their columns) contained in the schema, select the check box in front of schema name.
   c. If you want all of the objects of an object type, select the check box for the object type.

   For example to select all table objects, click the check box in front of Tables, as the following window shows.

**Note:**

SAP BusinessObjects Metadata Management does not include the intermediate columns in tables DIM_EMPLOYEE and ORDER DETAILS in the exported column lineage information.
3. Click **Export to Universe**.

4. On the Export to Universe window, in the **Export Name** text box, type a meaningful name for the CWM XML file to which you will export the relational objects.

   For example, type Sales Universe.
5. Select one of the following lineage options. For examples of these options, see *Including column lineage information* on page 254.

   a. If you do not want to include the column lineage information, select **Do not include lineage information**. This option is selected by default.

   b. If you want to include column lineage information for tables within the same source system, select **Include lineage information from the current sources only**.

   c. If you want to include the column lineage information from the original source system from which the data comes, select **Include lineage information from all of the original sources**.

6. Click **OK**. The Export List window displays the following information:
<table>
<thead>
<tr>
<th>Column name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Specifies the export name.</td>
</tr>
<tr>
<td>For universe creation</td>
<td>Contains a check mark if this export is for universe creation.</td>
</tr>
<tr>
<td>Status</td>
<td>Indicates the status of the export. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• Completed</td>
</tr>
<tr>
<td></td>
<td>• Failed</td>
</tr>
<tr>
<td>Created</td>
<td>Indicates the date and time that the export file was created.</td>
</tr>
<tr>
<td>Error Message</td>
<td>Contains error messages if any errors occur during the export. If no error occurred, this column does not appear.</td>
</tr>
<tr>
<td>Actions</td>
<td>Indicates actions you can perform on the CWM XML file. Possible values are:</td>
</tr>
<tr>
<td></td>
<td>• Download - You can either open the file to view it or save it to a directory.</td>
</tr>
<tr>
<td></td>
<td>• Delete</td>
</tr>
</tbody>
</table>

7. Click **Refresh** to update the status.
8. After the export completes, click the action **Download** to save the CWM XML file in a directory from which you can import it into the SAP BusinessObjects Enterprise Designer to create or update an existing universe.

### User-defined relationships between objects

The Metadata Integrators collect the most common relationships between objects and the SAP BusinessObjects Metadata Explorer displays them on the relationship analysis tabs Same As, Impact, and Lineage. However, you might want to establish additional relationships for situations such as the following:

- To group together objects that share a common business value or some other common factor. For example, you might want to group together reports that all pertain to a certain area, such as Sales; or you might want to group together tables in a star schema.

  If you establish and define a new relationship between objects, it appears on the Related To tab.

- To establish relationships for an object that SAP BusinessObjects Metadata Management has not detected, such as tables for a stored procedure.

  If you establish an already defined relationship, it will appear in the corresponding relationship analysis tab of the Explorer page for the object.
Establishing user-defined relationships between objects

You add objects to the Object Tray and then go to the Object Tray to define a relationship.

1. Navigate to the first object for which you want to define a relationship.
   For example, navigate to Fact_Sales_Order table to create a star schema relationship with dimension tables in the DIREPO source.

2. Click Add to Object Tray to the right of the table name.
   An Object Tray icon with a check mark appears next to the table name.

3. In the navigation path at the top of the page, click Tables to return to the list of tables.
   Directory > Data Integration(DIREPO) > Tables(FACT_SALES_ORDER)

4. Select the next table to add to this relationship.
   In this example, select the DIM_CUSTOMER table.

5. Repeat steps 2 through 4 to add each table that you want in the relationship to the Object Tray.
   In this example, add the DIM_EMPLOYEE, DIM_PRODUCT, and DIM_TIME tables.

   When you return to the list of Tables, notice that the Object Tray icon with a check mark appears next to each table name that you added to the Object Tray.
6. Click **Object Tray (5)** in the upper right corner of the Explorer page. The number in parenthesis indicates the number of objects in the Object Tray.

7. On the Object Tray, click the check box in front of the each object for which you want to define a relationship. If you want all of the objects, click the check box at the top.

8. Click **Establish Relationship**.

9. On the Establish Relationship window under Relationship Type, choose one of the following relationships:
   - **Add objects to a defined relationship**
     
     If you choose this default option, select one of the following defined relationships from the drop-down list:
     
     - **Impact (User defined)**
     - **Same As (User defined)**
     - **Related To**
     - **Add objects to a new relationship**
If you choose this option, perform the following steps:

a. In the **Relationship Name** text box, type in a meaningful name.
   For example, type Star Schema.

b. In the **Relationship Description** text box, type in a description for your new relationship.

   **Establish Relationship**

   ![Selected Objects]

   **Selected Objects:**
   - DIM_EMPLOYEE (Tables)
   - DIM_TIME (Tables)
   - DIM_CUSTOMER (Tables)
   - DIM_PRODUCT (Tables)
   - FACT_SALES_ORDER (Tables)

   ![Relationship Type]

   **Relationship Type:**
   - Add objects to a defined relationship: Impact (User defined)
   - Add objects to a new relationship:
     - Relationship: Star Schema
     - Relationship Description: Fact table with several dimension tables

   ![OK Cancel]

10. Click **OK**.

   If you select an Impact, Lineage, or define a new relationship, the next window displays the source objects and related objects in the relationship.

   For this example, you want the fact table to be the source object and the dimension tables to be the related objects.
11. If the objects are not listed correctly as a source object or as a related object, select the object and click the arrow to move it to the correct box.

In the example above, the "Source Objects" box correctly shows table FACT_SALES_ORDER, and the "Related Objects" box correctly shows tables DIM_CUSTOMER, DIM_EMPLOYEE, DIM_PRODUCT, and DIM_TIME.

12. Click **OK**, click **OK** on the message that indicates the relationship was successfully established, and click **Return to Directory**.

13. Click **FACT_SALES_ORDER** on the tables list to display the relationships for this object.

14. Click the "Related To" tab to view the relationship that you defined.

When you move the pointer over the relationship attribute icon, the pop-up window displays the name and description of the user-defined relationship.
Example:

Removing a user-defined relationship

1. Navigate to the object for which you want to delete a user-defined relationship.
2. Go to the User Defined tab.
3. Select the check box in front of the related object.
4. Click **Remove Relationship** and click **OK** on the prompt that asks if you want to remove the selected relationship.

Changing preferences for relationships

To ensure that SAP BusinessObjects Metadata Management recognizes the same object in different source systems, you must set the appropriate preferences.

This section describes the following topics which you can do from the "Preferences" page of the SAP BusinessObjects Metadata Management Explorer:

- **Recognizing the same object in multiple source systems** on page 265
- **Setting impact and lineage preferences** on page 266
- **Setting object equivalency rules for Same As relationships** on page 267
- **To set Object Equivalency Rules for Same As relationships** on page 267
Recognizing the same object in multiple source systems

An object can exist in two or more metadata integrator sources systems. The source systems refer to the same physical object. For example, a Customer table can exist in different metadata integrator sources, such as a relational database management system and an SAP BusinessObjects Enterprise system. The different source systems qualify a table name with the database name, catalog name, and schema name as the following examples show:

- In SQL Server, a fully-qualified table name has the following format:

  \[\text{databasehostname}.\text{catalogname}.\text{schemaname}.\text{tablename}\]

  For example,

  \text{server-01.ForenzaDW.dbo.customer}

- In an SAP BusinessObjects Enterprise system, a fully-qualified table name has the following format:

  \[\text{CMSservername}.\text{catalogname}.\text{schemaname}.\text{tablename}\]

  For example:

  CMS-server1.SalesDW.DBO.customer

- In SAP BusinessObjects Data Federator, a fully-qualified table name has the following format:

  \[\text{databasename}.\text{catalogname}.\text{schemaname}.\text{tablename}\]

  For example:

  server-02.ForenzaDW.SQLServer.customer

- In Oracle, a fully-qualified table name has the following format:

  \[\text{Oraclehost.Oracleinstance.schemaname.tablename}\]

  For example:

  server-02.ForenzaDW.SQLServer.customer
For example:

```
server-03.ForenzaDW.scott.customer
```

You might need to set Impact and Lineage Preferences and Object Equivalency Rules to ensure that SAP BusinessObjects Metadata Management treats the table as the same physical object in the Same As relationship, Impact and Lineage analysis tabs.

### Setting impact and lineage preferences

You might need to set options in Impact and Lineage Preferences to ensure that SAP BusinessObjects Metadata Management displays the correct Impact and Lineage analysis between metadata integrator source systems. You would specify these preferences once, when you first setup your source systems.

To set Impact and Lineage Preferences, you must have the Edit or Create access level on the Metadata Management application.

1. Click Preferences in the upper right corner of the Metadata Management Explorer to display the Preferences page. The "Preferences" screen appears.
2. Under Impact and Lineage Preferences, choose the following options.
   a. **What is the highest level used to determine if two relational objects are the same?**

   The "highest level" refers to the fully-qualified name of an object. For details, see Recognizing the same object in multiple source systems on page 265.

   - The default level is **schema**, which means that Metadata Management recognizes that tables are the same if the their schemas have been defined to be equivalent. For example, the following fully-qualified names refer to the same Customer table:

```
server-01.ForenzaDW.sa.customer

CMS-server1.SalesDW.DBO.customer
```
• Select **table** if you want a lower level. You might want to use the table level if you want Metadata Management to recognize that a table is the same even though it has two different schema names.

• Select **catalog** or **database** if you want a higher level.

b. **Should the comparison of two objects be case sensitive?**

The default is Yes.

Select No if you do not want to consider the case to determine if two objects are the same.

3. If you changed the default values for the **Impact and Lineage Preferences**, click **Save**.

4. If you use impact and lineage reports on the Reports tab, you must recompute the contents of the lineage staging table to incorporate your changed values for the **Impact and Lineage Preferences**. You can set up a similar schedule to compute the lineage staging table at regular intervals. For more information, see *Computing and storing lineage information for reporting* on page 179.

**Setting object equivalency rules for Same As relationships**

SAP BusinessObjects Metadata Management uses the values in **Impact and Lineage Preferences** with **Object Equivalency Rules** to determine that an object with two different names is the same physical object. For example in SQL Server, user **dbo** is the same as user **sa**, and the **highest level** option in **Impact and Lineage Preferences** is set to **schema**. Therefore, **dbo.TableA** is the same as **sa.TableA** in a given catalog. Metadata Management has already defined this object equivalency rule for you.

If you have other objects that have different high-level qualifiers, use the **Object Equivalency Rules** to tell Metadata Management that an object is the same. You would specify these rules once, when you first setup your source systems.

**To set Object Equivalency Rules for Same As relationships**

1. Choose the **Object Equivalency Rules** options.
The Left Side represents the objects that you want to specify are the same as the objects on the Right Side. Specify the following options for each side:

- **Context** - Select the integrator source name from the drop-down list. The default is All which means all integrator sources configured on your Metadata Management application.

2. After you select an integrator source name in **Context**, you can click the Lookup Object icon next to the following options to choose a name for each:

- **Database** - The default is an asterisk (*) to indicate that the database name on the Left Side is the same as on the Right Side.
- **Catalog** - The default is an asterisk (*) to indicate that the catalog name on the Left Side is the same as on the Right Side.
- **Schema** - Enter the high-level qualifier of the tables for which you want to define an equivalency rule.

For example, to define a rule for **My DF source** to indicate that the SAP BusinessObjects Data Federator datasource ForenzaDW should be the same as the database ForenzaDW in your relational database system:

a. In the "Object Equivalency Rules" area of the "Preferences" page, click **Add**.

b. Select the check box for the new row under "Object Equivalency Rules".

c. For the Left Side **Context**, select the integrator source name **My DF Source** from the drop-down list.

d. Keep the default asterisk (*) in **Database** and **Catalog**.

e. Click the Lookup Objects icon next to **Schema** and click **Select** next to the database name **ForenzaDW**.
f. For the Right Side Context, select the integrator source name for your
relational database system.

g. For the Right Side Database and Catalog, keep the default asterisk
(*).

h. For the Right Side Schema, click the Lookup Objects icon and click
Select next to the schema name dbo.

i. Click Save.

3. If you use impact and lineage reports on the "Reports" tab, you must
recompute the contents of the lineage staging table to incorporate your
changes to Object Equivalency Rules. For more information, see
Computing and storing lineage information for reporting on page 179.
Changing preferences for relationships
Exploring SAP BusinessObjects Enterprise metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. The software’s Explorer organizes the metadata into a directory structure so that users can navigate and explore the metadata objects in an easy to understand way.

The directory structure in software’s Explorer contains the following categories:

- **Business Intelligence** which contains sources such as SAP BusinessObjects Enterprise and SAP NetWeaver Business Warehouse.
- **Data Integration** which contains source systems such as SAP BusinessObjects Data Federator, BusinessObjects Data Integrator, and SAP BusinessObjects Data Services.
- **Relational Databases** which contains sources such as DB2, MySQL, Oracle, SQL Server, Java Database Connectivity (JDBC), or a BusinessObjects Universe connection.
- **Data Modeling** which contains sources such as CWM (Common Warehouse Modeling)

The software’s Explorer uses the following terms:

- **Category** - A category is a type of source system for which Metadata Integrators collect metadata. The above list of categories show examples of source systems for each category. When your administrator configures a source system for Metadata Integrator, the source system displays under the appropriate category on the The software’s Explorer.

- **Instance** - An instance is an occurrence of a Metadata Integrator or metadata object. For example, an SAP BusinessObjects Enterprise source (such as MySales) is an instance of a Metadata Integrator in the Business Intelligence category. An example of a type of metadata object is a report, and an instance of a report is Product Sales by Customer.rpt.

- **Metadata Integrator** - A Metadata Integrator is a program that extracts metadata from a source system and loads it into the Metadata Management repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator. For configuration
information, see Configuring sources for SAP BusinessObjects Enterprise Metadata Integrator on page 134.

- **Metadata object** - A unit of information that a Metadata Integrator creates from an object in a source system. For example, an SAP BusinessObjects Enterprise source contains objects such as universes, universe objects, and reports which the Metadata Integrator loads into the metadata management repository as metadata objects Universe, Universe Object, and Report.

**Related Topics**
- Navigating SAP BusinessObjects Enterprise metadata on page 278

### SAP BusinessObjects Enterprise metadata objects

An SAP BusinessObjects Enterprise source can contain different object types, as the following table describes. The SAP BusinessObjects Metadata Management Explorer shows the following object types if they exist in the SAP BusinessObjects Enterprise source.

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Associated objects</th>
</tr>
</thead>
</table>
| Universes   | A universe is an object that contains the following:  
  - Connection parameters for one or more database middleware  
  - Objects that map to either of the following  
    - Actual relational structures (such as columns, tables, and database functions) in the database  
    - Actual OLAP structures (DataStore objects, InfoObjects, InfoCubes, and Queries)  
  Objects are grouped into classes.  
  - A schema of the tables and joins in the database (objects are built from the database structures that you include in your schema) | Universe classes, which can contain:  
  - Universe objects  
  - Dimensions  
  - Details  
  - Measures  
  - Universe filters |
<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reports</td>
<td>A &quot;report&quot; is a document that obtains data from universe objects and tables, format the data, and deliver it inside and outside the organization. Reports can be any of the following types: • Crystal Reports</td>
<td>Columns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Universe objects • Dimensions • Details • Measures</td>
</tr>
<tr>
<td>CMS Folders</td>
<td>A CMS Folder organizes universes, personal and public folders, documents, and reports by department or area. The administrator for SAP BusinessObjects Enterprise can set object rights and limits at the folder level rather than setting them for each report or object.</td>
<td></td>
</tr>
<tr>
<td>Server Instances</td>
<td>A &quot;server instance&quot; is a database server to which SAP BusinessObjects Enterprise connects to obtain the data that the reports format and deliver.</td>
<td>Databases • Schemas, which can contain: • Tables • Columns • Views • Synonyms</td>
</tr>
<tr>
<td>Users</td>
<td>A &quot;user&quot; is an administrator or end user in an SAP BusinessObjects Enterprise system.</td>
<td>Groups to which each user belongs</td>
</tr>
</tbody>
</table>
A "group" is a group of users in an SAP BusinessObjects Enterprise system. The administrator for SAP BusinessObjects Enterprise can set privileges for universe and reports at the group level rather than setting them for each user.

An "SAP BW System" is an SAP NetWeaver BW server to which SAP BusinessObjects Enterprise connects to obtain the data that the reports format and deliver.

**Related Topics**
- [SAP BusinessObjects Enterprise object relationships](#) on page 275
- [SAP NetWeaver BW objects as sources](#) on page 277
- [Exploring the universe metadata object](#) on page 279
- [SAP NetWeaver BW objects used by a Crystal Report](#) on page 297
- [Universe lineage from InfoCube](#) on page 300
- [Crystal Report lineage from DataStore Object](#) on page 301
- [Exploring the report metadata object](#) on page 281
- [Exploring Users](#) on page 284
- [Exploring Groups](#) on page 284

**SAP BusinessObjects Enterprise object relationships**

The following diagram shows the relationships between the object types in SAP BusinessObjects Enterprise and their relationships to the databases in the Server Instance that provide the data for the reports. The diagram shows:

- Which object types can be associated with (contained within) other object types
- Which objects impact (provides data to) other objects, either directly or with a mapping expression
Related Topics

- SAP BusinessObjects Enterprise metadata objects on page 273
SAP NetWeaver BW objects as sources

The following diagram shows the relationships between the object types in SAP BusinessObjects Enterprise and their relationships to the object types in the SAP NetWeaver BW that provide the data for the reports. The diagram shows these relationships:

• Which object types are contained within other object types. Examples include an InfoCube contain InfoObjects and a CMS Folder contains reports.
• Which objects impact (provides data to) other objects, either directly or with a mapping expression. Examples include InfoObjects provide data to Universe objects, and the InfoObjects provide data to the reports in the CMS folders.

For more details, see the chapter How SAP BW objects are mapped and used in a universe in the Universe Designer document Using SAP BW in Universe Designer.
Navigating SAP BusinessObjects Enterprise metadata

When you log in to the SAP BusinessObjects Metadata Management Explorer, the Directory home page displays. To login, see Accessing Metadata Management for administrative tasks on page 119.

Related Topics
• SAP BusinessObjects Enterprise object relationships on page 275
The Directory home page shows each configured integrator source, grouped by the Metadata Integrator category in which it belongs.

The Business Intelligence category can include integrator sources such as SAP BusinessObjects Enterprise, SAP NetWeaver Business Warehouse, and other Business Intelligence sources. The sample Directory home page shows the **Business Intelligence** category with a configured SAP BusinessObjects Enterprise repository source, **MySales**.

Under each source name are the first three metadata object types that it contains, and the number in parenthesis indicate the number of instances for that type. The sample shows the **My Sales** source contains metadata object types **Universes**, **Reports**, and **CMS Folders**.

### Exploring the universe metadata object

An SAP BusinessObjects Enterprise source page shows a **Universes** metadata object type with the first three instance names. Click **Universes** or **Show All...** to display all universe names.

The **Universes** metadata object page displays the following information:

- The universe names that this SAP BusinessObjects Enterprise source contains, listed in alphabetic order.
- Under each universe name:
  - Description
  - File name
  - Path
• **Universes Classes** link with a number in parenthesis that indicates the number of universe classes

**Exploring an instance of a universe**

On the **Universes** metadata object page, click a universe name to display the universe instance page.

The universe instance page opens onto the Overview tab that displays:

- File name
- Path
- Connection Name
- Author
- Modified By
- Cluster
- Join Clause
- Universe Classes section that lists:
  - Name of each universe class associated with this universe
  - Under each universe class name, the associated metadata object types (universe objects and universe filters) that it contains and a number in parenthesis that indicates the number of instances for that associated metadata object.

To display details of the associated metadata objects, click either the name of the universe class or the metadata object type under the name.

The Universe Objects section lists a line for each dimension, detail, and measure in this class with the following information:

- Name
- Description
- Data type
- Mapping expression (indicates the schema name, table name, and column name on which the universe object is based)
- Where clause

The following example displays the universe objects that universe class Fact Sales Order contains.
Click the name of a universe object to display more information about it. The universe object page shows tabs Same As, Related To, Impact, Lineage, and User Defined where you can analyze relationships that universe object Total Order Value might have with other objects.

**Related Topics**

- Viewing relationships for universe objects and reports on page 289
- Navigating metadata on page 201

**Exploring the report metadata object**

An SAP BusinessObjects Enterprise source page displays a Reports metadata object with the first three report names.

Click Reports or Show All... to display all report names, as the following example shows for the MySales source.
The Reports metadata object page displays:

- The report names that the BusinessObjects Enterprise source contains, listed in alphabetic order.

- Under each report name
  - A short description, if it exists
  - Report type - This value can be one of the following:
    - Crystal Report
    - Desktop Intelligence Document
    - Web Intelligence Document
  - Owner - User name of the owner of the report or document
  - Date and time when the report was last modified
  - Path of the report within BusinessObjects Enterprise

For example, the path of report Product Sales by Customer.rpt is

\[\text{Report Samples/MM Demo Reports}\]

which is the name of the CMS folder (Report Samples) and subfolder (MM Demo Reports) that contains the report.

- The associated metadata object types that a report contains and a number in parenthesis that indicates the number of instances for that associated metadata object. Each report type contains the following associated metadata objects:
<table>
<thead>
<tr>
<th>Report type</th>
<th>Associated metadata objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal Reports</td>
<td>If the Crystal Report is directly from tables, SAP BusinessObjects Metadata Management displays <strong>Columns</strong></td>
</tr>
<tr>
<td></td>
<td>If the Crystal Report is from a universe, Metadata Management displays the following objects:</td>
</tr>
<tr>
<td></td>
<td>• <strong>Universe Filters</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>Universe Objects</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>Columns</strong> -- Includes columns that are not used directly in the filters and universe objects used in the report. Might also include columns when multiple objects for the report have the same name and Metadata Management cannot uniquely identify the object.</td>
</tr>
<tr>
<td>Desktop Intelligence Documents</td>
<td><strong>Universe Filters</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Universe Objects</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Columns</strong> -- Includes columns that are not used directly in the filters and universe objects used in the document.</td>
</tr>
<tr>
<td>Web Intelligence documents</td>
<td><strong>Universe Filters</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Universe Objects</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Columns</strong> -- Includes columns that are not used directly in the filters and universe objects used in the document.</td>
</tr>
</tbody>
</table>
Exploring Users

An SAP BusinessObjects Enterprise source page shows the Application Users metadata object and the first three users. Click Application Users or Show All... to display all users in the BusinessObjects Enterprise system.

The Application Users metadata object page displays:

- The user names that this BusinessObjects Enterprise source contains, listed in alphabetic order.
  
  You can click each user name to display privileges.
- Under each user name, the following information displays:
  - Description
  - Full name
  - Groups \( n \), where \( n \) is the number of groups to which this user belongs

  You can click Groups to display the group names.

Related Topics
- Finding user privileges to reports and universes on page 303
- Exploring Groups on page 284

Exploring Groups

An SAP BusinessObjects Enterprise source page shows a Groups metadata object and the first three group names. Click Groups or Show All... to display all group names in the BusinessObjects Enterprise system.

The Groups metadata object page displays:

- The group names that this BusinessObjects Enterprise source contains, listed in alphabetic order.
- Under each group name, the Users object type with a number in parenthesis that indicates the number of users that this group contains.

Click the group name to display the following details for each group:

- The Overview tab shows for each user in the group:
Group name
Annotation, if any
Description of the group
Custom attribute, if any
Groups that belong to this group, if any
Users that belong to the group

The Privileges tab shows the reports and universes that this group can access.

Related Topics
- Finding group privileges to reports and universes on page 305
- Exploring Users on page 284

Exploring personal folders

Personal folders can hold any reports that you specify. You can copy reports from public folders and place them into your personal folder. You can also add new reports. By default the configuration options do not include collecting personal folder metadata. You must configure and run personal folder collection through the SAP BusinessObjects Enterprise Central Management Console.

If you have subfolders within your personal folder and run a collection on the main folder, all subfolders and their objects are also included in the collection. If you have shortcuts to reports outside of your personal folder, those objects are not included in the collection.
Related Topics
• View personal folder collection results on page 286

View personal folder collection results

After you have successfully run the SAP BusinessObjects Enterprise Metadata Integrator, you can view the collected metadata such as lineage through the SAP BusinessObjects Metadata Management Explorer.

2. Under Business Intelligence, choose the integrator that ran your collection, and then click CMS Folders.
3. Under CMS Folders, click Show All.
4. Click User Folders and then click on your personal folder name.
   When you click your folder name, you will see a count of all the different object types in your folder. The number includes subfolders and reports. For example, Reports(5), CMS Folders(2) means that there are 5 reports and 2 subfolders.
5. Select an object type to see a list of those kinds of objects.
6. Open the report or document.
   To view relationships about the report or document, click the appropriate tabs.

Related Topics
• Navigating metadata on page 201
• Exploring personal folders on page 285

Viewing relationships for universe objects and reports

With SAP BusinessObjects Metadata Management Explorer you can view relationships between universe objects, reports, and documents that you create with SAP BusinessObjects Enterprise. You can also review relationships between universe objects and tables in ETL systems such as SAP BusinessObjects Data Services.
A Metadata Integrator obtains the following relationships from an SAP BusinessObjects Enterprise source, and you can view them on the tabs of the Metadata Management Explorer page for each universe object and report.

<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
</table>
| **Same As**           | • Tables and columns that are the same between two systems, such as between a relational database and a BusinessObjects Enterprise system.  
                        | • You can also define this relationship for a metadata object that has a different name in another metadata integrator source system (for example, a table name might have a different high-level qualifier). For the procedure, see *Establishing user-defined relationships between objects* on page 260.  
                        | If no Same As relationship exists, a messages indicates so. |
| **Related To**        | • You can define your own relationships. For example, you might want to group together that pertain to a specific business area, such as Billing. For the procedure, see *Establishing user-defined relationships between objects* on page 260.  
<pre><code>                    | If no Related To relationship exists, a messages indicates so. |
</code></pre>
<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong></td>
<td>Shows a graphic of other metadata objects that are affected by data within this metadata object. For example, a universe object can impact multiple reports. For more information, see <em>Impact analysis for a universe object</em> on page 291. If the metadata object is a universe or report, the Impact graphic shows the number of Users and the number of Groups that have access to the specific universe or report. Click the corresponding Users and Groups node to view the names and permissions. For more information, see <em>Impact analysis for users and groups</em> on page 306.</td>
</tr>
<tr>
<td><strong>Lineage</strong></td>
<td>Shows a graphic of the sources from which this metadata object obtains its data. For example, a report column obtains its data from a universe object which, in turn, obtains its data from a column in a table in a relational database. For more information, see • <em>Lineage analysis for universe object</em> on page 291 • <em>Lineage analysis for a report</em> on page 294</td>
</tr>
<tr>
<td><strong>User Defined</strong></td>
<td>If you establish your own relationship, you can view the following information for it: • Name of the related metadata object • Name of the relationship • Path of the related metadata object in the Metadata Explorer. You can delete a user defined relationship from this tab. If no User Defined relationship exists, a message indicates so.</td>
</tr>
</tbody>
</table>
Viewing relationships for universe objects and reports

With SAP BusinessObjects Metadata Management Explorer you can view relationships between universe objects, reports, and documents that you create with SAP BusinessObjects Enterprise. You can also review relationships between universe objects and tables in ETL systems such as SAP BusinessObjects Data Services.

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<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
</table>
| Same As               | • Tables and columns that are the same between two systems, such as between a relational database and a BusinessObjects Enterprise system.  
                        | • You can also define this relationship for a metadata object that has a different name in another metadata integrator source system (for example, a table name might have a different high-level qualifier). For the procedure, see *Establishing user-defined relationships between objects* on page 260.  
                        | If no Same As relationship exists, a messages indicates so. |
| Related To            | • You can define your own relationships. For example, you might want to group together that pertain to a specific business area, such as Billing. For the procedure, see *Establishing user-defined relationships between objects* on page 260.  
<pre><code>                    | If no Related To relationship exists, a messages indicates so. |
</code></pre>
<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact</strong></td>
<td>Shows a graphic of other metadata objects that are affected by data within this metadata object. For example, a universe object can impact multiple reports. For more information, see <em>Impact analysis for a universe object</em> on page 291. If the metadata object is a universe or report, the Impact graphic shows the number of Users and the number of Groups that have access to the specific universe or report. Click the corresponding Users and Groups node to view the names and permissions. For more information, see <em>Impact analysis for users and groups</em> on page 306.</td>
</tr>
</tbody>
</table>
| **Lineage**          | Shows a graphic of the sources from which this metadata object obtains its data. For example, a report column obtains its data from a universe object which, in turn, obtains its data from a column in a table in a relational database. For more information, see  
  - *Lineage analysis for universe object* on page 291  
  - *Lineage analysis for a report* on page 294 |
| **User Defined**     | If you establish your own relationship, you can view the following information for it:  
  - Name of the related metadata object  
  - Name of the relationship  
  - Path of the related metadata object in the Metadata Explorer.  
  You can delete a user defined relationship from this tab.  
  If no User Defined relationship exists, a messages indicates so. |
Impact analysis for a universe object

This section shows what objects are affected by the data within an object. Section Lineage analysis for universe object on page 291 describes the lineage (source of data) for universe object Total Order Value.

Click the Impact tab to obtain the following impact analysis diagram which shows
- Three reports (SalesByYear, Product Sales by Customer_unv.rpt and Product_Sales_By_Customer_webi) are affected by the data in the Total Order Value universe object.
- Two users and two groups have permissions to access each report. For details about the users and groups information, see Impact analysis for users and groups on page 306.

Lineage analysis for universe object

Lineage analysis allows you to trace back from a universe object to the source. Use the Lineage tab to view the sources for an object.

The following sample Lineage tab displays the source for the Total Order Value universe object. You can use the search function that section Searching for objects on page 202 describes to find the Total Order Value universe object.
The Lineage tab shows that:

- The Total Order Value object uses data from the column TOTAL_ORDER_VALUE within the MySales source system.

- The dashed line between column TOTAL_ORDER_VALUE in the DIREPO source and column TOTAL_ORDER_VALUE within the MySales source system indicates that the two columns are the same.

- The DIREPO source system uses values from three columns (UNITPRICE, QUANTITY, and DISCOUNT) to produce the value in column TOTAL_ORDER_VALUE.

Move the pointer over:

- The universe object on the far right of the diagram to display the universe class, universe name, and the CMS server name.

- The column object to display the table name and schema name that contains the column. This example shows that TOTAL_ORDER_VALUE is in the FACT_SALES_ORDER table in the DBO schema.

- Relationship attribute icon to display information such as
  - The universe object selects values directly from the column or the universe object aggregates the values from the column.
The transformation name and mapping expression that the Data Integrator source uses to produce a column value. The above sample shows:

- The transformation name df_SalesOrderFact is the name of the data flow in Data Integrator that extracts the Quantity column from the source table.
- The mapping expression is the calculation for the value in column TOTAL_ORDER_VALUE.

Click **Tabular view** to view the entire mapping expression, as the following diagram shows.

Click **Tabular view** to view this information for all objects, as the following diagram shows.

<table>
<thead>
<tr>
<th>Target</th>
<th>Source</th>
<th>Steps from Target</th>
<th>Relationship Attributes</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL_ORDER_VALUE</td>
<td>TOTAL_ORDER_VALUE</td>
<td>1</td>
<td>Type: Linkage</td>
<td>Mapping Expression (SUM (DBO.FACT_SALES_ORDER.TOTAL_ORDER_VALUE))</td>
</tr>
<tr>
<td></td>
<td>Total_Order Value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universe name: Fact_SalesOrder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: FACT_SALES_ORDER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: MySales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL_ORDER_VALUE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: FACT_SALES_ORDER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: MySales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL_ORDER_VALUE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: FACT_SALES_ORDER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: MySales</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL_ORDER_VALUE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: ORDER DETAILS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: DIREPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>QUANTITY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: ORDER DETAILS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: DIREPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DISCOUNT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: ORDER DETAILS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scheme name: DBO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: DIREPO</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The tabular view displays a row for each target object and a source object with the following information:

- **Steps from Target** - Number of steps between this source and the final target.
- **Relationship Attributes** - Relationship between this source and target.
- **Mapping (if any)** - How the data from the source is mapped to the target.

The third row in this example displays target TOTAL_ORDER_VALUE with three sources: UNITPRICE, QUANTITY, and DISCOUNT.

- **Steps from Target** is 3, which indicates that the data flowed from three different object to reach the target, (universe object Total Order Value).
The Relationship Type is Lineage, which indicates that the target column obtains its data from the three source columns.

Mapping expression displays the complete calculation for the value in column TOTAL_ORDER_VALUE.

**Lineage analysis for a report**

On the Reports page, click the Lineage tab to display a graphical view of the source columns from which the universe objects obtain their data.

**Note:**
You can also display this lineage graphical view from a document in the "Documents List" in InfoView.

This Lineage graphical view shows the following information:

- The tables for the universe objects in the MySales BusinessObjects Enterprise system were loaded by the Data Integrator source DIREPO.
- The dashed lines between each column name in DIREPO and MySales indicates that the columns are the same.
- In the MySales source, move the pointer over:
  - Each universe object to display its universe class, universe name, and CMS server name.
  - Each column name to display its table name and schema name. This information is the same as in the Mapping Expression in the Overview tab.
• Each Relationship Attribute icon to display the relationship between each universe object and the report and between each universe object and the column in the source table.

This sample Relational Attribute shows:
• The transformation name Total Order Value which is the name of the measure that uses the value in column TOTAL_ORDER_VALUE.

• The mapping expression is the sum of the values in column TOTAL_ORDER_VALUE in table DBO.FACT_SALES_ORDER.

• In the DIREPO source, move the pointer over the objects:
  • Each column name to display its table name and schema name. This information is the same as in the Mapping Expression in the Overview tab.
The blue Relationship Attribute icon to display the transformation name and mapping expression for columns processed in the DIREPO source.

This sample Relational Attribute shows:

- The transformation name df_SalesOrderFact which is the name of the data flow in Data Integrator that extracts the Quantity column from the source table.
- The mapping expression is the calculation for the value in column TOTAL_ORDER_VALUE. To display the complete calculation, click Tabular view.

You can select the Hide intermediate objects check box to display only the source columns in DIREPO and the report in MySales. The following example shows that you can still display the mapping expression from the source column.
Viewing relationships with SAP NetWeaver BW sources

On the SAP BusinessObjects Metadata Management Explorer, you can determine the answers to questions such as the following:

- Which universes or reports would be affected if you change the definition of a specific SAP NetWeaver BW object?
- From what SAP NetWeaver BW sources does the universe obtain its data?

Related Topics
- **SAP NetWeaver BW objects used by a Crystal Report** on page 297
- **Universe lineage from InfoCube** on page 300
- **Crystal Report lineage from DataStore Object** on page 301

SAP NetWeaver BW objects used by a Crystal Report

In SAP BusinessObjects Enterprise (BOE), you can define Crystal Reports that use data from DataStore objects, InfoCubes, InfoObjects and Queries in an SAP NetWeaver Business Warehouse (BW) system.

**Note:**
- You must install the BusinessObjects XI Integration for SAP Solutions on the same computer as the BusinessObjects Enterprise (BOE) Metadata
Integrator to provide connectivity between SAP BusinessObjects Enterprise and SAP NetWeaver BW. This connectivity is required for Crystal Reports and Web Intelligence documents created with the Refresh on Open option because whenever the report or document is opened (even to read the metadata when the BOE Metadata Integrator collects the metadata), the SAP BusinessObjects Enterprise system connects to the source system to refresh the data automatically.

- The BusinessObjects XI Integration for SAP Solutions has prerequisites that you must install. For more information, see the BusinessObjects XI Integration for SAP Installation Guide.

The Crystal Reports field explorer lists the NetWeaver BW objects hierarchically. For example, an InfoCube named Z_BOBJ might contain the InfoObjects named Z_CUSTOM and Z_ORDERID, and these InfoObjects might contain the other InfoObjects. In an SAP NetWeaver BW system, these InfoObjects are listed as attributes of the Z_CUSTOM and Z_ORDERID InfoObjects.

- InfoCube Z_BOBJ
  - InfoObject Z_CUSTOM
    - 2Z_CUSTOM
    - 1Z_CUSTOM
    - 2Z_CADDR
    - 1Z_CADDR
    - 2Z_CFax
    - 1Z_CFax
    - 2Z_CPHONE
    - 1Z_CPHONE
  - InfoObject Z_ORDERID
    - 2Z_ORDERID

Several of the InfoObjects have the same name except for a leading numeric value. They all refer to the same InfoObject, and the numeric value is used internally by Crystal Report to determine the data format to use for the InfoObject. When the BusinessObjects Enterprise Metadata Integrator collects metadata about the objects used by a Crystal Report, it removes the leading numeric values because it is not part of the SAP NetWeaver BW object.

For example, a Crystal Report might use the following InfoObjects from the above InfoCube:
• InfoCube Z_BOBJ
  • InfoObject Z_CUSTOM
    • 2Z_CFAAX
    • 2Z_CPHONE
  • InfoObject Z_ORDERID
    • 2Z_ORDERID

The SAP BusinessObjects Metadata Management Explorer shows the following:

• The names of only the InfoObjects that the report uses.
  For the sample Crystal Report, the following lineage diagram shows InfoObjects Z_CFAAX, Z_CPHONE, and Z_ORDERID in the BOE CMS integrator source system.

• The hierarchical relationship of the InfoObjects as a mapping expression with the format [parent]-[child]
  In the following lineage diagram, the relationship attribute tool tip to the right of InfoObject Z_CPHONE shows that 2Z_CPHONE which is a child of Z_CUSTOM.

• The name of the SAP NetWeaver BW query that produces each InfoObject used by the Crystal Report
  The relationship attribute tool tip shows the query CB_QUERY_HIGH_Z_BOBJ.
Universe lineage from InfoCube

A Web Intelligence Document in an SAP BusinessObjects Enterprise system can obtain data from a universe that is defined on an SAP NetWeaver BW InfoCube, InfoObject, or Query.

**Note:**
This lineage is the same for a Crystal Report from an SAP NetWeaver BW Query.

To see the SAP NetWeaver BW objects from which a Web Intelligence Document obtains its data:

2. Click the "Lineage" tab to view the lineage analysis diagram.

In the following sample lineage analysis diagram, the right side shows the following metadata objects in the SAP BusinessObjects Enterprise integrator source named localCMS:

- A Web Intelligence Document named Web_InfoCube_Z_BOBJ that obtains data from universe objects L00 City, L00 City Key, L00 City Name, and L00 City.
- Each universe object obtains its data from a specific InfoObject. For example, the universe object L00 City obtains its data from the InfoObject named Z_CITY.
3. To view the name of the InfoCube and the hierarchy of SAP NetWeaver BW objects that provide the data, move the pointer over the relationship attribute on the left side of a universe object.

In the above lineage diagram, the pop-up window for the relationship attribute to the left of L00 City shows the following:

- The InfoCube named Z_BOBJ contains the City InfoObject.
- The Mapping Expression shows the hierarchy of InfoObjects under Z_CITY that are listed as attributes of Z_CITY in the SAP NetWeaver BW system: LEVEL00 is an InfoObject under Z_CITY.

4. The left side of the lineage diagram shows the following metadata objects in the SAP NetWeaver BW integrator source named pagvmin001.dhcp.pgdev.sap.corp:

- InfoObject named City
- The transformations from which the InfoObject derives its data. In the above example, the InfoObject named City obtains data from two transformations: City (Master Data) and City (Texts).
- The BW Source Systems from which the transformations obtain their data. In the example, the transformation named City (Texts) obtains its data from the BOBJ Source System.

5. To display the description for each object, change the value of the "View" drop-down list to Tabular.

Crystal Report lineage from DataStore Object

A Crystal Report in SAP BusinessObjects Enterprise can obtain its data from a DataStore Object in an SAP NetWeaver BW system.
To see the SAP NetWeaver BW objects from which a Crystal Report obtains its data:

2. Click the "Lineage" tab to view the lineage diagram.

3. Move the pointer over the relationship attribute on the left side of the Crystal Report to view the name of the SAP DataStore Object.

In the above lineage diagram, the pop-up window for the relationship attribute shows the following:

- The InfoObject was selected to be in the Crystal Report.
- The Mapping Expression shows the InfoObject named 0BPPARTNER1.
- The SAP DataStore Object name is 0BP_REL.

**Viewing relationships of users and groups**

On the SAP BusinessObjects Metadata Management Explorer, you can determine answers to questions such as the following:

- Which users or groups would be affected if you change the definition of a specific universe or report?
What reports and universes can a specific user or group access?

This section describes the following topics:

- Finding user privileges to reports and universes on page 303
- Finding group privileges to reports and universes on page 305
- Impact analysis for users and groups on page 306

Finding user privileges to reports and universes

1. Navigate to a specific user in the SAP BusinessObjects Metadata Management Explorer. Ways to navigate to a user include the following:
   - In the Users section on the SAP BusinessObjects Enterprise source page, click the user name.
   - In the Search area, enter the user name, and click the user name in the search results.

2. Click the Privileges tab to display:
   - A Reports section that lists the name of each report that this user can access and the permissions that this user has for that report.
   - A Universe section that lists the name of each universe that this user can access and the permissions that this user has that universe.

3. You can expand or collapse the Reports section.
   The following example lists the name and permissions for each report that the Guest user can access.
For information about object rights that each permission contains, see *Privileges and object rights for users and groups* on page 308.

4. If you want to find a specific report, enter the name or a portion of the name in the **Name** text box and click **Filter**.

5. You can expand or collapse the Universes section. The following example lists the name and permissions for each universe that the **Guest** user can access.

6. If you want to find a specific universe, enter the name or a portion of the name in the **Name** text box and click **Filter**.
Finding group privileges to reports and universes

1. Navigate to a specific user in the SAP BusinessObjects Metadata Management Explorer. Ways to navigate to a user include the following:
   • In the Groups section on the SAP BusinessObjects Enterprise source page, click the group name.
   • In the Search area, enter the group name, and click the group name in the search results.

2. Click the Privileges tab to display
   • A Reports section that lists the name of each report that this group can access and the permissions that this group has for that report.
   • A Universe section that lists the name of each universe that this group can access and the permissions that this group has that universe.

3. You can expand or collapse the Reports section.

4. If you want to find a specific report, enter the name or a portion of the name in the Name text box and click Filter.

5. Expand the Universes section to list the names of the universes that this group can access and the permissions that the group has for each universe.

   For information about the object rights contained in each permission, see Privileges and object rights for users and groups on page 308.

   For example, the following Privileges tab shows Group Everyone has access to Universes MySales and Sales.

<table>
<thead>
<tr>
<th>Name</th>
<th>Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MySales</td>
<td>Administration, Edit, Other, Schedule, View</td>
</tr>
<tr>
<td>Sales</td>
<td>Administration, Edit, Other, Schedule, View</td>
</tr>
</tbody>
</table>
6. If you want to find a specific universe, enter the name or a portion of the name in the **Name** text box and click **Filter**.

### Impact analysis for users and groups

You might want to determine what users and groups can access a specific universe or report for situations such as the following:

- You want to redefine objects in a universe and you want to see which users are currently using the objects.
- You have sensitive information in a report and you want to see all users and groups who currently have access to determine if you need to change their privileges.
- You want to change the definition of the column and you want to determine the reports that would be affected and who the users of those reports are.
- The data in a column was not transformed accurately and you want to determine which users and groups have been receiving incorrect reports.

1. **Navigate to a specific universe, report, or column in the SAP BusinessObjects Metadata Management Explorer.** Ways to navigate to these objects include the following:
   
   - On the SAP BusinessObjects Enterprise source page, click the universe name in the **Universes** section or click the report name in the **Reports** section.
   - In the Search area, enter the name (or partial name with wildcard characters) of the universe, report, or column; then click the name in the search results.

2. **Click the Impact tab to obtain the impact analysis diagram.**

   For example, the following Impact tab shows:
   
   - The universe object **Customerid** obtains its data from the CUSTOMERID column.
   - Three reports (SalesByYear, Product_Sales_By_Customer_webi, and Product Sales by Customer_unv.rpt) are affected by the data in the CUSTOMERID column.
   - Two users and two groups have permissions to access each report. For more information, see *Finding user privileges to reports and universes* on page 303 and *Finding group privileges to reports and universes* on page 305.
3. In the impact analysis diagram, click the Users and Groups node. The Permissions window opens.

4. Click the Users tab to display the Account Name, Full Name, and Permissions of users that access the report or universe.

The following sample Permissions window lists the Account Name and Full Name of each user that can access the MySales universe and the specific permissions that each user has on the MySales universe. For information about object rights that each permission contains, see Privileges and object rights for users and groups on page 308.

5. If you want to find a specific user name:
   a. On the Users tab, in the User Name text box, enter the name that you want to find.
   b. Click Filter.
6. Click the Groups tab to display the names and permissions of groups that access the report.

The following example lists the Group Name for each group that can access the MySales universe and the specific permissions each group has on the MySales universe.

![Permissions For: MySales](image)

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators</td>
<td>Administration, Edit, Other, Schedule, View</td>
</tr>
<tr>
<td>Everyone</td>
<td>Administration, Edit, Other, Schedule, View</td>
</tr>
<tr>
<td>Universe Designer Users</td>
<td>Administration, Edit, Other, Schedule, View</td>
</tr>
</tbody>
</table>

7. If you want to find a specific group name:
   a. On the Groups tab, in the **Group Name** text box, enter the name that you want to find.
   b. Click **Filter**.

For information about the lineage (source of data) for objects, see sections
- *Lineage analysis for universe object* on page 291
- *Lineage analysis for a report* on page 294

**Related Topics**
- *Privileges and object rights for users and groups* on page 308

**Privileges and object rights for users and groups**

To simplify the display of privileges that each user or group has on reports and universes, SAP BusinessObjects Metadata Management uses the following permissions to represent multiple object rights.
<table>
<thead>
<tr>
<th>Metadata Explorer Permission name</th>
<th>Object rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>• Modify Rights</td>
</tr>
<tr>
<td></td>
<td>• Modify Rights to user owned objects</td>
</tr>
<tr>
<td></td>
<td>• Allow discussion threads</td>
</tr>
<tr>
<td></td>
<td>• Unlock Universe</td>
</tr>
<tr>
<td></td>
<td>• Apply overload to user</td>
</tr>
<tr>
<td></td>
<td>• Edit overloads</td>
</tr>
<tr>
<td></td>
<td>• Edit access restrictions</td>
</tr>
<tr>
<td>Data Access</td>
<td>• Data Access</td>
</tr>
<tr>
<td></td>
<td>• Use List of Values</td>
</tr>
<tr>
<td></td>
<td>• Refresh List of Values</td>
</tr>
<tr>
<td></td>
<td>• New List of Values</td>
</tr>
<tr>
<td></td>
<td>• View SQL, Edit query</td>
</tr>
<tr>
<td></td>
<td>• Show data values</td>
</tr>
<tr>
<td></td>
<td>• Refresh reports data</td>
</tr>
<tr>
<td></td>
<td>• Download files</td>
</tr>
<tr>
<td></td>
<td>• Download files associated with object</td>
</tr>
<tr>
<td></td>
<td>• Download files associated with report</td>
</tr>
<tr>
<td></td>
<td>• Export reports data</td>
</tr>
</tbody>
</table>

For more information about object rights, see the *SAP BusinessObjects Enterprise Administrator's Reference Guide*. 
8 SAP BusinessObjects Enterprise Metadata

Viewing relationships of users and groups
SAP NetWeaver Business Warehouse Metadata
Exploring SAP NetWeaver Business Warehouse metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. The software’s Explorer organizes the metadata into a directory structure so that users can navigate and explore the metadata objects in an easy-to-understand way.

The directory structure in the software’s Explorer contains the following categories:

<table>
<thead>
<tr>
<th>Component</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Intelligence</td>
<td>Includes source systems such as SAP BusinessObjects Enterprise and SAP NetWeaver Business Warehouse.</td>
</tr>
<tr>
<td>Data Integration</td>
<td>Includes source systems such as SAP BusinessObjects Data Federator, BusinessObjects Data Integrator, and SAP BusinessObjects Data Services.</td>
</tr>
<tr>
<td>Relational Databases</td>
<td>Includes sources such as DB2, MySQL, Oracle, SQL Server, Java Database Connectivity (JDBC), or a BusinessObjects Universe connection.</td>
</tr>
<tr>
<td>Data Modeling</td>
<td>Includes sources such as CWM (Common Warehouse Modeling)</td>
</tr>
</tbody>
</table>

The software’s Explorer uses the following terms:
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>A category is a type of source system for which Metadata Integrators collect metadata. The above list of categories show examples of source systems for each category. When your administrator configures a source system for Metadata Integrator, the source system displays under the appropriate category on the software’s Explorer.</td>
</tr>
<tr>
<td>Instance</td>
<td>An instance is an occurrence of a Metadata Integrator or metadata object. For example, an SAP NetWeaver Business Warehouse source (such as My SAP BW) is an instance of a Metadata Integrator in the Business Intelligence category. An example of a type of metadata object is an InfoCube, and an instance of a InfoCube is Sales Overview.</td>
</tr>
<tr>
<td>Metadata Integrator</td>
<td>A Metadata Integrator is a program that extracts metadata from a source system and loads it into the metadata management repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator.</td>
</tr>
<tr>
<td>Metadata object</td>
<td>A unit of information that a Metadata Integrator creates from an object in a source system. For example, an SAP NetWeaver Business Warehouse source contains objects such as Queries, InfoProvider, InfoObjects, Transformations, and DataSources which the Metadata Integrator loads into the metadata management repository as metadata objects.</td>
</tr>
</tbody>
</table>
SAP NetWeaver Business Warehouse metadata objects

An SAP NetWeaver Business Warehouse (BW) integrator source can contain different metadata object types. The SAP BusinessObjects Metadata Management Explorer shows the following object types if they exist in the SAP NetWeaver BW integrator source.

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Structure and associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregation Level</td>
<td>Virtual InfoProvider in SAP NetWeaver BW system.</td>
<td>An aggregation level contains a set of characteristics and key figures from a real-time InfoCube. The InfoCube characteristics that are not contained in the aggregation level are aggregated. Selections can be specified for the characteristics in an aggregation level.</td>
</tr>
<tr>
<td>Crystal Report</td>
<td>A formatted report created by integrating Crystal Reports into SAP NetWeaver BW.</td>
<td>You use the Crystal Reports Designer to create report definitions for formatted reports. From the BEx open dialog, choose a BEx query to be the basis of the formatted report.</td>
</tr>
<tr>
<td>DataSource</td>
<td>Object that makes data for a business unit available to SAP NetWeaver BW.</td>
<td>A DataSource contains a number of logically-related fields that are arranged in a flat structure and contain data to be transferred into SAP NetWeaver BW.</td>
</tr>
<tr>
<td>Object type</td>
<td>Description</td>
<td>Structure and associated objects</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| DataStore object | Object that stores consolidated and cleaned-up transaction data on the document level (basic level). | A DataStore object describes a consolidated dataset from one or more InfoSources. This dataset can be evaluated using a BEx query.  

A DataStore object consists of a key (for example, document number or position) and data fields that, as key figures, can also contain character fields (for example, customer). You can use a delta update to update data from a DataStore object into InfoCubes or other DataStore objects in the same system or in a different system.  

In contrast to multi-dimensional data stores for InfoCubes, data in DataStore objects is stored in transparent, flat database tables. |
| Dimension        | A logical grouping of characteristics within an InfoCube.                    | Characteristics are grouped together into dimensions in order to store them in a star schema table (dimension table). An InfoCube can have up to 16 dimension tables with three dimensions predefined by SAP (Time, Unit, and Packet). |
| InfoArea         | Element for grouping meta-objects in the SAP NetWeaver BW system.            | Each InfoProvider is assigned to an InfoArea. The resulting hierarchy is displayed in the Data Warehousing Workbench.  

In addition to their properties as an InfoProviders, InfoObjects can also be assigned to different InfoAreas. |
<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Structure and associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>InfoCube</td>
<td>Type of InfoProvider. An InfoCube describes a self-contained dataset (from the reporting view), for example, for a business-oriented area. This dataset can be evaluated with the BEx query.</td>
<td>An InfoCube is a set of relational tables that are created in accordance with the star schema: a large fact table in the center, with several dimension tables surrounding it.</td>
</tr>
<tr>
<td>InfoObject</td>
<td>Business evaluation objects (for example, customers or sales) are called InfoObjects in SAP NetWeaver BW.</td>
<td>InfoObjects are subdivided into characteristics, key figures, units, time characteristics, and technical characteristics (such as request numbers).</td>
</tr>
<tr>
<td>InfoProvider</td>
<td>Superordinate term for SAP NetWeaver BW objects into which data can be loaded or which represent a view of the data. As a rule, you can report on this data using BEx queries.</td>
<td>There are two types of InfoProviders. One type includes objects that contain physical data such as InfoCubes, DataStore objects and InfoObjects (characteristics with attributes or texts). The other type includes objects that are not physical data stores, such as InfoSets, VirtualProviders and MultiProviders.</td>
</tr>
<tr>
<td>InfoSet</td>
<td>Type of InfoProvider. An InfoSet is a semantic view of DataStore objects, InfoObjects (characteristics with master data) and InfoCubes that allows you to create reports on these objects, particularly on the joins between these objects.</td>
<td>Unlike the classic InfoSet, this view of data is BW-specific. In the InfoSet builder, InfoSets are created and changed. InfoSets allow you to use the query designer to define reports.</td>
</tr>
<tr>
<td>InfoSource</td>
<td>Describes the quantity of all the data available for a business transaction or a type of business transaction (for example, cost center accounting).</td>
<td>Structure that consists of InfoObjects and is used as a non-persistent store to connect two transformations.</td>
</tr>
<tr>
<td>Object type</td>
<td>Description</td>
<td>Structure and associated objects</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MultiProvider</td>
<td>Type of InfoProvider that combines data from several InfoProviders and makes it available for reporting.</td>
<td>The MultiProvider itself contains no data; its data comes exclusively from the InfoProviders on which it is based (collated using a union operation). You can assemble a MultiProvider from different combinations of InfoProviders. MultiProviders, like InfoProviders, are objects or views that are relevant for reporting.</td>
</tr>
<tr>
<td>Open Hub Destination</td>
<td>An object within the open hub service that contains all information about a target system for data in an InfoProvider. The target system can be an external data mart, analytical application, and other application such as Data Services.</td>
<td>Open Hub destinations can be database tables or flat files.</td>
</tr>
<tr>
<td>Query</td>
<td>Combination of characteristics and key figures (InfoObjects) that allow you to analyze the data in an InfoProvider.</td>
<td>A query corresponds to one InfoProvider, although you can define any number of queries for each InfoProvider. You define a query in the BEx Query Designer by selecting InfoObjects or reusable query elements (structures, for example) for an InfoProvider. You can model the view of the InfoProvider data by allocating filters, rows, columns, and free characteristics.</td>
</tr>
<tr>
<td>Query Views</td>
<td>Modified view of the data in a query or an external InfoProvider.</td>
<td>You can define one or more query views for a query. You define a query view by saving the current status of a data provider in an SAP NetWeaver BW application.</td>
</tr>
<tr>
<td>Object type</td>
<td>Description</td>
<td>Structure and associated objects</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Source System     | System that is available to SAP NetWeaver BW for data extraction and transfer purposes.                                                                                                                     | Source systems can be:  
  • SAP systems  
  • SAP NetWeaver BW systems  
  • Flat files for which metadata is maintained manually in SAP NetWeaver BW and data is transferred to SAP NetWeaver BW using a file interface  
  • Database management systems into which data is loaded from a database supported by SAP using DB Connect, without using an external extraction program.  
  • Relational sources that are connected to BI using UD Connect  
  • Web Services that transfer data to SAP NetWeaver BW by push  
  • Non-SAP systems for which data and metadata is transferred using staging BAPIs.                                                                                      |
| Transfer Rules    | Determine how the data for a DataSource is to be transferred to the InfoSource. The uploaded data is transformed using transfer rules.                                                                          | With the help of the transfer rules, you can determine how the fields for the transfer structure are assigned to the InfoObjects of the communication structure.                                                                 |
| Transformations    | Functions for unloading, loading, and formatting data between different data sources and data targets that use data streams.                                                                               | When data is loaded from one BI object to another BI object, the data is run through a transformation.  
  A transformation converts the records in a data package from the format of the source structure into the format of the target structure. A transformation consists of at least one transformation rule. |
<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Structure and associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update rules</td>
<td>Specify how the data (key figures, time characteristics, and characteristics) is updated to data targets from the communication structure of an InfoSource.</td>
<td>An update rule is specified for each key figure and the corresponding characteristics of the InfoSource.</td>
</tr>
<tr>
<td>Web Template</td>
<td>An HTML document that determines the structure of a Web application.</td>
<td>The Web template contains placeholders for Web items, data providers, and commands.</td>
</tr>
<tr>
<td>Workbook</td>
<td>Microsoft Excel workbook with one or more embedded NetWeaver BW queries.</td>
<td>Queries are inserted into workbooks so you can display them. When you insert a query, a link is made between the cell areas of the worksheet and the data of the InfoProvider on which the query is based.</td>
</tr>
</tbody>
</table>

**SAP NetWeaver BW object relationships**

The following logical diagram gives an overview of the relationships between the SAP NetWeaver BW object types:

- Which SAP NetWeaver BW object types can be associated with (contained within) other SAP NetWeaver BW object types.
- Which SAP NetWeaver BW object types can impact (provide data to):
  - SAP BusinessObjects Enterprise objects
  - Other SAP NetWeaver BW objects

**Note:**

The line from InfoArea to Transformation to Open Hub destination to Data Services indicates that InfoProviders provide data to Open Hub Destination objects which provide data to non-SAP NetWeaver BW systems such as SAP BusinessObjects Data Services.
SAP NetWeaver BW object attributes collected

When you run the SAP NetWeaver Business Warehouse metadata integrator, it collects the following attributes about each SAP NetWeaver BW object and displays them in the following SAP BusinessObjects Metadata Management attributes in the Explorer.
<table>
<thead>
<tr>
<th>NetWeaver BW attribute</th>
<th>Metadata Management attribute</th>
<th>Metadata object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client ID</td>
<td>Client Number</td>
<td>SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Data Type</td>
<td>Data Type</td>
<td>InfoObject</td>
</tr>
<tr>
<td>Host</td>
<td>Host</td>
<td>SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Last Changed On</td>
<td>Last Changed On</td>
<td>All except SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Last Changed By</td>
<td>Last Changed By</td>
<td>All except SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Long Description</td>
<td>Description</td>
<td>All except SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Output Length</td>
<td>Output Length</td>
<td>InfoObject</td>
</tr>
<tr>
<td>Short Description</td>
<td>Business Name</td>
<td>All except SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Subtype of InfoObject</td>
<td>InfoObject Type</td>
<td>InfoObject</td>
</tr>
<tr>
<td>System Number</td>
<td>System Number</td>
<td>SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Technical Name</td>
<td>Technical Name</td>
<td>All except SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Transformation Type</td>
<td>Transformation Type</td>
<td>Transformation</td>
</tr>
<tr>
<td>Version</td>
<td>BW Version</td>
<td>SAP NetWeaver BW System</td>
</tr>
<tr>
<td>Web Template Type</td>
<td>WebTemplate Type</td>
<td>Web Template</td>
</tr>
</tbody>
</table>

For example, the resulting Explorer page shows an InfoArea with the following attributes:
- Business Name: Business Objects QA
- Technical Name: BUSINESSOBJECTS_QA
- Description: Business Objects QA
- Last Changed On: 2008-02-12 22:10:48.0
- Last Changed By: HENRIK

This InfoArea contains the following objects:
• One InfoCube with the Business Name "Business Objects Cus" which contains:
  • Eight dimensions
  • 11 InfoObjects

To display additional metadata, click the object type. For example, click **InfoObject (11)** under the InfoCube **Business Objects Cus** to view the names of each InfoObject with its description, InfoObject Type, Data Type, Output Length, and an indication whether it contains other InfoObjects.
Navigating SAP NetWeaver Business Warehouse metadata

When you log in to the SAP BusinessObjects Metadata Management Explorer, the Directory home page appears. To log in, see Accessing Metadata Management for administrative tasks on page 119.

The Directory home page shows each configured integrator source, grouped by the Metadata Integrator category in which it belongs.
The Business Intelligence category can include integrator sources such as SAP BusinessObjects Enterprise, SAP NetWeaver Business Warehouse, and other Business Intelligence sources. The sample Directory home page shows the Business Intelligence category with a configured SAP NetWeaver Business Warehouse source, SAP BW.

Under each source name are the first three metadata object types that it contains, and the number in parentheses indicate the number of instances for that type. The sample shows the SAP BW source contains metadata object types InfoArea, InfoCube, InfoObject, and more.

**Exploring the InfoCube metadata object**

An SAP NetWeaver Business Warehouse source page shows the InfoCube metadata object type with the first three instance names. Click **InfoCube** or **Show All...** to display all InfoCube names. The following sample InfoCubes metadata object page shows four InfoCube instances.
The InfoCube metadata object page displays the following information:

- The business name for each InfoCube that this SAP NetWeaver Business Warehouse source contains, listed in alphabetical order.
- Under each InfoCube business name is the following metadata:
  - Description
  - Date and time it was last changed
  - User name who changed it
  - Dimensions link with a number in parenthesis that indicates the number of Dimensions that exist within the InfoCube
  - InfoObjects link with a number in parenthesis that indicates the number of InfoObjects

**Exploring an InfoCube instance**

On the "InfoCubes" metadata object page, click an InfoCube name to display the InfoCube instance page.
The InfoCube instance page opens onto the Overview tab that displays the following information:

- **Technical Name of InfoCube**: The sample InfoCube instance page shows the technical name `OBWTC_C02`.
- **Description of InfoCube**: The above sample page shows the description `BW Statistics - OLAP`.
- **Date and time when the InfoCube was last changed**: 2008-02-12 22:18:19.0
- **Name of the user who last changed the InfoCube**: HENRIK

### Dimensions

- **General Data and OLAP**
  - InfoObject (11)
- **Statistics UID**
  - InfoObject (1)
- **Start Time**
  - InfoObject (1)
- **Frontend Session,Navigation Step, Time**
  - InfoObject (2)

### InfoObjects

- **Start date**
  - InfoObject Type: Key Figure
  - Data Type: DAT5
  - Output Length: 16
- **Frequency**
  - InfoObject Type: Key Figure
  - Data Type: DEC
  - Output Length: 9
- **Start time**
  - InfoObject Type: Key Figure
  - Data Type: TIM5
  - Output Length: 12

### Description of Dimension

Under each InfoCube name is the following metadata:

- **Description of Dimension**
- **InfoObjects** link with a number in parentheses that indicates the number of InfoObjects.

### Description of InfoObjects

Under each InfoObject name is the following metadata:

- **Description of InfoObject**
Viewing relationships of SAP NetWeaver BW objects

With SAP BusinessObjects Metadata Management Explorer you can view relationships between the various BW objects (such as InfoAreas, InfoProviders, InfoObjects, and Queries) and reports that you create with SAP NetWeaver Business Warehouse. You can also view relationships between BW objects and reports and universes in SAP BusinessObjects Enterprise.

Related Topics
- Impact analysis of a BW source system on page 327
- Impact of BW source on Web Intelligence Documents on page 329
- Impact of BW Open Hub table on Crystal Report on page 330
- Lineage of web templates on page 331
- Lineage of a BW Crystal Report on page 333

Impact analysis of a BW source system

An SAP NetWeaver BW source system provides data to both reports within SAP NetWeaver BW and to reports and universes within SAP BusinessObjects Enterprise. Therefore, before you make a change (such as add a column) to the structure of SAP NetWeaver BW source system, it is recommended that you see what reports would be impacted.

To see the reports that a SAP NetWeaver BW source system impacts:
1. On the Explorer of SAP BusinessObjects Metadata Management, navigate to an instance of an SAP NetWeaver BW source system.
2. Click the Impact tab to view the impact analysis diagram.
Example:

The following impact analysis diagram shows that the SAP NetWeaver BW source system named Z_CITY ultimately provides data to the following reports in the SAP BusinessObjects Enterprise system named CMS:

- Crystal Report named SAP_MDX_ZBOBJ_ZCITY
- Crystal Report named SAP_MDX_ZBOBJ_ALL

The intermediate objects in this impact analysis diagram are as follows:

- In the SAP BW Metadata Integrator source:
  - The Z_CITY BW source system impacts (provides data to) the transformation named City (Texts).
  - The City (Texts) transformation produces the InfoObject named City.
  - The dashed line between the City InfoObject in the SAP BW Metadata Integrator source and the Z_CITY InfoObject in the BOE CMS Metadata Integrator source indicates that they are referring to the same object.

- In the BOE CMS Metadata Integrator source:
  - The Z_CITY InfoObject is the source object for the Crystal Reports named SAP_MDX_ZBOBJ_ZCITY and SAP_MDX_ZBOBJ_ALL.
  - The tool tip on the relationship attribute for SAP_MDX_ZBOBJ_ALL shows that the InfoObject Z_CITY is in the InfoCube Z_BOBJ.
Impact of BW source on Web Intelligence Documents

An SAP NetWeaver BW source system can provide data to universes in SAP BusinessObjects Enterprise, and the universe objects can be used to build Web Intelligence Documents. Therefore, before you make a change (such as delete a column) to the structure of SAP NetWeaver BW source system, it is recommended that you see what universe objects and Web Intelligence Documents would be impacted.

To see Web Intelligence Documents that a SAP NetWeaver BW source system impacts:

1. On the Explorer of SAP BusinessObjects Metadata Management, navigate to an instance of an SAP NetWeaver BW source system.
2. Click the "Impact" tab to view the impact analysis diagram.

In this sample impact analysis diagram, the left side shows the following metadata objects in the SAP NetWeaver BW integrator source named SAP BW:

- BW Source System named Business Objects QA
- Transformation named City (Master Data) which produces the InfoObject named City
- Transformation named Customer (Master Data) which produces the InfoObject named Customer

The right side of the diagram shows the following metadata objects in the SAP BusinessObjects Enterprise integrator source named BOE CMS:

- InfoObject named Z_CITY which provides data to the following two Crystal Reports
• SAP_MDX_ZBOBJ_ZCITY
• SAP_MDX_ZBOBJ_ALL
• InfoObject named Z_CUSTOM which provides data to Universe objects L00 Customer
• Web Intelligence Document named WEB_UNIV_SAP_TEST which obtains data from Universe objects L00 Customer

3. Move the pointer over the relationship attribute on the left side of a universe object to view the name of the SAP NetWeaver BW object that provides the data for the universe object.

In the above example, the pop-up window for the relationship attribute preceding L00 Customer shows the Query name SAP BW query: QRY_CUSTOMER_HIERARCHY.

Impact of BW Open Hub table on Crystal Report

The Open Hub Services of SAP NetWeaver BW provides data to external applications such as SAP BusinessObjects Data Services. Data Transfer Processes (DTPs) extract data from BW InfoProviders and load the data to Open Hub Destination objects. Data Services imports the BW Open Hub Destination objects as Open Hub tables. A data flow in Data Services can then read the data from the Open Hub table, transform it, and load a target table which can be used as the source table for a Crystal Report in SAP BusinessObjects Enterprise.

The following impact analysis diagram shows the following three metadata integrator sources and the relationships of the objects between them. The dashed line between objects indicate that two different integrator sources are referring to the same physical object.

• In the BW integrator source named papgvmwin001, the Open Hub Destination object named ZPALAV127 provides data to the Open Hub table ZPALAV127 in the Data Services system named ds-ohd.
• In the Data Services integrator source named ds-ohd, data from the Open Hub table ZPALAV127 is loaded into table TARGET1.
• In the BusinessObjects Enterprise integrator source named LocalCMS, table TARGET1 contains columns Z Country, Z Date, and 0datapakid which provide data to the report CrystalReport_DS-BW-CMS.
An SAP NetWeaver BW source system can provide data to web templates that are used for BEx Web application.

To see where the data for a web template comes from:

1. On the Explorer of SAP BusinessObjects Metadata Management, navigate to an instance of a web template on your SAP NetWeaver BW source system.
2. Click the "Lineage" tab to view the lineage diagram.

For example, the following lineage diagram shows that the web template named ORSTT_C01_T01 obtains its data from the following NetWeaver BW objects:

- Query named Daily Evaluation - Graphic (BW_BEX)
- Query named Daily Evaluation - Table (BW_BEX)
3. To display the description for each object, take one of the following actions:
   
   - Move the pointer over each object in the lineage diagram. The above example shows the description "Daily Evaluation - Table (BW_BEX)" for the Query and when it was last changed.
   
   - Change the value of the "View" drop-down list to Tabular. The example below shows the descriptions of all of the objects (Web Template, Queries, and InfoCubes).
Lineage of a BW Crystal Report

An SAP NetWeaver BW source system can provide data to Crystal Reports within the SAP NetWeaver BW system.

To see where the data for a Crystal Report comes from:


2. Click the "Lineage" tab to view the lineage diagram.

For example, the following lineage diagram shows that the Crystal Report with the generated name D5F1K10TKJCSIBR05RWQ obtains its data from the following NetWeaver BW objects:

- Query named SEC_zbobj_HR1
- InfoCube named Business Objects Cus
- Transformation named 3GS1561BKXQI5FLVQABA
- InfoSource named Business Objects QA
3. To display the description for each object, take one of the following actions:

- Move the pointer over each object in the lineage diagram. The above example shows the description "orders per country hierarchy" for the Crystal Report and when it was last changed.
- Change the value of the "View" drop-down list to Tabular. The tabular view shows the descriptions of all of the objects in the above lineage diagram.
Data Modeling Metadata
Exploring Data Modeling metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. Metadata Management Explorer organizes the metadata into a directory structure so that users can navigate and explore the metadata objects in an easy to understand way.

The directory structure in Metadata Management Explorer contains the following categories:

- Business Intelligence which contains sources such as SAP BusinessObjects Enterprise.
- ETL (Extract, Transform, Load) which contains sources such as BusinessObjects Data Integrator
- Relational Databases which contains sources such as DB2, Oracle, or SQL Server
- Data Modeling which contains sources such as CWM (Common Warehouse Modeling)

Metadata Management Explorer uses the following terms:

- **Category** - A category is a type of source system for which Metadata Integrators collect metadata. The above list of categories show examples of source systems for each category. When your administrator configures a source system for Metadata Integrator, the source system displays under the appropriate category on the Metadata Management Explorer.

- **Instance** - An instance is an occurrence of a Metadata Integrator or metadata object. For example, a CWM source (such as CWM Sales) is an instance of a Metadata Integrator in the Data Modeling category. An example of a type of metadata object is a table, and an instance of a table is FACT_SALES_ORDER.

- **Metadata Integrator** - A Metadata Integrator is a program that extracts metadata from a source system and loads it into the Metadata Management Repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator. For configuration information, see Configuring sources for Common Warehouse Metamodel (CWM) Metadata Integrator on page 139.
Metadata object - A unit of information that a Metadata Integrator creates from an object in a source system. For example, a Data Modeling source contains objects such as databases, schemas, and tables which the Metadata Integrator loads into the Metadata Management as metadata objects Databases, Schemas, and Tables.

This section includes the following topics:

• Navigating data modeling metadata on page 337
• Viewing relationships of CWM objects on page 340

Navigating data modeling metadata

When you login to the SAP BusinessObjects Metadata Management Explorer, the Directory home page displays. To login, see on page 44.

The Directory home page shows each configured source, grouped by the Metadata Integrator category in which it belongs.

The above sample page shows the following categories:

• Business Intelligence (SAP BusinessObjects Enterprise is an example of this type of Metadata Integrator source)
• Data Modeling (CWM is an example of this type of Metadata Integrator source)
• Relational Databases (Oracle is an example of this type of Metadata Integrator source)
• ETL (Data Integrator is an example of this type of Metadata Integrator source)
Each category name is a link to display all sources configured for that Metadata Integrator.

**Exploring CWM objects**

The SAP BusinessObjects Metadata Management Explorer page for a CWM source shows the following main object types:

- Databases
- Schemas
- Tables (which contain columns)

To explore the Data Modeling objects:

1. Click **Data Modeling** on the Directory home page to display the Data Modeling category page.

   This sample category page shows one CWM source name CWM Sales. Under the name are the object types that belong to it. This example shows the following object types:

   - Databases (1)
   - Schemas (1)
   - Tables (10)

   The number in parenthesis indicate the number of instances for that object.
2. Click the source name **CWM Sales** to display more details about these objects.

The **Data Modeling** page shows:

- Data modeling source name. This example shows the **CWM Sales** source name in the navigation path at the top and as the heading.
- File name
- Description of the file
- Main object types that this data modeling file contains. This example shows the following main object types for this CWM file:
  - One database named **ds_forenza_dw**
  - The first three tables **AGG_MULTIFACT**, **AGG_REGION SALES**, and **BAD_ORDERS**
  - One schema named **dbo**
- Under each main object, the object types that it contains and a number in parenthesis that indicates the number of instances for that object. This example shows that table **AGG_MULTIFACT** contains 5 columns.
- Click the name of an object to open its Metadata Explorer page.
Exploring an instance of a modeling object

On the Data Modeling category page, click a specific object name to display details about the object. For example, click AGG_MULTIFACT or Columns(5) to display the following details for each column:

### AGG_MULTIFACT

<table>
<thead>
<tr>
<th>Column</th>
<th>Data Type</th>
<th>Length</th>
<th>Scale</th>
<th>Allow Nulls</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISCAL_YEAR</td>
<td>int</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REGION</td>
<td>varchar</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COUNTRY</td>
<td>varchar</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTUAL_SALES</td>
<td>decimal</td>
<td>19</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FORECASTED_SALES</td>
<td>decimal</td>
<td>19</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Overview tab for this table shows the:
- Names of the columns that the AGG_MULTIFACT table contains.
- Data type, length, and other attributes for each column.

Viewing relationships of CWM objects

When you analyze metadata, you often analyze relationships between objects. In SAP BusinessObjects Metadata Management Explorer, you can do the following tasks:
- **Same As relationships** on page 341
- **Impact analysis for a table** on page 341
- **Lineage analysis** on page 342
Same As relationships

You can use CWM to capture modeling information about your database. You can then use this modeling information to create a data warehouse on which to create an SAP BusinessObjects universe and create Business Intelligence reports. CWM can also capture business-level information that displays in the Same As relationship in SAP BusinessObjects Metadata Management.

The Same As tab shows a metadata object that exists in other source systems, but it is the same physical object. For example, navigate to the table FACT_SALES_ORDER in the CWM Sales source system to view the following Same As tab.

This example shows that the table AGG_MULTIFACT in the Data Modeling source CWM Sales is the same physical table that exists in other source systems: SAP BusinessObjects Enterprise source MySales, Data Integrator source DIREPO, and relational database source Forenza DW.

Impact analysis for a table

Impact analysis allows you to identify which objects will be affected if you change or remove other connected objects. In other words, what other objects are affected by the data within this object. The Impact tab on an object's Explorer page displays the other objects that this object impacts.
This example shows a partial view of the impact analysis for table FACT_SALES_ORDER in the CWM Sales source.

- The dashed line between table FACT_SALES_ORDER in CWM Sales and table FACT_SALES_ORDER in MySales means that this is the same physical table that is referred to in both source systems.

- Table FACT_SALES_ORDER impacts the following reports:
  - Product_Sales_By_Customer_webi
  - Product Sales by Customer_unv.rpt
  - SalesByYear

**Lineage analysis**

Lineage analysis allows you to trace back from a data modeling object to the source. Use the Lineage tab to view the sources for an object. The following example shows that the AGG_MULTIFACT table obtains its data from tables in the DIREPO system.
This example shows the lineage analysis for the AGG_MULTIFACT table that section *Exploring an instance of a modeling object* on page 340 describes. It shows that the data in AGG_MULTIFACT table came from the Data Integrator DIREPO system.

When there are many intermediate objects, you might need to scroll the page to view all objects. This example selects the option **Hide intermediate objects** to display only the source and final target objects on the page.
Data Modeling Metadata

Viewing relationships of CWM objects
SAP BusinessObjects Data Services Metadata
Exploring Data Services Metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. Metadata Management Explorer organizes the metadata into a directory structure so that you can easily navigate and explore the metadata objects.

The directory structure in Metadata Management Explorer contains the following categories:

- **Business Intelligence** which contains sources such as SAP BusinessObjects Enterprise.
- **Data Integration** - Source systems include SAP BusinessObjects Data Federator, BusinessObjects Data Integrator, and SAP BusinessObjects Data Services.
- **Relational Databases** which contains sources such as DB2, MySQL, Oracle, SQL Server, Java Database Connectivity (JDBC), or a BusinessObjects Universe connection.
- **Data Modeling** which contains sources such as CWM (Common Warehouse Modeling).

Metadata Management Explorer uses the following terms:

- **Category** - A category indicates the type of source system from which Metadata Integrators collect metadata. The above list of categories shows examples of source systems that would fit into each category. When your administrator configures a source system for Metadata Integrator, that source system displays under the appropriate category in the Metadata Management Explorer.

- **Instance** - An instance is an occurrence of a Metadata Integrator or metadata object. For example, a Data Integrator source (such as the repository named DIREPO) is an instance of a Metadata Integrator in the Data Integration category. For example a table would be a type of metadata object and an instance of a table could be named FACT_SALES_ORDER.

- **Metadata Integrator** - A Metadata Integrator is a program that extracts metadata from a source system and loads it into the Metadata Management Repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator. For configuration...
information, see Configuring sources for SAP BusinessObjects Data Services Metadata Integrator on page 142.

- **Metadata object** - A unit of information that a Metadata Integrator creates from an object in a source system. For example, a Data Services source contains objects such as jobs, work flows, and data flows which the Metadata Integrator loads into the Metadata Management as metadata objects called Jobs, Work Flows, and Data Flows.

**Related Topics**
- Navigating Data Services metadata on page 347
- Viewing Data Services object relationships on page 358

**Navigating Data Services metadata**

When you login to the SAP BusinessObjects Metadata Management Explorer, the Directory home page displays. To log in, see Accessing Metadata Management Explorer on page 197.

The Directory home page shows each configured source grouped by the Metadata Integrator category in which it belongs. The Data Integration category can contain SAP BusinessObjects Data Federator sources, BusinessObjects Data Integrator, and SAP BusinessObjects Data Services sources.

Under each source name are the first three metadata object types that it contains, and the number in parenthesis indicate the number of instances for that type. The sample shows the DIREPO source contains metadata object types Projects, Jobs, Work Flows, and more.
BusinessObjects Data Services objects

An SAP BusinessObjects Data Services source can contain different types of objects. Some objects can be associated with (contained within) more than one object type. Many object types can be associated with (contain) one or more additional objects, as indicated in the following table. For example, a job can contain a data flow instance and that same data flow instance can belong to more than one job.

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>A project is a reusable object that allows you to group jobs. A project is the highest level of organization provided by Data Services.</td>
<td>Job</td>
</tr>
<tr>
<td>Jobs</td>
<td>A job is an object you can execute and contains steps that you want executed together.</td>
<td>Custom functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data flows</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tables (as a result of lookup_ext in scripts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Work flows</td>
</tr>
<tr>
<td>Object type</td>
<td>Description</td>
<td>Associated objects</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Data flows</td>
<td>Data flows extract, transform, and load data. Everything having to do with data, including reading sources, transforming data, and loading targets, occurs inside a data flow.</td>
<td>Custom functions, Custom transforms, Data flows, Flat files, Nested schemas, Open Hub Destination, Tables as sources, SAP NetWeaver BW, DataSources/InfoSources as targets, Stored procedures, Tables</td>
</tr>
<tr>
<td>Work flows</td>
<td>A work flow defines the decision-making process for executing data flows.</td>
<td>Custom functions, Data flows, Tables (as a result of lookup_ext in scripts), Work flows</td>
</tr>
<tr>
<td>Object type</td>
<td>Description</td>
<td>Associated objects</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Datastores</td>
<td>A datastore represents connection configurations between Data Services and databases or applications. Datastore configurations allow Data Services to access metadata from a database or application and read from or write to that database or application while Data Services executes a job.</td>
<td>Nested schemas, Open Hub Destination, Tables in a BW, Source datastore, SAP NetWeaver BW, DataSources/InfoSources in a BW Target, datastore, Stored procedures, Tables</td>
</tr>
<tr>
<td>File Formats</td>
<td>A file format is a set of properties that describe the structure of a flat file. You use a file format to connect Data Services to source or target data when the data is stored in a file rather than a database table.</td>
<td>Flat files</td>
</tr>
<tr>
<td>Flat Files</td>
<td>A flat file can be used as either a source or a target in a Data Services data flow.</td>
<td>File records</td>
</tr>
<tr>
<td>Custom Functions</td>
<td>Custom Functions are functions written in the Data Services Scripting Language. You can use them in Data Services jobs.</td>
<td>Parameters</td>
</tr>
<tr>
<td>Custom Transforms</td>
<td>Custom Transforms are ABAP programs that you create and can use as transforms in R/3 data flows.</td>
<td>none</td>
</tr>
<tr>
<td>Server Instances</td>
<td>The database server to which Data Services connects to extract data from or into which to load.</td>
<td>Databases</td>
</tr>
<tr>
<td>Tables</td>
<td>A table is a collection of records (records are also referred to as rows) in a relational database.</td>
<td>Columns</td>
</tr>
</tbody>
</table>
Exploring Data Services sources metadata

To view all of the object types within an SAP BusinessObjects Data Services source:

1. Click **Data Integration** on the Directory home page.
   
   Under each source name, the directory lists the first three object types contained in the source. The number of instances of an object type appears in parenthesis after that object type.

2. Click **More...** to display all object types in the source. The source page also opens when you click the source name.

   For example, click the source name **DIREPO** or **More...** to display all of the object types within the **DIREPO** source.

<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Hub Destination Tables</td>
<td>Source objects that Data Services uses to read data from InfoProviders in an SAP NetWeaver Business Warehouse system.</td>
<td>Columns</td>
</tr>
</tbody>
</table>

SAP BusinessObjects Data Services Metadata Management User’s Guide 351
From top to bottom, each source page displays the navigation path, information about the source, and object type information. The example source page for **Data Integration (DIREPO)** shows:

- The navigation path **Directory > Data Integration (DIREPO)**

  Click **Directory** to return to the Directory home page. Click **Data Integration** to display all configured sources for that category.

- Information about a Data Integration source which includes its description, database name, database type, and database host.

- Object types **Projects, Jobs, Work Flows, and Data Flows**. The number in parenthesis indicates the number of instances for that object type.

  Scroll down to view more object types such as **Datastores, File Formats, Flat Files, Custom Functions, Customer Transforms, Server Instances, and Tables**.

- The first three instance names display under each object type.
Under each instance name, find associated object types contained within that instance. The number of instances of an associated object type appears in parenthesis after that object type. This example shows associated object type Jobs under each project instance name.

Exploring Data Services objects

To display all instances of an object type, click the object type name or Show All... on the SAP BusinessObjects Data Services source page. The object type page displays up to 10 instance names. When more than 10 instances exist, click the links at the bottom of the page to display additional groups of 10 instances.

For example, if you click Jobs or Show All... on the sample DIREPO source page, the "Jobs" metadata object page displays the following:

- The job names that the DIREPO source contains, listed in alphabetic order.
- Under each job name, the associated object types that it contains and a number in parenthesis indicating the number of instances for that associated object. For example, the job OracleApps_Sales_Load contains associated object types Work flows and Custom Functions.

Exploring data flow metadata

To view only data flow objects, click Data Flows or Show All... on the SAP BusinessObjects Data Services source page. The "Data Flows" metadata object page displays the following:

- The data flow names that the Data Services source contains, listed in alphabetic order.
- Under each data flow name, the associated object types that it contains and a number in parenthesis that indicates the number of instances for that associated object.

For example, a data flow might contain associated objects Tables and Flat Files.
Exploring an instance of a data flow

On the **Data flow** metadata object page, click a data flow name to display the objects it contains. Or you can use Search on the SAP BusinessObjects Metadata Management Explorer to find a specific data flow.

For example, navigating to data flow **DF_SalesOrderFact** would open onto the "Overview" tab which displays the objects in this data flow.

The Overview tab for data flow **DF_SalesOrderFact** shows table names **BAD_ORDERS**, **DIM_CUSTOMER**, **DIM_EMPLOYEE**, **FACT_SALES_ORDER**, **ORDER DETAILS**, and **ORDERS**. Under each table name, additional information includes:

- Additional attribute - Value that indicates how SAP BusinessObjects Data Services uses this table.
<table>
<thead>
<tr>
<th>Additional attribute value</th>
<th>Data Services usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Extracts data from this table.</td>
</tr>
<tr>
<td>Target</td>
<td>Loads data into this table.</td>
</tr>
<tr>
<td>Compare table in table comparison</td>
<td>Compare the data in this table with the source table.</td>
</tr>
<tr>
<td>Lookup table in lookup() and lookup_ext() functions</td>
<td>Retrieve a value from this table based on the value in another source table or file.</td>
</tr>
<tr>
<td>Key generation table in Key Generation transform and function</td>
<td>Generates the next value in a series, after determining the last value in the series.</td>
</tr>
</tbody>
</table>

This example shows the following attribute values:

- **Lookup table in lookup() and lookup_ext() functions** indicating that Data Services uses the lookup_ext() function to obtain a value from the **DIM_EMPLOYEE** and **DIM_CUSTOMER** tables.
- **Source** indicating that Data Services extracts data from **ORDER DETAILS** and **ORDERS** tables.

On the Explorer page for the source table, the Impact relationship analysis tab displays a graphical representation of the source impacting (providing data for) the target.

- **Target** indicating that Data Services loads data into **FACT_SALES_ORDER** and **BAD_ORDERS** tables.

On the Explorer page for the target table, the Lineage relationship analysis tab shows a graphical representation of the target obtaining data from the source. For more information, see **Viewing impact and lineage of tables** on page 361.

- **Schema for the table**
- **Database in which the table resides**
- **Object types contained in each table and the number of instances of that type. This example shows Columns for each table.**
Exploring datastore metadata

Datastores represent connection configurations between SAP BusinessObjects Data Services and databases or applications. Datastore configurations allow Data Services to access metadata from a database or application and read from or write to that database or application while Data Services executes a job.

To view information about datastores, click Datastores or Show All... on the "Data Integration" source page.

This example Datastores metadata object page shows:

- The name of each datastore instance follows this format: `Datastore_name-configuration_name`
- Each datastore can have multiple configurations, and each configuration specifies different connection information. For example, you can associate a configuration to a test database and a different configuration to a production database.

- Under the name of each datastore is:
  - A description (if any)
  - Whether or not Change Data Capture (CDC) is enabled
The associated object types that the datastore contains and a number in parenthesis indicating the number of instances for that associated object.

***Note:***
Currently, SAP BusinessObjects Metadata Management displays datastores for all databases and applications that Data Services supports, except memory datastores.

**Exploring a table instance**

Each instance of a table is associated with specific attributes and relationships. The SAP BusinessObjects Metadata Management Explorer displays a tab for each relationship.

This sample page for **FACT_SALES_ORDER** shows the following tabs:

- Overview - Displays additional attributes, schema name, database name, and list of columns with their data type and length.
- Same As - Displays another system that uses same column. See Viewing Same As relationships on page 361.
- Related To - Displays relationships that you define (if any) for this table. See Establishing user-defined relationships between objects on page 260.
Exploring a column instance

Each instance of a column has individual attributes and relationships associated with it. The SAP BusinessObjects Metadata Management Explorer displays a tab for each relationship.

- "Overview" - Displays attributes such as whether or not it is a primary key or foreign key, data type, and length.
- "Same As" - Displays any synonyms or aliases (if any) for this column. See Viewing synonyms and alias relationships on page 402.
- "Related To" - Displays primary key - foreign key relationships (if any) that exist for this column. See Viewing primary key and foreign key relationships on page 404.
- "Impact" - Displays objects that depend on data in this column. See Viewing Data Services object relationships on page 358.
- "Lineage" - Displays the sources (if any) for this column.
- "User Defined" - Displays relationships (if any) that you define.

See Establishing user-defined relationships between objects on page 260.

Viewing Data Services object relationships

With SAP BusinessObjects Metadata Management Explorer you can view relationships between tables and columns in your Data Services sources. The tabs on the Metadata Management Explorer page for each table or object display the following relationships.
<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
</table>
| Same As                | • Alias for database.  
• Synonym for table or view.  
• Tables and columns that are the same between two systems, such as between a Data Services repository and a relational database.  
• User-defined relationship (for example, between a table in a Data Services and the same table in a BusinessObjects Enterprise system). For the procedure, see [*Establishing user-defined relationships between objects*](#) on page 260.  
  
  **Note:**  
  A message will indicate if no relationship exists.                                                                                                                       |
| Related To             | • Primary Key - Foreign Key  
• You can also create a user-defined relationship to appear in this tab. For the procedure, see [*Establishing user-defined relationships between objects*](#) on page 260.  
  
  **Note:**  
  A message will indicate if no relationship exists.                                                                                                                                 |
| Impact                 | Shows a graphic of objects that are affected by data in this object.  
You can also define this relationship (for example, between a file format and a target table). For the procedure, see [*Establishing user-defined relationships between objects*](#) on page 260. |
| Lineage                | Shows a graphic of the sources from which this object gets its data.                                                                                                                                                                   |
Relationships that can appear on this tab

<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If you establish a custom relationship, you can view the following information for it:</td>
</tr>
<tr>
<td></td>
<td>• Name of the related object</td>
</tr>
<tr>
<td></td>
<td>• Name of the relationship</td>
</tr>
<tr>
<td></td>
<td>• Path of the related object in the Metadata Explorer.</td>
</tr>
<tr>
<td></td>
<td>You can delete a user-defined relationship from this tab.</td>
</tr>
<tr>
<td>User Defined</td>
<td>Note: A message will indicate if no user-defined relationship exists.</td>
</tr>
</tbody>
</table>

Note:
You must set the option Calculate column mapping while saving data flow to ensure that the Metadata Management integrator extracts impact and lineage relationships. Set this option in the Tools > Options > Designer > General window of the Data Services Designer.

In Metadata Management Explorer, you can view the following relationships:

- Viewing Same As relationships on page 361
- Viewing impact and lineage of tables on page 361.
- Viewing impact and lineage of Open Hub tables on page 365
- Viewing impact and lineage of columns on page 367.

Note:
Currently, Metadata Management displays impact and lineage only for tables, their columns, and flat files. Other objects (such as COBOL copybooks, DTDs, hierarchies, XML schemas) do not display impact or lineage. For a complete list of all Data Services objects for which Metadata Management does and does not automatically display impact and lineage, see the Compatibilities and Limitations section of the Release Notes.
Viewing Same As relationships

The Same As tab shows if a table or column is the same between two systems, such as between an SAP BusinessObjects Data Services repository and a relational database.

For example, if you navigate to the table FACT_SALES_ORDER (see section Exploring a table instance on page 357) you could view the following Same As tab.

![Same As tab example](image)

In this example, the table FACT_SALES_ORDER in the Data Services source DIREPO is used in other Metadata Integrator systems (Forenza DW, MySales, and CWM Sales).

Viewing impact and lineage of tables

The Explorer page for the table displays graphical representations of:

- The impact of a table on other objects when the table is a source.
- The source lineage for a table when the table is a target.

You might want to view the Impact tab of a table to see whether or not it affects any of the following:

- DataSources/InfoSources in the Persistent Storage Area of your SAP NetWeaver Business Warehouse system
- Reports in your SAP BusinessObjects Enterprise system
The following example shows that table FACT_SALES_ORDER affects four reports: Product Sales by Customer_unv.rpt, SalesByYear, Product Sales by Customer_webi and Product Sales by Customer.rpt.

With many intermediate objects, you might need to scroll the page horizontally to view all objects. You can clear the option **Show intermediate objects** in **Edit Settings** to display only the source and final target objects on the page, as the above example shows.

Move the pointer over the relationship attribute icon 📊 to display how the data is mapped to the final target from the intermediate universe object. This example shows that the mapping is a SELECT statement.

You can also select **Tabular** in the **View** drop-down list to display a long impact analysis in table format. The following example shows part of the tabular view for the table FACT_SALES_ORDER.
The value in Steps from Source indicates the number of steps that the data in the first source object goes through to reach the objects listed in Target. For each step, the tabular view shows the source object, target object, and relationship attributes. Relationship attributes includes the relationship type and mapping (if applicable).

This example shows that the FACT_SALES_ORDER table is the same table that is in the source DIREPO system and the target MySales system.

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>Steps from Source</th>
<th>Relationship Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FACT_SALES_ORDER</td>
<td>FACT_SALES_ORDER</td>
<td>1</td>
<td>Type: Same As</td>
</tr>
<tr>
<td>Schema: DBO</td>
<td>Schema: DBO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database: ForenzaDW</td>
<td>Database: SL-VPANLASIGUI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: DIREPO</td>
<td>System: MySales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FACT_SALES_ORDER</td>
<td>FACT_SALES_ORDER</td>
<td>1</td>
<td>Type: Same As</td>
</tr>
<tr>
<td>Schema: dbo</td>
<td>Schema: DBO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database: BRU-WV-01-BHO</td>
<td>Database: SL-VPANLASIGUI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: MySales</td>
<td>System: MySales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGG_REGION_SALES</td>
<td>AGG_REGION_SALES</td>
<td>1</td>
<td>Type: Impact</td>
</tr>
<tr>
<td>Schema: DBO</td>
<td>Schema: DBO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database: ForenzaDW</td>
<td>Database: DIREPO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: DIREPO</td>
<td>System: DIREPO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGG_REGION_SALES</td>
<td>AGG_REGION_SALES</td>
<td>1</td>
<td>Type: Impact</td>
</tr>
<tr>
<td>Schema: DBO</td>
<td>Schema: DBO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database: ForenzaDW</td>
<td>Database: ForenzaDW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: DIREPO</td>
<td>System: DIREPO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STG_AGG_MULTIFACT</td>
<td>STG_AGG_MULTIFACT</td>
<td>1</td>
<td>Type: Impact</td>
</tr>
<tr>
<td>Schema: DBO</td>
<td>Schema: DBO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Database: ForenzaDW</td>
<td>Database: DIREPO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: DIREPO</td>
<td>System: DIREPO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The example shows that the FACT_SALES_ORDER table is the same table that is in the source DIREPO system and the target MySales system.
This part of the tabular view for table FACT_SALES_ORDER shows that data in the source table FACT_SALES_ORDER goes through the following number of steps to reach the final target reports:

- Two steps to final target report Product Sales by Customer.rpt
- Three steps to final target reports:
  - Product_Sales_by_Customer_webi
  - Product Sales by Customer_unv.rpt
  - SalesByYear

In the third step, universe object Quantity in universe class Fact Sales Order in the MySales BusinessObjects Enterprise system has the following relationships with the following objects in the MySales BusinessObjects Enterprise system:

- Impact relationship with report "Product Sales by Customer_unv.rpt"
- Impact relationship with report "SalesByYear"
Viewing impact and lineage of Open Hub tables

You might want to view the Impact tab of an Open Hub table in SAP BusinessObjects Data Services to see whether or not it affects any reports in your SAP BusinessObjects Enterprise system. Similarly, you might want to see what InfoProvider in the BW system is the source of the data for the Open Hub table in Data Services.

The following example shows that the Open Hub table ZPALAV127 impacts the report CrystalReport_DS-BW-CMS. The intermediate steps show the following relationships:

- In the Data Services system named ds-ohd impacts, the Open Hub table ZPALAV127 provides data to the table TARGET1.
- In the BusinessObjects Enterprise system named LocalCMS, TARGET1 is the source table for the universe objects Z Country, Z Date, and 0datapakid. These universe objects are mapped to the report CrystalReport_DS-BW-CMS.

The following example shows that the Open Hub table ZPALAV127 obtains its data from the following lineage:

- The Open Hub table ZPALAV127 obtains its data from the XPALAV127 Open Hub Destination object in the SAP NetWeaver BW system named papgvmwin001.
- In the BW system papgvmwin001, the XPALAV127 Open Hub Destination obtains its data through the transformation CUBE Z_BOBJ->DEST from the InfoCube Business Objects Cus.
Viewing column mappings for tables

When you view the lineage diagram for a table, you can select **Column Mappings** in the View drop-down list to see how the data for each column was obtained. The following example shows that the DW_Key column uses a lookup_ext function to obtain values in the column DBO.DIM_EMPLOYEE.
Viewing impact and lineage of columns

The Explorer page for a column displays graphical representations of:

- The impact of a column on other objects when the column is a source.
- The source lineage for a column when the column is a target.

To view the impact and lineage of columns:

1. Use Search, or navigate to the Explorer page for the column.

   For example, suppose you have a column Address in table Customers. You can use Search and enter Address as the search string to find the Explorer page for it.

2. Click the Impact tab to view the targets affected by this source column.
3. Move the pointer over the Relationship Attribute icon ![icon] between the source and target objects within the DIREPO source system to display the transformation name (df_CustomersDimension) which is the data flow that extracts the data from the Address column in Customer table and loads it into the Address column in Dim_Customer table.

4. Move the pointer over the graphic of each object to display its information, such as table name, schema name, and description.

5. Click a final target object on the right and click the Lineage tab on its Explorer page to view all of its sources. For example, click Product_Sales_By_Customer_webi report and click the Lineage tab to view the following Lineage analysis.
SAP BusinessObjects Data Federator Metadata
Data Federator Metadata Integrator overview

SAP BusinessObjects Data Federator is an Enterprise Information Integration (EII) application that provides a uniform, coherent and integrated view of distributed and heterogeneous data sources. Data Federator allows you to consolidate your various data sources into one coherent set of virtual target tables that reporting tools can query and be confident that the data are reliable, trustworthy and up-to-date. For example, you can create a universe using SAP BusinessObjects Designer or create a query directly against the virtual target tables using Crystal Reports. For more information about Data Federator, see the SAP BusinessObjects Data Federator User Guide.

Data Federator Metadata Integrator extracts information from a Data Federator repository and stores the collected metadata in the SAP BusinessObjects Metadata Management Repository. The collected information includes metadata about the Data Federator objects, such as datasource tables and target tables on which the reports and documents are based.

Exploring Data Federator Metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. Metadata Management Explorer organizes the metadata into a directory structure so that you can easily navigate and explore the metadata objects.

The directory structure in Metadata Management Explorer contains the following categories:

- Business Intelligence which contains sources such as SAP BusinessObjects Enterprise
- Data Integration which contains sources such as:
  - BusinessObjects Data Integrator and SAP BusinessObjects Data Services
  - SAP BusinessObjects Data Federator
- Relational Database which contains sources such as DB2, Oracle, or SQL Server
• Data Modeling which contains sources such as CWM (Common Warehouse Modeling)

Metadata Management Explorer uses the following terms:

<table>
<thead>
<tr>
<th>Term</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>A category indicates the type of source system from which Metadata Integrators collect metadata. The above list of categories shows examples of source systems that would fit into each category. When your administrator configures a source system for Metadata Integrator, that source system displays under the appropriate category in the Metadata Management Explorer.</td>
</tr>
<tr>
<td>Instance</td>
<td>An instance is an occurrence of a Metadata Integrator or metadata object. For example, a Data Federator source name (such as My DF Source) is an instance of a Metadata Integrator in the Data Integration category. An example of a type of metadata object is a deployed version of a project and an instance could be named Forenza deployment.</td>
</tr>
<tr>
<td>Metadata Integrator</td>
<td>A Metadata Integrator is a program that extracts metadata from a source system and loads it into the Metadata Management Repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator.</td>
</tr>
<tr>
<td>Metadata object</td>
<td>A unit of information that a Metadata Integrator creates from an object in a source system. For example, a Data Federator source contains objects such as deployed versions of projects, target catalogs, and target schemas which the Metadata Integrator loads into the Metadata Management as metadata objects called Deployed versions, Catalogs, and targetSchema.</td>
</tr>
</tbody>
</table>

Data Federator objects

An SAP BusinessObjects Data Federator source can contain different object types, as the following table describes.
<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects</td>
<td>A project is an object that groups a set of target tables, data sources together with mapping rules between these entities. Only deployed versions of projects are collected by the Data Federator Metadata Integrator. A project can have multiple deployed versions, each deployed in a different catalog on one or more instances of Query Server.</td>
</tr>
<tr>
<td>Deployed versions</td>
<td>A deployed version of a project is an operational copy of a project that applications access through Query Server.</td>
</tr>
<tr>
<td>Query Server</td>
<td>A query server behaves like a relational database through which applications can query the source tables to produce target rows.</td>
</tr>
<tr>
<td>Catalogs</td>
<td>Each deployed version contains two catalogs:</td>
</tr>
<tr>
<td></td>
<td>• A datasource catalog is a collection of datasources. Its name has the following format: target_catalog_name/sources (For example, /OP/sources)</td>
</tr>
<tr>
<td></td>
<td>• A target catalog is a collection of target tables. Its name has the following format: target_catalog_name (For example, /OP)</td>
</tr>
<tr>
<td>Datasource schemas</td>
<td>A datasource schema is the definition of a datasource table’s columns and primary keys.</td>
</tr>
<tr>
<td>Datasources</td>
<td>A datasource represents the external source of data from which Data Federator produces rows in a target table. A datasource can be a relational database, a text file, or an XML file. Only final versions of datasources are collected by the Data Federator Metadata Integrator.</td>
</tr>
<tr>
<td>Target schemas</td>
<td>A target schema is a set of target tables. A project can only contain one target schema, and its name is always targetSchema.</td>
</tr>
</tbody>
</table>
Target tables are virtual tables (similar to a view). They do not contain data, but mapping rules define how Query Server obtains the target rows at run time from datasource tables, domain and lookup tables. A deployed version can contain both mapped and integrated target tables, or it can contain only deployed integrated target tables.

A mapping rule describes how Query Server generates the rows in a target table from the datasources. Mapping rules can include filters, formulas, and relationships to convert values in your datasource to values expected in the target.

A column is a dimension that defines a single type of data.

**Data Federator object relationships**

Some objects can be associated with (contained within) more than one object type. Many object types can be associated with (contain) one or more additional objects, as indicated in the following diagram. For example, a deployed version of a project always contains two catalogs, one for the target schema and the other for datasources. The following diagram shows the different relationships between SAP BusinessObjects Data Federator objects.
Navigating Data Federator Metadata

The SAP BusinessObjects Metadata Management Explorer to view the Directory home page shows each configured source grouped by the Metadata Integrator category in which it belongs.
Example:

This example shows an SAP BusinessObjects Data Federator source with the name My DF source under the Data Integration category. Under the source name, the directory lists the first three object types contained in the source. The number of instances of an object type appears after that object type in parenthesis.

Exploring Data Federator sources metadata

To view all of the object types within an SAP BusinessObjects Data Federator source, click its name. For example, if you click My DF source, the results looks like the following:
This example source page for "Data Integration (My DF source)" displays:

- Object types such as "Projects", "Deployed versions", "Query servers", "Catalogs", "Schemas", "Datasource tables", "Target tables", and "Mapping rules". Scroll down to view more object types. The number in parenthesis indicates the number of instances for that object type.
Under each object type find the first three instance names. In the previous example, find instance names DF_Target_on_Target and Forenza under object type Projects.

Under each instance name, find associated object types contained within that instance. The number of instances of an associated object type appears in parenthesis after that object type. This example shows associated object type "Deployed versions" under each project instance name.

If you do not see all of your instances for an object type on the "Data Federator" source page, click **Show All** to display a page that lists all of the instances for the object type. You can also click the object type name to display all instances.

### Exploring deployed versions metadata

To view only deployed version objects, click **Deployed versions** or **Show All** on the "Data Federator" source page.

The Deployed versions metadata object page shows the following:

- The deployed version names that the SAP BusinessObjects Data Federator source contains, listed in alphabetic order from left to right, top to bottom.
- Under each deployed version name, this page shows:
  - Query Server address
  - Query Server Port
  - Deployment catalog
- The associated object types that the deployed version contains. The number in parenthesis indicates the number of instances for that associated object. For example, the deployed version "Forenza_deployment" contains associated objects "Schemas (3)" and "Catalogs (2)".

### Exploring catalog metadata

Each deployment contains two catalogs: one for the datasources and one for the target tables.
To view the catalogs for a deployed version, click **Catalogs** under a deployed version name on the "Deployed versions" objects page.

The "Catalogs metadata" object page displays:

- The target catalog and the datasource catalog.

  The target catalog name is the same name that you entered in the SAP BusinessObjects Data Federator Designer when you deployed the project. The datasource catalog name has the suffix /sources appended. For example, if you entered the catalog name /Forenza when you deployed Forenza deployment, the "Catalogs metadata" object page displays target catalog /Forenza and source catalog /Forenza/sources.

- Under each catalog name, the associated object type that it contains and a number in parenthesis that indicates the number of instances for that associated object.

  For Data Federator, the catalog objects contain only schema objects. A target catalog contains only one schema named targetSchema. A datasource catalog can contain multiple schemas.

### Exploring datasource tables

Datasources represent connection configurations between SAP BusinessObjects Data Federator and database tables. Datasources allow Data Federator to access metadata from a database table and read from that table while Query Server obtains the data from it to populate a target table.

To view only datasource table objects, click **Datasources tables** or **Show All** on the "Data Federator source" page.

### Exploring target tables metadata

An SAP BusinessObjects Data Federator target catalog always has one schema, targetSchema, that contains the target tables.

To view the target table objects for a specific deployed version

1. Navigate to the "Catalogs metadata object" page for a deployed version.
2. Click **Schemas** under the target catalog. For example, click **Schemas** under the target catalog /Forenza.

3. On the Schemas metadata object page, click either **targetSchema** or **Target tables (n)** to display the target tables metadata page. The number in parenthesis indicates the number of target tables. For example, suppose you click **targetSchema** for the catalog /Forenza. The resulting "Target tables" metadata page looks like the following:

<table>
<thead>
<tr>
<th>Target tables</th>
<th>AGG_REGION_SALES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog: /Forenza</td>
<td>AGG_REGION_SALES</td>
</tr>
<tr>
<td>Column (3), Mapping rules (1)</td>
<td>AGG_REGION_SALES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BAD_ORDERS</th>
<th>DIM_CUSTOMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog: /Forenza</td>
<td>Catalog: /Forenza</td>
</tr>
<tr>
<td>Column (3), Mapping rules (1)</td>
<td>Column (7), Mapping rules (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIM_EMPLOYEE</th>
<th>DIM_PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog: /Forenza</td>
<td>Catalog: /Forenza</td>
</tr>
<tr>
<td>Column (14), Mapping rules (1)</td>
<td>Column (6), Mapping rules (1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FACT_SALES_ORDER</th>
<th>STG_AGG_MULTIFACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catalog: /Forenza</td>
<td>Catalog: /Forenza</td>
</tr>
<tr>
<td>Column (8), Mapping rules (1)</td>
<td>Column (5), Mapping rules (1)</td>
</tr>
</tbody>
</table>

This sample "Target tables" metadata object page displays:

- The table names that the /Forenza target catalog contains, listed in alphabetic order.
- The associated object types that each target table contains and a number in parenthesis that indicates the number of instances for that associated object. For example, the table FACT_SALES_ORDER shows: Columns (8), Mapping rules (1)

**Exploring a target table instance**

For each instance of a target table, SAP BusinessObjects Metadata Management Explorer displays the following tabs:
### Tab Description

<table>
<thead>
<tr>
<th>Tab</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>Displays schema name, Catalog name, list of columns, and mapping rules.</td>
</tr>
<tr>
<td>Same As</td>
<td>Displays the same table that exists in another Metadata Management source.</td>
</tr>
<tr>
<td>Related To</td>
<td>Displays relationships that you define (if any) for this table.</td>
</tr>
<tr>
<td>Impact</td>
<td>Displays the objects that depend on the data in this table.</td>
</tr>
<tr>
<td>Lineage</td>
<td>Displays the sources (if any) for this table.</td>
</tr>
<tr>
<td>User Defined</td>
<td>Displays relationships (if any) that you define.</td>
</tr>
</tbody>
</table>

**Related Topics**

- [Viewing Overview tab of a target table](#) on page 381
- [Viewing Same As relationships](#) on page 385
- [Viewing impact and lineage of tables](#) on page 386
Viewing Overview tab of a target table

**FACT_SALES_ORDER**

**Schema:** targetSchema

**Catalog:** Forenza

**Columns** (8)

- **CUSTOMERID**
  - Target table: FACT_SALES_ORDER
  - Schema name: targetSchema
  - Catalog: Forenza

- **DW_KEY**
  - Target table: FACT_SALES_ORDER
  - Schema name: targetSchema
  - Catalog: Forenza

- **ORDERDATE**
  - Target table: FACT_SALES_ORDER
  - Schema name: targetSchema
  - Catalog: Forenza

- **ORDERID**
  - Target table: FACT_SALES_ORDER
  - Schema name: targetSchema
  - Catalog: Forenza

- **PRODUCTID**
  - Target table: FACT_SALES_ORDER
  - Schema name: targetSchema
  - Catalog: Forenza

**Mapping rules** (1)

- **mr_SalesOrdersFact**
  - Mapping rule id: c3
  - Target table: FACT_SALES_ORDER
  - Catalog: Forenza

This Overview tab for a target table displays the first five columns and first five mapping rules.

- To display all columns for a target table, click **Columns (n)**. The number in parenthesis indicates the number of target tables.
• To display all mapping rules for a target table, click Mapping rules (n).

Exploring a column instance

Each instance of a column has individual attributes and relationships associated with it. The SAP BusinessObjects Metadata Management Explorer displays a tab for each relationship.

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>Displays attributes such as whether or not it allows nulls.</td>
</tr>
<tr>
<td>Same As</td>
<td>Displays other Metadata Management source systems that also contain this column.</td>
</tr>
<tr>
<td>Related To</td>
<td>Displays relationships that you define (if any) for this table.</td>
</tr>
<tr>
<td>Impact</td>
<td>Displays objects that depend on data in this column.</td>
</tr>
<tr>
<td>Lineage</td>
<td>Displays the sources (if any) for this table.</td>
</tr>
<tr>
<td>User Defined</td>
<td>Displays relationships (if any) that you define.</td>
</tr>
</tbody>
</table>

Related Topics
• Viewing Data Federator object relationships on page 382
• Viewing impact and lineage of columns on page 388

Viewing Data Federator object relationships

With SAP BusinessObjects Metadata Management Explorer you can view relationships between tables and columns in your SAP BusinessObjects Data Federator sources. This section contains topics that discuss these relationships.

Related Topics
• Relationship tabs on Metadata Management Explorer on page 383
• Viewing Same As relationships on page 385
• Viewing impact and lineage of tables on page 386
Relationship tabs on Metadata Management Explorer

The tabs on the SAP BusinessObjects Metadata Management Explorer page for each table or object display the following relationships.
### Relationships that can appear on this tab

<table>
<thead>
<tr>
<th>Metadata Explorer tab</th>
<th>Relationships that can appear on this tab</th>
</tr>
</thead>
</table>
| **Same As**           | • Tables and columns that are the same between two Metadata Management source systems, such as between a Data Federator application and a relational database.  
• User-defined relationship (for example, between a table in an SAP BusinessObjects Data Federator and the same table in an SAP BusinessObjects Enterprise system).  
**Note:**  
A message will indicate if no relationship exists. |
| **Related To**        | • Primary Key  
• You can also create a user-defined relationship to appear in this tab.  
**Note:**  
A message will indicate if no relationship exists. |
| **Impact**            | Shows a graphic of objects that are affected by data in this object.  
You can also define this relationship (for example, between a file format and a target table). |
| **Lineage**           | Shows a graphic of the sources from which this object gets its data. |
| **User Defined**      | If you establish a custom relationship, you can view the following information for it:  
• Name of the related object  
• Name of the relationship  
• Path of the related object in the Metadata Explorer.  
You can delete a user-defined relationship from this tab.  
**Note:**  
A message will indicate if no relationship exists. |
Currently, Metadata Management displays impact and lineage only for datasource tables, text files, and XML files, target tables and their columns. Lookup and domain tables do not display in Metadata Management. For a complete list of all Data Federator objects for which Metadata Management does and does not automatically display impact and lineage, see "Compatibilities and Limitations" in the Metadata Management Release Notes.

Setting object equivalency rules for Data Federator

SAP BusinessObjects Metadata Management uses the values in Impact and Lineage Preferences with Object Equivalency Rules to determine that an object with two different names is the same physical object. For example, in SAP BusinessObjects Data Federator, the datasource ForenzaDW is the same as the schema dbo in your relational database system, and the highest level option in "Impact and Lineage Preferences" is set to schema. Therefore, ForenzaDW.TableA is the same as dbo.TableA.

If you have other objects that have different high-level qualifiers, use the Object Equivalency Rules to tell Metadata Management that an object is the same. You specify these rules once, when you first setup your source systems.

Related Topics
• To set Object Equivalency Rules for Same As relationships on page 267

Viewing Same As relationships

The "Same As" tab shows if a table or column is the same between two systems, such as between an SAP BusinessObjects Data Federator repository and a relational database.

For example, suppose you navigate to the table FACT_SALES_ORDER to view the following "Same As" tab.
In this example, the table FACT_SALES_ORDER in the Data Federator source My DF Source is used in other Metadata Integrator systems (Forenza DW, DIREPO, CWM Sales, and MySales).

Viewing impact and lineage of tables

The Explorer page for the table displays graphical representations of:
- The impact of a table on other objects when the table is a datasource.
- The source lineage for a table when the table is a target.

You might want to view the "Impact" tab of an SAP BusinessObjects Data Federator table to see whether or not it affects any reports in your SAP BusinessObjects Enterprise system. Or you might want to view the "Lineage" tab to see the sources from which a Data Federator table obtains its data.

The following sample "Impact" and "Lineage" tabs show examples of each situation.
In this example, the AGG_MULTIFACT target table is used in the MySales SAP BusinessObjects Enterprise system for universe objects (such as Actual Sales and Forecasted Sales), which are used in the DF_Deski report.

This lineage example shows that table FACT_SALES_ORDER obtains its data from the following tables using mapping rule mr_SalesOrderFact:

- Two datasource tables, Orders and Orders Details
- Two virtual target tables which obtain their data as follows:
  - DIM_CUSTOMER uses mapping rule mr_CustomerDimension to obtain data from table Customers.
  - DIM_EMPLOYEE uses mapping rule mr_Employee to obtain data from table Employee.

You can also click tabular view to display the impact analysis in table format.
Viewing impact and lineage of columns

The Explorer page for a column displays graphical representations of:

- Other objects affected by a column on the Impact tab
- On the Impact tab of a column, you can click a final object, such as a report in an SAP BusinessObjects Enterprise system, and click the Lineage tab of the report to display all columns in SAP BusinessObjects Data Federator target tables that affect the contents of the report.
- The sources for a column on the Lineage tab

Related Topics
- To view the lineage of a report back to Data Federator tables on page 389

To view the impact and lineage of columns

1. Use Search, or navigate to the Explorer page for the column. For example, suppose you have a column Total_Order_Value in table Sales_Fact_Order. You can use Search and enter Total_Order_Value as the search string to find the Explorer page for it.

2. Click the Impact tab to view the targets affected by this source column.

With many intermediate objects, you might need to scroll the page to view all objects. The above example selects the option Hide intermediate objects to display only the source and final target objects.

This example shows that column Total_Order_Value impacts the following final target objects:

- Sales column within the same My DF source Data Federator system.
- Actual_Sales column in the DIREPO Data Integrator system.
• DF_Deski report in the MySales BusinessObjects Enterprise system.

3. Move the pointer over the graphic of each object to display its information, such as table name, schema name, and catalog name.

4. Move the pointer over the "relationship attribute" icon to display how the data is mapped to each final target from the intermediate object. This example shows that the mapping is a SELECT statement between the intermediate universe object and the final target report DF_Deski.

To view the lineage of a report back to Data Federator tables

1. On the Impact tab for a column, click a final object, such as a report in an SAP BusinessObjects Enterprise system. For example, click DF_Deski report in the previous Impact tab.

2. Click the Lineage tab of the report to display all columns in SAP BusinessObjects Data Federator target tables that affect the contents of the report. For example, click the Lineage tab to view the following Lineage analysis.

3. Move the pointer over the graphic of each object to display its information, such as table name, schema name, and catalog name. This example shows that column Total_Order_Value is in Target table FACT_SALES_ORDER in schema targetSchema and catalog /OP2.

4. Move the pointer over each Relationship Attribute icon between the source and target objects within the My DF source system to display the mapping rule name that extracts the data from source column and loads it into the column in target table.

5. With many intermediate objects, you might need to scroll the page to view all objects. The following example clears the option Show...
**intermediate objects** in **Edit Settings** to display only the first source object and final target object.

Move the pointer over the relationship attribute icon to display the mapping rule name of each column in My DF source system. This example shows mapping rule mr_SalesOrdersFact for column Discount.

**To view the lineage of a column**

1. Click the **Lineage** tab to view all of sources for a column. For the sample column Total_Order_Value, the following lineage analysis displays.
2. Move the pointer over the graphic of each object to display its information, such as table name, schema name, and catalog name. This example shows that column Quantity is in table Order Details in schema ForenzaSource and catalog /OP2/sources.
Relational Database Metadata
Exploring Relational Database metadata

SAP BusinessObjects Metadata Management stores metadata about objects in selected source systems. Metadata Management Explorer organizes the metadata into a directory structure so that users can navigate and explore the metadata objects in an easy to understand way.

The directory structure in Metadata Management Explorer contains the following categories:

- **Business Intelligence** which contains sources such as SAP BusinessObjects Enterprise.
- **ETL (Extract, Transform, Load)** which contains sources such as BusinessObjects Data Integrator
- **Relational Databases** which contains sources such as DB2, MySQL, Oracle, SQL Server, and Java Database Connectivity (JDBC). You can use JDBC to specify a Teradata source
- **Data Modeling** which contains sources such as CWM (Common Warehouse Modeling)

Metadata Management Explorer uses the following terms:

- **Category** - A category is a type of source system for which Metadata Integrators collect metadata. The above list of categories show examples of source systems for each category. When your administrator configures a source system for Metadata Integrator, the source system displays under the appropriate category on the Metadata Management Explorer.

- **Metadata Integrator** - A Metadata Integrator is a program that extracts metadata from a source system and loads it into the Metadata Management Repository. Your administrator installs zero, one, or more Metadata Integrators for each category and might configure multiple source systems for each Metadata Integrator. For configuration information, see *Configuring sources for Relational Database Metadata Integrator* on page 145.

- **Metadata object** - A unit of information that a Metadata Integrator creates from an object in a source system. For example, an SQL Server database source contains objects such as databases, schemas, and tables which the Metadata Integrator loads into the Metadata Management as metadata objects Databases, Schemas, and Tables.
• **Instance** - An instance is an occurrence of a Metadata Integrator or metadata object. For example, an SQL Server database source (such as Forenza DW) is an instance of a Metadata Integrator in the Relational Database category. An example of a type of metadata object is a table, and an instance of a table is `FACT_SALES_ORDER`.

This section includes the following topics:

• **Navigating relational database metadata** on page 395
• **Viewing relationships in a database source** on page 401

**Navigating relational database metadata**

When you login to the SAP BusinessObjects Metadata Management Explorer, the Directory home page displays. To login, see *Accessing Metadata Management Explorer* on page 197.

The Directory home page shows each configured source, grouped by the Metadata Integrator category in which it belongs.

![Directory home page](image)

Click **Relational Database** to display only the sources for this category.

**Relational Database objects**

The SAP BusinessObjects Metadata Explorer page for a relational database source shows the following object types if they exist in the source. Each object type can also contain associated objects, as the following table shows.
<table>
<thead>
<tr>
<th>Object type</th>
<th>Description</th>
<th>Associated objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Instances</td>
<td>A server instance is the database, data source, or service in the relational database management system.</td>
<td>Databases</td>
</tr>
<tr>
<td>Databases</td>
<td>A database is one or more large structured sets of persistent data, usually associated with software to update and query the data. A relational database organizes the data and relations between them into tables.</td>
<td>Schemas</td>
</tr>
<tr>
<td>Schemas</td>
<td>A schema is the definition of a table in a relational database.</td>
<td>Synonyms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tables</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Procedures</td>
</tr>
<tr>
<td>Tables</td>
<td>A table is a collection of records (records are also referred to as rows) in a relational database.</td>
<td>Columns</td>
</tr>
<tr>
<td>Views</td>
<td>A view is a subset of columns or rows in a table or joined tables that a user can access.</td>
<td>Columns</td>
</tr>
<tr>
<td>Procedures</td>
<td>A procedure is a sequence of instructions to perform a specific task.</td>
<td>Parameters</td>
</tr>
</tbody>
</table>
Exploring the Relational Database category

To view all the integrator sources in the Relational Database category:

1. Click Relational Database on the Directory home page.

   The Relational Database category page shows:
   - The configured sources for the Relational Database Metadata Integrator.
   - Under each source name are the first several metadata object types that it contains, and the number in parenthesis indicates the number of instances for that type. For example, a typical relational database contains object types Server Instances, Databases, and Schemas.

2. Click More... to display all object types in the source. You can also click the name of the source to display all of its object types.

   For example, click Forenza Source or More... to see that this source contains object types Server Instances, Databases, Schemas, Tables, Views, and Procedures.
Exploring Relational Database objects

To display all instances of an object type, click the object type name or Show All... For example, click Tables or Show All... to display all table instances.

Each metadata object page lists 10 instance names, in alphabetic order, that the source contains. If more than 10 tables exist, click the page links at the bottom to display each set of 10 instance names.
Exploring a table

Each instance of a table has individual attributes and relationships associated with it. The SAP BusinessObjects Metadata Management Explorer displays the following tabs for these attributes and relationships:

- **Overview** - Displays information about the table such as schema name, database name, and list of columns with their data type, length, and other attributes.
- **Same As** - Displays any synonyms or aliases for this table. See "Viewing synonyms and alias relationships" on page 402.
- **Related To** - Displays any relationships that you define for this table. See "Viewing relationships in a database source" on page 401.
- **Impact** - Displays any objects that depend on the data in this table. See "Viewing impact and lineage" on page 405.
- **Lineage** - Displays the sources (if any) for this table.
- **User Defined** - Displays any relationships that you define. See "Establishing user-defined relationships between objects" on page 260.

Exploring an instance of a column

Click a column name to display its properties and relationships associated with it. The SAP BusinessObjects Metadata Management Explorer displays the following tabs for the properties and relationships:

- **Overview** - Displays attributes such as Primary key, data type, and if it allows null values.
- **Same As** - Displays any synonyms or aliases (if any) for this table. See "Viewing synonyms and alias relationships" on page 402.
- **Related To** - Displays primary key - foreign key relationships (if any) that exists for this column. See "Viewing primary key and foreign key relationships" on page 404.
- **Impact** - Displays the objects that depend on the data in this column. See "Viewing impact and lineage" on page 405.
- **Lineage** - Displays the sources (if any) for this table.
• User Defined - Displays relationships (if any) that you define. See *Establishing user-defined relationships between objects* on page 260.

**Exploring an instance of a view**

Click a view name to display its properties and relationships associated with it. For example, click the **Summary of Sales by Quarter** view to display the following Overview tab.

![Overview tab](image)

This page displays the following properties for the view:

• Schema name
• Database name
• SQL - Create view statement
• List of columns with their data type, length, and other attributes

**Note:**
For an Oracle materialized view, this Overview page shows the following additional properties:

• Materialized View: Yes
• Refresh mode
• Refresh method
• Fast refreshable
• Rewrite enabled
• Staleness
• Last refresh date

Click the Lineage tab to display the tables, views, or combination of tables and views from which the view is created. For the **Summary of Sales by Quarter** view, the following Lineage tab shows that this view is created from:

- Order Subtotals view, which is created from table Order Details
- Orders table

**Note:**
When a view has a dependent object in another schema or database, the Relational Database Metadata Integrator collects metadata about that dependent object. However, if the dependent object is another view, it does not collect metadata for that dependent object. Therefore, if the dependent object is a view, you will not see it in the lineage diagram.

### Viewing relationships in a database source

With SAP BusinessObjects Metadata Management Explorer you can view relationships between schemas, tables, and columns in your relational database sources. Metadata Management Explorer displays the following relationship analysis tabs:

- **Same As tab:** identifies an object that exists in different source systems, is a Synonym, or is Alias
- **Related To tab:** Primary Key - Foreign Key
- **Impact:** identifies other objects that are affected by data within this object.
- **Lineage:** identifies the sources of the data within this object.
- **User-Defined:** You can also establish user-defined relationships (see *Establishing user-defined relationships between objects* on page 260).
Viewing synonyms and alias relationships

A synonym is another name for an object in the same system. For example, a synonym for a relational table exists in the same database as the table.

An alias is another name for an object in a different system. For example, an alias name in one database might refer to a relational table in a different database.

If synonyms or aliases exist in a relational database source, the Metadata Explorer shows it as an object type on the source page. The following sample ODS source page shows the Schemas object type has an instance ODS that contains synonyms: Synonyms (2).

Note:
SAP BusinessObjects Metadata Management displays synonyms for tables and views only. Synonyms for other objects (such as functions and procedures) do not display in the Metadata Management Explorer. For a synonym of a synonym on a table or view, Metadata Management displays two synonyms for the table or view.

Click Synonyms (2) to display more information about the two synonyms. The following Explorer pages shows that the synonyms contain views.
Click the name of one of these synonyms to display information about the view. The Overview tab shows the following information:

- Schema name
- Database name
- SQL SELECT statement that the CREATE VIEW statement contains
- The Columns section lists a line for each column with its name, data type and other attributes

The following example shows the "Overview" tab for **PATH_VIEW**.

<table>
<thead>
<tr>
<th>Name</th>
<th>Data type</th>
<th>Length</th>
<th>Scale</th>
<th>Allow Nulls</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATH</td>
<td>varchar2</td>
<td>1024</td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES</td>
<td>XMLTYPE</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LINK</td>
<td>XMLTYPE</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESD</td>
<td>row</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Click the "Same As" tab to display the synonyms that are the same as the view.
Viewing primary key and foreign key relationships

If a column is a primary key or a foreign key, the SAP BusinessObjects Metadata Management Explorer shows that relationship in the Related To tab. For example, column CUSTOMERID in table DIM_CUSTOMER is the primary key as indicated by the key icon next to its name. The following Related To tab shows this relationship.

The graphical representation shows the current column with a blue shaded column name. In this example, the relationship attribute shows the relationship name "Primary-Foreign key" between the two columns.

Move your pointer to display the table name and schema name that contains each column. This example shows that the column CUSTOMERID is a foreign key in table FACT_SALES_ORDER.
Viewing impact and lineage

Impact analysis allows you to identify which objects will be affected if you change or remove other connected objects. In other words, what other objects are affected by the data within this object. The Impact tab on an object’s Explorer page displays the other objects that this object impacts.

Impact and lineage relationships can exist between objects within the same source (such as between a view and a table), and between objects in two different sources (such as a target column in a Data Integrator source and a report in an SAP BusinessObjects Enterprise source).

The following example shows the Impact tab for column Address in table Customers.

This graphical view on the Impact tab shows:

- The impact of the Customer.Address column on objects within the Forenza Source relational database system. Move the pointer over these objects to display their object types, names, and schema. In this example, the two objects are views.

- The same Customer.Address column is used in the DIREPO Data Integrator system, which loads it into a target table. Move the pointer over the target table to display its name and schema. In this example, the target table is Dim_Customer.

- The same Dim_Customer.Address column is used in the MySales BusinessObjects Enterprise system, which uses it for universe object Address that is used in reports "Product_Sales_by_Customer_webi" and "Product Sales by Customer.rpt."
Click a target object in the Data Integrator system and click the Lineage tab to show the corresponding lineage analysis. For example, click the target Address column in the DIREPO Data Integrator system and click the Lineage tab to show the following lineage analysis. This lineage analysis shows that the Dim_Customer.Address column in DIREPO obtains its data from the Customer.Address column in Forenza Source.

In **Edit Settings**, clear **Show intermediate objects** to display just the first source column in the Relational Database source system and the final target reports in the BusinessObjects Enterprise source system. The following example shows the Customer.Address column in the Forenza Source system and the final target reports "Product_Sales_by_Customer_webi" and "Product Sales by Customer.rpt" in the MySales system.

You can also click **tabular view** to display a long impact analysis in a table format. The following example shows part of the tabular view for the Address column in table Customer.
This tabular view of the Impact tab shows that data in the source column Address goes through the following number of steps to reach the final target objects:

- Five steps to final target report "Product_Sales_by_Customer_webi"
- Four steps to final target reports "Product Sales by Customer.rpt."

For each step, the tabular view shows the source object, target object, relationship types, and mapping (if applicable). In this example, the tabular view shows information such as the following:

- In the first step, Address column in table Customer in the Forenza Source relational database system has the following relationships:

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>Steps from Source</th>
<th>Relationship Attributes</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>ADDRESS</td>
<td>1</td>
<td>Type: Same As</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table name: Customers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schema name: dbo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: Forenza Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>ADDRESS</td>
<td>1</td>
<td>Type: Impact Used in: Project List</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View name: Invoices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schema name: dbo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: Forenza Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td>ADDRESS</td>
<td>1</td>
<td>Type: Impact Used in: Project List</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View name: Orders Qry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schema name: dbo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System: Forenza Source</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADDRESS</th>
<th>ADDRESS</th>
<th>2</th>
<th>Type: Impact</th>
<th>Transformation Name: of_CustomersDimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table name: CUSTOMERS</td>
<td>Table name: DM_CUSTOMER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schema name: dbo</td>
<td>Schema name: dbo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System: DIREPO</td>
<td>System: DIREPO</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| ADDRESS | ADDRESS | 3 | Type: Same As | |
|---------|---------|---|-------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| ADDRESS | ADDRESS | 3 | Type: Same As | |
|---------|---------|---|-------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| ADDRESS | ADDRESS | 3 | Type: Same As | |
|---------|---------|---|-------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| ADDRESS | ADDRESS | 4 | Type: Impact Used in: select | |
|---------|---------|---|-----------------------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| ADDRESS | ADDRESS | 4 | Type: Impact Used in: select | |
|---------|---------|---|-----------------------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| ADDRESS | ADDRESS | 4 | Type: Impact | |
|---------|---------|---|-------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |

| Address | ADDRESS | 5 | Type: Impact Used in: select | |
|---------|---------|---|-----------------------------||
| Universe class: Dim Customer | Table name: DM_CUSTOMER | | | |
| Universe name: MySales | Schema name: dbo | | | |
| System: MySales | | | | |

| ADDRESS | ADDRESS | 5 | Type: Impact | |
|---------|---------|---|-------------||
| Table name: DM_CUSTOMER | Table name: DM_CUSTOMER | | | |
| Schema name: dbo | Schema name: dbo | | | |
| System: MySales | System: MySales | | | |
• Same As relationship with column Customer.Address in the DI REPO source system

• Impact relationship with the following objects in the same Forenza Source relational database system:
  • Address column in the Invoices view
  • Address column in the Orders Qry view

• In the second step, Address column in table Customer in the DI REPO source system has:
  • An Impact relationship with Address column in the Dim_Customer table in the DI REPO source system
  • The transformation df_CustomersDimension, which is the data flow in the DI REPO source system that extracts the data from the Customer table and loads the data into the Dim_Customer table.

• In the third step, Address column in table Dim_Customer in the DI REPO source system has the following relationships:
  • Same As relationship with the Address column in the Dim_Customer table in the MySales BusinessObjects Enterprise system

  This Same As relationship appears three times because the Address column affects three target objects.

• In the fourth step, Address column in table Dim_Customer in the MySales BusinessObjects Enterprise system has the following relationships with the following objects in the MySales BusinessObjects Enterprise system:
  • Impact relationship with the Address universe object in the Dim Customer universe class
  • Impact relationship with report "Product Sales by Customer.rpt"
  • Impact relationship with report "Product_Sales_by_Customer_webi"

• In the fifth step, Address universe object in the Dim Customer universe class has an Impact relationship with report "Product_Sales_by_Customer_webi."
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