Informatica®

10.2 HotFix 1

Metadata Manager Administrator Guide

Informatica Metadata Manager Administrator Guide
10.2 HotFix 1
August 2018

© Copyright Informatica LLC 2007, 2022

This software and documentation are provided only under a separate license agreement containing restrictions on use and disclosure. No part of this document may be reproduced or transmitted in any form, by any means (electronic, photocopying, recording or otherwise) without prior consent of Informatica LLC.

Informatica, the Informatica logo, PowerExchange, and PowerCenter are trademarks or registered trademarks of Informatica LLC in the United States and many jurisdictions throughout the world. A current list of Informatica trademarks is available on the web at https://www.informatica.com/trademarks.html. Other company and product names may be trade names or trademarks of their respective owners.

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation is subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License.

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation is subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License.

Portions of this software and/or documentation are subject to copyright held by third parties, including without limitation: Copyright DataDirect Technologies. All rights reserved. Copyright © Sun Microsystems. All rights reserved. Copyright © RSA Security Inc. All Rights Reserved. Copyright © Ordinal Technology Corp. All rights reserved. Copyright © Aandacht c.v. All rights reserved. Copyright Genivia, Inc. All rights reserved. Copyright Isomorphic Software. All rights reserved. Copyright © Meta Integration Technology, Inc. All rights reserved. Copyright © Intalio. All rights reserved. Copyright © Oracle. All rights reserved. Copyright © Adobe Systems Incorporated. All rights reserved. Copyright © DataArt, Inc. All rights reserved. Copyright © ComponentSource. All rights reserved. Copyright © Microsoft Corporation. All rights reserved. Copyright © Rogue Wave Software, Inc. All rights reserved. Copyright © Teradata Corporation. All rights reserved. Copyright © Yahoo! Inc. All rights reserved. Copyright © Glyph & Cog, LLC. All rights reserved. Copyright © Thinkmap, Inc. All rights reserved. Copyright © Clearpace Software Limited. All rights reserved. Copyright © Information Builders, Inc. All rights reserved. Copyright © OSS Nokalva, Inc. All rights reserved. Copyright Edifecs, Inc. All rights reserved. Copyright Cleo Communications, Inc. All rights reserved. Copyright © International Organization for Standardization 1986. All rights reserved. Copyright © ej-technologies GmbH. All rights reserved. Copyright © Jaspersoft Corporation. All rights reserved. Copyright © International Business Machines Corporation. All rights reserved. Copyright © yWorks GmbH. All rights reserved. Copyright © Lucent Technologies. All rights reserved. Copyright © University of Toronto. All rights reserved. Copyright © Daniel Veillard. All rights reserved. Copyright © Unicode, Inc. Copyright IBM Corp. All rights reserved. Copyright © MicroQuill Software Publishing, Inc. All rights reserved. Copyright © PassMark Software Pty Ltd. All rights reserved. Copyright © LogiXML, Inc. All rights reserved. Copyright © 2003-2010 Lorenzi Davide, All rights reserved. Copyright © Red Hat, Inc. All rights reserved. Copyright © The Board of Trustees of the Leland Stanford Junior University. All rights reserved. Copyright © EMC Corporation. All rights reserved. Copyright © Flexera Software. All rights reserved. Copyright © Jinfonet Software. All rights reserved. Copyright © Apple Inc. All rights reserved. Copyright © Telerik Inc. All rights reserved. Copyright © BEA Systems. All rights reserved. Copyright © PDFlib GmbH. All rights reserved. Copyright © Orientation in Objects GmbH. All rights reserved. Copyright © Tanuki Software, Ltd. All rights reserved. Copyright © Ricebridge. All rights reserved. Copyright © Sencha, Inc. All rights reserved. Copyright © Scalable Systems, Inc. All rights reserved. Copyright © jQWidgets. All rights reserved. Copyright © Tableau Software, Inc. All rights reserved. Copyright© MaxMind, Inc. All Rights Reserved. Copyright © TMate Software s.r.o. All rights reserved. Copyright © MapR Technologies Inc. All rights reserved. Copyright © Amazon Corporate LLC. All rights reserved. Copyright © Highsoft. All rights reserved. Copyright © Python Software Foundation. All rights reserved. Copyright © BeOpen.com. All rights reserved. Copyright © CNRI. All rights reserved.

This product includes software developed by the Apache Software Foundation (http://www.apache.org/), and/or other software which is licensed under various versions of the Apache License (the "License"). You may obtain a copy of these Licenses at http://www.apache.org/licenses/. Unless required by applicable law or agreed to in writing, software distributed under these Licenses is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the Licenses for the specific language governing permissions and limitations under the Licenses.

This product includes software which was developed by Mozilla (http://www.mozilla.org/), software copyright The JBoss Group, LLC, all rights reserved; software copyright © 1999-2006 by Bruno Lowagie and Paulo Soares and other software which is licensed under various versions of the GNU Lesser General Public License Agreement, which may be found at http:// www.gnu.org/licenses/lgpl.html. The materials are provided free of charge by Informatica, "as-is", without warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

The product includes ACE(TM) and TAO(TM) software copyrighted by Douglas C. Schmidt and his research group at Washington University, University of California, Irvine, and Vanderbilt University, Copyright (©) 1993-2006, all rights reserved.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (copyright The OpenSSL Project. All Rights Reserved) and redistribution of this software is subject to terms available at http://www.openssl.org and http://www.openssl.org/source/license.html.

This product includes Curl software which is Copyright 1996-2013, Daniel Stenberg, <daniel@haxx.se>. All Rights Reserved. Permissions and limitations regarding this software are subject to terms available at http://curl.haxx.se/docs/copyright.html. Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

The product includes software copyright 2001-2005 (©) MetaStuff, Ltd. All Rights Reserved. Permissions and limitations regarding this software are subject to terms available at http://www.dom4j.org/ license.html.

The product includes software copyright © 2004-2007, The Dojo Foundation. All Rights Reserved. Permissions and limitations regarding this software are subject to terms available at http://dojotoolkit.org/license.

This product includes ICU software which is copyright International Business Machines Corporation and others. All rights reserved. Permissions and limitations regarding this software are subject to terms available at http://source.icu-project.org/repos/icu/icu/trunk/license.html.

This product includes software copyright © 1996-2006 Per Bothner. All rights reserved. Your right to use such materials is set forth in the license which may be found at http:// www.gnu.org/software/ kawa/Software-License.html.

This product includes OSSP UUID software which is Copyright © 2002 Ralf S. Engelschall, Copyright © 2002 The OSSP Project Copyright © 2002 Cable & Wireless Deutschland. Permissions and limitations regarding this software are subject to terms available at http://www.opensource.org/licenses/mit-license.php.

This product includes software developed by Boost (http://www.boost.org/) or under the Boost software license. Permissions and limitations regarding this software are subject to terms available at http:/ /www.boost.org/LICENSE_1_0.txt.

This product includes software copyright © 1997-2007 University of Cambridge. Permissions and limitations regarding this software are subject to terms available at http:// www.pcre.org/license.txt.

This product includes software copyright © 2007 The Eclipse Foundation. All Rights Reserved. Permissions and limitations regarding this software are subject to terms available at http:// www.eclipse.org/org/documents/epl-v10.php and at http://www.eclipse.org/org/documents/edl-v10.php.

This product includes software licensed under the terms at http://www.tcl.tk/software/tcltk/license.html, http://www.bosrup.com/web/overlib/?License, http://www.stlport.org/doc/ license.html, http://asm.ow2.org/license.html, http://www.cryptix.org/LICENSE.TXT, http://hsqldb.org/web/hsqlLicense.html, http://httpunit.sourceforge.net/doc/ license.html, http://jung.sourceforge.net/license.txt , http://www.gzip.org/zlib/zlib_license.html, http://www.openldap.org/software/release/license.html, http://www.libssh2.org, http://slf4j.org/license.html, http://www.sente.ch/software/OpenSourceLicense.html, http://fusesource.com/downloads/license-agreements/fuse-message-broker-v-5-3- license-agreement; http://antlr.org/license.html; http://aopalliance.sourceforge.net/; http://www.bouncycastle.org/licence.html; http://www.jgraph.com/jgraphdownload.html; http://www.jcraft.com/jsch/LICENSE.txt; http://jotm.objectweb.org/bsd_license.html; . http://www.w3.org/Consortium/Legal/2002/copyright-software-20021231; http://www.slf4j.org/license.html; http://nanoxml.sourceforge.net/orig/copyright.html; http://www.json.org/license.html; http://forge.ow2.org/projects/javaservice/, http://www.postgresql.org/about/licence.html, http://www.sqlite.org/copyright.html, http://www.tcl.tk/software/tcltk/license.html, http://www.jaxen.org/faq.html, http://www.jdom.org/docs/faq.html, http://www.slf4j.org/license.html; http://www.iodbc.org/dataspace/iodbc/wiki/iODBC/License; http://www.keplerproject.org/md5/license.html; http://www.toedter.com/en/jcalendar/license.html; http://www.edankert.com/bounce/index.html; http://www.net-snmp.org/about/license.html; http://www.openmdx.org/#FAQ; http://www.php.net/license/3_01.txt; http://srp.stanford.edu/license.txt; http://www.schneier.com/blowfish.html; http://www.jmock.org/license.html; http://xsom.java.net; http://benalman.com/about/license/; https://github.com/CreateJS/EaselJS/blob/master/src/easeljs/display/Bitmap.js; http://www.h2database.com/html/license.html#summary; http://jsoncpp.sourceforge.net/LICENSE; http://jdbc.postgresql.org/license.html; http://protobuf.googlecode.com/svn/trunk/src/google/protobuf/descriptor.proto; https://github.com/rantav/hector/blob/master/LICENSE; http://web.mit.edu/Kerberos/krb5-current/doc/mitK5license.html; http://jibx.sourceforge.net/jibx-license.html; https://github.com/lyokato/libgeohash/blob/master/LICENSE; https://github.com/hjiang/jsonxx/blob/master/LICENSE; https://code.google.com/p/lz4/; https://github.com/jedisct1/libsodium/blob/master/LICENSE; http://one-jar.sourceforge.net/index.php?page=documents&file=license; https://github.com/EsotericSoftware/kryo/blob/master/license.txt; http://www.scala-lang.org/license.html; https://github.com/tinkerpop/blueprints/blob/master/LICENSE.txt; http://gee.cs.oswego.edu/dl/classes/EDU/oswego/cs/dl/util/concurrent/intro.html; https://aws.amazon.com/asl/; https://github.com/twbs/bootstrap/blob/master/LICENSE; https://sourceforge.net/p/xmlunit/code/HEAD/tree/trunk/LICENSE.txt; https://github.com/documentcloud/underscore-contrib/blob/master/LICENSE, and https://github.com/apache/hbase/blob/master/LICENSE.txt.

This product includes software licensed under the Academic Free License (http://www.opensource.org/licenses/afl-3.0.php), the Common Development and Distribution License (http://www.opensource.org/licenses/cddl1.php) the Common Public License (http://www.opensource.org/licenses/cpl1.0.php), the Sun Binary Code License Agreement Supplemental License Terms, the BSD License (http:// www.opensource.org/licenses/bsd-license.php), the new BSD License (http://opensource.org/licenses/BSD-3-Clause), the MIT License (http://www.opensource.org/licenses/mit-license.php), the Artistic License (http://www.opensource.org/licenses/artistic-license-1.0) and the Initial Developer's Public License Version 1.0 (http://www.firebirdsql.org/en/initial-developer-s-public-license-version-1-0/).

This product includes software copyright © 2003-2006 Joe Walnes, 2006-2007 XStream Committers. All rights reserved. Permissions and limitations regarding this software are subject to terms available at http://xstream.codehaus.org/license.html. This product includes software developed by the Indiana University Extreme! Lab. For further information please visit http://www.extreme.indiana.edu/.

This product includes software Copyright (c) 2013 Frank Balluffi and Markus Moeller. All rights reserved. Permissions and limitations regarding this software are subject to terms of the MIT license.

See patents at https://www.informatica.com/legal/patents.html.

DISCLAIMER: Informatica LLC provides this documentation "as is" without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of noninfringement, merchantability, or use for a particular purpose. Informatica LLC does not warrant that this software or documentation is error free. The information provided in this software or documentation may include technical inaccuracies or typographical errors. The information in this software and documentation is subject to change at any time without notice.

NOTICES

This Informatica product (the "Software") includes certain drivers (the "DataDirect Drivers") from DataDirect Technologies, an operating company of Progress Software Corporation ("DataDirect") which are subject to the following terms and conditions:

1. THE DATADIRECT DRIVERS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.
2. IN NO EVENT WILL DATADIRECT OR ITS THIRD PARTY SUPPLIERS BE LIABLE TO THE END-USER CUSTOMER FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR OTHER DAMAGES ARISING OUT OF THE USE OF THE ODBC DRIVERS, WHETHER OR NOT INFORMED OF THE POSSIBILITIES OF DAMAGES IN ADVANCE. THESE LIMITATIONS APPLY TO ALL CAUSES OF ACTION, INCLUDING, WITHOUT LIMITATION, BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, STRICT LIABILITY, MISREPRESENTATION AND OTHER TORTS.

The information in this documentation is subject to change without notice. If you find any problems in this documentation, report them to us at infa_documentation@informatica.com.

Informatica products are warranted according to the terms and conditions of the agreements under which they are provided. INFORMATICA PROVIDES THE INFORMATION IN THIS DOCUMENT "AS IS" WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND ANY WARRANTY OR CONDITION OF NON-INFRINGEMENT.

Publication Date: 2022-03-22

Table of Contents

Preface 12

Informatica Resources. 12

Informatica Network. 12

Informatica Knowledge Base. 12

Informatica Documentation. 12

Informatica Product Availability Matrixes. 13

Informatica Velocity. 13

Informatica Marketplace. 13

Informatica Global Customer Support. 13

Chapter 1: Using Metadata Manager. 14

Using Metadata Manager Overview. 14

Resource Types. 14

Metadata Manager Architecture. 15

Metadata Manager Service. 16

Metadata Manager Application. 16

Metadata Manager Agent. 17

Metadata Manager Repository. 17

PowerCenter Repository. 17

PowerCenter Integration Service. 17

PowerCenter Repository Service. 18

Metadata Integration Process. 18

Resources. 18

Metadata Sources. 18

Informatica Metadata Extraction Interface. 18

PowerCenter Workflows. 18

Metadata Exchanges. 19

Working with Metadata Manager. 19

Metadata Manager Interface. 20

Load Tab. 20

Permissions Tab. 20

Chapter 2: Configuring Metadata Manager. 21

Configuring Metadata Manager Overview. 21

Step 1. Create and Configure the Metadata Manager Service. 21

Step 2. Install the Metadata Manager Agent. 22

Rules and Guidelines for the Metadata Manager Agent. 22

Minimum System Requirements. 23

Before You Install. 23

Installing the Metadata Manager Agent. 23

After You Install. 24
Working with a Keystore File. 26

Chapter 3: Application Resources. 28

SAP R/3 Resource Overview. 28
Configuring SAP R/3. 28
Install Transports. 28
Configure a User Authorization Profile. 29
Install the SAP JCo Libraries. 29
Creating an SAP R/3 Resource. 29
SAP R/3 Configuration Properties. 31
Configuring the Component Inclusion List. 31
Reference. 31
Version. 31
Objects Extracted. 32
Data Lineage. 32
SAP R/3 Schema Class. 32

Chapter 4: Business Glossary Resources. 33

Business Glossary Resources Overview. 33
Application Services Verification. 34
Creating a Business Glossary Resource. 34
Business Glossary Connection Properties. 35
Business Glossary Objects Extracted. 36
Business Glossary Objects Not Extracted. 36

Chapter 5: Business Intelligence Resources. 38

Business Objects. 38
Configuring Business Objects. 38
Creating a Business Objects Resource. 40
Reference. 44
Cognos. 46
Configuring Cognos. 46
Creating a Cognos Resource. 47
Reference. 51
Microsoft Analysis and Reporting Services. 53
Configuring Microsoft Analysis and Reporting Services. 53
Creating a Microsoft Analysis and Reporting Services Resource. 54
Reference. 56
Microstrategy. 58
Configuring Microstrategy. 58
Creating a Microstrategy Resource. 59
Reference. 62

Oracle Business Intelligence Enterprise Edition. . . . 66
Configuring Oracle Business Intelligence Enterprise Edition. . . . 66
Creating an Oracle Business Intelligence Enterprise Edition Resource. . . . 68
Reference. . . . 71
SAP Business Warehouse. . . . 73
Configuring SAP Business Warehouse. . . . 73
Creating an SAP Business Warehouse Resource. . . . 74
Reference. . . . 77
Tableau. . . . 79
Configuring Tableau. . . . 80
Creating a Tableau Resource. . . . 80
Reference. . . . 82
Incremental Metadata Load 84
Adding or Removing Metadata Files for a Resource. . . . 85

Chapter 6: Custom Resources. . . . 86

Configuring Custom Metadata Sources. . . . 86
Creating a Custom Resource. . . . 86
Configuring the Template Name. . . . 87
Adding or Removing Metadata Files for a Resource. . . . 87

Chapter 7: Data Integration Resources. . . . 89

Informatica Platform Resources. . . . 89
Configuring the Metadata Source. . . . 90
Creating an Informatica Platform Resource. . . . 91
Parameters in Informatica Platform 10.x Resources. . . . 95
Parameters in Informatica Platform 9.5.1 - 9.6.x Resources. . . . 97
Reference. . . . 98
Microsoft SQL Server Integration Services Resources. . . . 104
Metadata Extraction from Protected Packages. . . . 104
Configuring SQL Server Integration Services. . . . 104
Creating an SQL Server Integration Services Resource. . . . 106
Reference. . . . 110
PowerCenter Resources. . . . 115
Configuring PowerCenter. . . . 115
Creating a PowerCenter Resource. . . . 117
Configuring the Folder Inclusion List. . . . 120
Configuring the Source Increment Extract Window. . . . 121
PowerCenter Parameter Files. . . . 121
Reference. . . . 124

Chapter 8: Data Modeling Resources. . . . 128

Embarcadero ERStudio. . . . 128

Configuring Embarcadero ERStudio. 128
Creating an Embarcadero ERStudio Resource. 129
Reference. 131
ERwin. 134
Configuring ERwin. 134
Creating an ERwin Resource. 135
Reference. 142
SAP PowerDesigner. 145
Configuring SAP PowerDesigner. 145
Creating an SAP PowerDesigner Resource. 145
Reference. 148
Adding or Removing Metadata Files for a Resource. 149
Reference for Data Modeling Resources. 149
Data types. 149
Validation Rules. 150
Relationships. 150
View Associations. 150
Schema and Owners. 150
Name and Description Properties. 151
Multiple Models in the Same Repository. 151
Objects Not Extracted. 151
Domain-to-Validation Rule Association. 151

Chapter 9: Database Management Resources. 152

Cloudera Navigator. 152
Heap Size Configuration. 153
Creating a Cloudera Navigator Resource. 153
Filtering for Hive and Impala Query Templates 155
Incremental Loading for Cloudera Navigator Resources. 156
Search Queries. 157
Reference. 159
IBM DB2 for LUW. 164
Configuring IBM DB2 for LUW. 164
Creating an IBM DB2 for LUW Resource. 166
Reference. 169
IBM DB2 for z/OS. 170
Configuring IBM DB2 for z/OS. 170
Creating an IBM DB2 for z/OS Resource. 172
Reference. 174
IBM Informix. 175
Configuring IBM Informix. 175
Creating an IBM Informix Resource. 177
Reference. 179

JDBC. 180
Configuring the JDBC Metadata Source. 180
Creating a JDBC Resource. 181
Objects Extracted and Not Extracted 183
Microsoft SQL Server. 184
Configuring Microsoft SQL Server. 184
Creating a Microsoft SQL Server Resource. 185
Reference. 187
Netezza. 189
Configuring Netezza. 189
Creating a Netezza Resource. 190
Reference. 192
Oracle. 193
Configure Permissions. 193
Configure Oracle with the Advanced Security Option 194
Creating an Oracle Resource. 195
Incremental Loading for Oracle Resources. 198
Reference. 199
Sybase ASE. 200
Configuring Sybase ASE. 200
Creating a Sybase ASE Resource. 201
Reference. 203
Teradata. 204
Configuring Teradata. 204
Creating a Teradata Resource. 205
Incremental Loading for Teradata Resources. 207
Reference. 207
Configuring the Schema Inclusion List. 209
Data Lineage for Database Management Resources. 210
Tables in Join Statements. 210
SQL Inline Views. 211

Chapter 10: Universal Resources. 212

Universal Resources Overview. 212
Available Metadata Sources. 213
XConnect Creation. 214
Step 1. Get the Metadata Source Name. 215
Step 2. Create the Plug-in Definition File. 216
Step 3. Get the Image Mapping Information. 217
Step 4. Get the Icons. 218
Step 5. Generate the Plug-in. 219
Step 6. Create the Model from the Plug-in. 220
Updating a Universal XConnect. 221

Deleting a Universal XConnect. 221
Resource Creation. 221
Step 1. Configure the Metadata Source. 221
Step 2. Create the Resource. 223

Chapter 11: Managing Resources. 226

Managing Resources Overview. 226
Configure Connection Assignments. 227
Automatic Connection Assignments. 227
Manual Connection Assignments. 228
Connection Assignments Example. 228
Connection Assignment Properties. 229
Automatically Configuring Connection Assignments. 229
Manually Configuring Connection Assignments. 230
Upload Rule Sets. 230
Linking Rules Files. 231
Uploading a Rule Set. 232
Purging Metadata. 232
Refreshing the Resources Panel. 233
Updating the Search Index. 233
Automatic Index Updates. 234
Optimizing the Index. 234
Manually Creating Indexes. 234
Troubleshooting the Search Index. 234
Customizing the List of Words to Ignore in Searches. 235

Chapter 12: Loading and Monitoring Resources. 237

Loading and Monitoring Resources Overview. 237
Loading Resources. 238
Loading a Resource. 238
Load Queue. 238
Resuming a Failed Resource Load. 239
Linking Objects Across Resources. 239
Creating Links for a Resource. 239
Link Status. 240
Rules and Guidelines for Creating Links. 240
Monitoring Resources. 241
Viewing Load Details. 241
Viewing Link Details. 244
Load Details Log File. 246
Logs and Log Files. 246
Metadata Manager Agent Log File. 247
Metadata Manager Service Log File. 248

Activity Log. 249
Troubleshooting Resource Loads. 249
Scheduling Resource Loads. 250
Creating a Schedule. 251
Editing a Schedule. 252
Attaching a Schedule to a Resource. 252

Chapter 13: Managing Permissions. 253

Managing Permissions Overview. 253
Users and Groups. 254
Permissions. 254
Rules and Guidelines for Permissions. 254
Configuring Permissions for Users and Groups. 255
Configuring Permissions on the Metadata Catalog. 255

Chapter 14: Resource Migration. 257

Resource Migration Overview. 257
Resource Migration Steps. 257
Step 1. Copy the Plug-in for a Universal XConnect. 259
Step 2. Migrate the Model. 259
Exporting a Packaged or Universal Model. 260
Importing a Packaged or Universal Model. 260
Step 3. Migrate the Resource Configuration. 260
Exporting a Resource Configuration. 261
Importing a Resource Configuration. 261
Step 4. Load the Resource. 262
Step 5. Migrate Resource Metadata. 262
Exporting Resource Metadata. 263
Importing Resource Metadata. 263

Chapter 15: Repository Migration. 264

Repository Migration Overview. 264
Migrating the Repository when Domain Names and Encryption Keys are the Same. 264
Migrating the Repository when Domain Names or Encryption Keys Differ. 265

Appendix A: Metadata Manager Login. 267

Metadata Manager Login Overview. 267
Cookies. 267
Logging in to Metadata Manager. 268
Changing a Password. 268

Appendix B: Metadata Manager Properties Files. 269

imm.properties. 269

Metadata Manager Application Properties. 269
Data Lineage Properties. 273
searchpriorities.xml. 274
Search Result Configuration. 274
Sample searchpriorities.xml File. 274

Appendix C: Resource Configuration Files. 276

Resource Configuration Files Overview. 276
Resource Configuration File Format. 277
Passwords in Resource Configuration Files. 277
Secure JDBC Parameters in Resource Configuration Files. 278
Sample Resource Configuration File. 279

Appendix D: Glossary. 281

Index. 287

Preface

The *Metadata Manager Administrator Guide* provides information about how to configure Metadata Manager, create and load resources, and perform other Metadata Manager administration functions.

Informatica Resources

Informatica Network

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

As a member, you can:

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

Informatica Knowledge Base

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

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

Informatica Documentation

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

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

Informatica Product Availability Matrixes

Product Availability Matrixes (PAMs) indicate the versions of operating systems, databases, and other types of data sources and targets that a product release supports. If you are an Informatica Network member, you can access PAMs at https://network.informatica.com/community/informatica-network/product-availability-matrices.

Informatica Velocity

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

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

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

Informatica Marketplace

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

Informatica Global Customer Support

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

To find your local Informatica Global Customer Support telephone number, visit the Informatica website at the following link:
http://www.informatica.com/us/services-and-training/support-services/global-support-centers.

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

CHAPTER 1

Using Metadata Manager

This chapter includes the following topics:

- Using Metadata Manager Overview, 14
- Metadata Manager Architecture, 15
- Metadata Integration Process, 18
- Working with Metadata Manager, 19
- Metadata Manager Interface, 20

Using Metadata Manager Overview

Informatica Metadata Manager is a web-based metadata management tool that you can use to browse and analyze metadata from disparate metadata repositories. Metadata Manager helps you understand and manage how information and processes are derived. It also helps you understand the fundamental relationships between information and processes, and how they are used.

Metadata Manager extracts metadata from application, business glossary, business intelligence, custom, data integration, data modeling, and relational metadata sources. It uses PowerCenter® workflows to extract metadata from metadata sources and load it into a centralized metadata warehouse called the Metadata Manager warehouse.

Use Metadata Manager to browse and search the Metadata Manager warehouse and run data lineage analysis for the metadata in the Metadata Manager warehouse.

Metadata Manager runs as a service in an Informatica domain. Create a Metadata Manager Service in Informatica Administrator to configure and run the Metadata Manager application.

Resource Types

You can use Metadata Manager to extract and analyze metadata for different types of resources.

The following table lists the resource types and the associated metadata source types for which you can extract and analyze metadata:

Metadata Source Type	Resource Type
Application	SAP R/3
Business Glossary	Business Glossary

Metadata Source Type	Resource Type
Business Intelligence	Business Objects Cognos Microsoft Analysis and Reporting Services Microstrategy Oracle Business Intelligence Enterprise Edition (OBIEE) SAP Business Warehouse Tableau
Custom	Custom
Data Integration	Informatica Platform Microsoft SQL Server Integration Services PowerCenter
Data Modeling	Embarcadero ERStudio ERwin SAP PowerDesigner
Database Management	Cloudera Navigator IBM DB2 for Linux, UNIX, and Windows IBM DB2 for z/OS IBM Informix JDBC Microsoft SQL Server Netezza Oracle Sybase ASE Teradata
Other (non-custom) business intelligence, data integration, data modeling, or database management metadata sources	Universal

For more information about supported metadata source versions, see the *PCAE Metadata Manager XConnect Support* Product Availability Matrix on Informatica Network:
https://network.informatica.com/community/informatica-network/product-availability-matrices/overview

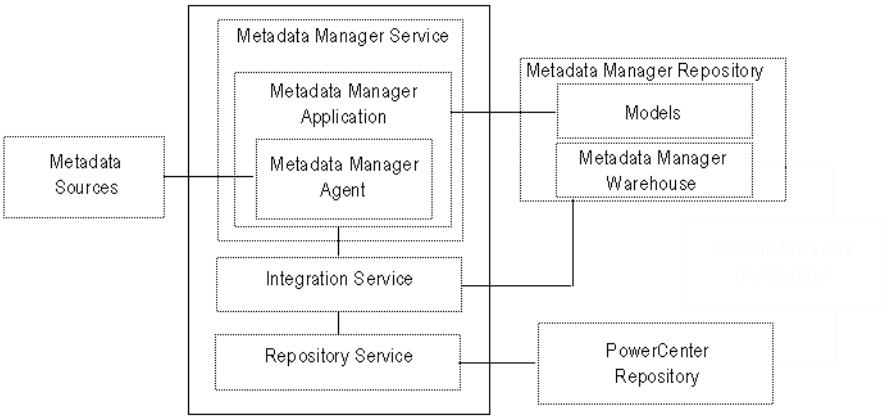
Metadata Manager Architecture

Metadata Manager runs as an application service in an Informatica domain. The Metadata Manager architecture includes the following components:

- Metadata Manager Service
- Metadata Manager application
- Metadata Manager Agent
- Metadata Manager repository

- PowerCenter repository
- PowerCenter Integration Service
- PowerCenter Repository Service

The following figure shows the Metadata Manager components:



Note: Informatica does not support a multi-node domain that has Metadata Manager on one node and the dependent services, such as PowerCenter Repository Service, PowerCenter Integration Service, Model Repository Service, and Analyst Service on another node.

It is recommended that you install Metadata Manager and all the dependent services on the same node.

Metadata Manager Service

An application service in an Informatica domain that runs the Metadata Manager application and manages connections between the Metadata Manager components. Create and configure the Metadata Manager Service in Informatica Administrator. The Metadata Manager Service manages the configuration information for Metadata Manager, including application properties and PowerCenter Integration Service, PowerCenter Repository Service, and Metadata Manager repository configuration information.

Start and stop the Metadata Manager application by enabling and disabling the Metadata Manager Service in Informatica Administrator. When you enable a Metadata Manager Service, the Service Manager on the node where the Metadata Manager Service runs starts the Metadata Manager application.

Metadata Manager Application

A web-based application that manages the metadata in the Metadata Manager warehouse. Use the Metadata Manager application to create and load resources in Metadata Manager. After you load metadata for a resource, you can use the Metadata Manager application to browse and analyze metadata for the resource.

You can also use the Metadata Manager application to create custom models and manage security on the metadata in the Metadata Manager warehouse. You must create a Metadata Manager Service to access the Metadata Manager application.

Metadata Manager Agent

The Metadata Manager Agent extracts metadata from metadata sources and converts it to the Informatica Metadata Extraction (IME) interface format. The Metadata Manager Agent runs on Windows either within the Metadata Manager application or separately.

By default, the Metadata Manager Agent runs on the Windows machines where the Metadata Manager Service runs. You can also install the Metadata Manager Agent separately.

You must install the Metadata Manager Agent separately in the following circumstances:

When you extract metadata from some business intelligence, data integration, data modeling, or JDBC metadata sources.

To extract metadata from some business intelligence, data integration, data modeling, or JDBC metadata sources, you must install the Metadata Manager Agent on the machine that runs the vendor supplied software. For example, to extract metadata from Microstrategy, the Metadata Manager Agent and the Microstrategy client must be on the same machine. For information about extracting metadata from business intelligence and data modeling resources, see the documentation for the resource type that you want to create.

When the domain uses Kerberos authentication.

When the domain uses Kerberos authentication and the Metadata Manager Service runs on Windows, you must install the Metadata Manager Agent separately. You can install the Metadata Manager Agent separately on the same machine where the Metadata Manager Service runs, or you can install it on another Windows machine.

When the Metadata Manager Service runs on UNIX.

You must install the Metadata Manager Agent on a Windows machine. The Metadata Manager Agent does not run on UNIX.

Metadata Manager Repository

A centralized location in a relational database that stores metadata from disparate metadata sources. It also stores the Metadata Manager warehouse and the models for each metadata source type. Each Metadata Manager application is configured to run with one Metadata Manager repository. You create the Metadata Manager repository when you create the Metadata Manager Service.

When you load metadata for a resource, Metadata Manager loads the metadata into the Metadata Manager warehouse. When you browse or analyze metadata in Metadata Manager, Metadata Manager queries the warehouse to display the metadata.

PowerCenter Repository

Stores the PowerCenter workflows, which extract source metadata from IME-based files and load it into the Metadata Manager warehouse. You create the PowerCenter repository when you create the Metadata Manager Service. You can use an existing PowerCenter repository in an Informatica domain to store the workflows, or you can create a PowerCenter repository specifically for use with Metadata Manager.

PowerCenter Integration Service

Runs the workflows that extract the metadata from IME-based files and load it into the Metadata Manager warehouse. You configure the PowerCenter Integration Service that you want to use with Metadata Manager when you create the Metadata Manager Service.

PowerCenter Repository Service

Manages connections to the PowerCenter repository that stores the workflows that extract metadata from IME interface-based files. Metadata Manager uses the PowerCenter Repository Service associated with the PowerCenter Integration Service that you configure for the Metadata Manager Service.

Metadata Integration Process

Metadata Manager uses Metadata Exchanges to load metadata from different metadata sources into the Metadata Manager warehouse. To run a Metadata Exchange, you create a resource in Metadata Manager that represents the metadata source. When you load the resource, Metadata Manager uses the Metadata Exchange for the resource to extract and load the metadata.

The Metadata Exchanges use the Metadata Manager Agent to extract the source metadata and reformat it into a usable format, the IME interface format. The Metadata Exchanges then use the PowerCenter workflows, consisting of worklets, sessions, and mappings, to extract, transform, and load metadata from the IME-formatted files to the Metadata Manager warehouse.

This entire process is known as the *metadata integration process*. The PowerCenter repository contains the workflows that extract and load the source repository metadata.

Resources

Resources represent metadata sources in Metadata Manager. Each resource contains the properties required to connect to a metadata source, extract metadata from the source, and load the extracted metadata into the Metadata Manager warehouse. Metadata Manager stores the resources you create in the Metadata Manager repository.

Metadata Sources

Metadata sources contain the source metadata that you want to browse and analyze using Metadata Manager. For example, an RDBMS repository is a relational database catalog source repository that contains metadata, such as schemas, tables, views, and columns.

Create resources to extract metadata from a metadata source and load it into the Metadata Manager warehouse.

Informatica Metadata Extraction Interface

Metadata Manager uses a preliminary process to restructure the source metadata into a format required by the mappings within each PowerCenter workflow. The method used to restructure the metadata can vary. For example, if the source repository is a database repository, Metadata Manager uses database views to restructure the metadata into the required IME format.

Metadata Manager uses PowerExchange® to access metadata in an IBM DB2 for z/OS subsystem.

PowerCenter Workflows

After the source metadata is converted into the IME format, the PowerCenter Integration Service uses PowerCenter workflows to extract the metadata from the IME-based files and load it into the Metadata Manager warehouse.

Metadata Exchanges

Metadata Manager uses Metadata Exchanges to extract source metadata and load it into the Metadata Manager warehouse.

Each Metadata Exchange contains the following components:

- **IME-based transformation component.** The PowerCenter workflows require the source metadata to be in a particular format. Metadata Manager packages a transformation process for each Metadata Exchange to transform the source metadata based on the required IME format. The transformation process stores the transformed metadata in files or database views that are prefixed with IME. The files are called *IME files* and the views are called *IME views*.
- **Load component.** The load component consists of PowerCenter workflows that extract the source metadata in the required IME format and load it into the Metadata Manager warehouse. The PowerCenter repository contains all the PowerCenter workflows required to extract, transform, and load the source metadata.

When you load source metadata into the Metadata Manager warehouse, Metadata Manager performs the IME-based transformation on the source metadata. Metadata Manager then issues a command to the PowerCenter Integration Service to run the applicable workflows. The workflows load the IME-formatted source metadata into the Metadata Manager warehouse.

Metadata Manager provides Metadata Exchanges that are configured to extract metadata from particular types of metadata sources.

You can develop custom resources to load metadata from a metadata source for which Metadata Manager does not package a resource type. For example, Metadata Manager does not provide a resource type for Microsoft Access databases. To extract metadata from an Access database, you must create a custom model and resource.

Working with Metadata Manager

Before you can browse and search metadata in the Metadata Manager warehouse, you must configure Metadata Manager and create and load resources.

Complete the following steps to load metadata from a metadata source into the Metadata Manager warehouse:

1. **Set up Metadata Manager.** Create a Metadata Manager Service and install the Metadata Manager Agent.
2. **Create and configure resources.** Create resources that represent the metadata sources from which you want to extract metadata. Configure parameters and connection assignments for the resources.
3. **Manage resources.** Purge metadata for a previously loaded resource and update the index for resources.
4. **Load and monitor resources.** Load a resource to load the metadata for the resource into the Metadata Manager warehouse. When you load a resource, Metadata Manager extracts and loads the metadata for the resource. If you modify connection assignments after loading a resource, create links between objects in connected resources. You can monitor the status of all resources and the status of individual resources. You can also schedule resource loads.
5. **Manage resource and object permissions for Metadata Manager users.** You can configure the resources and metadata objects in the warehouse for which Metadata Manager users have access.

You can use Metadata Manager command line programs to load resources, monitor the status of resource loads, and back up and restore the Metadata Manager repository.

Related Topics:

- "Configuring Metadata Manager Overview" on page 21
- "Managing Resources" on page 226
- "Loading and Monitoring Resources" on page 237
- "Managing Permissions" on page 253

Metadata Manager Interface

The Metadata Manager interface consists of the following tabs:

Browse

Browse and search the metadata catalog, view business glossaries, and run data lineage analysis. For more information about the **Browse** tab, see the *Metadata Manager User Guide*.

Model

View models, add custom attributes to models, and create, edit, import, and export custom models. For more information about the **Model** tab, see the *Metadata Manager Custom Metadata Integration Guide*.

Load

Create and load resources to load metadata into the Metadata Manager warehouse. Use the **Load** tab to monitor and schedule resource loads, purge metadata from the Metadata Manager warehouse, and manage the search index.

Permissions

Manage permissions on resources and metadata objects in the Metadata Manager warehouse.

Load Tab

The Load tab has the following components:

- **Actions menu.** Use the Actions menu to create, edit, and delete resources, load resources, create schedules and add schedules to resources, view the Metadata Manager activity log, create links between resources, index resources, and download the Metadata Manager Agent installer.
- **Resources panel.** Shows the list of configured resources in the Metadata Manager repository. Use this panel to create and delete resources, refresh the resource list, load, resume, and cancel resource loads, create links between resources, purge metadata for a resource, and monitor resource loads.
- **Resource Properties panel.** View the configuration properties for resources and configure name and description, connection information, parameters, schedules, and connection assignments for resources.

Permissions Tab

The Permissions tab has the following components:

- **Navigator.** Navigate the resources, metadata objects, groups and users that you can configure permissions for.
- **Permissions panel.** Configure permissions for groups and users, and configure permissions for resources and metadata objects in the metadata catalog.

CHAPTER 2

Configuring Metadata Manager

This chapter includes the following topics:

- Configuring Metadata Manager Overview, 21
- Step 1. Create and Configure the Metadata Manager Service, 21
- Step 2. Install the Metadata Manager Agent, 22

Configuring Metadata Manager Overview

Before you log in to Metadata Manager and load metadata into the Metadata Manager warehouse, you must configure Metadata Manager.

Complete the following tasks to configure Metadata Manager:

1. **Create and configure the Metadata Manager Service.** Create and configure the Metadata Manager Service in Informatica Administrator.
2. **Install the Metadata Manager Agent.** Download the Metadata Manager Agent installer and install the agent. Install the agent on machines where the source files or source repositories for certain metadata sources are located.

After you configure Metadata Manager, you can log in to the application, create resources, and load metadata into the Metadata Manager warehouse. You must also log in to Metadata Manager to download the Metadata Manager Agent installer.

Step 1. Create and Configure the Metadata Manager Service

The Metadata Manager Service runs the Metadata Manager application and manages the Metadata Manager application properties. Create and manage the Metadata Manager Service in Informatica Administrator. You create the service and the repositories required by Metadata Manager. You configure properties such as the node and port number where Metadata Manager runs.

You also create users and groups for Metadata Manager in Informatica Administrator. After you create and enable the Metadata Manager Service, you can manage users and groups in Informatica Administrator.

Step 2. Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata.

By default, the Metadata Manager Agent runs on the Windows node where the Metadata Manager Service runs. It uses one port number higher than the Metadata Manager Service. You can configure the port number in the Administrator tool. A separate instance of the Metadata Manager Agent runs for each Metadata Manager Service on a node. The agent runs in the following directory:

```
<Informatica installation directory>\services\MetadataManagerService\mmagentapps\mmagent\
```

You can also install the Metadata Manager Agent separately on the same machine where the Metadata Manager service runs or on another Windows machine.

You must install the Metadata Manager Agent separately in the following circumstances:

When you extract metadata from some business intelligence, data integration, data modeling, or JDBC metadata sources.

To extract metadata from some business intelligence, data integration, data modeling, or JDBC metadata sources, you must install the Metadata Manager Agent on the machine that runs the vendor supplied software. For example, to extract metadata from Microstrategy, the Metadata Manager Agent and the Microstrategy client must be on the same machine. For information about extracting metadata from business intelligence and data modeling resources, see the documentation for the resource type that you want to create.

When the domain uses Kerberos authentication.

When the domain uses Kerberos authentication and the Metadata Manager Service runs on Windows, you must install the Metadata Manager Agent separately. You can install the Metadata Manager Agent separately on the same machine where the Metadata Manager Service runs, or you can install it on another Windows machine.

When the Metadata Manager Service runs on UNIX.

You must install the Metadata Manager Agent on a Windows machine. The Metadata Manager Agent does not run on UNIX.

Rules and Guidelines for the Metadata Manager Agent

Use the following rules and guidelines when you install the Metadata Manager Agent:

Install the Metadata Manager Agent on a Windows machine if the Metadata Manager Service runs on UNIX.

The Metadata Manager Agent runs on Windows. If the Metadata Manager Service runs on UNIX, you must install the Metadata Manager Agent on a separate Windows machine. If the Metadata Manager Service runs on Windows, the Metadata Manager Agent is installed as part of the Metadata Manager Service installation.

Configure the Metadata Manager Agent to run in HTTP or HTTPS.

Configure the Metadata Manager Agent to run in HTTP or HTTPS (HTTP security mode). The mode of the Metadata Manager Agent that you install must be the same security mode as the Metadata Manager Service. You must generate the keystore file to use with HTTPS.

If the Oracle Business Intelligence Enterprise Edition (OBIEE) Presentation Server runs in HTTPS mode, configure HTTPS mode for the Metadata Manager Agent.

You can stop and start the Metadata Manager Agent.

The Metadata Manager Agent starts as a Windows service after you install it. You can stop or start the Metadata Manager Agent from the Windows **Start** menu or from the Windows **Services** panel. Alternately, you can run the Metadata Manager Agent from the command prompt. The batch files that start and stop the Metadata Manager Agent are in the Metadata Manager Agent installation directory.

You can install the Metadata Manager Agent on 32-bit and 64-bit Windows machines.

The Metadata Manager Agent can run on 32-bit and 64-bit Windows machines. By default, the Metadata Manager Agent configures a 1 GB maximum Java Virtual Machine (JVM) heap size on a 32-bit machine. It configures a 4 GB maximum JVM heap size on a 64-bit machine.

Minimum System Requirements

The following table describes the minimum system requirements to run the Metadata Manager Agent:

Processor	RAM	Disk Space
1 CPU	512 MB	220 MB

For information about the operating systems on which you can install the Metadata Manager Agent, see the Product Availability Matrix on Informatica Network: https://network.informatica.com/community/informatica-network/product-availability-matrices/overview .

Before You Install

Before you install the Metadata Manager Agent, verify that the user account you use to install the agent is a member of the Windows administrator group on the machine where you install the agent. The user account must have the *Log on as a service* and *Act as operating system* permissions.

Installing the Metadata Manager Agent

To install the Metadata Manager Agent:

1. Log in to Metadata Manager.
2. On the Load tab, click **Actions** > **Download Agent Installer**.

   The browser prompts you to download MMAgentInstaller.exe.
3. Save the file to your hard drive.
4. Copy the installer to the machine where you want to install the Metadata Manager Agent.
5. Double-click MMAgentInstaller.exe to begin the installation.

   The Introduction window appears.
6. Click **Next**.

   The Agent Configuration page appears.

7. Configure the following options:

Option	Description
HTTP port	Port number used by Metadata Manager to communicate with the Metadata Manager Agent. Default is 19983.
Agent home	Directory where you want to install the Metadata Manager Agent. Default is c:\informatica\<current version>\MetadataManagerAgent.

You can use the default installation directory or click Browse to select a directory.

8. Click **Next**.

   The HTTPS Configuration window appears.

9. Clear the HTTPS option if you do not want to use HTTPS. Skip to step 11.

10. Enter the following information to use HTTPS:

Option	Description
HTTPS Port Number	Port used by the node to communicate between the Metadata Manager Agent and the Metadata Manager application.
Keystore Password	A plain-text password for the keystore file.
Keystore File Location	A file that includes private or public key pairs and associated certificates. You can use a self-signed certificate or a certificate signed by a certificate authority. If you use a different keystore file than the Metadata Manager Service, you must import the Metadata Manager Agent keystore certificate with the Metadata Manager Service keystore file.

11. Click **Next**.

    The Pre-Installation Summary window appears.

12. Verify the installation options and click **Install**.

    The installer completes the installation and installs the Metadata Manager Agent as a Windows service named Metadata Manager Agent <version>.

13. Click **Done**.

Related Topics:

- "Merging Certificates" on page 26

After You Install

After you install the Metadata Manager Agent, you must complete some post-installation tasks.

Complete the following tasks:

- Verify the Metadata Manager Agent connectivity with the Metadata Manager Service.
- Enable the Metadata Manager Agent to interact with the desktop for Business Objects, Microstrategy, ERwin 7.x, ERwin 8.x, or ERwin 9.x.
- Optionally increase the Java Virtual Manager (JVM) memory.

Verify Metadata Manager Agent Connectivity

The Metadata Manager Agent uses HTTP to communicate with the Metadata Manager Service when you load a resource.

Metadata Manager Agent connects to the Metadata Manager Service using the default port 19983 or any port you specify in the Tomcat configuration file, server.xml. You can verify or update the port number in the Tomcat configuration file that is available in the following location:

```
<INFA_HOME>\MetadataManagerAgent\tomcat\conf\
```

After you install the Metadata Manager Agent, verify that the agent and the Metadata Manager Service can communicate.

You can use one of the following options to verify that the agent and the Metadata Manager Service can communicate:

- Run the following command on the machine where the Metadata Manager Service runs:

  ```
  telnet <Metadata Manager Agent machine name> <Metadata Manager Agent port>
  ```

- Connect to the Metadata Manager Agent from a web browser using the following URL:

  ```
  http://server:port/MIMBWebServices
  ```

  If the Metadata Manager Agent is running, the home page of the agent appears.

If the commands fails, make sure that the Metadata Manager Service and the Metadata Manager Agent service are available. If the machines are separated by a firewall, contact the administrator to make the port numbers available.

Enable the Metadata Manager Agent to Interact with the Desktop

If you run the Metadata Manager Agent as a service, you must enable the Metadata Manager Agent to interact with the desktop.

You must enable the Metadata Manager Agent to interact with the desktop for the following metadata sources:

- Business Objects
- Microstrategy
- ERwin 7.x, 8.x, and 9.x

1. From the Windows Start menu, click **Administrative Tools** > **Services**.
2. Double-click **Metadata Manager Agent**.

   The **Metadata Manager Agent <Version> Properties** dialog box appears.
3. Click the **Log On** tab.
4. Under Local System Account, click **Allow service to interact with desktop**.
5. Click **OK**.

Increase Java Virtual Machine Memory

If you want to load a large amount of metadata for a resource type that uses the Metadata Manager Agent, you can increase the Java Virtual Machine (JVM) heap size to increase scalability. By default, the Metadata

Manager Agent configures a 1 GB maximum heap size on a 32-bit machine, and it configures a 4 GB maximum heap size on a 64-bit machine.

You might need to increase the JVM heap size when you extract from a large or complex source environment and receive an error message that says there is not enough available storage to process the command. Increase the heap size in the Metadata Manager Agent conf.properties file.

1. Use a text editor to open conf.properties file from the following location:

   ```
   <Metadata Manager Agent installation directory>\conf
   ```

2. Edit the -Xmx option in the <RunTime> section to increase the JAVA heap size. Use the M_JAVA_OPTIONS property to configure the Java -Xmx option value.

   For example, the following code sets the maximum Java heap size to 8 GB:

   ```
   M_JAVA_OPTIONS=-Xmx8g
   ```

3. Save conf.properties file.
4. Restart the Metadata Manager Agent.

Working with a Keystore File

You must create the keystore file to configure the Metadata Manager Agent for HTTPS. You can create a keystore file with *keytool*. *keytool* is a utility that generates and stores private or public key pairs and associated certificates in a file called a “keystore.” When you generate a public or private key pair, *keytool* wraps the public key into a self-signed certificate. You can use the self-signed certificate or use a certificate signed by a certificate authority.

Complete the following tasks to work with the keystore file for the Metadata Manager Agent:

- Create a keystore file.
- Merge certificates with the Metadata Manager Service keystore file.

Creating a Keystore File

Use keytool in one of the following locations to create a keystore file:

- %JAVA_HOME%\jre\bin
- java/bin directory of the Informatica installation directory.

For example, to create a keystore file for the Metadata Manager Agent with an alias of mmagent and keystore name of mmagent.keystore, use the following command:

```
keytool -genkey -alias mmagent -keystore mmagent.keystore
```

Merging Certificates

If you do not use the Metadata Manager Service keystore file when you install the Metadata Manager Agent, you must merge the certificate in the Metadata Manager Agent keystore to the Metadata Manager Service keystore.

To merge the certificate, complete the following steps:

1. Export the certificate from the Metadata Manager Agent keystore file.

   For example, to export a certificate from a Metadata Manager Agent keystore with an alias of mmagent and keystore name of mmagent.keystore, issue the following command:

   ```
   keytool -export -alias mmagent -keystore mmagent.keystore -file mmagent.cer
   ```

2. Import the certificate into the Metadata Manager Service keystore file.

For example, to import a certificate to a Metadata Manager Service keystore with an alias of mmservice and keystore name of mmservice.keystore, issue the following command:

```
keytool -import -trustcacerts -keystore mmservice.keystore -file mmagent.cer
```

CHAPTER 3

Application Resources

This chapter includes the following topics:

- SAP R/3 Resource Overview, 28
- Configuring SAP R/3, 28
- Creating an SAP R/3 Resource, 29
- Configuring the Component Inclusion List, 31
- Reference, 31

SAP R/3 Resource Overview

SAP R/3 is an application platform that integrates multiple business applications and solutions. You can create and configure an SAP R/3 resource to extract metadata from SAP R/3.

Configuring SAP R/3

Before you create an SAP R/3 resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure SAP R/3, complete the following tasks:

- Install PowerCenter transports.
- Configure a user authorization profile.
- Install SAP SDK libraries.

Install Transports

To extract metadata from SAP R/3, you must install the PowerCenter transports that Metadata Manager uses to extract metadata from SAP R/3. The transports are located in the following folder in the location where you downloaded PowerCenter:

```
<download location>\saptrans\mySAP
```

For more information about installing the transports, see the *PowerExchange for SAP NetWeaver Transport Versions Installation Notice*.

Configure a User Authorization Profile

The SAP R/3 administrator needs to create the product and development user authorization profile.

The following table describes the user authorization profile:

Authorization Object	Description	Class	Field Values
S_RFC	Authorization check for RFC access.	Cross Application Authorization objects	Activity: 16 (Execute) Name of RFC to be protected: *. Type of RFC object to be protected: FUGR

Install the SAP JCo Libraries

Before you create an SAP R/3 resource, download and install SAP JCo 3 for the operating system where the Metadata Manager Service runs. The SAP JCo installation package includes a library file and a JAR file. Copy the files to the appropriate directories on the machine where the Metadata Manager Service runs.

If you have problems downloading the files, contact Informatica Global Customer Support.

1. Go to the SAP Service Marketplace: http://service.sap.com

   Note: You must have user ID for the SAP Service Marketplace.
2. Download the SAP JCo installation package for the operating system where the Metadata Manager Service runs.

   The installation package contains the following files:

   - A library file, either sapjco3.dll for Windows or libsapjco3.dll for UNIX
   - A JAR file, sapjco3.jar
3. Copy the library file to the following directory on the machine where the Metadata Manager Service runs:

   `<Informatica Installation Directory>\server\bin`
4. Copy the JAR file to the following directory on the machine where the Metadata Manager Service runs:

   `<Informatica Installation Directory>\services\shared\jars\thirdparty`
5. Set the following permissions for the library file and the JAR file:

   - Read, write, and execute permissions for the current user
   - Read and execute permissions for all other users

Creating an SAP R/3 Resource

Before you create an SAP R/3 resource, configure the SAP R/3 source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Application** > **SAP**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** page appears.
9. To search for SAP R/3 tables included in SAP Application Components, enter the table name in the **Search for tables** field and click **Go**.

   The tables appear in the **Available Components** list.
10. To add application components, packages, or tables to the **Selected Components** list, select the object in the **Available Components** list and click **Add**.

    When you select a table, Metadata Manager also includes the SAP Application Component and SAP package in the hierarchy. If you select any application component, package, or table, Metadata Manager also extracts all child objects of the object.
11. To add all application components, packages, or tables, click **Add All**.
12. To remove application components, packages, or tables from the **Selected Components** list, select the object in the **Selected Components** list and click **Remove**.
13. To remove all components, packages, and tables from the **Selected Components** list, click **Remove All**.
14. Click **Next**.

    The **Schedules** window appears.
15. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
16. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

SAP R/3 Configuration Properties

Update the configuration properties when you create or edit an SAP R/3 resource.

The following table describes the SAP R/3 configuration properties:

Property	Description
User name	SAP R/3 source system connection user name.
Password	Password for the user name.
Application server host	Host name of the machine where the SAP R/3 application is running.
System number	SAP R/3 system number.
Client	SAP R/3 client number.
Language	Language code of the SAP R/3 system.
Encoding	Code page for the application connection for SAP R/3.

Configuring the Component Inclusion List

You can configure the Component Inclusion List parameter for an SAP R/3 resource. To edit the parameter, select the resource in the Resources panel of the Load tab, click Edit Resource, and click the Parameters tab in the Edit Resource window.

Use the Component Inclusion List to select the SAP R/3 tables to extract. You can browse for tables included in SAP Application Components, or you can search for tables. To select a table, move the table from the Available Components list to the Selected Components list.

When you select a table, Metadata Manager also includes the SAP Application Component and SAP package in the hierarchy. If you select any application component, package, or table, Metadata Manager also extracts all child objects of the object.

Reference

After you create and load an SAP R/3 resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Version

Metadata Manager extracts metadata from SAP R/3, but not from SAP NetWeaver BI.

Objects Extracted

Metadata Manager extracts the following object types from SAP R/3:

- Application components
- Packages
- Tables
- Columns
- Primary and foreign keys

Data Lineage

You can perform data lineage analysis between SAP R/3 tables and PowerCenter mappings in Metadata Manager. Metadata Manager does not extract the data lineage information between SAP R/3 variables and functions.

In addition, if you manually edit an ABAP program for an Application Source Qualifier in a PowerCenter mapping, data lineage analysis does not include any tables manually included in the Application Source Qualifier. For example, if you override an ABAP program to include an SAP R/3 table not included as a source in a PowerCenter mapping, Metadata Manager does not display the lineage between the PowerCenter mapping and the SAP R/3 table.

SAP R/3 Schema Class

The SAP R/3 model includes a class named SAP Schema. Metadata Manager uses this class to display data lineage between SAP R/3 and PowerCenter repository objects. It is not displayed in the metadata catalog when you load an SAP R/3 resource.

CHAPTER 4

Business Glossary Resources

This chapter includes the following topics:

- Business Glossary Resources Overview, 33
- Application Services Verification, 34
- Creating a Business Glossary Resource, 34
- Business Glossary Objects Extracted, 36
- Business Glossary Objects Not Extracted, 36

Business Glossary Resources Overview

You can create and configure Business Glossary resources to extract metadata from Informatica Analyst (Analyst tool) business glossaries. Extract metadata from an Analyst tool business glossary so that you can relate categories and business terms to other metadata objects.

In the Analyst tool, you define business glossaries in the **Glossary** workspace. The **Glossary** workspace can contain multiple business glossaries. Each business glossary contains assets such as business terms, categories, and policies. Metadata Manager can extract business terms and categories from a business glossary.

You create one Business Glossary resource for each Analyst tool business glossary from which you want to extract metadata. You can create multiple Business Glossary resources, however, the business glossaries must be managed by the same Analyst Service.

When you create a Business Glossary resource, you specify the following information:

- Analyst tool connection information
- Name of the business glossary from which you want to extract metadata
- Optional enumerated links files that contain linking information for business terms
- Optional schedule that specifies the time and frequency of the resource loads

You can use enumerated links files to associate individual business terms with metadata objects in other resources. For example, you might want to link different business terms with different columns in an Oracle table. Enumerated links files are CSV files that contain individual pairs of objects that you want to link. You can upload one or more enumerated links files when you create or edit a Business Glossary resource. For more information about enumerated links, see the *Metadata Manager Custom Metadata Integration Guide*.

You can use a schedule to periodically load business glossary resources. Analyst tool users update business glossary content in the Analyst tool. To ensure that Metadata Manager users always have access to the most recent business glossary content, schedule regular resource loads.

Application Services Verification

Before you create a Business Glossary resource, check the status of the Analyst Service and the associated services. If the required services are not available, you might not be able to create the resource, or the metadata load can fail.

Verify that the following services are available:

- Analyst Service
- Model Repository Service that is associated with the Analyst Service
- Data Integration Service that is associated with the Analyst Service

Creating a Business Glossary Resource

Create a Business Glossary resource to extract metadata from an Analyst tool business glossary.

Before you create a Business Glossary resource, verify that the Analyst Service and the associated services are available.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Business Glossary** > **Business Glossary**.
3. Click **Next**.

   The **Properties** page appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

   Note: The business glossary resource name should match the Analyst tool glossary name. If the names do not match, the related terms for a business term do not appear in the Metadata Manager business glossary.
5. Click **Next**.

   The **Configuration** page appears.
6. Enter the connection properties.
7. Click **Test Connection** to test the connection to the source system.

If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Enumerated Links** window appears.

9. Optionally, add or upload the files that contain enumerated links information:
   - Add enumerated links files when you store the files in a directory that the Metadata Manager web application can access and the files change.
   - Upload enumerated links files when the files do not change. Metadata Manager uploads the files into the Metadata Manager repository.

10. Update the file properties for each enumerated links file, if required.

11. Click **Next**.

    The **Schedules** window appears.

12. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

13. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Business Glossary Connection Properties

Update the connection properties when you create or edit a Business Glossary resource.

The following table describes the connection properties:

Property	Description
User name	Name of the user account used to connect to the Analyst tool.
Password	Password for the user account used to connect to the Analyst tool.
Security domain	Name of the security domain to which the Analyst tool user belongs. If the domain uses LDAP authentication or Kerberos authentication, enter the security domain name. Otherwise, enter `Native`.
Host	Fully qualified host name of the machine where the Analyst tool runs. **Note:** When you enable the SSL on the machine where Metadata Manager runs, use the hostname of the machine as the common name in the SSL certificate.
Port	Analyst tool port number.
Business glossary	Name of the Analyst tool business glossary from which you want to extract metadata. Each resource can extract metadata from one business glossary.

Business Glossary Objects Extracted

Metadata Manager extracts published business terms and categories from an Analyst tool business glossary.

Metadata Manager extracts published business terms even when the categories to which the terms belong are unpublished. If an unpublished category includes published business terms, Metadata Manager lists the terms under the glossary to which the terms belong.

Metadata Manager extracts the following attributes for business terms:

- Name
- Description
- Data steward
- Owner
- Reference table URL
- Status
- Phase
- Usage context
- Custom attributes defined in the Analyst tool
- Relationships between the business term and other business terms
- Relationships between the business term and categories

Metadata Manager extracts the following attributes for categories:

- Name
- Description
- Data steward
- Owner
- Usage context
- Relationships between the category and business terms

Business Glossary Objects Not Extracted

Metadata Manager does not extract policies or unpublished objects from an Analyst tool business glossary. Additionally, Metadata Manager does not extract custom properties with names that contain special characters.

Metadata Manager does not extract the following objects:

- Unpublished business terms
- Unpublished categories
- Policies
- Business initiatives

Metadata Manager does not extract custom properties with names that contain any of the following special characters:

```
~ ' & * ( ) [ ] | \ : ; " ' < > , ? /
```

However, Metadata Manager does extract custom properties with names that contain the following characters:

```
! @ # $ % ^ _ - + = { } . ´
```

CHAPTER 5

Business Intelligence Resources

This chapter includes the following topics:

- Business Objects, 38
- Cognos, 46
- Microsoft Analysis and Reporting Services, 53
- Microstrategy, 58
- Oracle Business Intelligence Enterprise Edition, 66
- SAP Business Warehouse, 73
- Tableau, 79
- Incremental Metadata Load , 84
- Adding or Removing Metadata Files for a Resource, 85

Business Objects

Business Objects is a business intelligence tool that includes components for performance management, planning, reporting, query and analysis, and enterprise information management.

You can create and configure a Business Objects resource to extract metadata from Business Objects. Metadata Manager extracts metadata objects for Business Objects reports, universes, and repositories.

Configuring Business Objects

Before you create a Business Objects resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Business Objects, complete the following tasks:

- Install the Metadata Manager Agent.
- Enable the Metadata Manager Agent to interact with the desktop.
- Configure permissions.
- Export objects to a repository.
- Verify that the required Business Objects clients and servers are running.
- Exit the Universe Designer.

Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the nodes where the Metadata Manager Service runs.

To extract metadata from Business Objects, you must install the Metadata Manager Agent separately on a Windows machine. The Metadata Manager Agent and a single version of the Business Objects client must be on the same machine. If multiple versions of the Business Objects client are on the same machine as the Metadata Manager Agent, the agent cannot extract the Business Objects metadata.

The Business Objects client must be able to connect to the source repository. If the client is not on the same machine as the Metadata Manager Service, install the Metadata Manager Agent on the same machine as the client. Ensure that you run the Metadata Manager Agent as a desktop application and not as a Windows service. In addition, ensure that you do not install the Metadata Manager Agent on the same machine as the Business Objects server.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Enable the Metadata Manager Agent to Interact with the Desktop

If you run the Metadata Manager Agent as a service, you must enable the Metadata Manager Agent to interact with the desktop.

You must enable the Metadata Manager Agent to interact with the desktop for the following metadata sources:

- Business Objects
- Microstrategy
- ERwin 7.x, 8.x, and 9.x

1. From the Windows Start menu, click **Administrative Tools** > **Services**.
2. Double-click **Metadata Manager Agent**.

   The **Metadata Manager Agent <Version> Properties** dialog box appears.
3. Click the **Log On** tab.
4. Under Local System Account, click **Allow service to interact with desktop**.
5. Click **OK**.

Configure Permissions

Remove permissions from any Business Object universe that you want to export. You cannot extract a write-protected universe. For more information about removing Business Object permissions, see the Business Objects documentation.

Make sure that the user who logs in to the Business Objects repository belongs to the Universe Designer Users group and has read access to all the Business Objects metadata. If the Business Objects repository contains web intelligence reports in the Favorites or Personal folders, the user should also belong to the Administrators group. You must create a custom security group giving permission to the user to view Web intelligence reports.

Export Objects to a Repository

Export the Business Objects artifacts such as universes, Webi documents, Desktop Intelligence documents, and Crystal Reports in the Business Objects source repository. Metadata Manager cannot access the artifacts that are available the Business Objects cache, but not available in the source repository. Before you load a Business Object resource, export all artifacts to the source repository to ensure that the metadata in the Metadata Manager warehouse is consistent with the metadata that is available to Business Objects users.

Use Business Objects Designer to export a universe to the Business Objects source repository. For example, to begin the export process in Business Objects Designer, click File > Export. You must secure a connection type to export a universe to a Business Objects source repository.

Use Business Objects to export a document to the Business Objects repository. For example, to begin the export process in Business Objects, click File > Publish To > Corporate Documents.

Use the Business Objects Central Manager Console to export Crystal Reports to the Business Objects repository.

Verify Business Objects Clients and Servers

To extract metadata from Crystal reports and Webi reports, you must verify that the required Business Objects clients and servers are running. If the required clients and servers are not running, the Metadata Manager Agent cannot extract metadata from Business Objects reports.

The required clients and servers vary based on the Business Objects version:

SAP Business Objects Repository XI R4.x

To extract metadata from Crystal reports, the Crystal Reports client must be installed on the machine where the Business Objects client runs.

To extract metadata from Webi reports, the Web Application Container Server (WACS) must be running and RESTful web services must be installed.

SAP Business Objects Repository XI R3.x and previous versions

To extract metadata from Webi reports, a Web Intelligence Processing Server must be running.

Use the Business Objects Central Management Console to verify the status of Business Objects servers. For more information about Business Objects clients and servers, see the Business Objects documentation.

Exit the Universe Designer

To extract metadata from a locked Business Objects universe, exit the Universe Designer. If you do not exit the Universe Designer, the universe becomes unlocked during metadata extraction.

For more information about the Business Objects Universe Designer, see the Business Objects documentation.

Creating a Business Objects Resource

Before you create a Business Objects resource, configure the Business Objects source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Business Intelligence** > **Business Objects**.
3. Click **Next**.

The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.

6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the data source or validate the Metadata Manager Agent URL, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Schedules** page appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Business Objects Configuration Properties

Update the configuration properties when you create or edit a Business Objects resource.

The following table describes the Business Objects configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Name and version of the resource.
Version	Version of the SAP Business Objects repository. Select a version or configure the Metadata Manager Agent to detect the version. Default is auto-detect.

Property	Description

System	Name of the Business Objects repository. For Business Objects 11.x and 12.x, specify the name of the Business Objects Central Management Server. Specify the server name in the following format:
	`<server name>:<port number>`
	If the Central Management Server is configured on a cluster, specify the cluster name in the following format:
	`<host name>:<port>@<cluster name>`
	Default port is 6400.
	Note: If the version of the Business Objects repository is 14.0.6, do not specify a port number in the repository name. If you specify the port number, Metadata Manager cannot extract the Web Intelligence reports.

Authentication mode	The authentication mode for the user account that logs in to the Business Objects repository. Specify one of the following values: - Enterprise. Log in using the Business Objects Enterprise authentication mode. - LDAP. Log in using LDAP authentication configured to Business Objects. - Windows AD. Log in using a Windows Active Directory server. Default is enterprise.
User name	User name to log in to the Business Objects repository.
Password	Password of the user account for the Business Objects repository.
Repository browsing mode	Specifies the objects that are extracted while browsing for objects in the Business Objects repository. You can specify one of the following values: - All. The tree of universes, folders, and documents is extracted. - Universes only. The tree of universes and folders is extracted. Documents are not extracted. - Connections only. The list of connections is extracted. Default is all.
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata. Default is true.
Add dependent objects	Choose the documents that depend on the universe you selected. Specify one of the following values: - True. Imports the documents that depend on the specified universe. - False. Ignores the documents that depend on the specified universe. **Note:** Dependency information is retrieved from the Business Objects repository metadata cache. If modified or moved reports are not reflected in the Metadata Manager load, refresh the cache by loading these reports and refreshing the queries. Default is true.
Add specific objects	Specifies additional objects to the universe. Specify one of the following values: - None. Ignores all objects. - Universe independent documents. Imports documents that do not depend on any universe. Default is none.

Property	Description
Crystal CORBA port	Specifies the client port number on which the Crystal SDK communicates with the report application server (RAS). The RAS server uses the port to send metadata to the local client computer. If you do not specify a port, the server randomly selects a port for each execution. **Note:** Verify that the local Windows firewall is disabled, or enables communication on the port.
Class representation	Controls how the tree structure of classes and sub classes are imported. Metadata Manager Agent imports each class containing objects as a dimension or as a tree of packages. Specify one of the following values: - As a flat structure. Creates no packages. - As a simplified flat structure. Creates a package for each class with a subclass. - As a full tree structure. Creates a package for each class. Default is as a flat structure.
Import joins	Specify whether joins and contexts are imported. Default value is True. Choose one of the following values: - True. Joins and contexts are imported. - False. Joins and contexts are not imported.
Import hierarchies	Specify whether hierarchies are imported. Default value is True. Choose one of the following values: - True. Hierarchies are imported. - False. Hierarchies are not imported.
Multiple threads	Number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously. Leave blank or enter a positive integer value. If blank, the Metadata Manager Agent calculates the number of worker threads. The Metadata Manager Agent allocates between one and six threads based on the JVM architecture and the number of available CPU cores on the machine that runs the Metadata Manager Agent. If you specify a value that is not valid, the Metadata Manager Agent allocates one worker thread. Reduce the number of worker threads if the Metadata Manger Agent generates out of memory errors when it extracts metadata. You can increase the number of worker threads if the machine that runs the Metadata Manager Agent has a large amount of available memory, for example, 10 GB or more. However, if you specify too many worker threads, performance can decrease. Default is blank.
Miscellaneous	Allows you to specify miscellaneous options in a comma separated string. Use this property to specify the JAVA home directory when you extract metadata from a .UNX universe that does not use a JDBC connection. To extract metadata from a .UNX universe that uses another type of connection such as ODBC or OLEDB, specify the path to the 32-bit JVM root directory in this property. For example, to extract metadata from a .UNX universe that uses an ODBC connection, you might enter the following directory in this property: `JAVA_HOME=C:\Program Files (x86)\Java\jre`
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
Repository subset	Accesses objects stored in a remote Business Objects repository. Specify the IDs of universes, reports, and folders. Separate multiple values with a semicolon.

Reference

After you create and load a Business Objects resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Data Lineage

Data lineage does not display synthetic universe objects for a non-universe data provider, such as metrics, attributes, or schema tables.

Data types

Metadata Manager does not extract the actual data type of a column or dimension object.

The following table lists the actual data types and the data types that Metadata Manager uses:

Data type Representation	Actual Data type
Character	char
Date	datetime
Long Text	binary
Number	number

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Alias
- Body
- Cell
- Char Column
- Char Logical Column
- Class
- Classes Folder
- Column
- Combined Query
- Condition
- Context
- Crystal Report
- Crystal Report Model
- Custom Hierarchies Folder
- Data Providers
- Data Providers DesignPackage
- DataAttribute Column

- DataAttribute Detail
- DataAttribute Dimension
- DataAttribute Measure
- Date Column
- Date Logical Column
- Derived Table
- Desktop Intelligence Document
- DimensionAttribute Dimension
- Document Report
- EnterpriseFolder
- Field
- Filter
- Folder
- Footer
- Header
- Hierarchy
- Join
- Key
- Key Column
- Measure
- Number Column
- Number Logical Column
- ObjectPackage
- Page
- Prompt Stored Procedure Parameter
- Query
- Rectangle
- Report Axis
- Report Chart
- Report List
- Report Matrix
- ReportField Cell
- ReportTable Table
- Schema
- Stored Procedure Parameter
- String Column
- Table
- Universe
- Universe Query

- UniverseFolder
- Web Intelligence Document
- Web Intelligence Model
- Webi Report

Desktop Intelligence Reports

The Business Objects Desktop Intelligence application shows the reports from the personal folder for the current user. As a result, Metadata Manager extracts Business Objects Desktop Intelligence reports from a personal user folder only, even if the user is an administrator. Metadata Manager extracts reports from the personal folder for the user account that you configure for the resource.

In addition, Metadata Manager does not extract Desktop Intelligence reports from the Favorites folder.

Cognos

Cognos is a business intelligence tool that includes applications for reporting, dashboards, scorecarding, and analysis. You can create and configure a Cognos resource to extract schema and reports metadata from Cognos.

Configuring Cognos

Before you create a Cognos resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Cognos, complete the following tasks:

- Get the external dispatcher URI.
- Test the connection.
- Verify authentication.
- Configure permissions.
- Configure resources for the Cognos service.

Get the External Dispatcher URI

To extract metadata from Cognos Content Manager, get the external dispatcher URI. The URI is required to configure the Cognos Content Manager resource in Metadata Manager. The value corresponds to one of the dispatchers in the Cognos Content Manager installation. Verify the URI in the Cognos Content Manager configuration\cogstartup.xml file.

The URI is similar to the following URL:

```
http://localhost:9300/p2pd/servlet/dispatch
```

The following example shows an excerpt from cogstartup.xml:

```
<crn:parameter name="sdk">
<crn:value xsi:type="xsd"anyURI">http://localhost:9300/p2pd/servlet/dispatch</crn:value>
</crn:parameter>
```

Use the following rules and guidelines for the external dispatcher URI:

- You can also find the dispatcher URL under Environment in the Cognos client.
- Use the actual machine name or an IP address for the server name, not localhost.
- The https:// prefix for the URI indicates SSL is required.
- The Cognos server must support chunking and attachments for large volumes of data. To verify this requirement, contact the Cognos administrator.
- If Metadata Manager and Cognos Content Manager are separated by an intermediary server like a load balancer or proxy, use the host and port number of the intermediary in the external dispatcher URI.

Test the Connection

You can test the connection by accessing the URI in a web browser. If the URI is correct, Cognos displays a status message with the current state of the server. Before you load a Cognos resource, the current status of the server must be “running.”

Verify Authentication

If the Cognos server is set up for LDAP authentication, use the web-based Cognos client tool to verify the connection and authentication properties. Use the following URL to test the authentication:

```
http://localhost:8080/c8/cm_tester.htm
```

Use the login namespace, user name, and password you configured in Cognos under Security > Authentication.

Configure Permissions

Before you configure a Cognos resource, configure the permissions for the user account that you use to connect to Cognos.

The Cognos user account requires Read, Execute, and Traverse permissions on all objects that Metadata Manager extracts, including folders, reports, queries, analysis, packages, and connections.

You can secure Cognos data sources against multiple namespaces. The namespace used to secure the data source may not be the primary namespace used to log in to Cognos. When Metadata Manager extracts a Cognos object that is associated with a data source secured against multiple namespaces, the Cognos user account must have the required permissions for the primary namespace.

Configure Resources for the Cognos Service

By default, the Cognos service is configured to use minimal memory resources to optimize startup time. To increase performance, you can change the number of resources that the Cognos service uses by choosing a configuration template.

If you load a large number of Cognos models and the load fails with a null pointer exception, set the resource configuration template to the large configuration. For more information, see the Cognos documentation.

Creating a Cognos Resource

Before you create a Cognos resource, configure the Cognos source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.

2. Click **Business Intelligence** > **Cognos Report**.

3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.

6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the source system or validate the agent URL, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Schedules** page appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Cognos Configuration Properties

Update the configuration properties when you create or edit a Cognos resource.

The following table describes the Cognos configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Version of the data source to which you want to connect.
Version	Version of the Cognos server to which you want to connect.

Property	Description
Dispatcher URL	URL of the Cognos Content Manager external dispatcher URL.
Namespace	Namespace that defines a collection of Cognos user accounts from an authentication provider. If you did not configure authentication for Cognos, do not configure this option.
User	User name to log in to the Cognos repository database. Required if the Cognos repository database has been set up to require a user name and password. If you did not configure authentication for Cognos, do not configure this option.
Password	Password to log in to the Cognos repository. Required if the Cognos repository database has been set up to require a user name and password. If you did not configure authentication for Cognos, do not configure this option.
Content browsing mode	The objects that can be retrieved from the Cognos repository. You can select one of the following options: - Packages only. A tree of packages and folders in the Cognos repository is retrieved. Reports are not retrieved from the repository. - Connections only. The list of connections in the Cognos repository is retrieved. - All. A tree of packages, folders, queries, and reports is retrieved. Default is All.
Personal folders	Specifies whether to import personal folders and the models and reports that are located within them. **Note:** Retrieving metadata from personal folders can increase load time on some servers. Default is true.
Add dependent objects	Add dependent objects to the initial selection of Cognos objects defined in Content. You can specify one of the following values: - None. Only the selected Cognos objects are imported. Dependent objects are not added to the Cognos object. - Packages referenced by selected reports. When a report is selected, its source package is imported. - All. When a report is selected, its source package is imported. When a package is selected, its dependent reports are imported. Note that this option requires a complete scan of reports dependencies on the Cognos server. Default is packages referenced by selected reports.
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata. Default is true.
Folder representation	The representation of folders from Cognos Framework Manager in the catalog. You can specify one of the following values: - Ignore. The folders are ignored in the catalog. - Hierarchical. The folders are represented as diagrams and their hierarchy is preserved in the catalog. - Flat. The folders are represented as diagrams, but their hierarchy is not preserved in the catalog. Default is ignore.
Transformer import configuration	Optional XML file that describes the mappings between Cognos Content Manager data sources and the PowerPlay Transformer models.

Property	Description
Multiple threads	Number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously. Leave blank or enter a positive integer value. If blank, the Metadata Manager Agent calculates the number of worker threads. The Metadata Manager Agent allocates between one and six threads based on the JVM architecture and the number of available CPU cores on the machine that runs the Metadata Manager Agent. If you specify a value that is not valid, the Metadata Manager Agent allocates one worker thread. Reduce the number of worker threads if the Metadata Manger Agent generates out of memory errors when it extracts metadata. You can increase the number of worker threads if the machine that runs the Metadata Manager Agent has a large amount of available memory, for example, 10 GB or more. However, if you specify too many worker threads, performance can decrease. Default is blank.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.

Content	Path of models or reports to extract from Cognos. To extract models, use the path to the package containing the model. To extract packages and reports, select the object or enter the complete search path to the package or report appended with the following characters: //*. Separate multiple values with a semicolon (;).
	Use Cognos to find the search path for packages or reports. In the Cognos Administration Console, select the package or report and click Set Properties > View the Search Path, ID, and URL.
	If the search path contains multiple reports, Metadata Manager extracts the last report. If the search path contains published versions of a package, Metadata Manager extracts the latest version and any previous version used as a data source for current reports.
	For example, to extract all content, use the following syntax:
	`/content//*`
	To extract packages at the root level, use the following syntax:
	`/content/package[@name='GO Sales and Retailers']//*`
	To extract packages within a folder, use the following syntax:
	`/content/folder[@name='Cognos - Folder']/package[@name='GO Sales and Retailers']//*`
	To extract a single report, use the following syntax:
	`/content/folder[@name='Cognos - Folder']/package[@name='GO Sales and Retailers']/folder[@name='User Reports']/report[@name='Cascading prompt report']//*`
	Note: To extract the latest version of a package, select a single package and set the Add dependent objects parameter to false.
	For more information about the search path syntax, see the Cognos documentation.

Transformer Import Configuration File

When you configure a Cognos resource, you can specify a Transformer import configuration file. The Transformer import configuration file is an XML file that describes the mappings between Cognos Content Manager data sources and PowerPlay Transformer models. You create the Transformer import configuration file.

Multiple Content Manager data sources can refer to the same PowerCube generated from a single Transformer model. Each Model element in the XML file corresponds to a single Transformer model (.mdl or pyj) file and lists all the Content Manager data sources that refer to the model's PowerCube. Optionally, the

Model element can list the Impromptu Query Definition data sources (<iqd> child elements) that require specific database type other than the default database type. The Transformer import configuration file can have multiple Model elements.

The following code shows a sample Transformer import configuration file:

```
<ImportConfiguration database="Teradata" dbVersion="1.0.0">
<!-- database: specifies default database for Impromptu Query Definition (IQD) SQL
statements-->
<!-- dbVersion format: major version.minor version.release-->
<Model path="some directory\some model.mdl">
<!--Transformer model (.mdl or .pyj) -->
<cmDataSource name="some Cognos datasource name" />
<!-- List IQD data sources for databases other than default -->
<iqd name="Customers" database="Oracle" dbVersion="11.1.0"/>
<iqd name="Products" database="Microsoft SQL Server" dbVersion="8.0.0"/>
</Model>
</ImportConfiguration>
```

Reference

After you create and load a Cognos resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Alias Feature
- Axis
- Body
- Calculation
- Chart
- Chart Node
- Chart Node Member
- Crosstab
- Crosstab Columns
- Crosstab Node
- Crosstab Node Member
- Crosstab Rows
- Data Source
- Data Sources
- DataAttribute
- Database Query
- Dimension
- Field
- Filter
- Folder
- Footer
- Header

- Hierarchy
- Level
- List
- Measure
- Measure Dimension
- Model
- Model Query
- Namespace
- Package
- Page
- Prompt
- PromptAnswer
- Queries
- Query
- Query Item
- Query Package
- Rectangle
- Relationship
- Report
- Table
- Text
- Variables

Metadata Catalog

Metadata Manager displays objects differently than they appear in the Cognos client.

You may notice the following differences:

- Cognos client displays different icons for namespaces and folders. Metadata Manager displays the Namespace icon for namespaces and folders.
- Cognos shows display labels for Querysubjects that are created from dbQueries. Metadata Manager does not show the display labels. Instead, it shows the technical names such as the table from which the Querysubject is built.
- Certain objects in Cognos may have multiple instances in Metadata Manager. For example, if a Querysubject formed from a modelQuery has hierarchies and levels in Cognos, Metadata Manager displays it under the CognosFMDimension and CognosFMHierarchy classes. Since Metadata Manager models hierarchies as separate types of objects than dimensions, the same Querysubject appears multiple times in Metadata Manager.
- Metadata Manager may not load all hierarchies. For example, certain Querysubjects in Cognos are built from dbQueries (database table sources) instead of modelQueries, but still contain hierarchies. Metadata Manager assumes only dimensional objects can be included in hierarchies. Metadata Manager loads these Querysubjects as objects of CognosFMSchemaTable class, not the CognosFMHierarchy class.

Microsoft Analysis and Reporting Services

You can create and configure a Microsoft Analysis and Reporting Services resource to extract metadata from the following sources:

- **Microsoft SQL Server Reporting Services.** Metadata Manager extracts reporting metadata from Reporting Services.
- **Microsoft SQL Server Analysis Services.** If Analysis Services is the data source for the Reporting Services reports, Metadata Manager can extract the analysis schema from Analysis Services. During the resource load, Metadata Manager links the Reporting Services and Analysis Services sources. You can view data lineage across the sources.

You can also configure connection assignments from the Microsoft Analysis and Reporting Services resource to relational database resources to display data lineage across these sources.

Configuring Microsoft Analysis and Reporting Services

Before you create a Microsoft Analysis and Reporting Services resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Microsoft Analysis and Reporting Services, complete the following tasks:

- Install the Metadata Manager Agent.
- Install Internet Information Services.
- Configure permissions.

Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the nodes where the Metadata Manager Service runs.

To extract metadata from Microsoft Analysis and Reporting Services, you must install the Metadata Manager Agent separately on a Windows machine. The Metadata Manager Agent and Reporting Services must be on the same machine. If Reporting Services is not on the same machine as the Metadata Manager Service, install the Metadata Manager Agent on the same machine as Reporting Services.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Install Microsoft Internet Information Services

If you are using Reporting Services version 2005, you must install Microsoft Internet Information Services 5.0 or later on the machine running Reporting Services.

Configure Permissions

Before you configure a Microsoft Analysis and Reporting Services resource, configure the permissions for the user account that you use to connect to Analysis and Reporting Services.

The Metadata Manager Agent uses Windows authentication to connect to Analysis and Reporting Services. The Windows user who starts the Metadata Manager Agent must have read permission on the objects that the Metadata Manager Agent extracts.

Creating a Microsoft Analysis and Reporting Services Resource

Before you create a Microsoft Analysis and Reporting Services resource, configure the Microsoft Analysis and Reporting Services sources.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.

2. Click **Business Intelligence** > **Microsoft Analysis and Reporting Services**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.

6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the source system or validate the agent URL, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Schedules** window appears.

9. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Microsoft Analysis and Reporting Services Configuration Properties

Update the configuration properties when you create or edit a Microsoft Analysis and Reporting Services resource.

The following table describes the Microsoft Analysis and Reporting Services configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. The Metadata Manager Agent must be on the same machine as Reporting Services.
Source system version	Name and version of the resource. You cannot edit this field.
SQL Server version	Version of Microsoft SQL Server Reporting Services.

Report server URL	URL of the Report Server. For a Report Server running in native mode, enter the URL to the Report Server using the following format:
	`http://<host_name>:<portnumber>/<web_service_virtual_directory>`
	For example:
	`http://cas12307:80/ReportServer`
	For a Report Server running in the SharePoint integrated mode, enter the URL to the site containing the deployed reports. Use the following format:
	`http://<host_name>`

Analysis server instance	Host name or IP address of the machine running Analysis Services if Analysis Services is the data source for the Reporting Service reports. During the resource load, Metadata Manager extracts the analysis schema from Analysis Services. If the Analysis Services instance was named during installation, enter the host name using the following syntax: `<host_name>\<instance_name>` If you do not want to extract from Analysis Services, do not enter a value.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.
Report server content	Folder path in Reporting Services that contains the reports that you want to extract. Use "`/`" to indicate the root repository path, or use `/<folder_name>/<folder_name>` to indicate a single folder path. To indicate multiple folder paths, use a semicolon to separate the paths. For example, `/<folder_name>/<folder_name>;/<folder_name>`. To extract all reports in a folder and its subfolders, specify a folder path. To extract all reports that use a shared data source, specify the data source path.

Reference

After you create and load a Microsoft Analysis and Reporting Services resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted from Reporting Services

Metadata Manager extracts the following objects from Reporting Services:

- Report server
- Report database
- Report project
- SSRS report
- Data source
- Cube
- Dimension
- Dimension attribute
- Measure
- Data set
- Column
- Filter
- Report
- Report attribute
- Report parameter

Objects Extracted from Analysis Services

Metadata Manager extracts the following objects from Analysis Services:

- Analysis server
- Analysis database
- Dimension
- Dimension attribute
- Hierarchy
- Level
- Level attribute
- Database catalog cube
- Measure group
- Measure
- Key performance indicator (KPI)
- Calculated measure
- Data source view
- Table

- Column
- Logical table
- Logical column
- Join

Metadata Manager does not extract the following objects from Microsoft Analysis Services:

- Data mining structure
- Cube perspective
- Report attribute

Data Lineage

You can view data lineage for the following Reporting Services and Analysis Services object types:

- Calculated measure
- Column
- Condition
- Cube
- Data set
- Dimension
- Dimension attribute
- Key performance indicator (KPI)
- Level
- Logical table
- Logical column
- Measure
- Report
- SSRS report
- Table
- View

You can view data lineage between the following objects within Reporting Services:

- Data set column to data source measure
- Data set column to data source dimension
- Filter to data set column
- Report attribute to data set column

You can view data lineage between the following objects within Analysis Services:

- Dimension to data source view logical table
- Dimension attribute to data source view logical column
- Measure to data source view logical column
- Key performance indicator (KPI) to measure and dimension attribute
- Calculated measure to measure and dimension attribute

- Logical table to table
- Logical column to column

If Metadata Manager extracts from Reporting Services and Analysis Services, you can run data lineage across these sources for reports that use an Analysis Services cube as a data source. You can view data lineage between the following objects in Reporting Services and Analysis Services:

- Report data source measure to Analysis Services measure
- Report data source dimension to Analysis Services dimension
- Report data source dimension attribute to Analysis Services dimension attribute

You can configure connection assignments between a Microsoft Analysis and Reporting Services resource and a relational database resource. When you create the links between the resources, you can run data lineage analysis across the sources. You can view data lineage between the following objects in Reporting Services and a relational database source:

- Report data source column to database column
- Report data source table to database table
- Report data source table to database view

You can view data lineage between the following objects in Analysis Services and a relational database source:

- Analysis Services data source table to database table
- Analysis Services data source column to database column
- Analysis Services data source view to database view
- Analysis Services data source view column to database view column

Microstrategy

Microstrategy is a business intelligence tool that includes performance management, dashboards, analysis, and reporting capabilities.

You can create and configure a Microstrategy resource to extract metadata from Microstrategy. Metadata Manager extracts schema and reporting metadata from Microstrategy.

Configuring Microstrategy

Before you create a Microstrategy resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Microstrategy, complete the following tasks:

- Install the Metadata Manager Agent.
- Enable the Metadata Manager Agent to interact with the desktop.
- Configure privileges.
- Configure multiple projects (optional).

Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the nodes where the Metadata Manager Service runs.

To extract metadata from Microstrategy, you must install the Metadata Manager Agent separately on a Windows machine. The Metadata Manager Agent and the Microstrategy client must be on the same machine. The client must be able to connect to the source repository. If the Microstrategy client is not on the same machine as the Metadata Manager Service, install the Metadata Manager Agent on the same machine as the client.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Enable the Metadata Manager Agent to Interact with the Desktop

If you run the Metadata Manager Agent as a service, you must enable the Metadata Manager Agent to interact with the desktop.

You must enable the Metadata Manager Agent to interact with the desktop for the following metadata sources:

- Business Objects
- Microstrategy
- ERwin 7.x, 8.x, and 9.x

1. From the Windows Start menu, click **Administrative Tools** > **Services**.
2. Double-click **Metadata Manager Agent**.

   The **Metadata Manager Agent <Version> Properties** dialog box appears.
3. Click the **Log On** tab.
4. Under Local System Account, click **Allow service to interact with desktop**.
5. Click **OK**.

Configure Privileges

The Microstrategy project user account for which you provide the user name and password must have the Bypass All Object Security Access Checks administration privilege. Set this privilege in the Microstrategy Desktop client tool.

Note: Although Microstrategy allows you to connect to a project source using database or network authentication, Metadata Manager uses project source authentication.

Creating a Microstrategy Resource

Before you create a Microstrategy resource, configure the Microstrategy source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Business Intelligence** > **Microstrategy**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the source system or validate the agent URL, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Schedules** window appears.
9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Microstrategy Configuration Properties

Update the configuration properties when you create or edit a Microstrategy resource.

The following table describes the Microstrategy configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Version of the data source to which you want to connect. Some Microstrategy source versions are deprecated and will become obsolete. Use the supported versions to load metadata from Microstrategy. You can still create, edit, and load resources from the deprecated versions. However, Informatica cannot help you resolve an issue encountered on a deprecated version.

Property	Description
Version	Version of Microstrategy. Select a version or configure the Metadata Manager Agent to detect the version. Default is auto-detect.
Project source	Name of the project source to which you want to connect. A project source is a connection to a repository that is located on a local or remote Intelligence Server. The Intelligence Server connects to a data warehouse and contains a number of metadata projects that operate on the data warehouse.
Login user	The user name to connect to the project source.
Login password	The password used to connect to the project source.
Default language	The language that you want to use. Microstrategy 9.x supports multiple languages. Select one of the following values: - Chinese (Simplified) - Chinese (Traditional) - English (United States) - French (France) - German (Germany) - Italian (Italy) - Japanese - Korean - Portuguese (Brazil) - Spanish (Spain) - Swedish (Sweden) Default is English (United States).
Import schema only	Imports the schemas for the selected projects without the reports and documents. Specify one of the following values: - True. Import the schemas only. - False. Import the schemas, reports, and documents. Default is false.
Data model tables design level	The design level of the imported tables. Specify one of the following values: - Physical. A table appears in the physical view of the model. - Logical and Physical. A table appears in the logical view and in the physical view of the model.
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata.
Import hierarchies	Specifies whether to extract hierarchies from Microstrategy. Default is true.

Property	Description
Multiple threads	Number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously. Leave blank or enter a positive integer value. If blank, the Metadata Manager Agent calculates the number of worker threads. The Metadata Manager Agent allocates between one and six threads based on the JVM architecture and the number of available CPU cores on the machine that runs the Metadata Manager Agent. If you specify a value that is not valid, the Metadata Manager Agent allocates one worker thread. Reduce the number of worker threads if the Metadata Manger Agent generates out of memory errors when it extracts metadata. You can increase the number of worker threads if the machine that runs the Metadata Manager Agent has a large amount of available memory, for example, 10 GB or more. However, if you specify too many worker threads, performance can decrease. Default is blank.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.
Projects	The name of the projects to which you want connect in the selected project source. Separate multiple project names with a semicolon (;).

Reference

After you create and load a Microstrategy resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts schema and reporting metadata. In Microstrategy Desktop, you can hide objects, such as folders, attributes, facts, and logical tables. By default, Metadata Manager extracts hidden objects stored in Microstrategy.

Metadata Manager extracts the following reporting metadata object types:

- (Document) Metric
- (Document) Subtotal
- (HTML Document) Metric
- (HTML Document) Subtotal
- (Intelligent Cube) Metric
- (Intelligent Cube) Subtotal
- (Project) Metric
- (Project) Subtotal
- (Report) Metric
- (Report) Subtotal
- Attribute
- Attribute Form
- Calculated Report Field
- Column
- Consolidation

- Consolidation Element
- Custom Group
- Database Instance
- Database Schema
- Dataset
- Document
- Document Report
- Expression
- Expressions
- Fact
- Fact Measure
- Filter
- Folder
- Hidden Folder
- Hierarchy
- HTML Document
- HTML Document Report
- Intelligent Cube
- Intelligent Cube Report
- Logical Query Table
- Logical Table
- Lookup
- Metric Measure
- Metrics
- Project
- Project Attribute
- Project Attribute Form
- Project Column
- Project Consolidation
- Project Consolidation Element
- Project Custom Group
- Project Custom Group Element
- Project Element
- Project Fact
- Project Fact Measure
- Project Filter
- Project Filter Element
- Project Folder
- Project Metric

- Project Metric Measure
- Project Object
- Project Security Filter
- Project Source
- Project Subtotal
- Project Subtotal Measure
- Project Warehouse Table
- Prompt
- Prompt Answer
- Query Builder Definition
- Report
- Report Axis
- Report Field
- Report Graph
- Report Grid
- Report List
- Report Matrix
- Report Metric
- Report Metrics
- Report Object
- Report Object Element
- Report Object Elements
- Report Page
- Report Page Body
- Report Page Footer
- Report Page Header
- Report Rectangle
- Report Report
- Report Subtotal
- Report Subtotals
- Report Text
- Schema
- Security Filter
- SQL Attribute Form
- SQL Column
- SQL Metric
- Subtotal Measure
- Subtotals
- Threshold

- Thresholds
- Warehouse Table

Creation and Modification Date of Classes

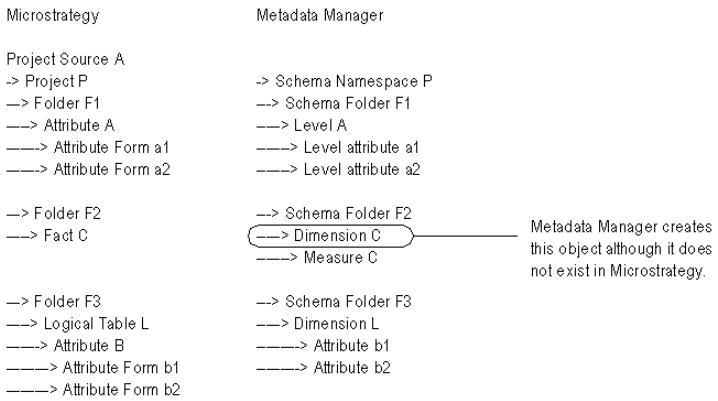
Metadata Manager displays the source creation date and the source modified date for most Microstrategy classes. Metadata Manager does not display these dates for the following classes:

- MicrostrategyDataType
- MicrostrategyReportField
- MicrostrategyGraph
- MicrostrategySchemaJoin
- MicrostrategyGrid
- MicrostrategyReportObjectDetail
- MicrostrategyReportObject

Metadata Catalog

The metadata catalog does not display attributes and facts the same way Microstrategy does. Microstrategy contains a classifier object for attributes, but not for facts. Metadata Manager displays a classifier for Microstrategy facts to remain consistent with the display of attributes.

The following figure shows how Microstrategy and Metadata Manager display attributes and facts:



Expressions

If you define multiple expressions for the same metric or attribute, Metadata Manager may not display the metric or attribute expression in the metadata catalog.

The following example shows a metric with multiple expressions, where col1 can be found in table T1 and T2:

```
m = col1
```

Oracle Business Intelligence Enterprise Edition

Oracle Business Intelligence Enterprise Edition (OBIEE) is a business intelligence tool that includes analysis and reporting capabilities.

You can create and configure an OBIEE resource to extract metadata from OBIEE. Metadata Manager extracts schema and reporting metadata from OBIEE. The schema metadata includes the presentation, business, and physical models.

Configuring Oracle Business Intelligence Enterprise Edition

Before you create an OBIEE resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure OBIEE, complete the following tasks:

- Convert the Repository RPD file to an UDML file.
- Convert the Repository RPD file to an XML file.
- Configure permissions.
- Enable OBIEE web services.
- Export and import the keystore certificate.

Convert the Repository RPD File to a UDML File

When you load an OBIEE 10g resource, Metadata Manager connects to the Presentation Server to extract the metadata for the reports. However, Metadata Manager cannot extract the schema metadata directly from the repository. The OBIEE schema metadata is stored in an RPD file. Because Metadata Manager cannot read RPD files, you must convert the RPD file to a UDML file.

Metadata Manager extracts the schema metadata from the UDML file, extracts the reports from the Presentation Server, and links the reporting metadata to the presentation model when you load the resource.

OBIEE has a utility program to convert an RPD file to a UDML file. This utility is part of the OBIEE server installation.

Use the following command to convert the repository RPD file to a UDML file:

```
<OBIEE home directory>\server\Bin\nQUDMLGen.exe -U <user name> -P <password> -R <RPD
file>.rpd -O <UDML file>.udml -N -Q -8
```

Convert a Repository RPD File to an XML File

When you load an OBIEE 11g resource, Metadata Manager connects to the Presentation Server to extract the metadata for the reports. However, Metadata Manager cannot extract the schema metadata directly from the repository. The OBIEE schema metadata is stored in a RPD file. Because Metadata Manager cannot read RPD files, you must convert the RPD file to an XML file.

Metadata Manager extracts the schema metadata from the XML file, extracts the reports from the Presentation Server, and links the reporting metadata to the presentation model when you load the resource.

You can use the *biserverxmlgen* command line utility to convert a RPD file to an XML file. This utility is part of the OBIEE server installation. Before you run the utility, you must run the run bi-init script to launch the prompt window that is initialized to the Oracle instance. The script file is available in the following location: `ORACLE_INSTANCE/bifoundation/OracleBIApplication/coreapplication/setup`.

Use the following command to convert the repository RPD file to an XML file:

```
biserverxmlgen -R repository_pathname [-P password] -O output_file_pathname -n - Q -8
```

where,

repository_pathname is the name and location of the repository file from which you want to generate XML.

password is the repository password.

output_file_pathname is the name and location of the XML output file you want to generate.

Specify -8 to use UTF-8 encoding in the generated XML file. By default, the generated XML file uses ANSI ISO-8859-1 encoding.

Configure Permissions

Metadata Manager connects to the OBIEE Presentation Server to extract the report metadata. The OBIEE user account for which you provide the user name and password must have read permission on the metadata that Metadata Manager extracts from OBIEE. The metadata includes subject areas, report folders, and reports.

Metadata Manager extracts the schema metadata from the UDML or XML file. The OBIEE user account does not require permissions on the schema metadata. The OBIEE utility program extracts all schema metadata from the RPD file and writes the metadata to the UDML or XML file. Metadata Manager extracts all metadata from the UDML or XML file.

Enable OBIEE Web Services

Metadata Manager uses OBIEE web services to extract metadata from OBIEE. As a result, you must enable OBIEE web services. OBIEE web services is available to licensed users of OBIEE. The OBIEE installer generates the appropriate licensing entries in the analyticsweblicense.xml file based on the installation key.

To verify that OBIEE web services are enabled, check that the kmsgLicenseSOAPAccess entry exists in the following file:

```
<OBIEE home directory>\web\config\analyticsweblicense.xml
```

Export and Import the Keystore Certificate

Before you extract metadata from an OBIEE Presentation Server in HTTPS mode, you must export the keystore certificate from OBIEE and import it into the Metadata Manager Agent Java Runtime Environment (JRE). When you export the certificate, you create a self-signed certificate that you can import into the Metadata Manager Agent JRE.

Use the *keytool* utility to export and import the certificate.

To export and import the certificate:

1. To export the OBIEE keystore certificate and create a self-signed keystore certificate, use the following command:

   ```
   keytool -export -alias <alias name> -keystore <keystore file name> -rfc -file
   <certificate file name>
   ```

2. Copy the certificate file to the following directory:

   ```
   <Metadata Manager Agent installation directory>\java\jre\lib\security
   ```

3. Navigate to the following directory:

   ```
   <Metadata Manager Agent installation directory>\java\jre\lib\security
   ```

4. To import the OBIEE keystore certificate into the Metadata Manager Agent JRE, use the following command:

```
keytool -import -alias -ca -file <certificate file name> -keystore <certificate file name> -storepass <keystore password>
```

Note: The default keystore password is “changeit.”

Creating an Oracle Business Intelligence Enterprise Edition Resource

Before you create an OBIEE resource, configure the OBIEE source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.

2. Click **Business Intelligence** > **Oracle Business Intelligence**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.

6. Enter the configuration properties.
7. To add a metadata source file, click **Select**.

   If you configure Metadata Manager to use the latest source files, include the absolute path to the files that are accessible from the Metadata Manager Agent machine.

   If you did not configure Metadata Manager to use the latest source files, upload all the files to the Metadata Manager machine.

8. Click **Test Connection** to validate the source file configuration.

   Metadata Manager validates the Metadata Manager Agent URL. If you configured Metadata Manager to use the latest source file, Metadata Manager also validates that the source file exists in the specified path. If the source file is uploaded to Metadata Manager, Metadata Manager validates that the file is compatible with the resource type and version.

   If Metadata Manager cannot validate the source file configuration, an error message appears. Correct any error and test the connection again.

9. Click **Next**.

   The **Schedules** window appears.

10. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

11. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Oracle Business Intelligence Enterprise Edition Configuration Properties

Update the configuration properties when you create or edit an OBIEE resource.

The following table describes the OBIEE configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Name of the metadata source. You cannot edit this field.
Always use latest source files	Uses the metadata source file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, Metadata Manager copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied metadata source file in the Metadata Manager application directory.
Version	Version of OBIEE. Select a version or configure Metadata Manager to detect the version. Default is auto detect.
Server URL	URL of the Presentation Server. Use the following format: `http://<server name>:<port>/analytics/saw.dll`
Login user	User name for the Presentation Server. **Note:** Verify that the user has the appropriate permissions to access the objects you want to import.
Login password	Password for the Presentation Server user name.
Variable values file	Path to the file that contains the variable values used in a repository RPD file. A repository RPD file might use variables to parameterize SQL statements. The variables values file contains the variable name and values used in the repository file. Variable names are not case sensitive and are trimmed of all leading and trailing spaces.

Property	Description
Optimize for large models	Specifies whether to import a subset of metadata or all metadata when you load the resource. You might want to import a subset of metadata when the metadata source file is large, for example, when the file size exceeds 600 MB. Specify one of the following values: - True. Ignores foreign keys, joins, relationships, and logical foreign keys when you load the resource. Does not store expression tree objects with lineage links. - False. Imports all metadata when you load the resource. Default is true.
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata. Defauult is true.
Multiple threads	Number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously. Leave blank or enter a positive integer value. If blank, the Metadata Manager Agent calculates the number of worker threads. The Metadata Manager Agent allocates between one and six threads based on the JVM architecture and the number of available CPU cores on the machine that runs the Metadata Manager Agent. If you specify a value that is not valid, the Metadata Manager Agent allocates one worker thread. Reduce the number of worker threads if the Metadata Manger Agent generates out of memory errors when it extracts metadata. You can increase the number of worker threads if the machine that runs the Metadata Manager Agent has a large amount of available memory, for example, 10 GB or more. However, if you specify too many worker threads, performance can decrease. Default is blank.

Miscellaneous	Allows you to specify miscellaneous options in the following format:
	`-<option> <value>`
	Use this property to specify the following options:
	- -v. Environment variables, for example:
	`-v var1=value -v var2="value with spaces"`
	- -m. Maximum Java memory size as a whole number, for example, `-m 4G` or `-m 2500M`.
	- -j. Java command line options, for example:
	`-j -Dname=value -Xms1G`

Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.
File	The OBIEE repository file in XML or UDML format. You export the repository from the Oracle BI Administration tool to an RPD file. For OBIEE 10g resources, convert the RPD file as an UDML file. For OBIEE 11g resource, convert the RPD file as an XML file.
Repository subset	Folder path in the Presentation Server that contains the reports that you want to extract. Separate multiple values with a semicolon (;). Use "/" to indicate the root repository path, use `/shared` to indicate the shared repository path, or use `/users/<user_name>/<folder_name>` to indicate the user's folder path. For example: `/shared/Financials;/shared/Human Resources;/shared/Procurement and Spend` Default is "/".

Reference

After you create and load an OBIEE resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Alias Column
- AliasPhysicalTable
- AnswersReport
- Axis
- BusinessModel
- Business Model and Mapping
- Catalog
- Condition
- Criteria
- Data Attribute Column
- Database
- Derived Presentation Column
- Design Package Subject Area
- Dimension Logical Column
- DynamicVariable
- FactLogicalTable
- Field
- Folder
- Gauge
- Graphic Chart
- Hierarchy
- Key Logical Column
- LogicalColumn
- LogicalDimension
- LogicalJoin
- LogicalKeyColumn
- LogicalLevel
- LogicalTable
- Measure
- Model Content
- Page
- Physical
- PhysicalColumn

- PhysicalForeignKey
- PhysicalJoin
- PhysicalSelectTable
- PhysicalTable
- PivotTable
- Presentation
- PresentationColumn
- PresentationTable
- Primary Key Column
- Report
- RepositoryInitializationBlock
- RepositoryInitializationBlocks
- RepositoryVariables
- Schema
- SessionInitBlock
- Session Initialization Blocks
- SessionVariable
- SessionVariables
- StaticVariable
- StaticVariables
- TableView
- TitleView
- Top View
- Variables
- View

Alias Physical Table

An alias physical table is a synonym object of a physical table. When Metadata Manager loads an OBIEE resource, it extracts physical table columns and copies them to the corresponding alias physical table. Metadata Manager sets the class type for a copied column as a physical column, even if the original column is a key column or a normal column.

Number of Child Nodes in the Load Details

When you load an OBIEE resource, Metadata Manager displays the nodes from which it extracts metadata on the Load Details tab. Metadata Manager displays 300 child nodes for any parent node in the load details. To see a complete list of all nodes extracted, save the contents of the Load Details tab to a Microsoft Excel file.

SAP Business Warehouse

SAP Business Warehouse is a enterprise data warehouse platform that captures, stores, and consolidates enterprise data.

You can create and configure an SAP Business Warehouse resource to extract metadata from SAP Business Warehouse.

Configuring SAP Business Warehouse

Before you create an SAP Business Warehouse resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure SAP Business Warehouse, complete the following tasks:

- Install the Metadata Manager Agent.
- Configure the mapping transformation file.
- Install the SAP JCo libraries.

Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the nodes where the Metadata Manager Service runs.

To extract metadata from SAP Business Warehouse, you must install the Metadata Manager Agent separately on a Windows machine. The Metadata Manager Agent and the SAP JCo libraries must be on the same machine.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Configure the Mapping Transformation File

SAP Business Warehouse transformations are sometimes represented in ABAP code. Save these transformations in a mapping configuration file.

Use the following format to specify the transformations in the mapping, and save the file as an XML file:

```
<Functions>
  <Function id="[TransformationId]" objType="TRFN">
    <Target id="RESULT_FIELDS-[dstFieldName]" description="RESULT_FIELDS-[dstFieldName]
= SOURCE_FIELDS-[srcFieldName] * [externalObjectId]-[externalField].">
      <Source id="SOURCE_FIELDS-[srcFieldName]"/>
      <Source id="[externalObjectId]-[externalField]"/>
    </Target>
  </Function>
</Functions>
```

When you configure the SAP Business Objects resource, you must specify the file name and file path for the mapping transformation file.

Install the SAP JCo Libraries

Before you create an SAP Business Warehouse resource, download and install SAP JCo 3 for Windows. The SAP JCo installation package includes a library file and a JAR file. Copy the files to a directory on the machine that runs the Metadata Manager Agent.

If you have problems downloading the files, contact Informatica Global Customer Support.

1. Stop the Metadata Manager Agent.
2. Go to the SAP Service Marketplace: http://service.sap.com

   Note: You must have user ID for the SAP Service Marketplace.
3. Download the SAP JCo installation package for Windows.

   The installation package contains the following files:

   - A library file, sapjco3.dll
   - A JAR file, sapjco3.jar
4. Copy the library file and the JAR file to the following directory or to a different directory on the machine that runs the Metadata Manager Agent:

   `<Metadata Manager Agent home directory>\bin`
5. If you copy the files to a directory other than `<Metadata Manager Agent home directory>\bin`, update the classpath on the machine that runs the Metadata Manager Agent. The classpath must include the directory where you copied the files.
6. Set the following permissions for the library file and the JAR file:

   - Read, write, and execute permissions for the current user
   - Read and execute permissions for all other users
7. Restart the Metadata Manager Agent.

Creating an SAP Business Warehouse Resource

Before you create an SAP Business Warehouse resource, configure the SAP Business Warehouse source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Business Intelligence** > **SAP Business Warehouse**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the source system or validate the agent URL, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Schedules** window appears.
9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

SAP Business Warehouse Configuration Properties

Update the configuration properties when you create or edit an SAP Business Warehouse resource.

The following table describes the SAP Business Warehouse configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Version of the data source to which you want to connect.
Application server	Host name or IP address of the SAP application server to which you want to connect.
Router string	Router string to use when the system is protected by a firewall.

Property	Description
System number	SAP system number, which is the instance ID of the ABAP instance. This value is a 2-digit number from 00 through 99.
Client	SAP system client ID. This value is a 3-digit number from 000 through 999.
User name	The user name to connect to SAP Business Warehouse.
Password	The password for the SAP Business Warehouse user.
Default language	The language that you want to use. Select one of the following values: - Chinese (Simplified) - Chinese (Traditional) - Czech - Danish - Dutch - English - Finnish - French - German - Hungarian - Italian - Japanese - Korean - Norwegian - Polish - Portuguese - Russian - Spanish - Slovak - Swedish - Turkish
JCo library path	Location of the SAP JCo library file and sapjco3.jar file on the machine that runs the Metadata Manager Agent. The files must be in the following directory or in a directory that is in the classpath of the machine that runs the Metadata Manager Agent: `<Metadata Manager Agent home directory>\bin`
Mapping configuration file	File name and file path for the mapping configuration file. The mapping configuration file contains the SAP Business Warehouse transformations that are represented in ABAP code.
Naming convention	The format used to represent the SAP system number. Specify one of the following values: - [technical name]Description - Description[Technical Name] - Description_TechnicalName - [TechnicalName]
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata.

Property	Description
Path to offline metadata	Directory that contains metadata when the SAP Business Warehouse metadata environment is not installed locally. If you specify an offline metadata directory, the Metadata Manager Agent uses the files in the directory as the metadata source. Metadata Manager ignores the connection properties for the SAP application server because it does not need to establish a connection to the server. You can run a utility to generate a directory of files that contain the metadata from the SAP Business Warehouse environment. You might copy metadata from the SAP Business Warehouse environment to a directory for testing purposes. Default is not set.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.

Reference

After you create and load an SAP Business Warehouse resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Application
- Attribute Field
- BEx Web Template
- Bex Web Template StoreModel
- Bex Web Templates
- Characteristic
- Class Data Source
- Class Data Source3x
- Condition
- Data Packet Characteristic
- DataMappingModel Transfer Rules
- DataMappingModel Transformations
- DataProvider
- DataSource Application
- DataSource3x
- DiDataMappingContent Transfer Rules
- DiDataMappingContent Transformations
- DiDataMappingContent Update Rules
- Dimension
- Dimension Aggregate
- Dimension DataStore Object

- Dimension InfoCube
- Dimension InfoSet
- Dimension InfoSource
- Dimension InfoSource3x
- Dimension Open Hub Destination
- Dimension Query
- Dimension QueryView
- DimensionAttribute Characteristic
- Excel Workbook
- Folder InfoObjects
- Folder InfoSources
- Folder Transfer Rules
- Folder Transformations
- InfoArea
- InfoObject
- InfoObject Catalog
- Key Figure
- MultiProvider
- Navigation Attribute
- Queries
- QueryView
- QueryViews
- Role
- Source System
- StoreContent Aggregate
- StoreContent Bex Web Template
- StoreContent Characteristic
- StoreContent DataSource
- StoreContent DataSource3x
- StoreContent DataStore Object
- StoreContent InfoCube
- StoreContent InfoSet
- StoreContent InfoSource
- StoreContent InfoSource3x
- StoreContent MultiProvider
- StoreContent Open Hub Destination
- StoreContent Query
- StoreContent QueryView
- StoreContent Web Template

- StoreContent Workbook
- StoreModel Aggregate
- StoreModel Characteristic
- StoreModel DataSource
- StoreModel DataStore Object
- StoreModel InfoCube
- StoreModel InfoSet
- StoreModel InfoSource
- StoreModel InfoSource3x
- StoreModel MultiProvider
- StoreModel Open Hub Destination
- StoreModel Query
- Time Characteristic
- Time Dimension
- Unit of Measurement
- Update Rules
- Web Template
- Web Template (Format SAP BW 3.x)
- Web Templates
- Workbook
- Workbooks

Tableau

Tableau is a business intelligence tool that allows you to connect to data and create sharable dashboards. Tableau has a desktop component and a server component. Metadata Manager can extract metadata from the server component of Tableau, Tableau Server.

Metadata Manager extracts metadata from Tableau Server through the Metadata Manager Agent. The Metadata Manager Agent uses the HTTP or HTTPS protocol to log in to the server, send requests about workbooks and data sources, and extract metadata. The Metadata Manager Agent can extract objects such as projects, workbooks, and dashboards from Tableau. The Metadata Manager Agent extracts both published and unpublished worksheets in workbooks. The Metadata Manager Agent also extracts dependent data sources for workbooks.

Data sources in Tableau represent connections to data. The data can be located as a Tableau extract (.tde file) or in a live relational database. The Metadata Manager Agent imports both Tableau extracts and live data sources into Metadata Manager.

Configuring Tableau

Before you create a Tableau resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Tableau, perform the following tasks:

- Install the Metadata Manager Agent.
- Verify permissions.
- Verify that Tableau Server is running.

Install the Metadata Manager Agent

The Metadata Manager Agent is a program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the nodes where the Metadata Manager Service runs. To extract metadata from Tableau, you can use the Metadata Manager Agent that is installed on any Windows machine.

You must install the Metadata Manager Agent separately on a Windows machine when the domain uses Kerberos authentication or when the Metadata Manager Service runs on UNIX.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Verify Permissions

To connect to Tableau Server, the Metadata Manager Agent uses the credentials of a user created on the Tableau server. The user account must have certain license levels and permissions.

The account that the Metadata Manager Agent uses to access Tableau Server must have at least the following license levels and permissions:

- Interactor license level
- View and Download permissions for all projects, workbooks, and data sources for which you want to extract metadata

Verify that the Server is Running

The Metadata Manager Agent connects to Tableau Server through the internet. To verify that Tableau Server is running, ensure that you can connect to Tableau Server from a web browser.

Creating a Tableau Resource

Before you create a Tableau resource, configure the Tableau metadata source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Business Intelligence** > **Tableau**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system and validate the Metadata Manager Agent URL.

   If Metadata Manager cannot connect to the data source or validate the Metadata Manager Agent URL, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Schedules** page appears.
9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Tableau Configuration Properties

Update the configuration properties when you create or edit a Tableau resource.

The following table describes the Tableau configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Name and version of the resource. You cannot edit this field.
Server	URL or IP address where Tableau Server runs. For example: `http://<Tableau host>:<port>` Default is http://localhost:80.
Site	Site name when you extract metadata from a multi-site server. The site name is case sensitive.

Property	Description
User name	User name used to log in to Tableau Server.
Password	Password for the Tableau Server user account.
Group by	Category used to group the workbooks that you want to extract from Tableau. When you click **Select** next to the **Repository Objects** property, the Metadata Manager Agent groups workbooks in the dialog box by the category that you select. You can group workbooks by the following categories: - Tags - Publisher - Project - My workbooks - All workbooks Default is project.
Incremental import	Load changes since the previous resource load or load complete metadata. Specify one of the following values: - True. Load recent changes only. - False. Perform a complete load of the metadata. Default is true.
Multiple threads	Number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously. Leave blank or enter a positive integer value. If blank, the Metadata Manager Agent calculates the number of worker threads. The Metadata Manager Agent allocates between one and six threads based on the JVM architecture and the number of available CPU cores on the machine that runs the Metadata Manager Agent. If you specify a value that is not valid, the Metadata Manager Agent allocates one worker thread. Reduce the number of worker threads if the Metadata Manger Agent generates out of memory errors when it extracts metadata. You can increase the number of worker threads if the machine that runs the Metadata Manager Agent has a large amount of available memory, for example, 10 GB or more. However, if you specify too many worker threads, performance can decrease. Default is blank.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
Repository objects	The workbooks that you want to extract from Tableau. Click **Select** to select individual workbooks or groups of workbooks. In the selection dialog box, Metadata Manager groups workbooks according to the category you choose in the **Group by** property. When you select one or more workbooks, this field displays the Tableau workbook ID for each selected workbook. The Metadata Manager Agent extracts the dependent data sources for all selected workbooks.

Reference

After you create and load a Tableau resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Bins
- Calculation dimensions
- Calculation measures
- Columns
- Conditions
- Connections
- Dashboards
- Data sources
- Dimensions
- Dimension tables
- Fact tables
- Fields
- Filters
- Groups
- Joins
- Marks
- Measures
- Namespaces
- Pages
- Parameter dimensions
- Parameter measures
- Parameters
- Projects
- Proxy fields
- Proxy tables
- Published data sources
- Queries
- Relationships
- Rows
- Schemas
- Sets
- Shared filters
- Tables
- Tableau servers
- Unpublished worksheets
- Workbook data sources
- Workbooks
- Worksheets

Data Lineage Restrictions

Metadata Manager makes most Tableau object types available for data lineage. However, there are some data lineage restrictions on Tableau objects.

The following Tableau objects have data lineage restrictions:

Dashboards

Metadata Manager does not display data lineage for dashboards. However, you can run data lineage analysis on the worksheets that are included in the dashboard.

Data sources

Data sources in Tableau can be either live data sources or extracts. A live data source represents a connection to a physical data source such as a relational database. An extract is a snapshot of a data source that is saved to a .tde file.

When you view a data lineage diagram that includes a live data source, Metadata Manager displays the physical data source in the data lineage diagram. For example, if you run data lineage analysis on a Tableau live data source that is based on an Oracle table, Metadata Manager displays the Oracle table in the data lineage diagram. Metadata Manager displays a link between the Oracle table and the Tableau live data source.

When you view a data lineage diagram that includes an extract, Metadata Manager displays the extract as the source for data lineage. Metadata Manager does not display a link between the physical data source and the extract. Metadata Manager does not display the link because it cannot determine which physical data source an extract is based on.

Incremental Metadata Load

When you configure any business intelligence resource except a Microsoft Analysis and Reporting Services resource, you can choose to incrementally load recent changes to the metadata instead of loading complete metadata. After the first successful load, the Metadata Manager Agent incrementally loads metadata that changed after the last successful load.

Data Source Changes

New metadata is incrementally loaded when any data source change occurs after the last successful load. The following list describes some examples of data source changes:

- A report is added in a report folder.
- A report is linked to a different package or universe.
- A report metric is deleted.
- A report is deleted or renamed.
- A report is moved to another folder.
- A report folder is renamed.
- An attribute object in a package or universe is renamed.
- A folder is moved to another folder.

Note: If the source data did not change since the last successful load, the load is complete.

Exception Scenarios

Even if you specify incremental extraction for a resource, complete metadata load occurs in the following scenarios:

- You purge the resource.
- You update the source configuration details of the resource.
- You cancel the first load of the resource or the first load of the resource fails.

Adding or Removing Metadata Files for a Resource

Add a metadata file to a resource to configure the source from which Metadata Manager extracts metadata. Remove a metadata file from a resource if you want to remove the metadata from the Metadata Manager warehouse or load a different metadata source file.

You can add one metadata file for each resource. After you remove a metadata file, you can purge the metadata from the Metadata Manager warehouse.

You can add or remove the following metadata files:

- **Metadata source files.** Add or remove a metadata source file for packaged resource types.
- **Attribute and association files.** Add or remove attribute and association files for a custom resource. You must also add a metadata source file if the contents of an existing attribute and association file changes.

Note: To change the metadata in the source file that Metadata Manager loads into the Metadata Manager warehouse, change the contents of the metadata source file and add the file again. You can also upload the file to the following directory on the node that runs the Metadata Manager Service:

```
<Informatica installation directory>\services\MetadataManagerService\mm_files\<Metadata
Manager Service name>\mm_load\data_files\<resource ID>
```

1. On the Load tab, select the resource for which you want to add or remove files.
2. In the Resources panel, click the **Configuration** tab, and then click **Edit**.

   The **Edit Resources** window appears.
3. To add a metadata source file, click **Add** and select the file.

   If you configured Metadata Manager to use the latest source files, include an absolute path to the file that is accessible from the Metadata Manager Service machine.
4. Optionally, direct Metadata Manager to update the metadata in the warehouse with the metadata in the source file.
5. To remove a metadata source file, select the file and click **Remove.**
6. Click **OK**.

CHAPTER 6

Custom Resources

This chapter includes the following topics:

- Configuring Custom Metadata Sources, 86
- Creating a Custom Resource, 86
- Configuring the Template Name, 87
- Adding or Removing Metadata Files for a Resource, 87

Configuring Custom Metadata Sources

If you create a custom resource and use a metadata source file, you must export the metadata to a metadata file with a .csv or .txt file extension. When you configure the custom resource, you specify the metadata file.

Creating a Custom Resource

When you create a custom resource, you configure the name and description. You add metadata source files and schedules after you create the resource.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears. The list of custom models you created in the **Model** page appears under **Others**.
2. Under **Others**, select the custom model you want to base the resource on.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Configuring the Template Name

You can configure the Template Name property for a custom resource. To edit the property, select the custom resource in the Resources panel of the Load tab, click Edit Resource, and click the Configuration tab in the Edit Resource window.

Enter the name of the custom resource template that stores information about how to map the metadata object attributes to the class attributes. The template can also store the class associations between metadata objects.

Adding or Removing Metadata Files for a Resource

Add a metadata file to a resource to configure the source from which Metadata Manager extracts metadata. Remove a metadata file from a resource if you want to remove the metadata from the Metadata Manager warehouse or load a different metadata source file.

You can add one metadata file for each resource. After you remove a metadata file, you can purge the metadata from the Metadata Manager warehouse.

You can add or remove the following metadata files:

- **Metadata source files.** Add or remove a metadata source file for packaged resource types.
- **Attribute and association files.** Add or remove attribute and association files for a custom resource. You must also add a metadata source file if the contents of an existing attribute and association file changes.

Note: To change the metadata in the source file that Metadata Manager loads into the Metadata Manager warehouse, change the contents of the metadata source file and add the file again. You can also upload the file to the following directory on the node that runs the Metadata Manager Service:

```
<Informatica installation directory>\services\MetadataManagerService\mm_files\<Metadata
Manager Service name>\mm_load\data_files\<resource ID>
```

1. On the Load tab, select the resource for which you want to add or remove files.
2. In the Resources panel, click the **Configuration** tab, and then click **Edit**.

   The **Edit Resources** window appears.
3. To add a metadata source file, click **Add** and select the file.

   If you configured Metadata Manager to use the latest source files, include an absolute path to the file that is accessible from the Metadata Manager Service machine.
4. Optionally, direct Metadata Manager to update the metadata in the warehouse with the metadata in the source file.
5. To remove a metadata source file, select the file and click **Remove.**
6. Click **OK**.

CHAPTER 7

Data Integration Resources

This chapter includes the following topics:

- Informatica Platform Resources, 89
- Microsoft SQL Server Integration Services Resources, 104
- PowerCenter Resources, 115

Informatica Platform Resources

You can create and configure an Informatica Platform resource to extract metadata from applications and resource files that you export from Informatica Developer (the Developer tool).

Developer tool users can make mappings, virtual databases, and scorecards available for data lineage in Metadata Manager. To make mappings and virtual databases available for data lineage, Developer tool users deploy the objects to an application. Developer tool users then deploy the application to a Data Integration Service or to an application archive file. To make scorecards available for data lineage, Developer tool users export the scorecards to a resource file for Metadata Manager. In Metadata Manager, you can create Informatica Platform resources from an application or a resource file.

You can create an Informatica Platform resource from the following metadata sources:

Application deployed to a Data Integration Service

Multiple applications can run on a Data Integration Service. If you create an Informatica Platform resource from applications that you deploy to a Data Integration Service, you can include metadata from multiple applications in the resource.

Application archive file

An application archive file contains one application. If you create an Informatica Platform resource from an application archive file, the resource contains metadata from the application that is deployed to the application archive file.

Note: You can create Informatica Platform resources from version 9.5.1 - 9.6.x application archive files. Metadata Manager cannot extract metadata from version 10.x application archive files.

Export resource file for Metadata Manager

An export resource file for Metadata Manager is an XML file that contains one or more scorecard objects. If you create an Informatica Platform resource from an export resource file for Metadata Manager, the resource contains metadata for all scorecards in the resource file.

Configuring the Metadata Source

Before you create an Informatica Platform resource, you might need to check the status of the Data Integration Service, install the Command Line Utilities, or configure directory permissions. If you do not perform these tasks, the metadata load can fail.

The tasks that you perform to configure the metadata source vary based on how you create the resource:

From an application that is deployed to a Data Integration Service

To ensure that Metadata Manager can extract and load metadata from the application, verify that the Data Integration Service is available. When you create a resource, the application can be running or stopped. When you load the resource, the application must be running.

If you extract metadata from an Informatica version 10.0, 10.1, 10.1.1, or 10.1.1 HotFix1 application, you must also install the version 10.0, 10.1, 10.1.1, or 10.1.1 HotFix1 Command Line Utilities.

From an application archive file

To ensure that Metadata Manager can extract and load metadata from the application, verify that the Metadata Manager Service has read permission on the directory that contains the file.

From an export resource file for Metadata Manager

To ensure that Metadata Manager can extract and load metadata from the file, verify that the Metadata Manager Service has read permission on the directory that contains the file.

Command Line Utilities Installation for Version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, or 10.2.1 Applications

To extract metadata from an Informatica version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, and 10.2.1 application that is deployed to a Data Integration Service, you must install the version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, or 10.2.1 Command Line Utilities. Install the utilities in a directory that the Metadata Manager Service can access. If you don't install the utilities, the Metadata Manager may not load the resource.

The Command Line Utilities are included in the Command Line Utilities zip file. Contact Informatica Global Customer Support to get the zip file for version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, or 10.2.1.

Extract the files to a directory that the Metadata Manager Service can access. Informatica recommends that you extract the files to a directory on the machine that runs the Metadata Manager Service. If you extract the files to a different machine, the Metadata Manager Service can take several minutes to access the directory.

Note: After you install the standalone command line utilities, you normally have to perform the following tasks :

- On Windows, install the Microsoft Visual Studio 2013 redistributable package.
- Configure the path and environment variables as required by the command line utilities.
- Create the domains.infa file.

When you install the version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, or 10.2.1 Command Line Utilities for an Informatica Platform resource that extracts metadata from a version 10.0, 10.1, 10.1.1, 10.1.1 HotFix1 ,10.1.1 HotFix2, 10.2, or 10.2.1 application, you do not have to perform these tasks.

Creating an Informatica Platform Resource

Create an Informatica Platform resource to extract metadata from an application or from an export resource file for Metadata Manager.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Integration** > **Informatica Platform**.
3. Click **Next**.

   The **Properties** window appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]` **Note:** If you create a resource from a resource file, you must use the following naming convention for the resource name: `<Model repository Service name>_<project name>`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Select one of the following options for the source system version:

Option	Description
Informatica Platform 10.2.1 (Repository)	Create the resource from a version 10.2.1 application that is deployed to a Data Integration Service.
Informatica Platform 10.2.0 HotFix1 (Repository)	Create the resource from a version 10.2 HotFix 1 application that is deployed to a Data Integration Service.
Informatica Platform 10.2 (Repository)	Create the resource from a version 10.2 application that is deployed to a Data Integration Service.
Informatica Platform 10.1.1 HotFix1 (Repository)	Create the resource from a version 10.1.1 HotFix 1 application that is deployed to a Data Integration Service.
Informatica Platform 10.1.1 (Repository)	Create the resource from a version 10.1.1 application that is deployed to a Data Integration Service.

Option	Description
Informatica Platform 10.1 (Repository)	Create the resource from a version 10.1 application that is deployed to a Data Integration Service.
Informatica Platform 10.0 (Repository)	Create the resource from a version 10.0 application that is deployed to a Data Integration Service.
Informatica Platform 9.5.1 - 9.6.x (Repository)	Create the resource from a version 9.5.1 - 9.6.x application that is deployed to a Data Integration Service.
Informatica Platform 9.5.1 - 9.6.x (Archive File)	Create the resource from a version 9.5.1 - 9.6.x application archive file.
Informatica Platform 9.5.1 - 10.x (Resource File)	Create the resource from a version 9.5.1 - 10.x resource file that you exported from the Developer tool.

Note: If you extract metadata from an Informatica 10.x application, you must select source system version **Informatica Platform 10.2.1 (Repository)** , **Informatica Platform 10.2.0 HotFix1 (Repository)**, **Informatica Platform 10.1.1 HotFix 1 (Repository)**, **Informatica Platform 10.2 (Repository)**, **Informatica Platform 10.1.1 (Repository)**, **Informatica Platform 10.1 (Repository)**, or **Informatica Platform 10.0 (Repository)**. Metadata Manager does not extract metadata from version 10.x application archive files.

7. Configure the resource connection properties.
8. If you create a resource from an application that is deployed to a Data Integration Service, click **Test Connection** to test the connection to the Data Integration Service.

   If Metadata Manager cannot connect to the Data Integration Service, an error message appears. Correct the error, and test the connection again.
9. Click **Next**.
10. If you create a resource from an application that is deployed to a Data Integration Service, the **Parameters** window appears.

    The **Parameters** window displays all of the applications that are deployed to the Data Integration Service.

    Select the applications that you want to include in the resource, and click **Next**.
11. If you create a resource from a version 10.x application that is deployed to a Data Integration Service, the **Parameter Set Assignment** window appears.

    The **Parameter Set Assignment** window displays the parameter sets in each selected application. For version 10.0 and 10.1 applications, you can assign a parameter set to one or more mappings. For version 10.1.1 applications, you can assign a parameter set to one or more mappings and workflows.

    If you assign a parameter set to a mapping, Metadata Manager extracts metadata for the mapping based on the parameter values defined in the parameter set. If you assign a parameter set to a workflow, Metadata Manager extracts metadata for all mappings within the workflow based on the parameter values defined in the parameter set. If you do not assign a parameter set and the mapping uses parameters, Metadata Manager extracts metadata for the mapping based on the parameter default values.

    To assign a parameter set:

    a. In the **Applications** list, select the application that contains the parameter set that you want to assign to one or more mappings.

    b. In the **Parameter Set Assignment** list, select the parameter set.

c. In the **Mappings and Workflows** list, select the mappings and workflows to which you want to assign the parameter set, and click **Assign**. To assign the parameter set to all mappings and workflows, click **Assign to all**.

   Metadata Manager lists the parameter set assignments at the bottom of the **Parameter Set Assignment** window.

   To remove a parameter set assignment, click **X** next to the parameter set assignment that you want to remove.

   When you finish the parameter set assignment, click **Next**.

12. The **Schedules** window appears. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

13. Click **Finish**.

The resource appears in the Resources panel on the **Load** tab.

Data Integration Service Connection Properties

If you create a resource from an application that is deployed to a Data Integration Service, you must provide connection information for the Data Integration Service.

The following table describes the connection properties:

Property	Description
Source system version	Name and version of the metadata source. Select one of the following options based on the application version: - **Informatica Platform 10.2.1 (Repository)** - **Informatica Platform 10.2.0 HotFix1 (Repository)** - **Informatica Platform 10.2 (Repository)** - **Informatica Platform 10.1.1 HotFix 2 (Repository)** - **Informatica Platform 10.1.1 HotFix 1 (Repository)** - **Informatica Platform 10.1.1 (Repository)** - **Informatica Platform 10.1 (Repository)** - **Informatica Platform 10.0 (Repository)** - **Informatica Platform 9.5.1 - 9.6.x (Repository)**
Host	Name of the gateway node in the Informatica domain.
Port	Port number for the gateway node.
Security domain	Security domain for the Administrator tool user. If the domain uses LDAP authentication or Kerberos authentication, enter the security domain name. Otherwise, enter `Native`.
User name	Name of the Administrator tool user. The user must have the Manage Applications privilege on the Data Integration Service.
Password	Password for the Administrator tool user.
DIS service name	Name of the Data Integration Service where the application is deployed.

Property	Description
10.2.1 Command Line Utilities Directory	File path to version 10.2.1 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.2.1 (Repository)**. The value must be an absolute path that the 10.2.1 Metadata Manager Service can access, for example, `C:\Informatica\1021_CLU`.
10.2.0 Command Line Utilities Directory	File path to version 10.2 .0 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.2 (Repository)**. The value must be an absolute path that the 10.2 Metadata Manager Service can access, for example, `C:\Informatica\102_CLU`.
10.1.1 HotFix2 Command Line Utilities Directory	File path to version10.1.1 HotFix 2 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.1.1 HotFix 2(Repository)**. The value must be an absolute path that the 10.1.1 HotFix 2 Metadata Manager Service can access, for example, `C:\Informatica\1011HF2_CLU`.
10.1.1 HotFix1 Command Line Utilities Directory	File path to version10.1.1 HotFix 1 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.1.1 HotFix 1(Repository)**. The value must be an absolute path that the 10.1.1 HotFix 1 Metadata Manager Service can access, for example, `C:\Informatica\1011HF1_CLU`.
10.1.1 Command Line Utilities Directory	File path to version 10.1.1 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.1.1(Repository)**. The value must be an absolute path that the 10.1.1 Metadata Manager Service can access, for example, `C:\Informatica\1011_CLU`.
10.1 Command Line Utilities Directory	File path to version 10.1 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.1 (Repository)**. The value must be an absolute path that the 10.1 Metadata Manager Service can access, for example, `C:\Informatica\101_CLU`.
10.0 Command Line Utilities Directory	File path to version 10.0 Informatica Command Line Utilities installation directory. This property appears when you select source system version **Informatica Platform 10.0 (Repository)**. The value must be an absolute path that the 10.0 Metadata Manager Service can access, for example, `C:\Informatica\100_CLU`.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.

Application Archive File Connection Properties

If you create an Informatica Platform resource from an application archive file, you must provide the file path and file name.

The following table describes the connection properties:

Property	Description
Source system version	Name and version of the metadata source. Select **Informatica Platform 9.5.1 - 9.6.x (Archive File)**.
Always use latest source files	Uses the application archive file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that the Metadata Manager Service can access. If you disable this option, Metadata Manager copies the application archive file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied application archive file in the Metadata Manager application directory.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
Application archive	File path and file name for the application archive file.

Resource File Connection Properties

If you create an Informatica Platform resource from a resource file, you must provide the file path and file name.

The following table describes the connection properties:

Property	Description
Source system version	Name and version of the metadata source. Select **Informatica Platform 9.5.1 - 10.x (Resource File)**.
Always use latest source files	Uses the resource file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that the Metadata Manager Service can access. If you disable this option, Metadata Manager copies the resource file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied resource file in the Metadata Manager application directory.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
Resource file	File path and file name for the resource file.

Parameters in Informatica Platform 10.x Resources

If an Informatica Platform 10.x application includes a mapping that uses parameters, you can configure Metadata Manager to use the parameter values when you load the resource. Metadata Manager can use

parameter values that are defined in a parameter set. Metadata Manager cannot use parameter values that are defined a parameter file.

A parameter set is an object in the Model repository that contains mapping parameter values. These values override the default parameter values that a Developer tool user configures for objects within a mapping.

Metadata Manager can use parameter values that represent the following objects:

- Connections, table owner names, and table names for relational sources, targets, and lookups
- Names and directories for flat files

You assign parameter sets when you create or edit an Informatica Platform resource.

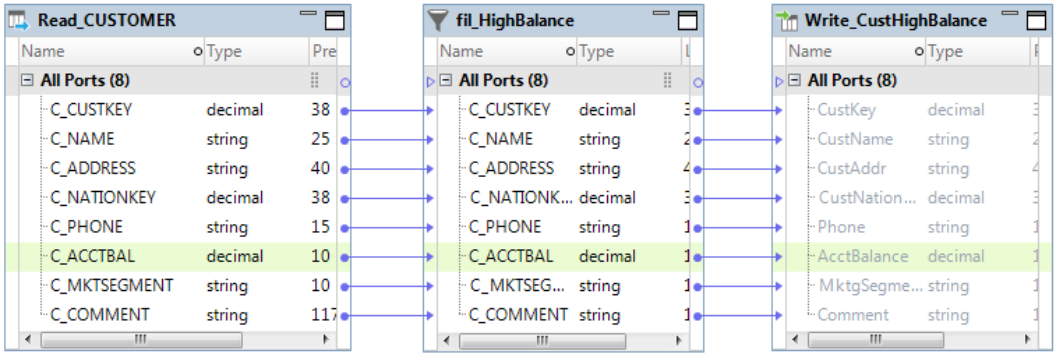
Assign parameter sets based on how the mapping is deployed within the application. If the mapping is deployed directly to the application, you assign the parameter set to the mapping. If the mapping is within in a deployed workflow, you must assign the parameter set to the workflow. The parameter set applies to all mappings within the workflow. You can assign a parameter set to one or more mappings or workflows.

Metadata Manager uses the parameter values defined in the parameter set to display the mapping objects and to display data lineage. If a mapping uses parameters and you do not assign a parameter set to the mapping, Metadata Manager uses the parameter default values.

Parameter Set Example

If you assign a parameter set to a mapping, Metadata Manager displays the mapping in the metadata catalog and displays data lineage for the mapping based on the parameter values.

For example, an application contains the following mapping that reads data from an Oracle table, filters the data, and writes data to a flat file:



To change the source database between mapping runs, the mapping designer creates a connection parameter for the source connection and assigns it the default value Ora_DEV. The mapping designer creates a parameter set, PRODUCTION, and sets the source connection to Ora_PROD.

In Metadata Manager, you want to view the mapping and display lineage links with the values defined in the PRODUCTION parameter set. Assign the PRODUCTION parameter set to the mapping when you create the resource.

When you load the resource, Metadata Manager extracts the mapping using the parameter values defined in the parameter set. Therefore, when you view the resource on the Load tab, the Connection Assignment tab shows the connection as Ora_PROD. If you run data lineage on the mapping and select the relational source, Metadata Manager displays the connection name as Ora_PROD. Metadata Manager creates lineage links based on the Ora_PROD connection.

Parameter Set Rules and Guidelines

Consider the following rules and guidelines when you assign a parameter set to one or more mappings or workflows in a resource:

Parameter set assignment for a mapping is optional.

If you do not assign a parameter set to a mapping that uses parameters, Metadata Manager extracts the mapping using the parameter default values.

You can assign one parameter set to each mapping in a resource.

Therefore, you cannot extract different versions of a mapping in the same resource. If you want to see metadata for different mapping versions, create multiple resources and assign a different parameter set to the mapping in each resource.

In Informatica Platform 10.1.1 resources, you can assign a parameter set to mappings within a workflow.

If you create the resource from a version 10.1.1 application that is deployed to a Data Integration Service, Metadata Manager extracts mappings within deployed workflows. To assign a parameter set to a mapping within a workflow, assign the parameter set to the workflow when you create or edit the resource. The parameter set that you assign applies to all mappings within the workflow.

You can assign the same parameter set to multiple mappings.

If a parameter set is used in multiple mappings, you can assign the parameter set to multiple mappings and workflows. The parameter set, mappings, and workflows must be in the same application.

Metadata Manager cannot use parameter values for parameters in transformation expressions or conditions.

Developer tool users can use parameters in expressions or conditions in transformations such as the Aggregator, Filter, Expression, Joiner, or Lookup transformation. For example, a Developer tool user can use a parameter in the join condition of a Joiner transformation. Metadata Manager cannot use parameter values for parameters in transformation expressions or conditions. Metadata Manager uses the default values for parameters in transformation expressions and conditions.

Metadata Manager cannot use parameter values for parameters in custom SQL queries.

Developer tool users can use parameters in custom SQL queries in customized data objects and Lookup transformations. Metadata Manager cannot use parameter values for parameters in custom SQL queries. Metadata Manager uses the default values for parameters in custom SQL queries.

You cannot use parameter sets with virtual table mappings.

If an application includes a virtual table mapping that uses parameters, Metadata Manager extracts the virtual table mapping with the parameter default values.

Parameters in Informatica Platform 9.5.1 - 9.6.x Resources

If you create a resource from a version 9.5.1 - 9.6.x application that is deployed to a Data Integration Service, Metadata Manager cannot read parameters that are associated with application objects.

Mappings in Informatica Developer applications can contain user-defined or system parameters. System parameters define the directories where the Data Integration Service stores cache files, reject files, source files, target files, and temporary files. User-defined parameters allow Developer tool users to define mapping values and update those values each time the mapping runs. Metadata Manager cannot read mapping parameters in version 9.5.1 - 9.6.x applications.

For example, a Developer tool user assigns system parameter "SourceDir" as the source directory for a flat file data object and includes the object in an application. The Informatica administrator sets the source directory for the Data Integration Service process is to `<Informatica Services Installation Directory>/tomcat/bin/source`. You create a resource that is based on the application and try to create links for the resource. Metadata Manager cannot create links for the flat file data object because it reads the flat file

source directory as `SourceDir` instead of as `<Informatica Services Installation Directory>/tomcat/bin/source`.

Reference

Informatica Platform resources have some restrictions on object types, data lineage, and object hierarchies.

Object Types Extracted and Not Extracted

Metadata Manager extracts most object types from Informatica Developer applications. However, it does not extract some object types.

Metadata Manager can extract metadata for the following objects:

- Mappings that are deployed directly to an application
- Mappings within deployed workflows in version 10.1.1 applications
- SQL data services
- Objects that are deployed as an SQL data service
- Scorecards

Metadata Manager does not extract metadata for the following objects:

- Reference tables
- Sources and targets except for relational, customized, and flat-file data objects
- Virtual stored procedure
- Web services
- Workflows

Unsupported Transformations

Metadata Manager supports metadata extraction for most transformations. However, Metadata Manager does not support metadata extraction for some transformations.

Metadata Manager does not support metadata extraction for the following transformations:

- Logical Data Object Lookup transformation
- Reference Table Lookup transformation

When you view a mapping or mapplet that contains a transformation for which Metadata Manager does not support metadata extraction, it might differ from the Developer tool mapping or mapplet. The mapping or mapplet in Metadata Manager might also differ from the run-time version of the mapping or mapplet.

Mapping Extraction

Metadata Manager extracts mappings differently based on the source system version that you use to create the resource.

Metadata Manager extracts mappings in the following ways based on the source system version:

Informatica Platform 10.1.1 HotFix2 (Repository), 10.1.1 HotFix1 (Repository), or 10.1.1 (Repository)

If you create the resource from a version 10.1.1, 10.1.1 HotFix1, or 10.1.1 HotFix2 application that is deployed to a Data Integration Service, Metadata Manager extracts mappings that are deployed directly to the application. Metadata Manager also extracts mappings within deployed workflows. Metadata Manager displays the mappings in the metadata catalog within the Mappings logical group.

When Metadata Manager extracts a mapping within a workflow, it adds the workflow name and the Mapping task name to the mapping name as a prefix. For example, an application contains deployed workflow `wf_GetCustEmail`. The workflow contains a Start event, Mapping task `Mapping_Task_Cust`, and an End event. The Mapping task contains mapping `m_Cust`. Metadata Manager extracts this mapping as `wf_GetCustEmail/Mapping_Task_Cust/m_Cust`.

Informatica Platform 10.1 (Repository), Informatica Platform 10.0 (Repository), or Informatica Platform 9.5.1 - 9.6.x (Repository)

If you create an Informatica Platform resource from a version 9.5.1 - 10.1 application that is deployed to a Data Integration Service, Metadata Manager extracts mappings that are deployed directly to the application. Metadata Manager does not extract mappings in deployed workflows. Metadata Manager displays the mappings in the metadata catalog within the Mappings logical group.

Informatica Platform 9.5.1 - 9.6.x (Archive File)

If you create an Informatica Platform resource from a version 9.5.1 - 9.6.x application archive file, Metadata Manager extracts mappings that are deployed directly to the application. Metadata Manager does not extract mappings in deployed workflows.

If the mappings were created within a folder, Metadata Manager displays the mappings in the metadata catalog within the folder. If the mappings were created within a project but not within a folder, Metadata Manager displays the mappings within the Mappings logical group.

Dynamic Mappings in Informatica Platform 10.x Resources

Metadata Manager does not support metadata extraction for dynamic mappings.

In Informatica 10.x, Developer tool users can create dynamic mappings. A dynamic mapping is a mapping in which you can change sources, targets, and transformation logic at run time based on parameters and rules that you define. In a dynamic mapping, the source, target, or lookup schemas can change at run time. A dynamic mapping can also contain ports that can receive new or changed columns based on the data flow in a mapping.

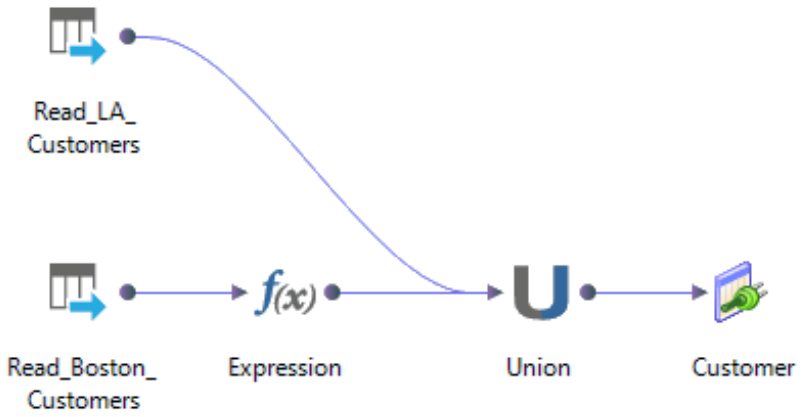
Metadata Manager does not support metadata extraction for dynamic mappings. If an Informatica Platform 10.x application includes a dynamic mapping, you can create an Informatica Platform resource from the application. However, when you view the dynamic mapping in Metadata Manager, the mapping might differ from the corresponding Developer tool mapping and from the run-time version of the mapping.

Compiled Mappings in Informatica Platform 10.x Resources

Metadata Manager extracts the compiled version of mappings from Informatica Platform 10.x applications. In the compiled version of a mapping, the mapplets, logical data objects, and parameters in the mapping are expanded. Therefore, the mappings and logical data objects included in the mapping appear in the mapping itself.

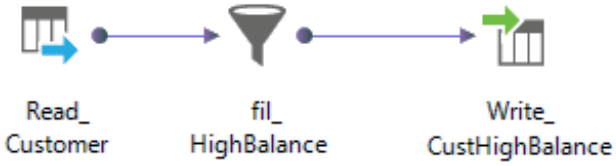
The compiled version of a mapping might differ from the corresponding mapping in the Developer tool.

For example, a Developer tool user creates the Customer logical data object. The following logical data object mapping populates the Customer logical data object:



The Developer tool user uses the Customer logical data object as a source in mapping m_Customer.

The following image shows mapping m_Customer in the Developer tool:



If you create an Informatica Platform 10.x resource that includes mapping m_Customer, Metadata Manger extracts the compiled version of the mapping. The compiled version of the mapping includes the transformations in the logical data object mapping in addition to the transformations in mapping m_Customer.

The following image shows mapping m_Customer in the data lineage diagram:

Data Quality Transformations in Informatica Platform 10.x Resources

When the Data Integration Service compiles a mapping, it expands some data quality transformations into multiple transformations. Therefore, in Informatica Platform 10.x resources, Metadata Manager displays an expanded form of some data quality transformations.

Metadata Manager displays an expanded form of the following data quality transformations:

Address Validator

Metadata Manager displays an Address Validator transformation and an Address Validator report.

Consolidation

Metadata Manager displays the following transformations:

- Consolidation
- Sorter

- Decision

Exception

Metadata Manager displays the following transformations:

- Exception
- Sorter

Key Generator

Metadata Manager displays the following transformations:

- Key Generator
- Sorter

Match

Metadata Manager displays the following transformations:

- Sorter
- Expression
- Pair Generator*
- Comparison
- Weighted Average
- Cluster*

* The Data Integration Service generates these transformations when it compiles the mapping. These transformations do not appear in the Developer tool.

Metadata Manager might also display an additional mapplet.

Multi-Strategy transformations

Metadata Manager displays one instance of the transformation for each strategy.

Mappings that are not Valid in Informatica Platform 10.x Resources

Metadata Manager cannot extract metadata for a mapping that is not valid. If an Informatica Platform 10.x application contains a mapping that is not valid after compilation, Metadata Manager does not load metadata for the application.

For example, a Developer tool user creates a mapping with a Rank transformation where the Rank and Group By ports are specified through parameters. The parameters that represent the Rank and Group By ports are assigned the same value. A Rank transformation cannot use the same port for the Rank port and the Group By port, so the mapping is not valid after compilation. Metadata Manager does not load metadata for an application which contains a mapping that is not valid.

If the resource contains one application with a mapping that is not valid, Metadata Manager fails the metadata load.

If the resource contains multiple applications, Metadata Manager does not load any application which contains a mapping that is not valid. Metadata Manager logs an error in the load log for each application that it cannot load. Metadata Manager continues to load the other applications in the resource.

Data Lineage Restrictions

Metadata Manager makes most Informatica Platform object types available for lineage. However, some object types are not available for lineage.

The following object types are not available for lineage:

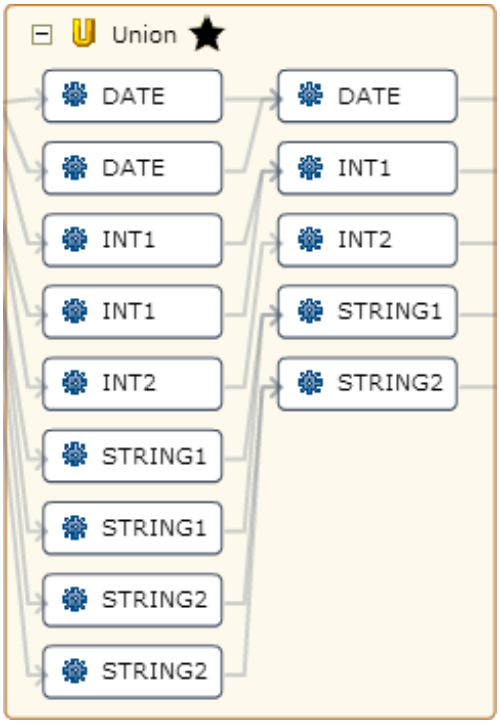
- Application
- Project
- Folder
- Key
- Key relationship
- Logical data object model
- Virtual schema

Port-to-Port Data Lineage

Some Informatica Platform transformations contain separate input and output ports. For most transformations that have separate input and output ports, Metadata Manager can determine the data lineage links between the input ports and the output ports.

Transformations such as Aggregator, Expression, Joiner, and Union transformations can contain separate input and output ports. Metadata Manager can determine the data lineage links between the input and output ports in these transformations. Data lineage links between input and output ports in the same transformation are called port-to-port data lineage links.

The following image shows port-to-port data lineage links within a Union transformation:



Metadata Manager can determine port-to-port data lineage for the following transformations that have separate input and output ports:

- Address Validator
- Aggregator
- Association
- Case Converter
- Classifier
- Comparison
- Consolidation
- Decision
- Exception
- Expression
- Joiner
- Key Generator
- Labeler
- Match
- Merge
- Parser
- Rank
- Router
- Standardizer
- Union
- Weighted Average

Metadata Manager cannot determine port-to-port data lineage for other transformations that have separate input and output ports. When Metadata Manager cannot determine port-to-port data lineage for a transformation, it maps all input ports to all output ports within the transformation.

Physical Data Objects in Multiple Applications

If a resource includes multiple applications that contain the same physical data object, Metadata Manager extracts one instance of the physical data object in each application.

Metadata Manager displays data lineage and impact summary analysis for each instance of the object based on the application in which the instance exists.

Objects with the Same Name in Informatica Platform 10.x Resources

Metadata Manager does not extract folders from version 10.x applications. Metadata Manager extracts all physical data objects from each folder into one logical group called Physical Data Objects. Similarly, Metadata Manager extracts all mappings from each folder into one logical group called Mappings.

If an application contains multiple physical data objects or mappings with the same name, the Physical Data Objects or Mappings logical group shows multiple objects with the same name. To view the differences between the objects, open the objects in the metadata catalog or run data lineage analysis.

Microsoft SQL Server Integration Services Resources

You can create and configure a Microsoft SQL Server Integration Services resource to extract metadata from Microsoft SQL Server Integration Services packages. Metadata Manager can extract metadata from packages in the Microsoft SQL Server repository or from packages in package (.dtsx) files.

A package is a collection of connections, control flow elements, data flow elements, event handlers, variables, and configurations that represents a unit of work. You can create a package with SQL Server Integration Services graphical design tools or build it programmatically. You can save a package to Microsoft SQL Server, the SQL Server Integration Services Package Store, or a package file.

You can create one resource to extract metadata from one or multiple packages. All packages in a resource must be in the same repository or must be in package files in the same directory. If you create a resource from multiple repository packages, and the packages are encrypted with a password, the packages must use the same password.

Metadata Extraction from Protected Packages

Metadata Manager can extract metadata from encrypted packages. However, there might be restrictions based on the package protection level. For example, when the whole package is protected, you might have to supply the package password or run the Metadata Manager Agent from a specific user account.

The following table describes the restrictions for each package protection level:

Protection Level	Restrictions
- Do not save sensitive - Encrypt sensitive with password - Encrypt sensitive with user key - Rely on server storage for encryption	None. Metadata Manager can extract metadata from the package.
Encrypt all with password	Metadata Manager can extract metadata from the package if you specify the password when you create the resource. If you extract metadata from a Microsoft SQL Server repository, all packages within the resource must use the same password.
Encrypt all with user key	Metadata Manager can extract metadata from the package if the user account that you use to start the Metadata Manager Agent is the same as the user account used to create the package.

Configuring SQL Server Integration Services

Before you create an SQL Server Integration Services resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure SQL Server Integration Services, perform the following tasks:

- Install the Metadata Manager Agent, if required.
- To extract metadata from packages in the repository, verify that the Microsoft SQL Server Database Engine is running.
- Configure permissions.
- Prepare the variable values file, if required.

Install the Metadata Manager Agent

When SQL Server Integration Services is not on the same machine as the Metadata Manager Service, you must install the Metadata Manager Agent separately. Install the Metadata Manager Agent on a Windows machine. The Metadata Manager Agent installation requirements vary based on the SQL Server Integration Services source type.

The following table describes the Metadata Manager Agent installation requirements based on the SQL Server Integration Services source type:

Source Type	Metadata Manager Agent Requirements
Package files	If the packages are not encrypted, you can use the Metadata Manager Agent installed on any machine. If you configure Metadata Manager to use the latest source files or you specify a source directory, the directory that contains the source files must be accessible from the Metadata Manager Agent machine. If the packages are encrypted with a password, the Metadata Manager Agent must be installed on the same machine as the Visual Studio client or the client that you used to create the packages.
Packages in a Microsoft SQL Server repository	The Metadata Manager Agent and SQL Server Integration Services must be on the same machine.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Verify Database Availability

To extract metadata from packages in a Microsoft SQL Server repository, verify that the Microsoft SQL Server Database Engine is available and running.

Configure Permissions

You configure permissions differently based on whether you extract metadata from packages in the Microsoft SQL Server repository or from packages in package files.

If you extract metadata from packages in the repository, configure permissions for the Windows user who starts the Metadata Manager Agent. The Metadata Manager Agent uses Windows authentication to connect to SQL Server Integration Services. The Windows user who starts the Metadata Manager Agent must have read permission on the objects that the Metadata Manager Agent extracts.

If you extract metadata from package files and you configure Metadata Manager to use the latest source files or you specify a source directory, the Windows user who starts the Metadata Manager Agent must have read permission on the files and on the directory that contains the files.

Prepare the Variable Values File

If you extract metadata from packages that use variables, you can create a variable values file to define the variables. Create a variable values file when the packages do not contain values for all variables or when you want to override the values defined in the packages.

You specify the variable values file when you create the SQL Server Integration Services resource. Metadata Manager uses the variable values file to resolve the variables. Metadata Manager can resolve variables that specify the table or view name in an OLE DB source or destination. Metadata Manager can also resolve

variables that specify an SQL query in an OLE DB source. You cannot define SQL Server Integration Services parameters in a variable values file.

To define variables in the variable values file, group the variables by scope, either package-level or task-level. Define each variable on a separate line. You must also enter the namespace as a prefix.

Use the following syntax to define a variable that has a package-level scope:

```
[Package]
Namespace::Variable=Value
```

Use the following syntax to define a variable that has a task-level scope:

```
[Package.Task]
Namespace::Variable=Value
```

Variable names are case sensitive.

If you define the same variable multiple times, Metadata Manager resolves the variables as follows:

- If you define the variable in a package and in a task within the package, Metadata Manager uses the value that you define for the task.
- If you define the variable multiple times within a package or task, Metadata Manager uses the last value that you define.
- If you define a variable in the variable values file and the variable has a default value in the package, Metadata Manager uses the value in the variable values file.

The following example shows a variable values file that defines variables for two tasks within a package:

```
[SSIS_Package_Configuration.Data Flow Task]
User::TargetTableName=PERSON_OUT
User::TableName=Person

[SSIS_Package_Configuration.SQL_From_Variable]
User::MySQL_Target=PERSON_OUT
User::MySQL=SELECT Name as FirstName, Name as LastName, Name as MiddleName FROM
Purchasing.Vendor
```

Creating an SQL Server Integration Services Resource

Create an SQL Server Integration Services resource to extract metadata from Microsoft SQL Server Integration Services.

Before you create an SQL Server Integration Services resource, configure the SQL Server Integration Services source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Integration** > **Microsoft SQL Server Integration Services**.
3. Click **Next**.

   The **Properties** window appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.

6. Select one of the following options for the **Source system version**:

Option	Description
Microsoft SQL Server Integration Services (File)	Create the resource from one or more package (.dtsx) files.
Microsoft SQL Server Integration Services (Repository)	Create the resource from one or more packages in a Microsoft SQL Server repository.

7. Configure the resource connection properties.
8. Click **Test Connection**.

   Metadata Manager validates the Metadata Manager Agent URL.

   If you extract metadata from package files, Metadata Manager also validates the files. If you configure Metadata Manager to use the latest source files or you specify a source directory, Metadata Manager validates that the files exist in the specified path. If you upload a file to Metadata Manager, Metadata Manager validates that the file is compatible with the resource type.

   If you extract metadata from packages in a Microsoft SQL Server repository, Metadata Manager also validates the connection information for the source system.

   If Metadata Manager cannot validate the Metadata Manager Agent URL, validate the source files, or connect to the repository, an error message appears. Correct the error and test the connection again.

9. Click **Next**.

   The **Schedules** window appears.

10. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

11. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

SQL Server Integration Services File Configuration Properties

Update the configuration properties when you create or edit an SQL Server Integration Services resource that is based on one or more package files.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Name and version of the metadata source. Select **Microsoft SQL Server Integration Services (File)**.
Directory	Directory that contains the package (.dtsx) files from which you want to extract metadata. Enter a value in this property when you create a resource that extracts metadata from multiple package files or if the package file has dependent connection manager (.conmgr) files. To extract metadata from one package file that does not have dependent connection manager files, enter the file name and file path in the **File** property instead. **Note:** All dependent external connection manager files with the .conmgr extension must be in the same directory as the package files.
Always use latest source files	If you specify a source file in the **File** configuration property, this property controls whether Metadata Manager uses the package file in the location you specify or copies the package file to the Metadata Manager application directory. If you enable this option, Metadata Manager loads metadata from the package file in the location you specify. The path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, Metadata Manager copies the package file to the Metadata Manager application directory when you finish configuring the resource. Metadata Manager loads metadata from the package file in the Metadata Manager application directory. If you specify a source directory in the **Directory** property, this property is ignored. Metadata Manager loads metadata from the package files in the directory you specify.
Variable values file	File that defines the values for the user-defined variables in the package. Specify a variable values file when variables in the package do not have values or when you want to override the variable values defined in the package. The location of the variable values file must be accessible from the machine where the Metadata Manager Service runs. When SQL Server Integration Services is not on the same machine as the Metadata Manager Service, ensure that the variable values file is in a location that both SQL Server Integration Services and the Metadata Manager Service can access.
Encoding	Code page for Execute SQL task source files. Default is Western European (Windows-1252). If the package does not contain an Execute SQL task with a file source, Metadata Manager ignores this property.
Password	Password for the package. Required if the package is encrypted with a password. If you do not enter the password, the Metadata Manager Agent cannot extract metadata from the package. Optional if the values of sensitive properties in the package are encrypted with a password. Metadata is not a sensitive property. Therefore, the Metadata Manager Agent can extract metadata whether or not you specify the password.

Property	Description
Hide transformation scripts	Controls how Metadata Manager displays lineage for Script components that are used as transformations. If you set this property to true, Metadata Manager does not display input or output ports for any transformation script. The data lineage diagram shows links between all columns in the source object and all columns in the target object. If you set this property to false, Metadata Manager creates a separate object in the lineage diagram for each transformation script. Default is true.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
File	File path and file name for the package (.dtsx) file. Enter a value in this property when you create a resource that extracts metadata from one package file that does not have dependent connection manager (.conmgr) files. To extract metadata from multiple package files or from a file that has dependent connection manager files, enter the file path in the **Directory** property instead.

SQL Server Integration Services Repository Configuration Properties

Update the configuration properties when you create or edit an SQL Server Integration Services resource from one or more packages in a Microsoft SQL Server repository.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. To extract metadata from the SQL Server repository, the Metadata Manager Agent must be on the same machine as the SQL Server Client components.
Source system version	Name and version of the metadata source. Select **Microsoft SQL Server Integration Services (Repository)**.
SQL Server version	Microsoft SQL Server version.
Host	Host name or IP address of the machine where SQL Server Integration Services run.
Password	Password for the package. If you include multiple packages in a resource, the packages must use the same password. Required if the packages are encrypted with a password. If you do not enter the password, the Metadata Manager Agent cannot extract metadata from the packages. Optional if the values of sensitive properties in the packages are encrypted with a password. Metadata is not a sensitive property. Therefore, the Metadata Manager Agent can extract metadata whether or not you specify the password.

Property	Description
Variable values file	File that defines the values for the user-defined variables in the package. Specify a variable values file when variables in the package do not have values or when you want to override the variable values defined in the package. The location of the variable values file must be accessible from the machine where the Metadata Manager Service runs. When SQL Server Integration Services is not on the same machine as the Metadata Manager Service, ensure that the variable values file is in a location that both SQL Server Integration Services and the Metadata Manager Service can access.
Hide transformation scripts	Controls how Metadata Manager displays lineage for Script components that are used as transformations. If you set this property to true, Metadata Manager does not display input or output ports for any transformation script. The data lineage diagram shows links between all columns in the source object and all columns in the target object. If you set this property to false, Metadata Manager creates a separate object in the lineage diagram for each transformation script. Default is true.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
Package	Names of the SQL Server Integration Services packages from which you want to extract metadata. Click **Select** to select one or more packages.

Reference

After you create and load an SQL Server Integration Services resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts metadata for different SQL Server Integration Services objects.

Connection Manager Types

Metadata Manager extracts metadata for the following connection manager types:

- OLEDB
- FLATFILE

Control Flow Tasks

Metadata Manager extracts metadata for the following tasks in a control flow:

Data Flow

Metadata Manager displays a summary of each data flow that a package contains.

Execute SQL

If the SQL statement creates or truncates a table, Metadata Manager displays the table structure. However, Metadata Manager does not display data lineage for the table.

Transformations in a Data Flow

Metadata Manager can display a summary of the data flow when the data flow contains any of the following transformations:

- Aggregate
- Audit
- Character Map
- Conditional Split
- Copy Column
- Data Conversion
- Derived Column
- Export Column
- Fuzzy Grouping
- Fuzzy Lookup
- Import Column
- Lookup
- Merge
- Merge Join
- Multicast
- Percentage Sampling
- Pivot
- Row Count
- Row Sampling
- Script Component
- Slowly Changing Dimension
- Sort
- Term Extraction
- Term Lookup
- Union All
- Unpivot

Note: Metadata Manager does not display individual transformations in the metadata catalog or in the data lineage diagram.

Objects Not Extracted

Metadata Manager does not extract metadata for some SQL Server Integration Services objects that can affect data movement.

Tasks Not Extracted

Metadata Manager does not extract metadata for the following tasks that can affect data movement:

- Bulk Insert Task
- Data Mining Query Task

- Data Profiling Task
- Execute Package Task
- Execute T-SQL Statement Task
- Any task that contains code written in T-SQL, Visual Basic, or C#

Transformations Not Extracted

Metadata Manager does not extract metadata for the following transformations that can affect data movement:

- Cache Transform
- OLE DB Command
- Any transformation that contains code written in T-SQL, Visual Basic, or C#

Organization of Objects in the Metadata Catalog

When you load an SQL Server Integration Services resource, Metadata Manager organizes SQL Server Integration Services objects in the metadata catalog according to the connections in which the objects are used. To select an object such as a column in the metadata catalog, navigate to the object through the source or target connection in which the object is used.

For example, package HypoStores_HR contains a data flow that reads data from the EMPLOYEE table in a relational database. The OLE DB source connection object HR_DB contains the connection to the database that contains the EMPLOYEE table. To navigate to the EMPLOYEE table in the metadata catalog, expand the HR_DB source connection in the Connections group.

The following example shows the metadata catalog hierarchy for a data attribute such as a column:

```
<Packages>
    Connections
        <Source/Target>
            <Package> (schema, directory, etc.)
                <Data Set> (table, file, etc.)
                    <Data Attribute>
    <Summary Content>
        <Summary Model>
            Connections
                <Source/Target>
                    <Package>
                        <Data Set>
                            <Data Attribute>
            Task Variables Store (Connection class)
                …
```

Package Summary

When you load an SQL Server Integration Services resource, Metadata Manager displays a summary of each package in the metadata catalog and in the data lineage diagram. The package summary includes the source and target data sources for each data flow in the package.

When you run data lineage on a summary, Metadata Manager displays the source and target data sources and the lineage links between them. Metadata Manager does not display individual transformations in the lineage diagram or in the metadata catalog. Metadata Manager also does not display columns that are added by transformations in the data flow.

For example, a package contains one data flow with a Derived Column transformation followed by a Conditional Split transformation. The data flow reads data from the PERSON table in a relational database. It writes data to the EMAIL_PROMO and NO_EMAIL_PROMO tables in a different database.

When you expand the data flow summary in the data lineage diagram, the diagram displays the following objects:

- The OLE DB source connection object that contains the PERSON table.
- The OLE DB destination connection object that contains the EMAIL_PROMO and NO_EMAIL_PROMO tables.

You can expand the connection objects to display lineage links between the tables. Metadata Manager does not display the two transformations in the lineage diagram.

Metadata Extraction Rules for Sources and Destinations

Metadata Manager extracts metadata from sources and destinations in the data flow according to different metadata extraction rules.

Metadata Manager applies different metadata extraction rules for the following types of sources and destinations in a data flow:

Destination

Metadata Manager applies the following metadata extraction rules for flat file and OLE DB destinations:

- Metadata Manager derives data type and length for target columns from the corresponding source column, not from the corresponding column in the destination data store.

  For example, a data flow writes data from a source column with data type CHAR[50] to a column in a database with data type CHAR[100]. When you view the target column in Metadata Manager, Metadata Manager displays the data type for the target column as CHAR[50].

- When multiple source columns load data to the same destination column and the source column lengths differ, Metadata Manager determines the target column length from either source column. Metadata Manager selects the source column that it encounters first in the metadata source.

  For example, a data flow contains a Union All transformation that merges data in the NAME column from two source columns with data types CHAR[255] and CHAR[100]. Metadata Manager displays the NAME column length in the target object as either 255 or 100.

OLE DB Destination

If you use an SQL command to load data, Metadata Manager displays the SQL command in the **SQL** property in the package summary.

Destination for error output

Metadata Manager displays the destination for error output as a target object.

Source

If there is a mismatch in length between an external column in a flat file or OLE DB source and the corresponding output column, Metadata Manager derives the column length from the shorter of the two columns.

OLE DB Source

If you use an SQL command to extract data, Metadata Manager displays the SQL command in the **SQL** property in the package summary.

Metadata Extraction Rules for Transformations

Metadata Manager extracts different metadata from the data flow based on the types of transformations that are present in the data flow.

Metadata Manager applies different metadata extraction rules when the following transformations are present in the data flow:

Audit transformation

This transformation adds columns to the data flow. Metadata Manager displays columns that originate from the source but not columns that are added by transformations in the data flow. Therefore, Metadata Manager does not update the target object with any column that the Audit transformation adds to the data flow.

Aggregate, Character Map, Data Conversion, Derived Column transformations

These transformations apply function expressions to columns values, for example, `AVG(SalesAmount)` or `UPPERCASE(LastName)`. Metadata Manager displays the function expressions in the **Operation** property in the target column. If multiple expressions apply to a target column, Metadata Manager concatenates the expressions.

Copy Column transformation

This transformation copies input columns and creates new columns in the transformation output. Because the copied columns originate from the source, Metadata Manager displays the new columns in the target.

Export Column transformation

This transformation inserts data into one or more flat files. Because the flat files originate from the transformation, Metadata Manager does not display them in the metadata catalog or in the data lineage diagram.

Fuzzy Lookup, Lookup, Term Lookup transformations

Metadata Manager displays the reference data set as a source object. Metadata Manager displays only the return columns in the reference data set.

Pivot transformation

In the Pivot transformation, each input column has a unique lineage ID and each output column has a source column. Metadata Manager creates a lineage link when the lineage ID value in an input column matches the source column value in an output column.

Script component

The Script component can be used as a source, target, or transformation. Metadata Manager groups all Script components under a connection called "_Scripts_" in the metadata catalog. Metadata Manager displays each Script component input and output group as a data set. It also displays each input and output column as a data attribute.

When the Script component is used as a source or target, Metadata Manager displays it in the data lineage diagram as a source or target object. When the Script component is used as a transformation, Metadata Manager uses the **Hide transformation scripts** configuration property to determine how to display the transformation logic.

Metadata Manager displays the transformation logic in the following ways based on the value of the **Hide transformation scripts** configuration property:

- If the property is true, Metadata Manager does not display the transformation inputs or outputs. The data lineage diagram shows links between all columns in the source object and all columns in the target object.

- If the property is false, Metadata Manager creates a separate object in the lineage diagram to represent each input or output group of a transformation script. The data lineage diagram displays links between the source object and the transformation script inputs and between the transformation script outputs and the target. However, it does not display links between the transformation script inputs and outputs. To define the flow of metadata within a transformation script, use rule-based links or enumerated links to link data attributes to each other. You can also use rule-based links or enumerated links to link transformation scripts to other metadata objects.

Expressions in Multiple Data Flows

A control flow can contain multiple data flows. If the data flows apply different expressions to the same destination column, Metadata Manager displays all of the expressions in the **Operation** property in the target column. Metadata Manager separates the expressions with the semicolon character (;).

PowerCenter Resources

You can create and configure PowerCenter resources to extract metadata from Informatica PowerCenter.

Informatica PowerCenter allows you to load data into a centralized location, such as a data warehouse or operational data store (ODS). You can extract data from multiple sources, transform the data according to business logic, and load the transformed data into targets.

Configuring PowerCenter

Before you create a PowerCenter resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure PowerCenter, complete the following tasks:

- Configure permissions.
- Check in versioned repository objects.
- If the PowerCenter repository is on an IBM DB2 for LUW database, configure the database heap size.
- If the PowerCenter repository is on an Oracle 11.1 database, disable extended statistics.

Configure Permissions

To extract metadata from a PowerCenter repository, the login user that you specify in the resource connection properties must be the PowerCenter repository database user.

The PowerCenter repository database user account requires the following permissions on the PowerCenter repository database:

- Select table
- Select view
- Create view

  Note: After you upgrade Metadata Manager, you need the create view permission on the PowerCenter repository database only during the first load.
- Drop view

In addition, if the PowerCenter repository is on IBM DB2 for LUW, the user account also requires create and drop function permissions.

Check in Versioned Repository Objects

To extract from a versioned PowerCenter repository, check in objects that you want Metadata Manager to extract. Before loading PowerCenter resources, check out impacted objects, validate them and then check in the objects.

Metadata Manager extracts the latest version of objects that are checked into a PowerCenter repository. Metadata Manager does not extract objects that are checked out.

IBM DB2 for LUW Database Heap Size

When you load metadata from a PowerCenter repository that is on an IBM DB2 for LUW database, you must modify the heap size. Otherwise, the S_M_ELEMNT_ATTR_EXTRACT session fails with the following error:

```
DBA2191E SQL execution error.
com.ibm.db.DataException: A database manager error occurred. :
[IBM][CLI Driver][DB2/NT] SQL0973N Not enough storage is available in
the "APP_CTL_HEAP_SZ" heap to process the statement. SQLSTATE=57011
```

This problem occurs when there is not enough storage available in the database application heap to process the request.

Increasing the IBM DB2 for LUW Database Heap Size

To increase the IBM DB2 for LUW database heap size, complete the following steps:

1. Log out of Metadata Manager.
2. Stop the DB2 database server.
3. From a DB2 command prompt, connect to the DB2 database.
4. To determine the current value of the Application Heap Size configuration parameter (APP_CTL_HEAP_SZ), run the following command:

   ```
   db2 get db dfg for <database_name> | find "APP_CTL_HEAP_SZ"
   ```

5. To increase the size of APP_CTL_HEAP_SZ to 16384 or higher, run the following command:

   ```
   db2 update db cfg for <database_name> using APP_CTL_HEAP_SZ <higher_value>
   ```

6. Restart the DB2 database server.

Disable Extended Statistics on Oracle 11.1

When you load metadata from a PowerCenter repository that is on an Oracle 11.1 database, you must disable extended statistics on the database. Otherwise, the S_M_ELMNT_ATTR_FIRST_LOAD session hangs during the load of the PowerCenter resource.

Extended statistics gathers object statistics and histograms on expressions or on a group of columns.

To disable extended statistics, set the Oracle system parameter `_optimizer_enable_extended_stats` to FALSE. Run the following command on the Oracle database:

```
Alter system set "_optimizer_enable_extended_stats" = FALSE scope=spfile/both/memory;
```

For more information about this Oracle parameter, see the Oracle documentation.

Creating a PowerCenter Resource

Before you create a PowerCenter resource, configure the PowerCenter source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Integration** > **PowerCenter**.
3. Click **Next**.

   The **Properties** window appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Configure the connection properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct the error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. Configure the folders to extract metadata from.

   To add folders to the **Selected Folders** list, select the folder in the **Available Folders** list and click **Add**. To add all available folders, click **Add All**.

   To remove folders from the **Selected Folders** list, select the folder in the **Selected Folders** list and click **Remove**. To remove all folders from the **Selected Folders** list, click **Remove All**.
10. Configure the number of days for the **Source Increment Extract** window.
11. Click **Next**.

    The **Parameter Files** window appears.
12. To upload parameter files, click **Upload**.
13. To remove an uploaded parameter file, select the file and click **Delete**.
14. Click **Auto-assign** to direct Metadata Manager to analyze the PowerCenter repository and automatically assign the uploaded parameter files to each workflow that specifies the parameter file name.

Or, select a parameter file in the **Parameter Files** list, select one or more folders or workflows in the **Workflow Folders** list, and click **Assign**.

Or, select a parameter file and click **Assign to All** to assign the parameter file to all workflows.

Note: When you configure a PowerCenter workflow, if you use an absolute file name or the $PMFolderName and $PMWorkflowName workflow variables to specify the parameter file name, Metadata Manager uses this value to automatically assign the parameter file to the workflow. If you use any other workflow variable for configuring the parameter file name, you must manually assign the parameter file to the workflow.

15. To remove a parameter file from a workflow, click **Remove** for the parameter file in the bottom panel.
16. Click **Next**.

    The **Schedules** window appears.
17. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
18. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

PowerCenter Connection Properties

If you create a PowerCenter resource, you must provide connection information for PowerCenter.

The following table describes the connection properties:

Property	Description
Login user	Database user name for the PowerCenter repository database.
Login password	Database user password for the PowerCenter repository database.
Database type	Type of database for the PowerCenter repository. Database type can be IBM DB2 for LUW, Microsoft SQL Server, Oracle, or Sybase ASE.
Schema name	Schema name for the PowerCenter repository database when the database type is IBM DB2 for LUW and the schema name differs from the login user name. If you do not enter a value for this property, Metadata Manager assumes that the schema name is the same as the login user name. Metadata Manager does not display this property for database types other than IBM DB2 for LUW.

Property	Description

Source JDBC URL	JDBC URL for the PowerCenter repository database. Enter the database host name and the database service name. Metadata Manager uses this URL to verify connection information to the source database.
	For example, if the PowerCenter repository database is an Oracle database, use the following syntax:
	`jdbc:informatica:oracle://[host name]:[port];SID=[sid]`
	You can enter the SID or edit the string to use the full service name. For example:
	`jdbc:informatica:oracle://[host name]:[port];ServiceName=[service name]`
	If the Oracle database is clustered, use the following syntax:
	`jdbc:informatica:oracle://[host1]:[port];ServiceName=[service name];AlternateServers = ([host2]:[port]);LoadBalancing=true`
	If the Oracle database uses the Advanced Security Option, use the following syntax:
	`jdbc:informatica:oracle://[host name]:[port];SID=[SID];EncryptionLevel=[encryption level];EncryptionTypes=[encryption types];DataIntegrityLevel=[data integrity level];DataIntegrityTypes=[data integrity types]`

Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2` If secure communication is enabled for the database, enter the secure JDBC parameters in this property.
Connect string	Native connect string for the PowerCenter repository database. The Metadata Manager Service uses the connect string to create a connection object to the Metadata Manager repository database in the PowerCenter repository. The connect string syntax varies based on the database type: - IBM DB2 for LUW. `<database name>` - Microsoft SQL Server. `<server name>@<database name>` - Oracle. `<database name>.world` (same as the TNSNAMES entry) - Sybase ASE. `<server name>@<database name>`
Encoding	Code page for the PowerCenter repository database. The code page for the PowerCenter resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.
Use trusted connection	Authenticates the user credentials using Windows authentication and establishes a trusted connection to a Microsoft SQL Server PowerCenter repository database. When you use a trusted connection to connect to Microsoft SQL Server database, the Metadata Manager Service connects to the repository with the credentials of the user logged in to the machine on which the service is running.

JDBC Parameters for Secure Databases

If secure communication is enabled for the PowerCenter repository database, you must append additional parameters to the JDBC connection URL. To append the parameters, enter them in the **Secure JDBC Parameters** property.

Append the following parameters to the URL:

```
;EncryptionMethod=SSL;TrustStore=<truststore
location>;TrustStorePassword=<password>;HostNameInCertificate=<host
name>;ValidateServerCertificate=<true|false>;KeyStore=<keystore
location>;keyStorePassword=<password>
```

Configure the parameters as follows:

EncryptionMethod

Encryption method for data transfer between Metadata Manager and the database server. Must be set to SSL.

TrustStore

Path and file name of the truststore file that contains the security certificate of the database server.

TrustStorePassword

Password used to access the truststore file.

HostNameInCertificate

Host name of the machine that hosts the secure database. If you specify a host name, the Metadata Manager Service validates the host name included in the connection string against the host name in the security certificate.

ValidateServerCertificate

Indicates whether the Metadata Manager Service validates the certificate that the database server presents. If you set this parameter to true, the Metadata Manager Service validates the certificate. If you specify the HostNameInCertificate parameter, the Metadata Manager Service also validates the host name in the certificate.

If you set this parameter to false, the Metadata Manager Service does not validate the certificate that the database server presents. The Metadata Manager Service ignores any truststore information that you specify.

KeyStore

Path and file name of the keystore file that contains the security certificates that the Metadata Manager Service presents to the database server.

KeyStorePassword

Password used to access the keystore file.

Configuring the Folder Inclusion List

You can configure the Folder Inclusion List parameter for a PowerCenter resource. To edit the parameter, select the resource in the Resources panel of the Load tab, click Edit Resource, and click the Parameters tab in the Edit Resource window.

Use the Folder Inclusion List parameter to specify folders of PowerCenter objects that you want to load into the Metadata Manager warehouse. You can load PowerCenter folders to limit the objects that Metadata Manager extracts. Load the folders that Metadata Manager users need to analyze. The PowerCenter resources load faster if they do not load all folders. You can configure up to 1,000 folders.

If you include a folder containing shortcuts to a source definition, target definition, reusable transformation, mapping, or mapplet, you must also include the folder containing the original object. Otherwise, data lineage might not display correctly.

By default, Metadata Manager excludes all PowerCenter folders. If you do not include any folder, Metadata Manager extracts PowerCenter metadata not associated with a PowerCenter folder, such as metadata for PowerCenter Integration Services.

If you change the folders for Metadata Manager to extract and remove previously loaded folders, Metadata Manager does not delete any metadata object from the Metadata Manager warehouse. To delete metadata objects in the Metadata Manager warehouse that no longer exist in the PowerCenter repository, purge the metadata for the resource. You can then load the folders that you want in the Metadata Manager warehouse.

Configuring the Source Increment Extract Window

You can configure the Source Increment Extract Window (in Days) parameter for a PowerCenter resource. To edit the parameter, select the resource in the Resources panel of the Load tab, click Edit Resource, and click the Parameters tab in the Edit Resource window.

To verify a full extract during a resource load, the resource is configured to extract source records that have been inserted or updated within the past 8,000 days of the extract. The default value for the parameter is 8,000.

After the initial extract completes, reset the parameter value based on the frequency at which you load the metadata for the resource. As a guideline, set the parameter value to at least twice the number of days between resource loads. For example, if you load the resource every two days, set the parameter value to four. By doubling the amount of time, Metadata Manager extracts metadata for the current and previous time period. If the previous load fails, Metadata Manager extracts information for the previous period and the current period.

If you do not reset the default parameter value, Metadata Manager extracts metadata for the past 8,000 days when you load the resource.

Note: The first time you load a PowerCenter resource, Metadata Manager may reject objects created before the incremental extract period.

PowerCenter Parameter Files

If a PowerCenter source repository uses parameter files in sessions and workflows, you can configure Metadata Manager to read the parameter files when you load the PowerCenter resource. PowerCenter parameters can represent flat file sources, flat file lookups, flat file targets, relational connections, or objects in SQL overrides. Metadata Manager can read the parameter files to extract metadata for the flat file sources, flat file lookups, flat file targets, relational connections, and objects in SQL overrides.

Assign parameter files to PowerCenter workflows to perform data lineage analysis between the PowerCenter repository and the metadata in the flat file sources, flat file lookups, flat file targets, relational connections, or objects in SQL overrides. Metadata Manager uses the information in the parameter files to display data lineage.

To assign the parameter files, you upload the parameter files to the node running the Metadata Manager application. After you upload the parameter files, you assign the parameter files to individual workflows or to all workflows in the PowerCenter repository. You can also direct Metadata Manager to automatically assign the parameter files to the appropriate workflows in the PowerCenter repository.

After you upload modified parameter files or change parameter file assignments, you must reload the PowerCenter resource. Metadata Manager can then use the updated parameter file assignments to display data lineage.

Parameter File Requirements

To enable Metadata Manager to read parameter values from a parameter file, the file must have a .txt, .prm, or .par extension.

You group parameters and variables in different sections of the parameter file. Each section is preceded by a heading that identifies the folder, workflow, worklet, and session to which you want to pass parameter or variable values. You define parameters and variables directly below the heading, entering each parameter or variable on a new line.

The following table describes the headings that define each section in the parameter file and the scope of the parameters and variables that you define in each section:

Heading	Scope
[Global]	All folders, workflows, worklets, and sessions.
[folder name.WF:workflow name]	The named workflow and all sessions within the workflow.
[folder name.WF:workflow name.WT:worklet name]	The named worklet and all sessions within the worklet.
[folder name.WF:workflow name.WT:worklet name.WT:worklet name...]	The nested worklet and all sessions within the nested worklet.
[folder name.WF:workflow name.ST:session name] -or- [folder name.WF:workflow name.WT:worklet name.ST:session name] -or- [folder name.WF:workflow name.WT:worklet name.WT:worklet name.ST:session name] -or- [folder name.session name] -or- [session name]	The named session.

Ignored Information in Parameter Files

Metadata Manager ignores the following information in the parameter files:

- **Service parameters.** Metadata Manager does not extract service parameters.
- **Sessions or workflows without parameters.** Metadata Manager does not require all sessions or workflows to use parameter files.
- **Duplicate sessions.** Metadata Manager extracts the parameter for the first occurrence of the session. If you use a reusable session multiple times, the parameter file must identify each session instance.
- **Duplicate headings.** If the parameter file specifies the same heading multiple times, Metadata Manager uses the information in the section below the first heading. Metadata Manager ignores the information in the sections below subsequent identical headings.
- **Invalid parameter and value pair format.** The parameter and value must be entered on a single line in the form *name=value*.

Rules and Guidelines for Parameter Files

Metadata Manager uses the following guidelines to read the parameter files:

- If you define the same parameter or variable in multiple sections in the parameter file, the parameter or variable with the smallest scope takes precedence over parameters or variables with larger scope. For example, a parameter file contains the following sections:

  ```
  [HET_TGTS.WF:wf_TGTS_ASC_ORDR]
  $DBConnection_ora=Ora2
  [HET_TGTS.WF:wf_TGTS_ASC_ORDR.ST:s_TGTS_ASC_ORDR]
  $DBConnection_ora=Ora3
  ```

  In session s_TGTS_ASC_ORDR, the value for session parameter $DBConnection_ora is “Ora3.” In all other sessions in the workflow, it is “Ora2.”
- If a mapping parameter is not assigned a value in the parameter file, Metadata Manager uses the default value of the parameter in the mapping.
- If a parameter value that contains single-byte characters exceeds 4000 characters, Metadata Manager truncates the value to 4000 characters. If a parameter value that contains multibyte characters exceeds 2000 characters, Metadata Manager truncates the value to 2000 characters.
- Metadata Manager cannot read a parameter file that is assigned to a PowerCenter folder with a name that contains the following special characters:

  ```
  . + - = ~ ` ! % ^ & * () [] {} ' \ " ; : / ? , < > \\ | \t \r \n
  ```

Sample Parameter File

The following example shows a sample connection parameter file entry:

```
[CustomerInformation.WF:WF_DB_CATALOG_ORCL.ST:S_M_ELMNT_ASSOC_EXTRACT]
$$WEIRD_CHAR=~!@#$%^&*()_+|{}[]=:";'<>?,./`
$DBConnection_source=customer_source_DB
$DBCONNECTION_SOURCE=hello
$DBConnection_target=customer_target_DB
$DBCONNECTION_SARAH=sarah
$DBCONNECTION_WEED=weedy

$PMSessionLogFile=$PMRootDir/sessionname1.log
```

Uploading Parameter Files

Upload the PowerCenter parameter files to the node running the Metadata Manager application.

To upload parameter files:

1. On the Load tab, select the PowerCenter resource in the Resources panel.
2. In the Properties panel, click **Edit**.

   The **Edit Resources** window appears.
3. Click the **Parameter Files** tab.
4. Click **Upload**.

   The **Upload** dialog box appears.
5. Click **Browse** to select one or more parameter files.
6. Click **Open**.

   If you select the same file multiple times, the most recently selected file overwrites the earlier version.
7. To remove any selected files, click **Remove**.
8. To upload the selected files, click **Upload**.

You can upload multiple parameter files at the same time. The Upload dialog box displays the upload status of each file.

9. Click **Close**.
10. To remove an uploaded parameter file, select the file in the Parameter Files list and click **Delete**.

Assign the uploaded parameter files to PowerCenter workflows.

Assigning Parameter Files to PowerCenter Workflows

After you upload parameter files, assign the files to PowerCenter workflows. You cannot assign parameter files to individual PowerCenter sources, targets, or lookups. You assign parameter files to the workflow that contains the sources, targets, and lookups.

1. On the **Load** tab, select the PowerCenter resource in the **Resources** panel.
2. In the **Properties** panel, click **Edit**.

   The **Edit Resources** window appears.
3. Click the **Parameter Files** tab.
4. Perform one of the following tasks to assign parameter files:
   - To direct Metadata Manager to analyze the PowerCenter repository and assign the uploaded parameter files to each workflow that specifies the parameter file name, click **Auto-assign**.
   - To assign parameter files individually, select a parameter file in the **Parameter Files** list, select one or more folders or workflows in the **Workflow Folders** list, and click **Assign**.
   - To assign a parameter file to all workflows, select the parameter file and click **Assign to All**.

   Note: When you configure a PowerCenter workflow, if you use an absolute file name or the $PMFolderName and $PMWorkflowName workflow variables to specify the parameter file name, Metadata Manager uses this value to automatically assign the parameter file to the workflow. If you use any other workflow variable for configuring the parameter file name, you must assign the parameter file to the workflow manually.
5. To remove a parameter file from a workflow, click **Remove** for the parameter file in the bottom panel.
6. Click **OK**.

After you change parameter file assignments, you must reload the PowerCenter resource. Metadata Manager can then process the updated parameter file assignments to update links between resources to correctly display data lineage.

Tip: When you save a PowerCenter resource, the Metadata Manager service log lists workflows that have no assigned parameter file. To view the Metadata Manager service log, select **Help** > **Export Service Log**.

Reference

After you create and load a PowerCenter resource, you can view and run data lineage on the metadata objects that PowerCenter extracted.

Incremental Extracts

Metadata Manager supports incremental extractions from the PowerCenter repositories.

By default, Metadata Manager can extract metadata incrementally. Metadata Manager initially extracts metadata from the previous 8,000 days, which is longer than 20 years. After the first metadata load, decrease the time period to extract metadata that has been added, modified, or deleted recently. You do not need to reload unchanged metadata.

Metadata Object Properties

Metadata Manager extracts properties of PowerCenter metadata objects and stores their values in the Metadata Manager warehouse.

Metadata Manager truncates the value of an object property if the value is stored in multiple records. Metadata Manager extracts the value from the first record only. For example, a PowerCenter repository resides on an IBM DB2 for LUW database. The PowerCenter repository contains an SQL override that is 5,000 characters long.

When you create the SQL override in PowerCenter, PowerCenter stores the SQL override metadata in three records in an IBM DB2 for LUW database table. Since the IBM DB2 for LUW database can store up to 2,000 characters for each field, PowerCenter splits the 5,000-character SQL override metadata among three records. The first record contains the first 2,000 characters, the second record contains the next 2,000 characters, and the third record contains 1,000 characters.

Since Metadata Manager only extracts the first record for any object property, Metadata Manager only extracts the first 2,000 characters of SQL override metadata from the IBM DB2 for LUW database table.

The following table provides the maximum number of characters extracted for a PowerCenter metadata object property contained in the given database:

Database	Maximum Characters Extracted
IBM DB2 for LUW	2,000 characters
Microsoft SQL Server	4,000 characters
Oracle	2,000 characters
Sybase	4,000 characters

Record Filters and Rejects

While loading PowerCenter sessions into the Metadata Manager warehouse, Metadata Manager rejects or filters the records if it cannot resolve their corresponding database columns.

Metadata Manager filters records that meet any of the following conditions:

- The session instance connection is not assigned to a database schema.
- The connection assignment is valid, Metadata Manager cannot resolve the database column, and an SQL override exists on the reader transformation, such as Lookup or Source Qualifier transformation.

Metadata Manager rejects records that meet any of the following conditions:

- The session instance connection is assigned to a schema, the Source Qualifier transformation does not have an SQL override, and Metadata Manager cannot resolve the database columns.
- Metadata Manager cannot resolve the PowerCenter target structure and the corresponding database columns.

Scope for Data Lineage

Metadata Manager supports data lineage for the following objects:

- Local shortcuts, not global shortcuts
- Relational connections, not application connections

- Lookup transformations and source instances
- Structure-level lineage for each transformation
- Connected and unconnected transformations

SQL Inline Views

An SQL inline view is a SELECT statement in the FROM clause of another SELECT statement. For example, the following SQL includes an inline view:

```
SELECT ename
  FROM (SELECT ename
    FROM emp)
```

A PowerCenter Source Qualifier or Lookup transformation can include an SQL override that refers to a database table, view, or synonym in an inline view. If you create connection assignments between the relational database and PowerCenter resources, data lineage for the database table, view, or synonym displays the links between the relational database objects and the PowerCenter transformations.

Note: SQL inline views are also referred to as Common Table Expressions.

Case Sensitivity

PowerCenter does not indicate if connections and databases are case sensitive. Metadata Manager assumes that the database storing the PowerCenter metadata is not case sensitive. Metadata Manager stores the structure name and property name in uppercase letters.

Flat Files

PowerCenter can use flat files as sources, targets, and lookups in mappings. Metadata Manager displays the following types of flat files from a PowerCenter source repository in the metadata catalog:

- XML
- VSAM
- Delimited
- Fixed-width

In PowerCenter, you can assign an Integration Service to run the workflow. The metadata catalog displays flat file sources and targets from a PowerCenter repository under the corresponding Integration Service. If the flat file is located in a repository with no Integration Service configured, the metadata catalog displays the flat file under the object called “Unknown Service.”

Metadata Manager displays field-level details in data lineage for columns in delimited and fixed-width flat files. Metadata Manager determines the columns in the delimited and fixed-width flat files using source and target definitions in PowerCenter. Since XML and VSAM flat files do not contain columns, Metadata Manager does not display field-level details in data lineage for these flat file types.

Command Tasks

A PowerCenter Command task can include multiple commands. Each command can be named or unnamed. The metadata catalog lists any unnamed command with the name "CommandLineTask<number>" where <number> represents the order of the unnamed command in the Command task.

For example, a Command task includes one command named "FirstCommand" and two unnamed commands. The metadata catalog lists the commands with the following names:

- FirstCommand

- CommandLineTask1
- CommandLineTask2

Unique Constraint Errors

When you load a PowerCenter resource, the S_M_ELMNT_ATTR_EXTRACT session can reject rows due to unique key constraint errors. The PowerCenter SourceDefinition object contains duplicate attribute names. For example, it contains duplicate Tree Name, Set ID, Effective Date, and Set Control Value attributes for the SourceDefinition object. Metadata Manager extracts only one of the values.

Mapplets

If you launch data lineage on a mapplet port for a mapplet that does not have any instances in PowerCenter mappings, Metadata Manager displays the mapplet and the mapplet ports in the data lineage diagram. Metadata Manager does not display links from the mapplet ports to other PowerCenter objects. If you launch lineage on a mapplet port, and the mapplet has instances in PowerCenter mappings, Metadata Manager displays the links from the mapplet input and output ports to the other PowerCenter objects.

CHAPTER 8

Data Modeling Resources

This chapter includes the following topics:

- Embarcadero ERStudio, 128
- ERwin, 134
- SAP PowerDesigner, 145
- Adding or Removing Metadata Files for a Resource, 149
- Reference for Data Modeling Resources, 149

Embarcadero ERStudio

Embarcadero ERStudio is a data modeling tool used to create and maintain data models.

You can create and configure an Embarcadero ERStudio resource to extract Embarcadero ERStudio metadata. Metadata Manager extracts Embarcadero ERStudio logical and physical models from a metadata file. Before you create an Embarcadero ERStudio resource, you export Embarcadero ERStudio models to metadata files. When you create the resource, you specify the metadata file.

Configuring Embarcadero ERStudio

Before you create an Embarcadero ERStudio resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Embarcadero ERStudio, complete the following tasks:

- Install the Metadata Manager Agent.
- Export models to metadata files.

Install the Metadata Manager Agent

The Metadata Manager Agent is a Windows-based program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the Windows nodes where the Metadata Manager Service runs.

To extract metadata from Embarcadero ERStudio, you must install the Metadata Manager Agent separately on a Windows machine. The Metadata Manager Agent and Embarcadero ER/Studio Data Architect must be on the same machine.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Export Models to Metadata Files

To extract metadata from Embarcadero ERStudio, you export models from Embarcadero ERStudio to metadata files. Metadata Manager extracts the models from the exported metadata files.

Metadata Manager extracts physical and logical models that are set to Relational notation. Before you export metadata, use the ERStudio client tool to set the physical and logical models that you want to extract to Relational notation.

Use the ERStudio client tool to export the metadata to a .dm1 file. The file can contain one logical model and any number of physical models. Metadata Manager extracts the logical model and the physical model that is created from the logical model. Metadata Manager displays all objects extracted from logical and physical models under the logical model.

Creating an Embarcadero ERStudio Resource

Before you create an Embarcadero ERStudio resource, export the Embarcadero ERStudio models to metadata files.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Modeling** > **Embarcadero ERStudio**.
3. Click **Next**.

   The **Properties** page appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to validate the source file configuration.

   Metadata Manager validates the Metadata Manager Agent URL. If you configured Metadata Manager to use the latest source file, Metadata Manager also validates that the source file exists in the specified path.

If Metadata Manager cannot validate the source file configuration, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Schedules** page appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Embarcadero ERStudio Configuration Properties

Update the configuration properties when you create or edit an Embarcadero ERStudio resource.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	Name and version of the resource.
Always use latest source files	Metadata Manager uses the metadata source file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, Metadata Manager copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied metadata source file in the Metadata Manager application directory.
Model selection	Type of model from which metadata is extracted. DM1 files have multiple independent models. Select one of the following options: - Logical model. Select this option to extract metadata from logical models. - Physical model. Select for physical models and when the DM1 file has a combination of physical and logical models. You must specify the name of the model. - All models. Select this option to extract metadata from logical and physical models. Default is Logical model.
Physical model name	Name of the physical model from which you want to extract metadata.
Skip UDP extraction	Prevents Metadata Manager from importing attachments, also called user-defined properties (UDPs), from ERStudio. If you enable this option, Metadata Manager does not import UDPs and does not display the **Import UDPs** property. Default is disabled.

Property	Description
Import UDPs	Defines how Metadata Manager imports attachments, also called user-defined properties (UDPs), from ERStudio. An attachment usually has a default value. The objects bound to the attachment can override it with an explicit value or reuse the default value. Select one of the following options to specify how to import property definitions and values: - As metadata. Imports explicit values as Property Value objects. Default values are not imported. This option keeps the default value on the Property Type. - As metadata, migrate default values. Imports explicit and default values as Property Value objects. - In description, migrate default values. Appends the property name and value to the object description property for both explicit and implicit values. - Both, migrate default values. Imports the UDP value as metadata and in the object description property. Default is as metadata.
Import owner schemas	Imports owner schemas. Select one of the following options: - True. Imports owner schemas for tables, views, and other database objects. Select for physical models and when the DM1 file has a combination of physical and logical models. - False. Ignores owner schemas for tables, views, and other database objects. Select for logical models. Default is true.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
File	The DM1 file that you want to import.

Reference

After you create and load an ERStudio resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

The following table lists the physical / logical objects that Metadata Manager extracts from Embarcadero ERStudio:

- AliasClassifier
- Attachment
- AttachmentType
- Attribute
- BufferPool
- CandidateKey
- Categorization
- Column
- Connection
- ConnectionSchema
- Constraint

- Database
- DatabaseInstance
- DataFlow
- DataMappingModel
- Default
- DiagramContent
- DiagramFolder
- Domain
- Entity
- ER_Studio
- FileDirectory
- FlatFileModel
- FlatFileSource
- Folder
- ForeignKey
- IdentifyingRelationship
- Identity
- Index
- IndexMember
- InputTable
- LogicalDataModel
- LogicalDiagram
- LogicalModel
- LogicalRule
- LogicalSource
- LogicalSubmodel
- MainLogicalModel
- MainPhysicalModel
- MappingDataAttribute
- NonIdentifyingRelationship
- NonSpecificRelationship
- Note
- OtherSource
- OutputTable
- Parameter
- Partition
- PhysicalDataModel
- PhysicalDiagram
- PhysicalExtension

- PhysicalModel
- PhysicalObject
- PhysicalRule
- PhysicalSource
- PhysicalSubmodel
- PrimaryKey
- PrimaryKeyAttribute
- PrimaryKeyColumn
- Project
- ReferenceValueList
- Reference Value Range
- RelationshipEnd1
- RelationshipEnd2
- Repository
- Schema
- Sequence
- Shape
- SourceTable
- StorageGroup
- StoredProcedure
- SuperTypeRelationship
- Synonym
- SynonymColumn
- Table
- TableSpace
- Transformation
- Trigger
- View
- TypeValue
- UserDatatype
- View
- ViewColumn
- ViewRelationship
- Volume
- XmlSchema

ERwin

ERwin is a tool that you use to create and maintain logical or physical data models of relational databases. In Metadata Manager, you can create and configure an ERwin resource to extract and represent metadata from data models in ERwin.

Metadata Manager can extract ERwin metadata through the following sources:

Source repository

Metadata Manager connects to the ERwin Data Modeler repository to extract metadata.

Source file

Metadata Manager extracts ERwin metadata from a metadata file that was previously exported from ERwin.

Configuring ERwin

Before you create an ERwin resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure ERwin, complete the following tasks:

- Install the Metadata Manager Agent.
- Enable the Metadata Manager Agent to interact with desktop for ERwin 7.x, 8.x, and 9.x.
- Export models to metadata files.

Install the Metadata Manager Agent

The Metadata Manager Agent is a Windows-based program that Metadata Manager uses to access metadata sources and extract source metadata. By default, the Metadata Manager Agent runs on the Windows nodes where the Metadata Manager Service runs.

Install the Metadata Manager Agent separately on a Windows machine when ERwin is not on the same machine as the Metadata Manager Service.

The Metadata Manager Agent has the following installation requirements based on the ERwin source type:

ERwin repository format XML file or ERwin source file

You can use the Metadata Manager Agent installed on any machine. If you configure Metadata Manager to use the latest source files, the location of the source files must be accessible from the Metadata Manager Agent machine.

ERwin Model Manager repository

To extract metadata from ERwin, the Metadata Manager Agent connects to the ERwin Data Modeler Workgroup Edition mart through the ERwin Data Modeler API. Therefore, the Metadata Manager Agent, ERwin client, and ERwin repository database client must be on the same machine. The database client version must match the version of the database server that hosts the ERwin Model Manager repository. Additionally, the ERwin client must be able to connect to and open models in the ERwin Model Manager repository with the configuration properties that you specify when you configure the ERwin resource.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Enable the Metadata Manager Agent to Interact with the Desktop

If you run the Metadata Manager Agent as a service, you must enable the Metadata Manager Agent to interact with the desktop.

You must enable the Metadata Manager Agent to interact with the desktop for the following metadata sources:

- Business Objects
- Microstrategy
- ERwin 7.x, 8.x, and 9.x

1. From the Windows Start menu, click **Administrative Tools** > **Services**.
2. Double-click **Metadata Manager Agent**.

   The **Metadata Manager Agent <Version> Properties** dialog box appears.
3. Click the **Log On** tab.
4. Under Local System Account, click **Allow service to interact with desktop**.
5. Click **OK**.

Export Models to Metadata Files

You export models from ERwin to metadata files. Metadata Manager extracts ERwin metadata from the metadata files that you export. When you configure the connection to the ERwin source repository in Metadata Manager, you specify the metadata file.

For ERwin 7.x, 8.x, or 9.x Data Modeler (File), Metadata Manager can extract metadata from the following file types:

- .erwin
- .xml

Note: Save the XML file in the repository standard format from ERwin Data Modeler.

Creating an ERwin Resource

Before you create an ERwin resource, configure the ERwin source.

Note: If you create an ERwin 9.0 (Single Model from Mart) resource, the Mart database must be a Microsoft SQL Server database. You cannot create an ERwin 9.0 (Single Model from Mart) resource if the Mart database is an Oracle database. Oracle Mart databases are supported with ERwin 9.1 and later.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Modeling** > **ERwin**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next.**

   The **Configuration** page appears.

6. Enter the configuration properties.
7. Click **Test Connection**.

   If the source system version is ERwin 7.x Data Modeler (Model Manager), ERwin 7.3 Data Modeler (Model Manager on Oracle), or ERwin 7.3 Data Modeler (Model Manager on SQL Server), Metadata Manager tests the connection to ERwin Data Modeler and validates the Metadata Manager Agent URL.

   If the source system version is any other ERwin version, Metadata Manager validates the Metadata Manager Agent URL. If you configured Metadata Manager to use the latest source file, Metadata Manager also validates that the source file exists in the specified path. If the XML source file is uploaded to Metadata Manager, Metadata Manager validates that the file is compatible with the resource type and version.

   If Metadata Manager cannot validate the connection, an error message appears. Correct any error and test the connection again.

8. Click **Next.**

   The **Schedules** page appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

ERwin 7.x, 8.x, and 9.x (File) Configuration Properties

Update the configuration properties when you create or edit an ERwin 7.x, 8.x, or 9.x (File) resource.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent.
Source system version	Version of ERwin that you used to export the metadata source file or the version of the ERwin Data Modeler to which you want to connect.
Always use latest source files	The Metadata Manager Agent uses the metadata source file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, the Metadata Manager Agent copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, the Metadata Manager Agent uses the copied metadata source file in the Metadata Manager application directory.
Import UDPs	Specifies how the Metadata Manager Agent imports property definitions and values for user-defined properties (UDPs) from ERwin. In ERwin, a user-defined property is a property definition object that has a default value. The object to which the UDP applies can have an explicit value or no assigned value. If it has no assigned value, ERwin assigns the default value of the property definition to the UDP. Select one of the following options to specify how to import property definitions and values: - As metadata. Imports explicit values as Property Value objects. This option keeps the default value on the Property Type. Implicit values are not imported. - As metadata, migrate default values. Imports explicit and implicit values as Property Value objects. - In description, migrate default values. Appends the property name and value to the object description property, for explicit and implicit values. - Both, migrate default values. Imports the UDP value as metadata and in the object description.
Import relationship name	Specifies how to import the relationship names from ERwin. Select one of the following options: - From relationship name. Use the relationship name property. - From relationship description. Use the relationship description property. Use this option to give more descriptive names to relationships. Default is from relationship name.
Import column order from	Specifies how to import the order of columns in tables. Specify one of the following values: - Column order. Imports based on the order of the columns displayed in the ERwin physical view. - Physical order. Imports based on the order of the columns in the database, as generated in the SQL DLL. Default is physical order.
Import owner schemas	Imports owner schemas. Specify one of the following values: - True. Imports the owner schema for tables, views, and other database objects - False. Ignores the owner schema for all database objects. Default is true.
Import diagrams	Specifies how the Metadata Manager Agent imports diagrams. Specify one of the following values: - None. The Metadata Manager Agent imports no diagrams. - Current view. The Metadata Manager Agent imports the current view of each diagram. - All. The Metadata Manager Agent imports diagrams twice, once for the logical view and once for the physical view. Default is current view.

Property	Description
Move entities to subject areas	Specifies whether to move entities to user-defined subject areas. Set this option to true if the ERwin modeler uses subject areas as conventional (UML) design packages with their own namespace and if each entity belongs to one subject area. Specify one of the following values: - True. The Metadata Manager Agent places the entities in the corresponding package. It places other entities under the model. - False. The Metadata Manager Agent does not move entities to subject areas. Default is false.
Auto assign connections	The Metadata Manager Agent configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.
File	ERX, ER1, erwin, or XML source file you exported from ERwin. **Note:** To parse the ER1 and erwin files, install ERwin on the same machine on which the Metadata Manager Agent runs.

ERwin 9.x (Single Model from Mart) Configuration Properties

Update the configuration properties when you create or edit an ERwin 9.x (Single Model from Mart) resource.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent.
Source system version	Version of ERwin that you used to export the metadata source file or the version of the ERwin Data Modeler to which you want to connect.
Server name	Name of the Mart server to which you want to connect, for example, `localhost`.
Server port	Network port number for the Mart server.
Use IIS	Type of connection to the Mart server if it uses Microsoft IIS web server. Specify one of the following values: - True. The Metadata Manager Agent uses IIS to connect to the Mart server. - False. The Metadata Manager Agent uses the port number to connect to the Mart server. Default is false.
Use SSL	Type of connection to the Mart server. Specify one of the following values: - True. The Metadata Manager Agent uses a secure connection to the Mart server. - False. The Metadata Manager Agent uses a standard HTTP connection. Default is false.
Application name	Name of the application on the Mart server to which you want to connect.

Property	Description
Authentication	Type of authentication to use for the ERwin Data Modeler user name and password. Select one of the following options: - Database authentication. Use native database authentication to authenticate the user name and password. - Windows authentication. Use Windows authentication for the database user name and password. Use this option for Oracle and Microsoft SQL Server. Default is database authentication.
User name	Database user name for ERwin Data Modeler. Leave this field blank if you use Windows authentication.
Password	Password for the ERwin Data Modeler user name. Leave this field blank if you use Windows authentication.

Model	Model locator string for ERwin Data Modeler. Use the following format for Microsoft SQL Server:
	`mmart://<database name>/<path>/<model name>`
	Use the following format for Oracle:
	`mmart://<path>/<model name>`
	Note: The model path is case sensitive. Specify the correct value based on the model path used in CA ERwin Data Modeler.

Import UDPs	Specifies how the Metadata Manager Agent imports property definitions and values for user-defined properties (UDPs) from ERwin. In ERwin, a user-defined property is a property definition object that has a default value. The object to which the UDP applies can have an explicit value or no assigned value. If it has no assigned value, ERwin assigns the default value of the property definition to the UDP. Select one of the following options to specify how to import property definitions and values: - As metadata. Imports explicit values as Property Value objects. This option keeps the default value on the Property Type. Implicit values are not imported. - As metadata, migrate default values. Imports explicit and implicit values as Property Value objects. - In description, migrate default values. Appends the property name and value to the object description property, for explicit and implicit values. - Both, migrate default values. Imports the UDP value as metadata and in the object description.
Import relationship name	Specifies how to import the relationship names from ERwin. Select one of the following options: - From relationship name. Use the relationship name property. - From relationship description. Use the relationship description property. Use this option to give more descriptive names to relationships. Default is from relationship name.
Import column order from	Specifies how to import the order of columns in tables. Specify one of the following values: - Column order. Imports based on the order of the columns displayed in the ERwin physical view. - Physical order. Imports based on the order of the columns in the database, as generated in the SQL DLL. Default is physical order.
Import owner schemas	Imports owner schemas. Specify one of the following values: - True. Imports the owner schema for tables, views, and other database objects - False. Ignores the owner schema for all database objects. Default is true.

Property	Description
Import diagrams	Specifies how the Metadata Manager Agent imports diagrams. Specify one of the following values: - None. The Metadata Manager Agent imports no diagrams. - Current view. The Metadata Manager Agent imports the current view of each diagram. - All. The Metadata Manager Agent imports diagrams twice, once for the logical view and once for the physical view. Default is current view.
Move entities to subject areas	Specifies whether to move entities to user-defined subject areas. Set this option to true if the ERwin modeler uses subject areas as conventional (UML) design packages with their own namespace and if each entity belongs to one subject area. Specify one of the following values: - True. The Metadata Manager Agent places the entities in the corresponding package. It places other entities under the model. - False. The Metadata Manager Agent does not move entities to subject areas. Default is false.
Auto assign connections	The Metadata Manager Agent configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.

ERwin 7.x (Model Manager) and 8.x (Single Model from Mart) Configuration Properties

Update the configuration properties when you create or edit an ERwin 7.x (Model Manager) or ERwin 8.x (Single Model from Mart) resource.

The following table describes the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent.
Source system version	Version of ERwin that you used to export the metadata source file or the version of the ERwin Data Modeler to which you want to connect.
Database type	Database connection type to connect to the Data Modeler. Database can be Microsoft SQL Server (version 7, 2000, 2005, and 2008), Oracle, or Sybase ASE. For more information about supported databases and libraries, see the ERwin documentation.
Database server	Database server to which you want to connect. For Microsoft SQL Server or Sybase ASE, specify the server DNS address. For example: `localhost`. You can also specify a named Microsoft SQL Server instance like: `servername\namedinstance` For Oracle, specify the appropriate Oracle connection string you want to use. For example: `(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL = TCP)(HOST = 127.0.0.1)(PORT = 1521)) ) (CONNECT_DATA = (SERVICE_NAME = ORA90) ) )`
Database name	Name of the database. Not required for Oracle.

Property	Description
Authentication	Type of authentication to use for the ERwin Data Modeler user name and password. Select one of the following options: - Database authentication. Use native database authentication to authenticate the user name and password. - Windows authentication. Use Windows authentication for the database user name and password. Use this option for Oracle and Microsoft SQL Server. Default is database authentication.
User name	Database user name for ERwin Data Modeler. Leave this field blank if you use Windows authentication.
Password	Password for the ERwin Data Modeler user name. Leave this field blank if you use Windows authentication.

Model	Model locator string for ERwin Data Modeler. Use the following format for Microsoft SQL Server:
	`mmart://<database name>/<path>/<model name>`
	Use the following format for Oracle:
	`mmart://<path>/<model name>`
	Note: The model path is case sensitive. Specify the correct value based on the model path used in CA ERwin Data Modeler.

Import UDPs	Specifies how the Metadata Manager Agent imports property definitions and values for user-defined properties (UDPs) from ERwin. In ERwin, a user-defined property is a property definition object that has a default value. The object to which the UDP applies can have an explicit value or no assigned value. If it has no assigned value, ERwin assigns the default value of the property definition to the UDP. Select one of the following options to specify how to import property definitions and values: - As metadata. Imports explicit values as Property Value objects. This option keeps the default value on the Property Type. Implicit values are not imported. - As metadata, migrate default values. Imports explicit and implicit values as Property Value objects. - In description, migrate default values. Appends the property name and value to the object description property, for explicit and implicit values. - Both, migrate default values. Imports the UDP value as metadata and in the object description.
Import relationship name	Specifies how to import the relationship names from ERwin. Select one of the following options: - From relationship name. Use the relationship name property. - From relationship description. Use the relationship description property. Use this option to give more descriptive names to relationships. Default is from relationship name.
Import column order from	Specifies how to import the order of columns in tables. Specify one of the following values: - Column order. Imports based on the order of the columns displayed in the ERwin physical view. - Physical order. Imports based on the order of the columns in the database, as generated in the SQL DLL. Default is physical order.
Import owner schemas	Imports owner schemas. Specify one of the following values: - True. Imports the owner schema for tables, views, and other database objects - False. Ignores the owner schema for all database objects. Default is true.

Property	Description
Import diagrams	Specifies how the Metadata Manager Agent imports diagrams. Specify one of the following values: - None. The Metadata Manager Agent imports no diagrams. - Current view. The Metadata Manager Agent imports the current view of each diagram. - All. The Metadata Manager Agent imports diagrams twice, once for the logical view and once for the physical view. Default is current view.
Move entities to subject areas	Specifies whether to move entities to user-defined subject areas. Set this option to true if the ERwin modeler uses subject areas as conventional (UML) design packages with their own namespace and if each entity belongs to one subject area. Specify one of the following values: - True. The Metadata Manager Agent places the entities in the corresponding package. It places other entities under the model. - False. The Metadata Manager Agent does not move entities to subject areas. Default is false.
Auto assign connections	The Metadata Manager Agent configures connection assignments to relational database resource types during the resource load. If you disable this option, you must configure connection assignments in the resource properties after you create the resource.

Reference

After you create and load an ERwin resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Reference for Data Modeling Resources" on page 149

Domains

In ERwin, you can define domains or use system-defined domains. Each domain has properties that you can apply to one or more columns. You can use domains to reuse a given set of properties for multiple columns.

In ERwin, domains have hierarchies. The system-defined domains are the top-level domains of the hierarchy. You can create sub-levels in the domain hierarchy by creating user-defined domains.

You can also apply validation rules to domains in ERwin.

Related Topics:

- "Domain-to-Validation Rule Association" on page 151

System-Defined Domains

When you create a model in ERwin, ERwin creates the following system-defined domains:

- String
- BLOB
- Number
- Datetime

- Default

Each of these domains are the top-level domains in the domain hierarchy. All top-level parent domains are system-defined domains in ERwin.

Since Metadata Manager does not extract system-defined domains, the system-defined domains do not appear in the domain hierarchy in the metadata catalog.

Domain Hierarchy

When you create a user-defined domain in ERwin, you must assign the user-defined domain to a parent domain.

Metadata Manager displays the domain hierarchy for user-defined domains, since Metadata Manager does not extract system-defined domains.

The ParentDomain association indicates that domains are associated.

To view the ParentDomain association:

1. In the metadata catalog on the Browse page, click the ERwin domain instance in the metadata catalog.
2. In the Details section, click the Relationships tab.

   The Relationships tab displays all relationships attached to the selected domain.

   For ParentDomain associations, each domain in the Relationships tab is the parent domain of the domain selected in the metadata catalog.

Alternate and Inversion Keys

ERwin uses the term *Alternate key* for a unique index and *Inversion key* for a non-unique index.

If you do not select the Physical Only option when setting properties for an Inversion key in ERwin, Metadata Manager treats the inversion key as a unique key or an alternate key.

Index UDP

Metadata Manager extracts user-defined properties (UDPs) for objects in the Primary Key or Unique Key class that are associated with the index. Metadata Manager does not extract UDPs for objects of the Index class.

Relationship Description

ERwin stores relationship definitions as notes in an XML file. Metadata Manager extracts these definitions and loads them as a description element property ERwinElementDescription, not as the description class attribute InfaDescription.

To retrieve a relationship description:

1. In the Catalog view on the Browse page, click a relationship instance for an ERwin resource.
2. In the Details section, click the Relationships tab.
3. If the full description does not appear in the Relationships tab, click the link in the Name column corresponding to the object in the ERwinElementDescription class to display the full description of the relationship.

Objects Extracted

The following table lists the objects that Metadata Manager extracts:

Model Type	Objects Extracted
Logical	- Entity - Column - Subject area - Relationship - User-defined property (UDP)
Physical	- Alias Column - Argument - Attribute / Column - Candidate Key Group - Database Schema - Default Value - ER Diagram - Foreign Key Group - Index - Index Member - Model - Primary Key Attribute / Column - Relationship - Relationship End - Sequence - Stored Procedure - Subject Area - Synonym - Table / Entity - Trigger - UDPs - User-Defined - View - View Column - View Relationship

Data Lineage

The following table describes the ERwin objects for which Metadata Manager displays data lineage:

Data Lineage Type	Description
Column-level lineage	Lineage from view columns to table and view columns.
Lineage between resources	Lineage between the following ERwin objects and other resources: - Table - View - Procedure - Trigger - Synonym

SAP PowerDesigner

You can create and configure an SAP PowerDesigner resource to extract SAP PowerDesigner metadata. SAP PowerDesigner is a data modeling tool used to create and maintain data models.

Before you create an SAP PowerDesigner resource, you export SAP PowerDesigner models to metadata files. When you create the resource, you specify the metadata file. Metadata Manager extracts the SAP PowerDesigner models from the metadata file.

Configuring SAP PowerDesigner

Before you create an SAP PowerDesigner resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure SAP PowerDesigner, export models to metadata files.

Export Models to Metadata Files

To extract metadata from SAP PowerDesigner, you export models from SAP PowerDesigner to metadata files. Use the SAP PowerDesigner client tool to save the model to a .pdm file in XML format. Metadata Manager extracts SAP PowerDesigner models from the exported metadata files.

Creating an SAP PowerDesigner Resource

Before you create an SAP PowerDesigner resource, export the SAP PowerDesigner models to metadata files.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Data Modeling** > **SAP PowerDesigner**.
3. Click **Next**.

   The **Properties** page appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.

7. Click **Test Connection** to validate the source file configuration.

   Metadata Manager validates the Metadata Manager Agent URL. If you configured Metadata Manager to use the latest source file, Metadata Manager also validates that the source file exists in the specified path.

   If Metadata Manager cannot validate the source file configuration, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Schedules** page appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

SAP PowerDesigner Configuration Properties

Update the configuration properties when you create or edit an SAP PowerDesigner resource. The properties vary based on the SAP PowerDesigner version.

The following table describes the configuration properties:

Property	Version	Description
Agent URL	All	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine.
Source system version	All	Version of SAP PowerDesigner to which you want to connect.
Always use latest source files	All	Metadata Manager uses the metadata source file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, Metadata Manager copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied metadata source file in the Metadata Manager application directory.
Apply binary characters filter	SAP PowerDesigner PDM 7.5 to 16.x	Removes binary characters that are not valid from the PDM XML import file. The PowerDesigner tool might generate XML files with binary characters that cannot be processed in an XML file. Select one of the following options: - True. Remove binary characters that are not valid. Metadata Manager removes the binary characters that are not valid before it extracts metadata from the file. - False. Do not remove the characters that are not valid. Default is true.

Property	Version	Description
Import UDPs	SAP PowerDesigner PDM 7.5 to 16.x	Defines how Metadata Manager imports property definitions and values for user-defined properties (UDPs) from SAP PowerDesigner. A user-defined property is a property definition object that has a default value. The object to which the UDP applies can have an explicit value or no assigned value. If it has no assigned value, SAP PowerDesigner assigns the default value of the property definition to the UDP. Select one of the following options to specify how to import property definitions and values: - As metadata. Imports explicit values as Property Value objects. This option keeps the default value on the Property Type. Implicit values are not imported. - As metadata, migrate default values. Imports explicit and implicit values as Property Value objects. - In description, migrate default values. Appends the property name and value to the object description property for both explicit and implicit values. - Both, migrate default values. Imports the UDP value as metadata and in the object description property.
Append volumetric information to the description field	SAP PowerDesigner PDM 7.5 to 16.x	Imports volumetric information and appends it to the description property. Specify one of the following values: - True. Appends volumetric information to the description property. - False. Ignores volumetric information. Default is false.
Remove text formatting	SAP PowerDesigner PDM 7.5 to 16.x	Remove Rich Text Formatting (RTF) from annotations. SAP PowerDesigner versions 7.0 to 7.5 store annotations as plain text, while versions 8 and later use RTF. Specify one of the following values: - True. Select for version 7.0 to 7.5. - False. Select for version 8 and later. Default is true.
Reverse role names	SAP PowerDesigner PDM 7.5 to 16.x	Reverses the role names for each relationship in the model. Specify one of the following values: - True. Swaps the role names. - False. Does not swap the role names. Default is false.
Import disconnected objects	SAP PowerDesigner PDM 6.1.x	Imports disconnected objects in SAP PowerDesigner. In SAP PowerDesigner, you can delete the symbol that represents an object in a view without deleting the object. As a result, a model might contain invisible objects that are inconsistent with other objects. Specify one of the following values: - True. Imports disconnected objects and places them in the main package. - False. Ignores disconnected objects. Default is false.
Encoding	SAP PowerDesigner PDM 6.1.x	Code page for the PDM file that you exported from SAP PowerDesigner.

Property	Version	Description
Auto assign connections	All	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource.
File	All	Imports the PDM XML file.

Reference

After you create and load an SAP PowerDesigner resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following metadata object types:

- Business Rule
- Column
- Database Schema
- Diagram
- Extended Attribute
- Extended Attributes
- Foreign Key
- Index
- Index Member
- Key
- Model
- Package
- Reference
- Relationship End
- Stored Procedure
- Synonym
- Synonym Column
- Table
- Trigger
- View
- View Column
- View Relationship

Adding or Removing Metadata Files for a Resource

Add a metadata file to a resource to configure the source from which Metadata Manager extracts metadata. Remove a metadata file from a resource if you want to remove the metadata from the Metadata Manager warehouse or load a different metadata source file.

You can add one metadata file for each resource. After you remove a metadata file, you can purge the metadata from the Metadata Manager warehouse.

You can add or remove the following metadata files:

- **Metadata source files.** Add or remove a metadata source file for packaged resource types.
- **Attribute and association files.** Add or remove attribute and association files for a custom resource. You must also add a metadata source file if the contents of an existing attribute and association file changes.

Note: To change the metadata in the source file that Metadata Manager loads into the Metadata Manager warehouse, change the contents of the metadata source file and add the file again. You can also upload the file to the following directory on the node that runs the Metadata Manager Service:

```
<Informatica installation directory>\services\MetadataManagerService\mm_files\<Metadata
Manager Service name>\mm_load\data_files\<resource ID>
```

1. On the Load tab, select the resource for which you want to add or remove files.
2. In the Resources panel, click the **Configuration** tab, and then click **Edit**.

   The **Edit Resources** window appears.
3. To add a metadata source file, click **Add** and select the file.

   If you configured Metadata Manager to use the latest source files, include an absolute path to the file that is accessible from the Metadata Manager Service machine.
4. Optionally, direct Metadata Manager to update the metadata in the warehouse with the metadata in the source file.
5. To remove a metadata source file, select the file and click **Remove.**
6. Click **OK**.

Reference for Data Modeling Resources

After you create and load a data modeling resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

The following information applies to all data modeling tool resources.

Data types

Metadata Manager extracts data types and change the names based on the data types used by Metadata Manager. Metadata Manager stores the data types in the Metadata Manager warehouse.

Names of Data types

Metadata Manager extracts the data types for objects in the Domains and Column classes and stores them as properties of the objects. While extracting the data types, Metadata Manager changes the names of the data types to the names used by Metadata Manager.

For example, if Metadata Manager extracts a data type named “integer” in the data modeling tool, Metadata Manager converts this to name to “SQL_integer.” You may not see a match between the data type name in the data modeling tool and the corresponding name in the metadata catalog.

Data types for Columns Using Domains

Data modeling tools store data types for domains and most columns, all of which Metadata Manager extracts and stores in the Metadata Manager warehouse.

Since data modeling tools do not store data types for columns using domains, Metadata Manager cannot extract or store the data types for these columns. To help you determine the data type of columns using domains, Metadata Manager stores the data types of all domains and establishes an association between columns and their corresponding domains. To determine the data type of a column using a domain, determine the domain associated with the column, and then determine the data type of the domain.

Validation Rules

You can define validation rules in data modeling tools and reuse the rules. Metadata Manager stores one instance of the validation rule for each column or domain that uses the rule.

In data modeling tools, there is a one-to-many relationship between validation rules and columns or domains. To identify each validation rule for each column or domain, Metadata Manager renames each validation rule based on the column or domain name.

The following table shows a validation rule VR1 that is used by columns X and Y and the domain DOM:

Validation Rule in Data Modeling Tool	Validation Rule in Metadata Manager
VR1	X Y DOM

Metadata Manager renames validation rule, VR1, to the column and domain names, X, Y, and DOM.

Metadata Manager extracts validation rules that are used in columns or domains.

Relationships

Metadata Manager does not extract relationships named “Subtype.”

View Associations

Metadata Manager does not parse the SQL to determine the associations between views and tables and between views and columns. To load view-to-table and view-to-column associations, the data modeling tool must provide this information to Metadata Manager.

Schema and Owners

You can specify an owner when you create an object in a data modeling tool. Metadata Manager extracts distinct owners of objects, assigns the owners as the schema names in the Metadata Manager warehouse, and creates the associations between the objects and the schema.

If you did not assign an owner to the object in the data modeling tool, Metadata Manager assigns “Undefined schema” as the schema name and associates the object with this schema name.

Name and Description Properties

Metadata Manager maps the physical name of an object to the Name property and the logical name to the Label property. If a logical name does not exist in the data modeling tool, Metadata Manager assigns the physical name of the object to the Name and Label properties.

Metadata Manager maps comments about the object to the Usage property and descriptions or definitions to the Description property.

Note: Name, Label, Usage, and Description are properties of model classes.

Multiple Models in the Same Repository

You can load multiple models into the same data modeling tool resource. The metadata catalog shows these models under the same instance of a data modeling tool resource.

Objects Not Extracted

Metadata Manager does not extract the following object types:

- Tablespaces
- Rollback segments
- Synonyms
- Sequences
- Database packages
- Materialized views

Domain-to-Validation Rule Association

Data modeling tools can use the following validation rules:

- **MinMax.** Makes sure that each value of a column is not below a predefined minimum value or above a predefined maximum value.
- **ListConstraint.** Makes sure that each value of a column is valid based on a predefined set of possible values.
- **RuleConstraint.** Makes sure that each value of a column is valid using user-defined logic or expression.

Although domains can be associated with any of these rules, Metadata Manager extracts associations between a domain and the MinMax or ListConstraint rule.

CHAPTER 9

Database Management Resources

This chapter includes the following topics:

- Cloudera Navigator, 152
- IBM DB2 for LUW, 164
- IBM DB2 for z/OS, 170
- IBM Informix, 175
- JDBC, 180
- Microsoft SQL Server, 184
- Netezza, 189
- Oracle, 193
- Sybase ASE, 200
- Teradata, 204
- Configuring the Schema Inclusion List, 209
- Data Lineage for Database Management Resources, 210

Cloudera Navigator

Cloudera Navigator is a data management tool for the Hadoop platform. It contains an auditing component that allows users to track data access for entities in a Hadoop cluster and a metadata component that manages metadata about the entities in a Hadoop cluster. Metadata Manager extracts metadata about entities in the cluster through the metadata component of Cloudera Navigator.

When you create a Cloudera Navigator resource in Metadata Manager, you enter the user name, password, and URL for the Cloudera Navigator Metadata Server. You can create one Cloudera Navigator resource for each Hadoop cluster that is managed by Cloudera Manager. Metadata Manager extracts metadata about entities in the cluster based on the entity type. To enable a secure connection to Cloudera Navigator, enter the path and file name of the truststore file for the Cloudera Navigator SSL instance and the password of the truststore file when you create or edit the Cloudera Navigator resource. If you do not specify the truststore file information and if the target Cloudera Navigator server is HTTPS enabled, the Cloudera Navigator Xconnect accepts any server certificate.

Metadata Manager extracts metadata for the following entity types:

- HDFS files, directories, and datasets
- Hive tables, query templates, and query executions
- Impala query templates and executions
- MapReduce job templates and executions
- Oozie job templates and executions
- Pig tables, job templates, and job executions
- Sqoop job templates and executions
- YARN job templates and executions

Metadata Manager can extract metadata from a Cloudera Hadoop cluster that uses Kerberos authentication. However, authentication between Metadata Manager and Cloudera Navigator still occurs through a user name and password.

Heap Size Configuration

Before you create a Cloudera Navigator resource, you must configure the Java heap size for the Cloudera Navigator server and the maximum heap size for the Metadata Manager Service. If you do not correctly configure the heap sizes, the metadata load can fail.

Configure the following heap sizes:

Java heap size for the Navigator server

Before you create a Cloudera Navigator resource, set the Java heap size for the Cloudera Navigator Server to at least 2 GB. If the heap size is not sufficient, the resource load fails with a connection refused error.

Maximum heap size for the Metadata Manager Service

Before you create a Cloudera Navigator resource, open the Administrator tool and check the value of the **Max Heap Size** property for the Metadata Manager Service. Set the maximum heap size to at least 4096 MB (4 GB).

If you perform simultaneous resource loads, increase the maximum heap size by at least 1024 MB (1 GB) for each resource load. For example, to load two Cloudera Navigator resources simultaneously, increase the maximum heap size by 2048 MB (2 GB). Therefore, you would set Max Heap Size to at least 6144 MB.

Note: Some Cloudera distributions might require a maximum heap size larger than 4 GB. If the metadata load fails with an out of memory error, increase the maximum heap size.

Creating a Cloudera Navigator Resource

Create a Cloudera Navigator resource to extract metadata from the metadata component of Cloudera Navigator.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Cloudera Navigator**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Schedules** window appears.
9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Cloudera Navigator Connection Properties

Configure the connection properties when you create or edit a Cloudera Navigator resource.

The following table describes the connection properties:

Property	Description
User name	Name of the user account used to connect to Cloudera Navigator.
Password	Password for the user account used to connect to Cloudera Navigator.
Cloudera Navigator URL	URL of the Cloudera Navigator Metadata Server.
Trust Store	Optional. Path and file name of the truststore file for the Cloudera Navigator SSL instance. The file should be accessible to Metadata Manager Service. **Note:** If you do not specify the truststore file information and the target Cloudera Navigator server is HTTPS enabled, the Cloudera Navigator Xconnect can accept any server certificate.

Property	Description
Password of trust store	Optional. Password for the truststore file.
Enable filtering	Enables filtering for Hive and Impala query templates that have no downstream data flow. By default, Metadata Manager does not extract Hive or Impala query templates that read data but do not write data. If you enable this option, Metadata Manager extracts only the query templates that create new entities or write to existing entities. If you disable this option, Metadata Manager extracts all Hive and Impala query templates. Default is enabled.
Enable incremental load	Enables incremental loading for Cloudera Navigator resources after the first successful resource load. When you enable this option, Metadata Manager loads recent changes to the metadata instead of loading complete metadata. During an incremental load, Metadata Manager extracts only the following entities: - HDFS entities that were created or changed after the previous resource load - Pig tables that were created or changed after the previous resource load - All Hive tables, views, and partitions - Operation executions that were created after the previous resource load - All templates related to the new operation executions Default is disabled.
Search query	Query that limits the entities that Metadata Manager extracts. By default, Metadata Manager does not extract HDFS entities from certain directories that contain only canary files, log files, history files, or deleted files. To prevent Metadata Manager from extracting other entities, update the default search query. The query that you enter must use valid Cloudera Navigator search syntax. To include all entities in the metadata load, enter `*`, or delete the default query and leave this property blank. Default is: `NOT ((fileSystemPath:*\/.cloudera_manager_hive_metastore_canary*) OR (fileSystemPath:\/hbase\/oldWALs*) OR (fileSystemPath:\/hbase\/WALs*) OR (fileSystemPath:\/tmp\/logs*) OR (fileSystemPath:\/user\/history\/done*) OR (fileSystemPath:\/tmp\/hive-cloudera*) OR (fileSystemPath:\/tmp\/hive-hive*) OR (fileSystemPath:*\/.Trash*))`

Filtering for Hive and Impala Query Templates

To reduce the number of entities extracted from Cloudera Navigator, Metadata Manager filters Hive and Impala query templates. By default, Metadata Manager extracts only the query templates that create new entities or write to existing entities. Metadata Manager does not extract query templates that write data to unknown entities.

When you load a Cloudera Navigator resource, Metadata Manager extracts all Hive and Impala query templates that create new entities or insert data into existing entities.

For example, a Hive query template contains the following query:

```
INSERT OVERWRITE TABLE sales_sorted SELECT s_neighbor,price from sales ORDER BY price
```

This query writes data to the sales_sorted Hive table. Therefore, Metadata Manager extracts this Hive query template.

By default, Metadata Manager does not extract Hive or Impala query templates that read data but do not write data. Metadata Manager also does not extract query templates that write data to unknown entities. In Cloudera Navigator, unknown entities are marked with the ellipsis (. . .) icon.

For example, a Hive query template contains the following query:

```
SELECT * FROM cust WHERE state = 'CA'
```

This query reads data from the cust Hive table, but it does not write data to any downstream table. Therefore, Metadata Manager does not extract this Hive query template.

You can disable the filtering of Hive and Impala query templates. If you want Metadata Manager to extract all Hive and Impala query templates, disable the **Enable Filtering** option when you create or edit a Cloudera Navigator resource.

Incremental Loading for Cloudera Navigator Resources

The first time that you load a Cloudera Navigator resource, Metadata Manager performs a full metadata load. You can configure Metadata Manager to perform subsequent loads incrementally.

By default, a full load extracts all entities except for filtered Hive and Impala query templates and entities excluded by the search query. Incremental loading causes Metadata Manager to load recent changes to the metadata instead of loading complete metadata.

Incremental loading reduces the amount of time that it takes to load the resource because Metadata Manager extracts fewer entities.

During an incremental load, Metadata Manager extracts only the following entities:

- HDFS entities that were created or changed since the previous resource load
- Pig tables that were created or changed after the previous resource load
- All Hive tables, views, and partitions
- Operation executions that were created after the previous resource load
- All templates related to the new operation executions

Use the **Enable incremental load** connection property to enable or disable incremental loading for Cloudera Navigator resources.

Note: Even if you enable incremental loading, a complete metadata load occurs in the following circumstances:

- You purge the resource.
- You cancel the first load of the resource before the ETL task starts.
- The first load of the resource fails.
- The Cloudera administrator invokes a purge operation in Cloudera Navigator after the last successful metadata load in Metadata Manager.

Incremental Loading Guidelines

Consider the following guidelines before you enable incremental loading.

Do not enable incremental loading in the following situations:

When there are many metadata changes and loads occur more than two weeks apart.

An incremental load runs a set of queries that trigger multiple extraction operations from Cloudera Navigator. Occasionally, the number of queries that Metadata Manager issues during an incremental load can exceed the number of queries that Metadata Manager issues during a full load. This might happen when there are many metadata changes, incremental loading is enabled, and resource loads occur more than two weeks apart. To reduce load time, do not enable incremental loading when the Hadoop cluster is heavily used and you schedule loads every two weeks or more.

When the JSON extraction time for the incremental load exceeds the JSON extraction time for a full load.

When the Hadoop cluster is heavily used, the JSON extraction time for each extraction operation increases. If the JSON extraction time for an incremental load exceeds the JSON extraction time for full metadata load, do not enable incremental loading. To find the JSON extraction time, check the Metadata Manager load log.

Search Queries

Use a search query to reduce the number of entities that Metadata Manager extracts from the Hadoop cluster. Limiting the number of entities that Metadata Manager extracts reduces the amount of time it takes to load the Cloudera Navigator resource.

By default, Metadata Manager does not extract HDFS entities from certain directories that contain only canary files, log files, history files, or deleted files.

By default, Metadata Manager does not extract HDFS entities from the following directories or their subdirectories:

- `*/.cloudera_manager_hive_metastore_canary`
- `/hbase/oldWALs`
- `/hbase/WALs`
- `/tmp/logs`
- `/user/history/done`
- `/tmp/hive-cloudera`
- `/tmp/hive-hive`
- `*/.Trash`

Metadata Manager uses the following default search query:

```
NOT ((fileSystemPath:*\/.cloudera_manager_hive_metastore_canary*) OR (fileSystemPath:\/hbase
\/oldWALs*) OR (fileSystemPath:\/hbase\/WALs*) OR (fileSystemPath:\/tmp\/logs*) OR
(fileSystemPath:\/user\/history\/done*) OR (fileSystemPath:\/tmp\/hive-cloudera*) OR
(fileSystemPath:\/tmp\/hive-hive*) OR (fileSystemPath:*\/.Trash*))
```

To prevent Metadata Manager from extracting other entities, update the default search query.

Search Query Rules and Guidelines

Use the following rules and guidelines when you update the search query:

The query that you enter must use valid Cloudera Navigator search syntax.

For information about Cloudera metadata search syntax, see the Cloudera documentation. Metadata Manager does not validate the search syntax.

Tip: To validate the search syntax, click **Test Connection**. If the search query is not valid, an error message appears. You can also run the search in Cloudera Navigator before you update the search query in Metadata Manager.

Before you exclude an HDFS directory, verify that no files in the directory or its subdirectories are used in the data flow.

If you exclude any HDFS entity that is used in a data flow, lineage links can break. For example, your Cloudera distribution contains a Pig job template that writes temporary files to directory `/tmp`, and the temporary files are used as inputs for another Pig job template. When you run data lineage, Metadata Manager shows lineage links between the upstream Pig job template and the temporary files and

between the temporary files and the downstream Pig job template. If you exclude directory `/tmp` from the metadata load, Metadata Manager shows no lineage links between the two Pig job templates.

Purge the resource after you update the search query.

To extract metadata from a Cloudera Hadoop cluster, the Metadata Manager Service creates temporary files on the machine where the Metadata Manager Service runs. The Metadata Manager Service uses the temporary files to create the IME files that extract metadata from the Hadoop cluster. These files remain on the server until you purge the resource.

The contents of the temporary files vary based on the search query. If you do not purge the resource after you change the search query, Metadata Manager adds the search results from the new query to the temporary files but does not delete the contents from the previous query. This can cause unpredictable search results, especially when the new search query extracts fewer objects than the previous query.

For example, you update the default search query to exclude HDFS directory `/user/test`. If you do not reload the resource, the temporary files related to the default query remain on the server. Metadata Manager still extracts entities from `/user/test` because the default query did not exclude this directory from the metadata load.

To delete the temporary files, purge the resource. The next time you load the resource, Metadata Manager creates new temporary files and extracts metadata based only on the new search query.

You can include all entities in the metadata load.

To include all entities in the metadata load, replace the default search query with an asterisk (`*`) or delete the default query and leave the **Search query** property blank.

Do not exclude all HDFS entities by entering a wildcard character for the file system path.

Do not enter a wildcard character for the file system path to exclude all HDFS entities. If you try to exclude all HDFS entities by entering a wildcard character for the file system path, Metadata Manager excludes all entities that have the fileSystemPath property.

For example, you enter the following search query to exclude all HDFS entities:

```
NOT (fileSystemPath:*)
```

If you enter this query, Metadata Manager excludes all HDFS entities. However, because Hive tables, Hive partitions, and Pig tables have the fileSystemPath property, Metadata Manager also excludes these entity types.

Search Query Examples

Update the default search query to exclude specific entities from the metadata load.

Example 1: Excluding HDFS Entities in a Specific Directory

Your Cloudera distribution contains a temporary user named "test." When you view the HDFS directory `/user/test` in Cloudera Navigator, you see that all of the files owned by the test user write to the directory `/user/test/.Trash`. Therefore, you do not want Metadata Manager to extract HDFS entities in directory `/user/test` or its subdirectories.

To prevent Metadata Manager from extracting the entities, append the `/user/test` file path to the search query as follows:

```
NOT ((fileSystemPath:*\/.cloudera_manager_hive_metastore_canary*) OR (fileSystemPath:\/hbase
\/oldWALs*) OR (fileSystemPath:\/hbase\/WALs*) OR (fileSystemPath:\/tmp\/logs*) OR
(fileSystemPath:\/user\/history\/done*) OR (fileSystemPath:\/tmp\/hive-cloudera*) OR
(fileSystemPath:\/tmp\/hive-hive*) OR (fileSystemPath:*\/.Trash*)OR (fileSystemPath:*\/user\/
test*))
```

Example 2: Excluding Job Executions

To prevent Metadata Manager from loading YARN, Oozie, and MapReduce job executions and all Sqoop job templates and executions, update the default search query as follows:

```
NOT ((fileSystemPath:*\/.cloudera_manager_hive_metastore_canary*) OR (fileSystemPath:\/hbase
\/oldWALs*) OR (fileSystemPath:\/hbase\/WALs*) OR (fileSystemPath:\/tmp\/logs*) OR
(fileSystemPath:\/user\/history\/done*) OR (fileSystemPath:\/tmp\/hive-cloudera*) OR
(fileSystemPath:\/tmp\/hive-hive*) OR (fileSystemPath:*\/.Trash*)) AND NOT (((sourceType:YARN
OR sourceType:OOZIE OR sourceType:MAPREDUCE) AND type:OPERATION_EXECUTION) OR
sourceType:SQOOP)
```

Reference

After you create and load a Cloudera Navigator resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

How Metadata Manager Organizes Entities

The Cloudera Navigator metadata component contains a search-based user interface. However, Metadata Manager displays all objects in the metadata catalog in a hierarchy. Metadata Manager organizes entities in groups based on the entity type.

When you create and load a Cloudera Navigator resource, Metadata Manager creates a parent group in the metadata catalog for each entity type that it extracts from Cloudera Navigator. Metadata Manager places each entity that it extracts in the appropriate group.

The following table describes the entity types that appear in each parent group in the metadata catalog:

Group	Entity Types
ROOT	All HDFS directories and files arranged in a hierarchy. Each HDFS file appears below the directory in which it is located.
HDFS Datasets	All HDFS datasets arranged alphanumerically.
Hive Databases	All Hive databases arranged alphanumerically. Each Hive table appears within the database to which it belongs.
Hive Query Executions	Hive query executions arranged alphanumerically. Metadata Manager extracts the most recent instance of each Hive query execution. It does not extract older instances.
Hive Query Templates	Hive query templates arranged alphanumerically. Each template part appears below its parent template. By default, Metadata Manager extracts only Hive query templates that write data to new or existing tables. It does not extract Hive query templates that read data but do not write data.
Oozie Jobs	All Oozie job executions arranged alphanumerically. Because Cloudera Navigator does not generate unique names for Oozie job executions, Metadata Manager appends a time stamp to each Oozie job execution name.
Impala Query Executions	All Impala query executions arranged alphanumerically. Metadata Manager extracts the most recent instance of each Impala query execution. It does not extract older instances.

Group	Entity Types
Impala Query Templates	All Impala query templates arranged alphanumerically. Each template part appears below its parent template. By default, Metadata Manager extracts only Impala query templates that write data to new or existing tables. It does not extract Impala query templates that read data but do not write data.
MapReduce Jobs	All MapReduce job executions arranged alphanumerically.
MapReduce Templates	All MapReduce job templates arranged alphanumerically.
Oozie Templates	All Oozie job templates arranged alphanumerically. Because Cloudera Navigator does not generate unique names for Oozie job templates, Metadata Manager appends the Cloudera identity to each Oozie job template name.
Pig Jobs	All Pig job executions arranged alphanumerically. Because multiple Pig job executions can have the same name, Metadata Manager appends a time stamp to each job execution name. Each Pig table appears below the corresponding Pig job execution.
Pig Templates	All Pig job templates arranged alphanumerically. Because multiple Pig job templates can have the same name, Metadata Manager appends the Cloudera identity to each job template name.
Sqoop Jobs	All Sqoop job executions arranged alphanumerically.
Sqoop Templates	All Sqoop job templates arranged alphanumerically.
YARN Jobs	All YARN job executions arranged alphanumerically.
YARN Templates	All YARN job templates arranged alphanumerically.

If the cluster contains no entities of a certain type, Metadata Manager does not create a parent group for that entity type. For example, if the cluster contains no Pig tables, Pig job templates, or Pig job executions, Metadata Manager does not create the Pig Jobs group or the Pig Templates group.

Searching for an Entity in Metadata Manager

A Hadoop cluster can contain thousands of entities, and different entities can have similar names. To find a Cloudera entity in Metadata Manager, you can navigate the metadata catalog or you can search for the object by name or identity. The method that you select depends on the number of objects that are likely to have similar names.

Use the following methods to find a Cloudera entity in Metadata Manager:

Navigate the metadata catalog.

Metadata Manager creates a parent group in the metadata catalog for each entity type that it extracts from Cloudera Navigator. To find an entity, open its parent group, and scroll down to the entity.

Search by name.

Use the keyword or advanced search in Metadata Manager to search for the entity by name. Escape any special character in the entity name with a backslash (\).

For example, to search for YARN job template `select * from emp_07 where salary > 50000(Stage`, enter the following search string:

```
select \* from emp_07 where salary > 50000\(Stage
```

Metadata Manager returns all objects that match the search string.

Search by identity.

Use the keyword search in Metadata Manager to search for an entity by its Cloudera identity. Search by identity when many objects have similar names. When you search by identity, Metadata Manager returns the one metadata object with the identity value you specify.

To find the identity for an entity in Cloudera Navigator, download the lineage JSON file. Open the file in a text editor and find the entity. Copy the value of the identity property from the file and enter it in the **Search** field in Metadata Manager.

Tip: In Metadata Manager, you can view the identity value for a Cloudera metadata object in the **identity** property in the Details panel. To see all object properties, click **More**.

For more information about keyword and advanced searches, see the *Metadata Manager User Guide*.

How Metadata Manager Displays Entity Relationships

The metadata component of Cloudera Navigator displays different types of entity relationships in data lineage diagrams. Metadata Manager does not display all of these relationships in data lineage diagrams. Metadata Manager displays entity relationships differently based on the relationship type.

Metadata Manager displays the following Cloudera entity relationship types in different ways:

Data flow relationships

A data flow relationship defines how data flows between metadata objects. For example, a Hive query uses an INSERT OVERWRITE TABLE statement to load data into a Hive table. Because data flows from the Hive query to the Hive table, a data flow relationship exists between the query and the table.

Cloudera Navigator displays data flow relationships in data lineage diagrams as solid arrows. Metadata Manager displays data flow relationships as lineage links in data lineage diagrams and as related catalog objects in the metadata catalog.

Logical-physical relationships

A logical-physical relationship indicates that a logical object is based on an actual, physical entity. For example, a Hive table is a logical view of a physical HDFS entity.

Cloudera Navigator displays logical-physical relationships in data lineage diagrams as solid lines without arrow heads. Metadata Manager displays logical-physical relationships as related catalog objects in the metadata catalog.

Instance relationships

An instance relationship defines a single occurrence of an operation. For example, an Oozie job execution is an instance of an Oozie job template.

Cloudera Navigator displays instance relationships for query and job templates on a separate tab in the data lineage diagram. Metadata Manager displays instance relationships as related catalog objects in the metadata catalog.

Control flow relationships

A control flow relationship places constraints or conditions on the flow of data. For example, a Hive query can contain constraints in the WHERE clause. Or, the JOIN clause in a Hive query might include a Hive table from which no data is extracted.

Cloudera Navigator displays control flow relationships in data lineage diagrams as dashed lines. Metadata Manager ignores control flow relationships.

For example, your Hadoop cluster contains a Hive products table with price and cost columns. It also contains a Hive query template with the following query:

```
SELECT AVG(price - cost) AS profit
    FROM products
    JOIN order_details
      ON (order_details.prod_id = products.prod_id)
    JOIN orders
      ON (order_details.order_id = orders.order_id)
   WHERE YEAR(order_date) = 2014
         AND MONTH(order_date) = 12
         AND price >= 500
```

In this query, the SELECT statement indicates that data flows from the products table to the Hive query. The JOIN clauses include two Hive tables, order_details and orders, from which no data is extracted.

Cloudera Navigator shows data flow from the products table to the Hive query. It also shows control flow relationships between the order_details table and the Hive query and between the orders table and the Hive query.

Metadata Manager also shows data flow from the products table to the Hive query. However, Metadata Manager does not show any relationship between the order_details or orders tables and the Hive query.

Tip: To view the relationship type between entities in a Cloudera Navigator data lineage diagram, download and view the lineage JSON file.

Deleted Entities

When you load a Cloudera Navigator resource, Metadata Manager extracts entity metadata, including metadata for deleted entities. Metadata Manager displays deleted entities in the metadata catalog and in data lineage diagrams.

To determine whether an entity is a deleted entity, check the status of the **deleted** property in the Details panel of the metadata catalog or the data lineage diagram. To see all object properties, click **More**. The **deleted** property is set to true or false.

Differences between Cloudera Navigator and Metadata Manager Lineage Diagrams

When you compare data lineage diagrams between Metadata Manager and Cloudera Navigator, the diagrams might display different sequences of objects.

The Metadata Manager and Cloudera Navigator data lineage diagrams can contain different sequences of objects in the following circumstances:

When an entity that you view has different relationships with other entities.

Cloudera Navigator displays data flow, logical-physical, and control flow relationships in data lineage diagrams. Metadata Manager displays data flow relationships in data lineage diagrams. Metadata Manager does not display logical-physical or control flow relationships in data lineage diagrams.

When you run data lineage on a template.

Generally, Cloudera Navigator shows data flow relationships at the template, or operation, level. Operation executions might override or add data flow.

Metadata Manager generally shows data flow for physical objects, such as HDFS files and directories, and for operation executions. Metadata Manager does not show data flow for most template types. Therefore, when you run data lineage on Oozie, Pig, Sqoop, or YARN job templates, you do not see data flow. To see the data flow, run data lineage on one of the template executions.

Note that Metadata Manager does show data flow for Hive and Impala query templates instead of the query executions. Metadata Manager shows lineage for the query templates because data lineage is identical across all executions of the query.

When you run data lineage on a Hive or Impala query template.

When you run data lineage on a Hive or Impala query template that retrieves information from or creates a Hive table, Cloudera Navigator does not display the HDFS entity that is linked to the Hive table. Metadata Manager does display the HDFS entity in the data lineage diagram.

For example, a Hive query template contains a SELECT statement to retrieve information from a Hive table. In the data lineage diagram, Metadata Manager displays the HDFS entity that is linked to the Hive table upstream of the Hive table. If a Hive query template contains a CREATE statement to create a Hive table, Metadata Manager displays the HDFS entity that is linked to the Hive table downstream of the Hive table.

When you run data lineage on a YARN job execution.

Cloudera Navigator displays data flow relationships between YARN job executions and Hive query templates. Because Hive queries and tables are relational views of HDFS files, Metadata Manager shows data flow between the YARN job execution and the HDFS files.

Linking for Cloudera Entities

Metadata Manager can display data lineage links between entities in a Cloudera Navigator resource and data objects in other resources. To link Hive tables with data objects in other packaged resources or in universal resources, use connection assignments. To link HDFS files with data objects in other packaged resources, in custom resources, or in universal resources, use a linking rules file.

Metadata Manager links Hive tables in a Cloudera Navigator resource with data objects in another resource when you configure connection assignments between the metadata sources. For example, a PowerCenter session loads data to a Hive target table that exists in your Cloudera distribution. Before you can view data lineage between the PowerCenter target and the Hive table, you must configure a connection assignment between the PowerCenter repository and the Cloudera distribution.

Metadata Manager does not use connection assignments to link HDFS files in a Cloudera Navigator resource with data objects in other resources. To link HDFS files with data objects in other resources, use a linking rules file.

For example, your Cloudera distribution contains the HDFS file big-customer.csv. You use the data in this file to populate the CUST flat file data object in the Developer tool. The CUST flat file data object is used as a source in an HDFS mapping.

Create a linking rules file to link the big-customer.csv HDFS file to the CUST flat file data object. Add a link condition that creates links from the HDFS file to the columns in the output group of the flat file data object.

In Metadata Manager, the CUST flat file data object belongs to the HDFS Data Object class. The output group belongs to the Data Object Read class. The columns in the output group belong to the Attribute class.

Use the following file to create the links:

```
<?xml version="1.0" encoding="UTF-8"?>

<ruleSet name="Link HDFS files to Informatica Platform FF Data Objects">

  <sourceResource name="Cloudera01"/>
  <targetResource name="InfaPlatform01"/>

  <rule name="Link HDFS big-customer.csv to Informatica Platform CUST FF columns"
direction="SourceToTarget">
    <sourceFilter >
```

```
      <element class="HDFS File"/>
    </sourceFilter>

    <targetFilter>
      <!-- We must link to features. If we link to structures only, Metadata Manager
will not find upstream links to the HDFS file. -->
      <element class="HDFS Data Object">
        <element class="Data Object Read">
          <element class="Attribute"/>
        </element>
      </element>
    </targetFilter>

    <link condition="source.Name = 'big-customer.csv' AND target.parent.Name = 'output'
AND target.parent.parent.Name = 'CUST'"/>

  </rule>

</ruleSet>
```

In this example, the `target.parent.Name = 'output'` clause in the link condition identifies the output group. The `target.parent.parent.Name = 'CUST'` clause identifies the flat file data object.

To upload the linking rules file, edit the Cloudera Navigator resource. After you upload the linking rules file and reload the resource, Metadata Manager creates the lineage links. Metadata Manager creates a link from the big-customer.csv HDFS file to each column in the output group of the CUST flat file data object.

For more information about rule-based links, see the *Metadata Manager Custom Metadata Integration Guide*.

Related Topics:

- "Configure Connection Assignments" on page 227

IBM DB2 for LUW

You can create and configure an IBM DB2 for Linux, UNIX, and Windows (LUW) resource to extract metadata from IBM DB2 for LUW. When you load the resource, Metadata Manager extracts schema details from an IBM DB2 for LUW database.

Configuring IBM DB2 for LUW

Before you create an IBM DB2 for LUW resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure IBM DB2 for LUW, complete the following tasks:

- Increase the database heap size.
- Configure permissions and privileges.

Database Heap Size

When you load metadata from an IBM DB2 for LUW database, you must increase the heap size. Otherwise, the S_M_ELEMNT_ATTR_EXTRACT session fails and returns the following error:

```
DBA2191E SQL execution error.
com.ibm.db.DataException: A database manager error occurred. :
```

```
[IBM][CLI Driver][DB2/NT] SQL0973N Not enough storage is available in the
"APP_CTL_HEAP_SZ" heap to process the statement. SQLSTATE=57011
```

This failure occurs when there is not enough storage available in the database application heap to process the request.

Increasing the IBM DB2 for LUW Database Heap Size

To increase the IBM DB2 for LUW database heap size, complete the following steps:

1. Log out of Metadata Manager.
2. Stop the DB2 database server.
3. From a DB2 command prompt, connect to the DB2 database.
4. To determine the current value of the Application Heap Size configuration parameter (APP_CTL_HEAP_SZ), run the following command:

   ```
   db2 get db dfg for <database_name> | find "APP_CTL_HEAP_SZ"
   ```

5. To increase the size of APP_CTL_HEAP_SZ to 16384 or higher, run the following command:

   ```
   db2 update db cfg for <database_name> using APP_CTL_HEAP_SZ <higher_value>
   ```

6. Restart the DB2 database server.

Configure Permissions and Privileges

Configure the permissions and privileges for the IBM DB2 for LUW database user account for which you provide the user name and password when you create the resource.

The following table lists the schema objects and system tables on which you must configure SELECT permissions for the IBM DB2 for LUW database user account:

Schema Objects	System Tables
Tables Views Indexes Packages Procedures Functions Sequences Triggers Synonyms	SYSCAT.SCHEMATA SYSCAT.TRIGGERS SYSCAT.INDEXES SYSCAT.INDEXCOLUSE SYSCAT.REFERENCES SYSCAT.TABCONST SYSCAT.KEYCOLUSE SYSCAT.COLCHECKS SYSCAT.DATATYPES SYSCAT.COLUMNS SYSCAT.TABLES SYSCAT.FUNCTIONS SYSCAT.PROCEDURES SYSCAT.PACKAGES SYSCAT.TRIGGERS SYSCAT.SEQUENCES SYSCAT.INDEXES SYSCAT.CHECKS SYSCAT.VIEWS SYSCAT.PACKAGES SYSCAT.FUNCDEP SYSCAT.TRIGDEP SYSCAT.VIEWDEP

In addition, the database user account must have CREATEIN, DROPIN, and ALTERIN privileges on the NULLID schema. Optionally, you can grant the BINDADD privilege to the user account. If you do not add the privileges, you cannot create the resource with the database user account.

Creating an IBM DB2 for LUW Resource

Before you create an IBM DB2 for LUW resource, configure the IBM DB2 for LUW source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **DB2**.
3. Click **Next**.

   The **Properties** window appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

IBM DB2 for LUW Configuration Properties

Update the configuration properties when you create or edit an IBM DB2 for LUW resource.

The following table describes the IBM DB2 for LUW configuration properties:

Property	Description
User name	Name of the user account used to connect to the IBM DB2 for LUW database.
Password	Password for the user account used to connect to the IBM DB2 for LUW database.
JDBC connection URL	JDBC URL used to connect to the IBM DB2 for LUW database. Metadata Manager uses this URL to verify connection information to the IBM DB2 for LUW database. The JDBC connection URL uses the following syntax: `jdbc:informatica:db2://[host_name]:[port];DatabaseName=[database_name]`
Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2` If secure communication is enabled for the database, enter the secure JDBC parameters in this property.
Connect string	Native connect string used to create a source connection to the database in the PowerCenter repository. The connect string is the name of the IBM DB2 for LUW database.
Encoding	Code page for the IBM DB2 for LUW database. Only code pages that are compatible with the code page of the Metadata Manager repository are displayed.

JDBC Parameters for Secure Databases

If secure communication is enabled for the IBM DB2 for LUW database, you must append additional parameters to the JDBC connection URL. To append the parameters, enter them in the **Secure JDBC Parameters** property.

Enter the following parameters in the **Secure JDBC Parameters** property:

```
EncryptionMethod=SSL;TrustStore=<truststore
location>;TrustStorePassword=<password>;HostNameInCertificate=<host
name>;ValidateServerCertificate=<true|false>;KeyStore=<keystore
location>;keyStorePassword=<password>
```

Configure the parameters as follows:

EncryptionMethod

Encryption method for data transfer between Metadata Manager and the database server. Must be set to SSL.

TrustStore

Path and file name of the truststore file that contains the security certificate of the database server.

TrustStorePassword

Password used to access the truststore file.

HostNameInCertificate

Host name of the machine that hosts the secure database. If you specify a host name, the Metadata Manager Service validates the host name included in the connection string against the host name in the security certificate.

ValidateServerCertificate

Indicates whether the Metadata Manager Service validates the certificate that the database server presents. If you set this parameter to true, the Metadata Manager Service validates the certificate. If you specify the HostNameInCertificate parameter, the Metadata Manager Service also validates the host name in the certificate.

If you set this parameter to false, the Metadata Manager Service does not validate the certificate that the database server presents. The Metadata Manager Service ignores any truststore information that you specify.

KeyStore

Path and file name of the keystore file that contains the security certificates that the Metadata Manager Service presents to the database server.

KeyStorePassword

Password used to access the keystore file.

Reference

After you create and load an IBM DB2 for LUW resource, you can view and run data lineage on the metadata objects extracted by Metadata Manager.

Objects Extracted

Metadata Manager extracts the following object types from an IBM DB2 for LUW database:

- Schema
- Table
- Column
- Datatype
- Alias
- View
- Index
- IndexColumn
- PrimaryKeyConstraint
- ForeignKey
- UniqueConstraint
- CheckConstraint
- Sequence
- Function
- Package
- Procedure
- TableTrigger

Troubleshooting for IBM DB2 for LUW

A resource load from an IBM DB2 for LUW database fails when the associated Integration Service uses a different version of the IBM DB2 client.

Ensure that the IBM DB2 for LUW client version used by the associated Integration Service is the same as the IBM DB2 for LUW database version.

IBM DB2 for z/OS

DB2 for z/OS is a Relational Database Management System (RDBMS) that runs on z/OS.

You can create and configure an IBM DB2 for z/OS resource to extract metadata from IBM DB2 for z/OS. When you load the resource, Metadata Manager uses PowerExchange for DB2 for z/OS to access metadata from z/OS subsystems. Metadata Manager extracts the following types of IBM DB2 for z/OS functions:

- Built-in
- User-defined
- Scalar
- Column
- Table

Configuring IBM DB2 for z/OS

Before you create an IBM DB2 for z/OS resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To access metadata in an IBM DB2 for z/OS subsystem, complete the following tasks:

- Install PowerExchange.
- Configure PowerExchange.
- Configure DB2 for z/OS privileges.
- Verify DB2 for z/OS mode.

Install PowerExchange

Metadata Manager uses PowerExchange for DB2 for z/OS to extract metadata from an IBM DB2 for z/OS subsystem. Therefore, you must install PowerExchange.

Note: You must install the same version of PowerExchange as Metadata Manager. If the versions differ, the resource load can fail.

Install PowerExchange for DB2 for z/OS in the following locations:

- The machine where the Metadata Manager Service runs.
- The z/OS system hosting the DB2 for z/OS database subsystem.

Configure PowerExchange

To access metadata from a DB2 for z/OS subsystem, install PowerExchange on the machine where the Metadata Manager Service runs. You must also install PowerExchange on the z/OS system where DB2 runs.

To configure PowerExchange, complete the following tasks:

- Configure PowerExchange to connect to z/OS on the machine where the Metadata Manager Service runs.
- Configure dbmover.cfg on the machine where the Metadata Manager Service runs with a NODE statement that points to the PowerExchange Listener on z/OS.
- Configure the following security setting in the DBMOVER configuration file on z/OS:

  ```
  SECURITY=(2,N)
  ```

  Optionally, configure the PowerExchange Listener on z/OS to recognize logins that are known to the operating system.

  The following information shows an example of dbmover.cfg:

  ```
  /*********************************************************************/
  /*  PowerExchange Configuration File
  /*********************************************************************/
  LISTENER=(node1,TCPIP,2480)
  LISTENER=(BGQALST,TCPIP,30080)
  LISTENER=(BGQALST_new,TCPIP,448)
  LISTENER=(DB2zOS_SPEDDUR,TCPIP,448)
  /*********************************************************************/
  NODE=(DB2zOS_SPEDDUR,TCPIP,mhz890-2,3156)
  NODE=(local,TCPIP,000.0.0.1,2480)
  NODE=(node1,TCPIP,000.0.0.1,2480)
  NODE=(BGQALST,TCPIP,mhz890-2,30080)
  ```

By default, PowerExchange on z/OS uses the user ID of the PowerExchange Listener for DB2 access. To use a user-specified user ID for DB2 access, configure PowerExchange to use operating system security.

Configure DB2 for z/OS Privileges

When you load a DB2 for z/OS resource, Metadata Manager extracts metadata from the DB2 for z/OS subsystem. Metadata Manager selects the metadata from DB2 catalog tables. Configure SELECT privileges on the following tables in the DB2 for z/OS user account that you use to connect to the metadata source:

System Tables	Metadata Extracted
SYSIBM.SYSSYNONYMS SYSIBM.SYSTABLES SYSIBM.SYSROUTINES SYSIBM.SYSSEQUENCES SYSIBM.SYSDATATYPES	Schemas
SYSIBM.SYSTABLES SYSIBM.SYSTABLESPACE SYSIBM.SYSVIEWS	Tables Views Alias
SYSIBM.SYSTABLES SYSIBM.SYSCOLUMNS SYSIBM.SYSTABLESPACE	Columns
SYSIBM.SYSKEYS SYSIBM.SYSINDEXES	Primary keys

System Tables	Metadata Extracted
SYSIBM.SYSRELS SYSIBM.SYSFOREIGNKEYS SYSIBM.SYSINDEXES	Foreign keys
SYSIBM.SYSCHECKS SYSIBM.SYSCHECKDEP	Check constraints
SYSIBM.SYSINDEXES SYSIBM.SYSKEYS	Indexes
SYSIBM.SYSSYNONYMS SYSIBM.SYSTABLES	Synonyms
SYSIBM.SYSTRIGGERS	Triggers
SYSIBM.SYSROUTINES	Stored procedures
SYSIBM.SYSROUTINES	Functions
SYSIBM.SYSSEQUENCES	Sequences
SYSIBM.SYSSEQUENCESDEP SYSIBM.SYSSEQUENCES	Identity
SYSIBM.SYSDATATYPES	User-defined types

Note: If the PowerExchange Listener does not use DB2 security, configure SELECT privileges for the PowerExchange Listener user ID instead of the DB2 for z/OS user account.

Verify DB2 for z/OS Mode

Run the DB2 for z/OS database in the new-function mode. You cannot extract metadata if DB2 for z/OS runs in the compatibility mode or conversion mode.

Creating an IBM DB2 for z/OS Resource

Before you create an IBM DB2 for z/OS resource, configure the IBM DB2 for z/OS source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **DB2 zOS**.
3. Click **Next**.

   The **Properties** window appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

IBM DB2 for z/OS Configuration Properties

Update the configuration properties when you create or edit an IBM DB2 for z/OS resource.

The following table describes the IBM DB2 for z/OS configuration properties:

Property	Description
User name	z/OS user ID.
Password	Password for the z/OS user ID.
Location	Node name in the dbmover.cfg file on the machine where the Metadata Manager Service runs that points to the PowerExchange Listener on the z/OS system.
Subsystem ID	Identifier for the IBM DB2 for z/OS subsystem.
Encoding	Code page for the IBM DB2 for z/OS subsystem. Only code pages that are compatible with the code page of the Metadata Manager repository are displayed.

Reference

After you create and load an IBM DB2 for z/OS resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Data Lineage for Database Management Resources" on page 210

Functions

Metadata Manager imports the following IBM DB2 for z/OS functions:

- Built-in
- User-defined
- Scalar
- Column
- Table

Metadata Manager does not import system-generated functions.

Object Names

Metadata Manager imports IBM DB2 for z/OS objects with names that do not exceed 255 characters. The name of the object includes the following components: *schema_name.table_name.object_name.*

Schemas and Qualifiers

In IBM DB2 for z/OS, the term "schema" represents distinct types, functions, stored procedures, and sequences. IBM uses "qualifier" to discuss tables, views, indexes, and aliases.

For Metadata Manager, "schema" represents the top level qualifier for all objects. The qualifier used for tables, views, indexes, and aliases is the CREATOR of the object.

IBM Informix

You can create and configure an IBM Informix resource to extract metadata from IBM Informix. When you load the resource, Metadata Manager extracts schema details from an IBM Informix database.

Configuring IBM Informix

Before you create an Informix resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Informix, complete the following tasks:

- Configure permissions.
- Configure an ODBC connection to the Informix database.

Configure Permissions

Before you create an Informix resource, configure the permissions for the Informix database user account that you use to connect to Informix.

The following table lists the schema objects and system tables on which you must configure SELECT permissions for the Informix database user account:

Schema Objects	System Tables
Tables Views Indexes Packages Procedures Functions Sequences Triggers Synonyms	systables sysviews sysusers sysdepend syscolumns sysdepend sysfragments sysmaster sysxtdtypes sysxtddesc sysindices sysobjstate systriggers sysconstraints sysprocedures sysindexes syssyntable syssynonyms syscoldepend sysreferences sysxtdtypes systrigbody

Configure an ODBC Connection

When you load an Informix resource, the PowerCenter Integration Service uses an ODBC driver to connect to the Informix database. Therefore, you must configure an ODBC connection to the Informix database on the machine where the PowerCenter Integration Service runs. When you create the Informix resource in Metadata Manager, use the ODBC data source name as the connect string.

For ODBC connectivity, use the DataDirect ODBC drivers installed with Informatica. To ensure compatibility between Informatica and databases, use the appropriate database client libraries.

Note: If you use the DataDirect ODBC driver provided by Informatica, you do not need the database client. The ODBC wire protocols do not require the database client software to connect to the database.

Configuring ODBC Connectivity on Windows

1. Create an ODBC data source using the DataDirect ODBC Wire Protocol driver for Informix provided by Informatica.
2. Verify that you can connect to the Informix database using the ODBC data source. If the connection fails, see the database documentation.

Configuring ODBC Connectivity on UNIX

1. Set the ODBCHOME environment variable to the ODBC installation directory. For example:
   Using a Bourne shell:

   ```
   $ ODBCHOME=<Informatica services installation directory>/ODBC7.1; export ODBCHOME
   ```

   Using a C shell:

   ```
   $ setenv ODBCHOME <Informatica services installation directory>/ODBC7.1
   ```

2. Set the ODBCINI environment variable to the location of the odbc.ini file. For example, if the odbc.ini file is in the $ODBCHOME directory:

   Using a Bourne shell:

   ```
   ODBCINI=$ODBCHOME/odbc.ini; export ODBCINI
   ```

   Using a C shell:

   ```
   $ setenv ODBCINI $ODBCHOME/odbc.ini
   ```

3. Edit the existing odbc.ini file in the $ODBCHOME directory or copy this odbc.ini file to the UNIX home directory and edit it.

   ```
   $ cp $ODBCHOME/odbc.ini $HOME/.odbc.ini
   ```

4. Add an entry for the Informix data source under the section [ODBC Data Sources] and configure the data source. For example:

   ```
   [Informix11]
   Driver=/data/mm10/Informatica/source/ODBC7.1/lib/DWifcl27.so
   Description=DataDirect 7.1 Informix Wire Protocol
   AlternateServers=
   ApplicationUsingThreads=1
   CancelDetectInterval=0
   ConnectionRetryCount=0
   ConnectionRetryDelay=3
   Database=<database_name>
   HostName=<Informix_host>
   LoadBalancing=0
   LogonID=
   Password=
   PortNumber=<Informix_server_port>
   ServerName=<Informix_server>
   TrimBlankFromIndexName=1
   UseDelimitedIdentifiers=0
   ```

5. Set the PATH and shared library environment variables by executing the script odbc.sh or odbc.csh in the $ODBCHOME directory.

Using a Bourne shell:

```
sh odbc.sh
```

Using a C shell:

```
source odbc.csh
```

6. Verify that you can connect to the Informix database using the ODBC data source. If the connection fails, see the database documentation.

Creating an IBM Informix Resource

Before you create an IBM Informix resource, configure the IBM Informix source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Informix**.
3. Click **Next**.

   The **Properties** window appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.

13. Click **Next**.

    The **Schedules** window appears.

14. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

IBM Informix Configuration Properties

Update the configuration properties when you create or edit an Informix resource.

The following table describes the Informix configuration properties:

Property	Description
User name	Name of the user account used to connect to the Informix database.
Password	Password for the user account used to connect to the Informix database.
JDBC connection URL	JDBC URL used to connect to the Informix database. Metadata Manager uses this URL to verify connection information to the Informix database. The JDBC connection URL uses the following syntax: `jdbc:informatica:informix://[host_name]:[port];InformixServer=[server_name];DatabaseName=[database_name]`
Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2`
Connect string	Informix DSN configured in the Microsoft ODBC Administrator or the odbc.ini file.
Encoding	Code page for the Informix database. Only code pages that are compatible with the code page of the Metadata Manager repository are displayed.

Reference

After you create and load an Informix resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Data Lineage for Database Management Resources" on page 210

Objects Extracted

Metadata Manager extracts the following object types from Informix:

- Schema
- Table
- Column
- Datatype
- Synonym
- View
- Index
- IndexColumn
- PrimaryKeyConstraint
- ForeignKey
- UniqueConstraint
- CheckConstraint
- NotNullConstraint
- Function
- Procedure
- TableTrigger

Metadata Manager does not extract the following object types from Informix:

- Sequences
- External Table

Element ID

Metadata Manager determines the Element_ID of each Informix metadata object using the name of the object, not the ID column defined in the Informix database. Metadata Manager uses the name because Informix changes the ID column of an object whenever the object definition changes.

In Informix, you can use the same name for functions and procedures that have different parameters. To establish a unique element ID, Metadata Manager creates element IDs for functions and procedures with a combination of object name, number of arguments, and parameter types.

Table-to-Trigger Association

Informix stores the relationship between a table and triggers created on the table, but does not store the relationship between a trigger and tables accessed by the trigger. Therefore, Metadata Manager uses the TableOwningTrigger association, not the TriggerUsingColumnSet association.

View-to-Synonym Association

Although you can create a view on a synonym in Informix, the Informix system catalog does not store the relationship. Since Informix does not store the relationship, Metadata Manager does not store associations between views and synonyms.

Table-to-Constraint Association

Metadata Manager defines the association between a table and constraint using the ModelElementDependency association. The com.informatica.cwmx.dependency package contains this association.

View Definitions

If an Informix view definition exceeds 64 characters, Informix splits the view definition into multiple records. Each record holds up to 64 characters. By default, Metadata Manager extracts up to five records for each description, which totals 320 characters for each view definition.

Trigger Definitions

Informix splits trigger definitions into header and body, storing each in a separate record. If the Informix trigger definitions exceed 256 characters, Informix splits the trigger body into multiple records. Each record holds up to 256 characters. By default, Metadata Manager extracts up to 256 characters for the header and body combined.

JDBC

You can create and configure a JDBC resource to extract metadata from any relational database management system that is accessible through JDBC.

For relational databases that support JDBC, you can create and configure a JDBC resource instead of creating and configuring a custom resource. It is easier to manage linking between objects in connected resources using JDBC resources.

You can create a JDBC resource for any relational database that supports JDBC. You cannot connect to relational databases through ODBC. Where available, you should use the existing database resource types specific to that relational database instead of the JDBC resource. The database-specific resource types perform better and extract more metadata aspects. For example, to load metadata from an Oracle database, create an Oracle resource instead of creating a JDBC resource.

Configuring the JDBC Metadata Source

Before you create a JDBC resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure the JDBC metadata source, complete the following steps:

- Install the Metadata Manager Agent.
- Configure the permissions for the database user account that you use to connect to the database. Verify that the user has access to the system tables instead of the data tables.

- Install and configure required database drivers. For example, to configure a JDBC resource to use IBM DB2/iSeries, you can use the data drivers that are available to you when you install PowerCenter.

  The JDBC driver JAR files must be available on the same host as the Metadata Manager Agent.

To test the connection settings to the data source, use any available interface to connect to it through JDBC. For example, you use the database development perspective in Eclipse to test the connection settings. After connecting to the data source, verify that you can access the catalog, schema, or tables that you want to import. Use these connection settings when you configure a JDBC resource for that data source.

When you load a JDBC resource, Metadata Manager imports database objects such as tables and views. You can configure Metadata Manager to additionally import data structures such as keys, indexes, and stored procedures.

Related Topics:

- "Step 2. Install the Metadata Manager Agent" on page 22

Creating a JDBC Resource

Before you create a JDBC resource, configure the JDBC metadata source.

1. On the Load tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **JDBC**.
3. Click **Next**.

   The **Properties** page appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Schedules** window appears.

9. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

   If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

10. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

JDBC Configuration Properties

Update the configuration properties when you create or edit a JDBC resource.

The following table describes the JDBC configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent. You can use the Metadata Manager Agent installed on any machine. For example: `http://localhost:19980`
Source system version	Name and version of the metadata source.
Driver location	Path to the JDBC driver JAR file. Separate multiple values with a semicolon (;). If required, copy the JAR file to the Windows machine on which the Metadata Manager Agent is installed. The driver path is relative to the Metadata Manager Agent location. If you specify the file name without specifying the path, verify that the JAR file is in the classpath of the machine that runs the Metadata Manager Agent. For example, the data driver for IBM DB2/iSeries is in the following directory: `<Informatica installation directory>\services\MetadataManagerService\utilities\mmcmd\lib`
Driver class	Name of the Java class that implements the JDBC driver interface. Specify the full name including the package name. For example: `com.informatica.jdbc.db2.DB2Driver`
URL	JDBC URL to connect to the database. Metadata Manager uses this URL to verify connection information to the database. The value that you specify depends on the database and the driver that you use. For example: `jdbc:informatica:db2://host_name:port;LocationName=<location name>;PackageCollection=<package collection>` The default port number of the IBM DB2/iSeries server is 446.
User	Name of the user account used to connect to the database.
Password	Password for the user account used to connect to the database.
Catalog	Catalog name that Metadata Manager uses to filter metadata. The catalog is a container for schemas and global objects. The catalog is not relevant for all relational databases. For example, IBM DB2/iSeries does not use a catalog.

Property	Description
Schema	Schema name that Metadata Manager uses to filter metadata. Separate multiple values with a semicolon (;). If you do not specify a schema name, Metadata Manager loads the first schema in the list of available schemas sorted in ascending alphabetic order.
Case sensitivity	Case sensitivity setting for the metadata source database. Select one of the following options: - Auto. The Metadata Manager Agent uses the JDBC driver that you specify in the **Driver path** property to determine whether the database is case sensitive. If the driver cannot check case sensitivity, the Metadata Manager Agent assumes that the database is not case sensitive. - Case sensitive - Case insensitive Default is Auto.
View definition extracting SQL	Database-specific SQL query to extract the view definitions. The query must return results with a single column that contains the view definition text. If you do not enter a query, data lineage between views and their source tables is not built. For example, you can enter the following query for IBM DB2/iSeries: `SELECT TABLE_SCHEMA, TABLE_NAME, VIEW_DEFINITION FROM QSYS2.SYSVIEWS WHERE TABLE_SCHEMA IN (?)`
Synonyms lineage SQL	Database-specific SQL query to extract the synonym information for tables and views. **Note:** This property is reserved for future use.
Optional scope	Optional data structures to import such as keys, indexes, and stored procedures. To import optional data structures, click **Select** and choose the data structures to import. **Note:** You must specify the connection information for the JDBC source before you can select the optional data structures to import.

Objects Extracted and Not Extracted

After you create and load a JDBC resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

To view lineage between views and tables, specify a database-specific SQL query to extract the view definitions when you create or edit a JDBC resource. Metadata Manager uses the view definitions text to build lineage between views and tables.

Objects Extracted

Metadata Manager extracts the following objects from a JDBC resource:

- Schema name
- Table name, Comments
- Column name, Nullable, Position, Length, Scale, Comments, Data type.
  Data type is a generic equivalent of the proprietary datatype.
- View name, View definition.
  View definitions are extracted when the view definition extraction SQL is specified during resource configuration.

Objects Not Extracted

Metadata Manager does not extract the following objects from a JDBC resource:

- Catalog name
- Synonyms of tables and views
- Indexes
- Stored procedures
- Triggers
- Primary key and foreign key information
- Profiling information

Microsoft SQL Server

You can create and configure a Microsoft SQL Server resource to extract metadata from Microsoft SQL Server. When you load the resource, Metadata Manager extracts schema details from a Microsoft SQL Server database.

Configuring Microsoft SQL Server

Before you create a Microsoft SQL Server resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Microsoft SQL Server, complete the following tasks:

Configure permissions.

Configure permissions for the Microsoft SQL Server database user account that you use to connect to Microsoft SQL Server.

Configure environment variables on UNIX.

The PowerCenter Integration Service uses ODBC to connect to the Microsoft SQL Server database. When you create a Microsoft SQL Server resource, you enter the connect string in the format `<server_name>@<database_name>`. The PowerCenter Integration Service retrieves the server name and the database name from the connect string and creates a data source using the installed ODBC driver. You do not have to create the data source manually.

On Windows, the PowerCenter Integration Service can access the ODBC driver. On UNIX, you must set the ODBCINST environment variable to the location of the odbcinst.ini file so that the PowerCenter Integration Service can access the driver.

Configure Permissions

Before you create a Microsoft SQL Server resource, configure the permissions for the Microsoft SQL Server database user account that you use to connect to Microsoft SQL Server.

The Metadata Manager Service uses SQL Server authentication to connect to the Microsoft SQL Server database. The user account that you use to connect to Microsoft SQL Server must be an SQL Server login account. Configure the VIEW DEFINITION permission for the user account. Configuring this permission lists all the schemas from where the user can load metadata.

Configure Environment Variables on UNIX

When you load a Microsoft SQL Server resource, the PowerCenter Integration Service uses ODBC to connect to the Microsoft SQL Server database. You must set the ODBCINST environment variable to enable the PowerCenter Integration Service to access the ODBC driver.

On the machine that runs the PowerCenter Integration Service, set the ODBCINST environment variable to the location of the odbcinst.ini file. For example:

```
ODBCINST=<INFA_HOME>/ODBC7.1/odbcinst.ini
```

Restart the domain after you set the environment variable.

Creating a Microsoft SQL Server Resource

Before you create a Microsoft SQL Server resource, configure the Microsoft SQL Server source.

1. On the Load tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **SQLServer**.
3. Click **Next**.

   The **Properties** window appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.

12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Microsoft SQL Server Configuration Properties

Update the configuration properties when you create or edit a Microsoft SQL Server resource.

The following table describes the Microsoft SQL Server configuration properties:

Property	Description
User name	Name of the SQL Server user account used to connect to the Microsoft SQL Server database. The Metadata Manager Service uses SQL Server authentication to connect to the Microsoft SQL Server database.
Password	Password for the user account used to connect to the Microsoft SQL Server database.
JDBC connection URL	JDBC URL used to connect to the Microsoft SQL Server database. Metadata Manager uses this URL to verify connection information to the Microsoft SQL Server database. The JDBC connection URL uses the following syntax: `jdbc:informatica:sqlserver://[host_name]:[port];SelectMethod=cursor;DatabaseName=[database_name]`
Connect string	Connect string used to create a connection to the Microsoft SQL Server database in the PowerCenter repository. Use the following syntax: `<server_name>@<database_name>` Alternatively, you can create an ODBC data source on the machine that runs the PowerCenter Integration Service and specify the data source name (DSN) as the connect string.
Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2` If secure communication is enabled for the database, enter the secure JDBC parameters in this property.
Encoding	Code page for the Microsoft SQL Server database. The code page for the resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.
Use Trusted Connection	To authenticate the user credentials using Windows authentication and establish a trusted connection to a Microsoft SQL Server database, select **Use trusted connection**. When you use a trusted connection to connect to a Microsoft SQL Server database, the Metadata Manager Service connects to the repository with the credentials of the user logged in to the machine on which the service is running.

JDBC Parameters for Secure Databases

If secure communication is enabled for the Microsoft SQL Server database, you must append additional parameters to the JDBC connection URL. To append the parameters, enter them in the **Secure JDBC Parameters** property.

Enter the following parameters in the **Secure JDBC Parameters** property:

```
EncryptionMethod=SSL;TrustStore=<truststore
location>;TrustStorePassword=<password>;HostNameInCertificate=<host
name>;ValidateServerCertificate=<true|false>;KeyStore=<keystore
location>;keyStorePassword=<password>
```

Configure the parameters as follows:

EncryptionMethod

Encryption method for data transfer between Metadata Manager and the database server. Must be set to SSL.

TrustStore

Path and file name of the truststore file that contains the security certificate of the database server.

TrustStorePassword

Password used to access the truststore file.

HostNameInCertificate

Host name of the machine that hosts the secure database. If you specify a host name, the Metadata Manager Service validates the host name included in the connection string against the host name in the security certificate.

ValidateServerCertificate

Indicates whether the Metadata Manager Service validates the certificate that the database server presents. If you set this parameter to true, the Metadata Manager Service validates the certificate. If you specify the HostNameInCertificate parameter, the Metadata Manager Service also validates the host name in the certificate.

If you set this parameter to false, the Metadata Manager Service does not validate the certificate that the database server presents. The Metadata Manager Service ignores any truststore information that you specify.

KeyStore

Path and file name of the keystore file that contains the security certificates that the Metadata Manager Service presents to the database server.

KeyStorePassword

Password used to access the keystore file.

Reference

After you create and load a Microsoft SQL Server resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Data Lineage for Database Management Resources" on page 210

Objects Extracted

Metadata Manager extracts the following object types from Microsoft SQL Server:

- Schema
- Table
- Column
- Datatype
- View
- Index
- IndexColumn
- PrimaryKeyConstraint
- ForeignKey
- UniqueConstraint
- CheckConstraint
- Scalar-valued function
- Procedure
- TableTrigger
- ViewTrigger

Objects Not Extracted

Metadata Manager does not extract the following object types from Microsoft SQL Server:

- Default or DEFAULT constraint
- Log
- Replication filter stored procedure
- Extended stored procedure
- System schema
- System view
- Table-valued function

Extended Properties

Metadata Manager extracts the value of the MS_Description extended property for Microsoft SQL Server table and view columns. Metadata Manager displays the property value in the **Description** property when you view the column details.

Metadata Manager does not extract extended properties for other Microsoft SQL Server objects. Metadata Manager does not extract extended properties other than MS_Description.

Netezza

You can create and configure a Netezza resource to extract metadata from Netezza. When you load the resource, Metadata Manager extracts schema details from a Netezza database.

Configuring Netezza

Before you create a Netezza resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Netezza, complete the following tasks:

- Configure permissions.
- Install and configure the Netezza JDBC driver.
- Install the Netezza ODBC driver and create a DSN.

Configure Permissions

The user account must have the LIST privilege to extract metadata from a Netezza database. The LIST privilege grants the Netezza user access to all database objects in the Netezza database through Metadata Manager. If necessary, assign database permissions to limit access to individual database objects. For more information, see the Netezza documentation.

Configure SELECT permissions for the Netezza user account on the following system views:

- _V_TABLE_DIST_MAP
- _V_TABLE
- _V_DATABASE
- _v_relation_keydata
- _v_relation_column
- _v_view
- _v_synonym
- _v_datatype
- _v_sequence

Install and Configure the Netezza JDBC Driver

Install the Netezza JDBC driver on the machine where the Metadata Manager Service runs.

1. Download and install the Netezza JDBC driver from the IBM web site.
2. Disable the Metadata Manager Service.
3. Copy the JDBC driver JAR file, nzjdbc.jar, from the Netezza JDBC driver installation directory to the following directory:

   ```
   <Informatica installation directory>\services\shared\jars\thirdparty
   ```

4. Enable the Metadata Manager Service.

Install the Netezza ODBC Driver and Create a DSN

To access a Netezza database, install the Netezza ODBC driver on the node where the PowerCenter Integration Service runs, and then create a DSN.

1. Download and install the Netezza ODBC driver from the IBM web site.
2. From the Microsoft Windows Control Panel, click **Administrative Tools** > **Data Sources (ODBC)**.
3. On the **System DSN** tab, Click **Add**.

   The **Create New Data Source** window appears.
4. Select **NetezzaSQL**, and click **Finish**.

   The **NetezzaSQL ODBC Datasource Connection** dialog box appears.
5. Enter the following information:

Field	Description
Data Source	Name for the data source. Metadata Manager uses the data source name as a connect string.
Description	Optional description.
Database	Name of the Netezza database.
Server	Host name of the Netezza database server.
Port	Port number of the Netezza database server.
User name	Netezza database user name. Metadata Manager uses this user name to access metadata in the Netezza database.
Password	Password for the Netezza database user name.

6. Click **OK**.

Creating a Netezza Resource

Before you create a Netezza resource, configure the Netezza source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Netezza**.
3. Click **Next**.

   The **Properties** page appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Netezza Configuration Properties

Update the configuration properties when you create or edit a Netezza resource.

The following table describes the Netezza configuration properties:

Property	Description
User name	Name of the user account used to connect to the Netezza database.
Password	Password for the user account used to connect to the Netezza database.
JDBC connection URL	JDBC URL used to connect to the Netezza database. Metadata Manager uses this URL to verify connection information to the Netezza database. The JDBC connection URL uses the following syntax: `jdbc:netezza://[host_name]:[port]/[database_name]`
Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2`
Connect string	ODBC data source connect string for a Netezza database. Enter the data source name of the Netezza DSN that you created.
Encoding	Code page for the Netezza database. The code page for the resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.

Reference

After you create and load a Netezza resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Objects Extracted

Metadata Manager extracts the following object types from a Netezza database:

- Column
- Data type
- Distribution key
- Distribution key column
- Expression
- External table
- Foreign key
- Materialized view
- Primary key
- Schema

- Sequence
- Synonym
- Table
- Unique key constraint
- View

Oracle

You can create and configure an Oracle resource to extract metadata from Oracle. When you load the resource, Metadata Manager extracts schema details from an Oracle database.

Before you create an Oracle resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

Configure Permissions

Configure the permissions for the Oracle database user account that you use to connect to the Oracle database.

Configure CONNECT and SELECT_CATALOG_ROLE permissions for the user account.

If you cannot configure SELECT_CATALOG_ROLE permission for the user account, configure the following permissions:

- SELECT permissions on the v$version and v$instance views.
- CONNECT and SELECT permissions on the required schema objects and corresponding system tables.

Configure SELECT permissions on the following schema objects:

- Tables
- Views
- Indexes
- Packages
- Procedures
- Functions
- Sequences
- Triggers
- Synonyms

Configure SELECT permissions on the following system tables:

- ALL_OBJECTS
- ALL_SOURCE
- ALL_USERS
- DBA_COL_COMMENTS
- DBA_CONS_COLUMNS

- DBA_CONSTRAINTS
- DBA_DEPENDENCIES
- DBA_IND_COLUMNS
- DBA_INDEXES
- DBA_MVIEWS
- DBA_OBJECTS
- DBA_RECYCLEBIN
- DBA_SEQUENCES
- DBA_SOURCE
- DBA_SYNONYMS
- DBA_TAB_COLUMNS
- DBA_TAB_COMMENTS
- DBA_TAB_PARTITIONS
- DBA_TABLES
- DBA_TRIGGERS
- DBA_VIEWS

If schemas have a table with a cluster defined on some columns, you must configure SELECT permission on the DBA_CLUSTER system table.

Configure Oracle with the Advanced Security Option

If you want to extract metadata from an Oracle database that uses the Advanced Security Option (ASO), you must perform additional tasks so that Metadata Manager can communicate with the database.

To enable Metadata Manager to communicate with the Oracle database, perform the following tasks:

1. Configure the encryption type on the Oracle server.
2. Configure the sqlnet.ora and tnsnames.ora files on the Oracle client machines.
3. Download and extract the Java Cryptography Extension (JCE) policy files.

Step 1. Configure the Encryption Type on the Oracle Server

You must configure the encryption type on the Oracle server.

Set the Oracle ASO server-side encryption type to Required or Requested. If server-side encryption is set to Accepted, Metadata Manager cannot communicate with the Oracle database.

Step 2. Configure sqlnet.ora and tnsnames.ora

You must configure the sqlnet.ora and tnsnames.ora files on the Oracle client machines so that Metadata Manager can access the Oracle database.

In the sqlnet.ora file, configure the following parameters:

- SQLNET.AUTHENTICATION_SERVICES
- NAMES.DIRECTORY_PATH
- SQLNET.EXPIRE_TIME
- SQLNET.ENCRYPTION_TYPES_SERVER

- SQLNET.ENCRYPTION_SERVER
- SQLNET.CRYPTO_CHECKSUM_SERVER
- SQLNET.CRYPTO_CHECKSUM_TYPES_SERVER
- SQLNET.CRYPTO_SEED

For example, the following code shows possible sqlnet.ora settings when the encryption type is aes256:

```
SQLNET.AUTHENTICATION_SERVICES = (NTS)
NAMES.DIRECTORY_PATH = (tnsnames, ezconnect)
SQLNET.EXPIRE_TIME = 0
SQLNET.ENCRYPTION_TYPES_SERVER = (aes256)
SQLNET.ENCRYPTION_SERVER = required
SQLNET.CRYPTO_CHECKSUM_SERVER = required
SQLNET.CRYPTO_CHECKSUM_TYPES_SERVER = (md5)
SQLNET.CRYPTO_SEED = "abcd1234"
```

In the tsnames.ora file, add an entry for the Oracle server that uses ASO.

Step 3. Download and Extract the JCE Policy Files

The DataDirect JDBC driver for Oracle requires Java Cryptography Extension (JCE) Policy files to support 256-bit strength encryption.

For all operating systems except AIX, download the Oracle JCE Unlimited Strength Jurisdiction Policy File 6, jce_policy-6.zip, from the Oracle website to your local machine. For the AIX operating system, download the IBM Unrestricted SDK JCE Policy File for older versions of the SDK, unrestricted.zip, from the IBM website to your local machine.

Extract the local_policy.jar and US_export_policy.jar files to the following directory:

```
<Informatica installation directory>\java\jre\lib\security
```

Creating an Oracle Resource

Before you create an Oracle resource, configure the Oracle source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Oracle**.
3. Click **Next**.

   The **Properties** window appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Oracle Configuration Properties

Update the configuration properties when you create or edit an Oracle resource.

The following table describes the Oracle configuration properties:

Property	Description
User name	Name of the user account used to connect to the Oracle database.
Password	Password for the user account used to connect to the Oracle database.

JDBC connection URL	JDBC URL used to connect to the Oracle database. Metadata Manager uses this URL to verify connection information to the Oracle database.
	If the Oracle database is not clustered, use the following syntax:
	`jdbc:informatica:oracle://[host name]:[port];SID=[sid]`
	You can enter the SID or edit the string to use the full service name. For example:
	`jdbc:informatica:oracle://[host name]:[port];ServiceName=[service name]`
	If the Oracle database is clustered, use the following syntax:
	`jdbc:informatica:oracle://[host1]:[port];ServiceName=[service name];AlternateServers = ([host2]:[port]);LoadBalancing=true`
	If the Oracle database uses the Advanced Security Option, use the following syntax:
	`jdbc:informatica:oracle://[host name]:[port];SID=[SID];EncryptionLevel=[encryption level];EncryptionTypes=[encryption types];DataIntegrityLevel=[data integrity level];DataIntegrityTypes=[data integrity types]`

Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2` If secure communication is enabled for the database, enter the secure JDBC parameters in this property.
Connect string	Native connect string used to create a source connection to the database in the PowerCenter repository. The connect string is the same as the Oracle TNSNAMES entry on the machine where the associated Integration Service for Metadata Manager runs. Use the following syntax: `<database name>.world`
Encoding	Code page for the Oracle database. Only code pages that are compatible with the code page of the Metadata Manager repository are displayed.
Incremental load	Enables incremental loading for the resource after the first successful resource load. When you enable this option, Metadata Manager loads recent changes to the metadata instead of loading complete metadata. When you disable this option, Metadata Manager performs a full metadata load. Default is disabled.

JDBC Parameters for Secure Databases

If secure communication is enabled for the Oracle database, you must append additional parameters to the JDBC connection URL. To append the parameters, enter them in the **Secure JDBC Parameters** property.

Enter the following parameters in the **Secure JDBC Parameters** property:

```
EncryptionMethod=SSL;TrustStore=<truststore
location>;TrustStorePassword=<password>;HostNameInCertificate=<host
name>;ValidateServerCertificate=<true|false>;KeyStore=<keystore
location>;keyStorePassword=<password>
```

Configure the parameters as follows:

EncryptionMethod

Encryption method for data transfer between Metadata Manager and the database server. Must be set to SSL.

TrustStore

Path and file name of the truststore file that contains the security certificate of the database server.

TrustStorePassword

Password used to access the truststore file.

HostNameInCertificate

Host name of the machine that hosts the secure database. If you specify a host name, the Metadata Manager Service validates the host name included in the connection string against the host name in the security certificate.

ValidateServerCertificate

Indicates whether the Metadata Manager Service validates the certificate that the database server presents. If you set this parameter to true, the Metadata Manager Service validates the certificate. If you specify the HostNameInCertificate parameter, the Metadata Manager Service also validates the host name in the certificate.

If you set this parameter to false, the Metadata Manager Service does not validate the certificate that the database server presents. The Metadata Manager Service ignores any truststore information that you specify.

KeyStore

Path and file name of the keystore file that contains the security certificates that the Metadata Manager Service presents to the database server.

KeyStorePassword

Password used to access the keystore file.

Incremental Loading for Oracle Resources

When you load an Oracle resource, Metadata Manager performs a full metadata load by default. You can configure Metadata Manager to perform loads incrementally after the first successful metadata load.

A full load extracts all metadata objects. An incremental load causes Metadata Manager to load recent changes to the metadata instead of loading complete metadata. Recent changes include the addition of objects, updates to objects, and the deletion of objects since the start of the last successful load. Incremental loading reduces the load time because Metadata Manager extracts fewer objects in an incremental load than it extracts in a full load.

Use the **Incremental load** configuration property to enable or disable incremental loading for an Oracle resource.

Note: Even if you enable incremental loading, a complete metadata load occurs in the following circumstances:

- You purge the resource.
- You cancel the first load of the resource before the ETL task starts.
- The first load of the resource fails.

Reference

After you create and load an Oracle resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Data Lineage for Database Management Resources" on page 210

Objects Extracted

Metadata Manager extracts the following database object types from Oracle:

- Database trigger
- Schema
- Schema trigger

Metadata Manager extracts the following object types from the Oracle schema:

- Function
- Index
  - Index column
- Materialized view
  - Check constraint
  - Column
  - Foreign key
- Package
  - Function
  - Procedure
- Procedure
- Schema trigger
- Sequence
- Synonym
- Table trigger
- Table
  - Check constraint
  - Column

  - Foreign key
  - Primary key
  - Unique key constraint
- View trigger
- View
  - Column

Metadata Manager does not extract dropped tables, constraints, triggers, or indexes from the Oracle schema.

Snapshots

Oracle database snapshots do not display in the metadata catalog or data lineage.

Public Schema

Public schema is not a true Oracle schema. Metadata Manager creates a virtual schema, called PUBLIC schema, to properly display the owner of Oracle public synonyms. The Public schema owns and classifies all public synonyms created by any user. The Public schema appears as the owner name for all public synonyms in Metadata Manager.

Public Synonym Handling

Metadata Manager does not extract Oracle internal public synonyms.

Metadata Manager extracts Oracle public synonyms for the schemas that you select to load. Public synonyms appear for database tables included in the lineage diagram.

Sybase ASE

You can create and configure a Sybase ASE resource to extract metadata from Sybase ASE. When you load the resource, Metadata Manager extracts schema details from a Sybase ASE database.

Configuring Sybase ASE

Before you create a Sybase ASE resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Sybase ASE, complete the following tasks:

- Configure permissions.
- Rename library files for Sybase ASE version 15.0 and later.

Configure Permissions

Before you create a Sybase resource, configure the permissions for the Sybase ASE database user account that you use to connect to the Sybase ASE database.

Configure SELECT permissions on the following schema objects:

- Tables
- Views
- Columns
- Procedures

Configure SELECT permissions on the following system tables:

- sysobjects
- syscomments
- sysdepends
- syscolumns
- sysindexes
- sysconstraints
- sysreferences
- sysusers
- systypes
- master.dbo.sysservers
- master.dbo.sysconfigures
- @@<servername>

Rename Library Files for Sybase ASE Version 15.0 and Later

Sybase ASE version 15.0 and later uses different library file names from earlier Sybase ASE versions. When you load a Sybase ASE resource, Metadata Manager uses Sybase library file names from earlier versions. As a result, Metadata Manager cannot load a Sybase ASE version 15.0 or later resource unless you rename the library files in the Sybase ASE client.

The Sybase ASE client installation includes a backward compatibility script that renames library files to the library file names used in earlier versions. Run one of the following scripts to rename the library files:

- copylibs.bat on Windows
- lnsybs on UNIX

The scripts are in the following directory:

```
<SybaseClientInstallation>sybase\OCS-15_0\scripts
```

Creating a Sybase ASE Resource

Before you create a Sybase ASE resource, configure the Sybase ASE source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Sybase**.
3. Click **Next**.

The **Properties** window appears.

4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.

6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.

8. Click **Next**.

   The **Parameters** window appears.

9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.
11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.

14. To add a schedule, select **Attach a Schedule**, and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Sybase ASE Configuration Properties

Update the configuration properties when you create or edit a Sybase ASE resource.

The following table describes the Sybase ASE configuration properties:

Property	Description
User name	Name of the user account used to connect to the Sybase database.
Password	Password for the user account used to connect to the Sybase database.
JDBC connection URL	JDBC URL used to connect to the Sybase database. Metadata Manager uses this URL to verify connection information to the Sybase database. The JDBC connection URL uses the following syntax: `jdbc:informatica:sybase://[host_name]:[port];DatabaseName=[database_name]`
Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1;param2=value2`
Connect string	Native connect string used to create a source connection to the database in the PowerCenter repository. The connect string uses the following syntax: `<server_name>@<database_name>`
Encoding	Code page for the Sybase database. The code page for the resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.

Reference

Metadata Manager extracts the following object types from Sybase ASE:

- Schema
- Table
- Column
- Datatype
- View
- Index
- IndexColumn
- PrimaryKeyConstraint
- ForeignKey
- UniqueConstraint
- CheckConstraint
- Function
- Procedure

- TableTrigger
- ViewTrigger

Metadata Manager does not extract the following information from Sybase ASE:

- Default constraints
- Rules defined for users

Teradata

You can create and configure a Teradata resource to extract metadata from Teradata. When you load the resource, Metadata Manager extracts schema details from a Teradata database.

Configuring Teradata

Before you create or load a Teradata resource, you must configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail or the metadata can be incorrectly loaded in the Metadata Manager warehouse.

To configure Teradata, complete the following tasks:

- Configure permissions for the Teradata database user.
- Install the Teradata JDBC driver.

Configuring Permissions

Configure the permissions for the Teradata database user account that you use to connect to the Teradata database.

The following table lists the schema objects and system tables on which you must configure SELECT permissions for the Teradata database user account:

Schema Objects	System Tables
Tables Views Indexes Packages Procedures Functions Sequences Triggers Synonyms	DBC.DBCINFO DBC.TABLETEXT DBC.HOSTSINFO DBC.DATABASES DBC.TABLES DBC.COLUMNS DBC.ALL_RI_CHILDREN DBC.INDICES DBC.TRIGGERS DBC.SHOWTBLCHECKS

Installing the Teradata JDBC Driver

Before you can create or update a Teradata resource, you must install the Teradata JDBC driver and restart the Metadata Manager Service.

1. Download the Teradata JDBC driver version 13.10.00.32 from the following URL:

   http://downloads.teradata.com/download/connectivity/jdbc-driver

2. Copy the JAR files to the following directories:
   - `<INFA_HOME>\services\shared\jars\thirdparty`
   - `<INFA_HOME>\services\MetadataManagerService\mmapps\mm\WEB-INF\lib`
3. Restart the Metadata Manager Service.

Creating a Teradata Resource

Before you create a Teradata resource, configure the Teradata source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Click **Database Management** > **Teradata**.
3. Click **Next**.

   The **Properties** window appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** window appears.
6. Enter the configuration properties.
7. Click **Test Connection** to test the connection to the source system.

   If Metadata Manager cannot connect to the source system, an error message appears. Correct any error and test the connection again.
8. Click **Next**.

   The **Parameters** window appears.
9. To add schemas to the **Selected Schemas** list, select the schema in the **Available Schemas** list and click **Add**.
10. To add all available schemas, click **Add All**.

11. To remove schemas from the **Selected Schemas** list, select the schema in the **Selected Schemas** list and click **Remove**.
12. To remove all schemas from the **Selected Schemas** list, click **Remove All**.
13. Click **Next**.

    The **Schedules** window appears.
14. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.
15. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Teradata Configuration Properties

Update the configuration properties when you create or edit a Teradata resource.

The following table describes the Teradata configuration properties:

Property	Description
User name	Name of the user account used to connect to the Teradata database.
Password	Password for the user account used to connect to the Teradata database.

JDBC connection URL	JDBC URL used to connect to the Teradata database. Metadata Manager uses this URL to verify connection information to the Teradata database.
	The JDBC connection URL uses the following syntax:
	`jdbc:teradata://[database_server_name]/Database=[database_name]`
	For Teradata databases that contain multibyte data, add the CHARSET parameter to specify the Teradata character set. For example:
	`jdbc:teradata://[database_server_name]/Database=[database_name],CHARSET=[character_set_name]`
	For more information about the supported Teradata character sets, see the Teradata documentation.

Secure JDBC parameters	Secure JDBC parameters that you want to append to the JDBC connection URL. Use this property to specify secure connection parameters such as passwords. Metadata Manager does not display secure parameters or parameter values in the resource configuration properties. Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires. For example: `param1=value1,param2=value2`
Server data source name	Name of the server data source for the Teradata database.

Property	Description
Encoding	Code page for the Teradata database. The code page for the resource, the Metadata Manager repository, and the machine where the associated Integration Service for Metadata Manager runs must be the same.
Incremental load	Enables incremental loading for the resource after the first successful resource load. When you enable this option, Metadata Manager loads recent changes to the metadata instead of loading complete metadata. When you disable this option, Metadata Manager performs a full metadata load. Default is disabled.

Incremental Loading for Teradata Resources

When you load a Teradata resource, Metadata Manager performs a full metadata load by default. You can configure Metadata Manager to perform loads incrementally after the first successful metadata load.

A full load extracts all metadata objects. An incremental load causes Metadata Manager to load recent changes to the metadata instead of loading complete metadata. Recent changes include the addition of objects, updates to objects, and the deletion of objects since the start of the last successful load. Incremental loading reduces the load time because Metadata Manager extracts fewer objects in an incremental load than it extracts in a full load.

Use the **Incremental load** configuration property to enable or disable incremental loading for a Teradata resource.

Note: Even if you enable incremental loading, a complete metadata load occurs in the following circumstances:

- You purge the resource.
- You cancel the first load of the resource before the ETL task starts.
- The first load of the resource fails.

Reference

After you create and load a Teradata resource, you can view and run data lineage on the metadata objects that Metadata Manager extracted.

Related Topics:

- "Data Lineage for Database Management Resources" on page 210

Objects Extracted

Metadata Manager extracts the following object types from a Teradata database:

- User
- Table
- Column
- Datatype
- View

- Index
- IndexColumn
- PrimaryKeyConstraint
- ForeignKey
- UniqueConstraint
- CheckConstraint
- Procedure
- TableTrigger
- Macro

Metadata Manager does not extract the following information from Teradata:

- Join Indexes
- Body text of a procedure

Data lineage is not supported for Teradata procedures.

Databases and Users

To enable Metadata Manager database management reports to display Teradata databases and users, TeradataDatabase and TeradataUser classes are mapped to the Schema class in the cwm.resource.relational package. The Catalog class in the cwm.resource.relational package is mapped to the Metadata Manager repository.

If you need to provide values for the Schema attribute for Teradata, use the user name or database name. For example, to filter the results of a Teradata database catalog report based on the database name, create a filter on the Schema attribute, not on the Database Name attribute.

The following table provides guidelines for the type of values to use for the DatabaseName and Schema report attributes:

Report Attribute	Valid Values for Teradata	Valid Values for Other Database Platforms
DatabaseName	Repository name	Repository name
Schema	Database name or user name	User name

Trigger Properties

Trigger properties are sourced from the DBC.Triggers system view, which is not accessible to the public user. Make sure that all users who load Teradata metadata have SELECT permission on this view.

Table-to-Trigger Association

Since tables included in the trigger SQL code are not available from the Teradata system metadata views or tables, these tables and triggers are associated through the TableOwningTrigger association, not through the TriggerUsingColumnSet association.

Note: This section refers to tables included in the SQL code for the trigger, not the tables that initiate the trigger.

Host Name

Since the host names of servers containing Teradata database instances are not located in the DBC.HostsInfo system view or DBC.Hosts system table, Metadata Manager retrieves the host name when you set up the ODBC connection (DSN). The Database Server Name parameter stores the host name.

Note: Host name refers to the name of the server hosting the Teradata database instance.

View Column Datatypes

The Metadata Manager database management reports require the view column-to-datatype association. Because Teradata does not provide values for the Datatype, Length, Precision, Scale, and IsNullable view columns, Metadata Manager sets the default values to Unsupported.

Note: Teradata provides these values for the table columns, which Metadata Manager extracts and stores.

Limited Metadata Load

Use the Schema Inclusion List parameter to exclude particular users and databases from the metadata load. For example, you may want to exclude level 1 users, such as system users and databases. To exclude a user or database at level 1 under "DBC," do not add it to the Schema Inclusion List.

Related Topics:

- "Configuring the Schema Inclusion List" on page 209

Element IDs for Indexes and Constraints

Teradata allows null values for names of indexes, such as Primary Key, Unique, and Check Constraints.

Teradata identifies each index by a Unique Index Number, which is unique in the database and table on which the index is created. The Unique Index Number is equivalent to a position. Metadata Manager uses this number to generate a unique Element ID for all indexes that do not have names.

Metadata Manager also generates unique sequence numbers for constraints that do not have names to create their Element IDs.

Configuring the Schema Inclusion List

When you load a relational database source, Metadata Manager loads metadata from database schemas into the Metadata Manager warehouse. Use the Schema Inclusion List parameter to select the schemas that you want to load into the Metadata Manager warehouse.

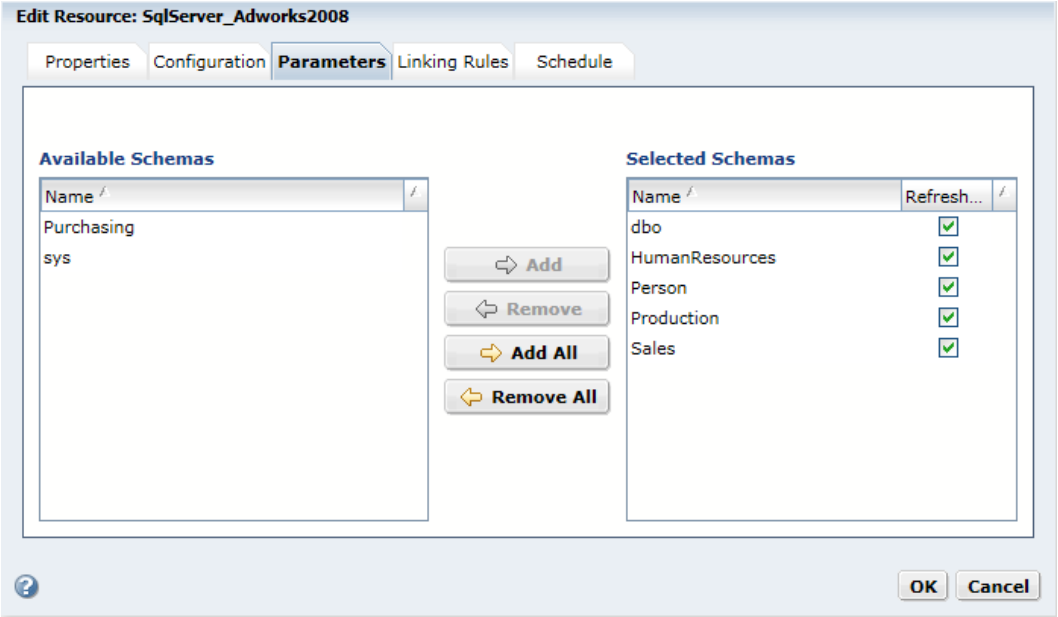
You can configure the Schema Inclusion List parameter for the following resources:

- IBM DB2 for LUW
- IBM DB2 for z/OS
- IBM Informix
- Microsoft SQL Server
- Netezza
- Oracle
- Sybase ASE

- Teradata

To edit the parameter, select the resource in the Resources panel of the **Load** tab, click **Edit Resource**, and click the **Parameters** tab in the **Edit Resource** window.

The following image shows the **Parameters** tab for a Microsoft SQL Server resource:



Select **Refresh** for schemas that have changed since the last resource load or that you want to load for the first time. Metadata Manager loads the schemas selected for refresh. By default, all previously loaded schemas have **Refresh** selected. You can clear **Refresh** for a previously loaded schema that you do not want to reload. You can also clear or select **Refresh** for all schemas in the **Selected Schemas** list.

If you modify the schemas for Metadata Manager to extract and remove previously loaded schemas, Metadata Manager does not delete any metadata objects from the Metadata Manager warehouse. To delete metadata objects in the Metadata Manager warehouse that no longer exist in the source database, you must purge the metadata for the resource and load the schemas you want in the Metadata Manager warehouse.

Note: If you create a resource for Microsoft SQL Server 2000, the available schemas list contains a list of users for the SQL Server database.

Data Lineage for Database Management Resources

You can view data lineage for tables that are included in join statements and for objects used in an SQL query with an inline view.

Tables in Join Statements

Data lineage includes a database table if data is extracted from or loaded to the table. If the table is included in a join statement but no data is extracted from or loaded to it, the table does not appear in data lineage.

For example, an SQL view includes two tables, CUSTOMER and CITY as described in the following SQL:

```
CREATE VIEW SF_CUST_VIEW AS SELECT CUSTOMER.ID, CUSTOMER.NAME
FROM CUSTOMER, CITY
WHERE CUSTOMER.CITY_ID = CITY.ID AND CITY.NAME = 'SFO'
```

Because the view only exposes data from the CUSTOMER table, the CITY table does not display in data lineage for the view. Instead, data lineage displays the CITY table as a Related Catalog Object of the view.

SQL Inline Views

An SQL inline view is a SELECT statement in the FROM clause of another SELECT statement. For example, the following SQL includes an inline view:

```
SELECT ename
  FROM (SELECT ename
    FROM emp)
```

You can view data lineage on a database table, view, or synonym used in an SQL query with an inline view. The SQL query can exist in the following objects:

- SQL override in a PowerCenter Source Qualifier or Lookup transformation.
- Database views, stored procedures, functions, and triggers.

Note: SQL inline views are also referred to as Common Table Expressions.

CHAPTER 10

Universal Resources

This chapter includes the following topics:

- Universal Resources Overview, 212
- Available Metadata Sources, 213
- XConnect Creation, 214
- Resource Creation, 221

Universal Resources Overview

You can create and configure universal resources to extract metadata from metadata sources for which Metadata Manager does not package a model. You can create universal resources to extract metadata from certain business intelligence, data integration, data modeling, and database management metadata sources.

For example, you need to extract metadata from QlikView QVD or QVW files, but Metadata Manager does not package a model for QlikView. You can create a universal resource to extract metadata from QlikView Files.

The universal resources that you create behave in the same way as packaged resources. You configure connection assignments for objects in universal resources in the same way that you do for objects in packaged resources. You cannot change the classes in the model that is associated with a universal resource. However, you can add custom attributes for the model classes, just as you do for packaged resources.

To create a universal resource, perform the following tasks:

1. Create a universal XConnect that represents the metadata source type.

   For example, you might create an XConnect for Apache Hadoop Hive Server, or QlikView Files. The XConnect includes the model for the metadata source.

2. Create the resource that represents your metadata source.

   You can create multiple resources for each XConnect that you create. So if you create an XConnect for QlikView Files, you can create multiple resources that are based on the QlikView model.

You create universal XConnects through the Universal Connectivity Framework. The Universal Connectivity Framework contains the software components that you use to develop universal XConnects. It includes all of the tools and artifacts that you need to create universal XConnects, models, and resources.

Note: The Universal Connectivity Framework (UCF) is architected using an Informatica OEM partner solution (the Meta Integration Model Bridge). See the Product Availability Matrix (PAM) to find the list of sources and version specific details from which the Universal Connectivity Framework can extract metadata and the "Statement of Support" document to understand the supportability aspects related to the usage of the

Universal Connectivity Framework. The universal models and resources that you create using the Universal Connectivity Framework might have inconsistencies in appearance and behavior when compared with packaged models and resources.

For more information about supported metadata source versions, see the *PCAE Metadata Manager XConnect Support* Product Availability Matrix on Informatica Network:
https://network.informatica.com/community/informatica-network/product-availability-matrices/overview

Available Metadata Sources

You can create a universal resource to extract metadata from different metadata sources.

Create a universal resource to extract metadata from any of the following metadata sources:

```
Actian Vector (Vectorwise) Database (via JDBC)
Amazon RedShift Database (via JDBC)
Apache Avro Database Files (JSON)
Apache Cassandra Database
Apache CouchDb Database (JSON)
Apache Hadoop Distributed File System (HDFS Java API)
Apache Hadoop HBase Database (Java API)
Apache Hadoop Hive Database (HCatalog via JDBC)
Apache Hadoop Hive Database (Web Hcatalog)
Apache Hadoop HiveQL DDL
Apache Parquet Database Files
BoAnalytic
BoReporter
Borland Together (via UML 2.x XMI)
CA Component Modeler 3.52 (ParadigmPlus)
CA Component Modeler 4.x (via UML 1.x XMI)
CA COOLBiz 5.1
CA COOLBusinessTeam (GroundWorks) 2.2.1
CA COOLDBA (Terrain for DB2) 5.3.2
CA COOLEnterprise (ADW) 2.7
CA COOLXtras Mapper (TerrainMap for DB2)
CA Gen
CaRepositoryDsOdbc
CaRepositoryDsOdbcImport.ZOS
Cloudera Enterprise Hadoop Hive Database (HCatalog via JDBC)
COBOL Copybook Database Files
DataStax Enterprise (Cassandra)
EMC ProActivity 3.x 4.0
Gentleware Poseidon (via UML 1.x XMI)
Google BigQuery Database
Grandite Silverrun-RDM 2.4.4 to 2.8.6
Hl7XmlDtd
Hortonworks Hadoop Hive Database (HCatalog via JDBC)
Hortonworks Hadoop HiveQL DDL
HP Vertica Database (via JDBC)
IBM DB2 Cube Views
IBM InfoSphere Data Architect (IDA)
IBM InfoSphere Federation Server (via JDBC)
IBM InfoSphere Warehouse - InfoSphere Data Architect
IBM Lotus Notes (via JDBC-ODBC)
IBM Netezza Database (via JDBC)
IBM Rational Rose 4.0
IBM Rational Rose 6.0(98i) to 6.5(2000)
IBM Rational Rose 7.x (2000e and newer)
IBM Rational Software Architect (RSA) (via UML 2.x XMI)
IBM Telelogic Tau (via UML 1.x XMI)
IbmRationalSoftwareArchitect
IDERA ER/Studio Business Architect (via DM1)
JSON Database Files
```

```
KalidoDiw
MapR Hadoop Hive Database (HCatalog via JDBC)
MapR Hadoop HiveQL DDL
MarkLogic NoSQL Database (for JSON only)
Metadata Excel Format
Micro Focus (Merant) AppMaster Builder
Microsoft Azure SQL Database (via JDBC)
Microsoft Office Visio Database Diagram (via ERX)
Microsoft Office Visio UML Class Diagram (via UML 1.x XMI)
Microsoft SQL Server XML Data Reduced (XDR) Schema
Microsoft Visual Studio / Modeler 2.0 (via MDL)
MongoDB Database (JSON)
NoMagic MagicDraw (via UML 2.x XMI)
OMG CWM 1.x XMI 1.x
OMG UML 1.x XMI 1.x
OMG UML 2.x XMI 2.x
OmgCwmXmiImport.HyperionApplicationBuilder
Oracle Data Modeler (ODM) 4.x
Oracle Database SQL DDL
Oracle Designer
Oracle Hyperion Essbase Integration Services (EIS)
Oracle MySQL Database (via JDBC)
Pivotal Greenplum Database (via JDBC)
PopkinSa
PostgreSQL Database (via JDBC)
QlikSense
QlikSense Files
QlikView
QlikView Files
SAP BusinessObjects Crystal Reports XI (Repository)
SAP Sybase ASE Database (via JDBC)
Select SE
SilverrunRdm244
SilverrunRdm262
SilverrunRdm272
SilverrunRdm284
Sparx Enterprise Architect (EA) (via UML 2.x XMI)
Talend Master Data Management (MDM)
Teradata Database SQL DDL
Tigris ArgoUML (via UML 1.x XMI)
Unicom (Popkin) System Architect (SA) 10.4 to 11.x (Encyclopedia)
Unicom (Popkin) System Architect (SA) 7.1 to 11.x (File)
Visible IEAdvantage 6.1
W3C XML DTD 1.0
W3C XML Schema 1.0 (XSD)
```

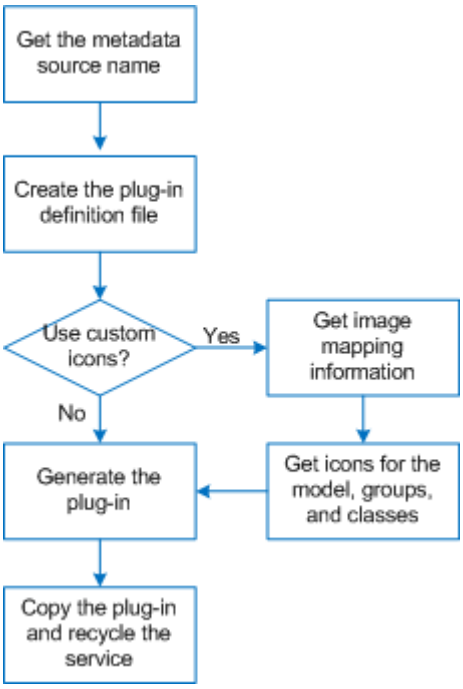
For more information about supported metadata source versions, see the *PCAE Metadata Manager XConnect Support* Product Availability Matrix on Informatica Network:
https://network.informatica.com/community/informatica-network/product-availability-matrices/overview

XConnect Creation

An XConnect is the code and artifacts that Metadata Manager uses to extract metadata from a metadata source. It includes the model for the metadata source. To create a universal XConnect, you create a plug-in, copy the plug-in to the Metadata Manager Service plug-ins directory, and recycle the Metadata Manager Service.

Metadata Manager imports the model when the service is enabled.

The following image shows the process to create a universal XConnect:



1. Get the metadata source name.
2. Create the plug-in definition file.
3. If you want to use custom icons, run the mmXConPluginUtil generateImageMapping command to get the image mapping information for the groups and classes in the model.
4. If you want to use custom icons, get the icons for the model, groups, and classes.
5. Run the mmXConPluginUtil generatePlugin command to generate the plug-in.
6. Copy the plug-in to the Metadata Manager Service plug-ins directory, and then recycle the Metadata Manager Service.

Step 1. Get the Metadata Source Name

Before you can create a universal XConnect, you must first get the metadata source name. The metadata source name is a text string that uniquely identifies the metadata source, for example, `Apache Hadoop Hive Server`, `QlikView Files`, or `W3C XML Schema 1.0 (XSD)`. You need the metadata source name to create the plug-in definition file.

The metadata source names are listed in the “Supported Metadata Sources” topic. When you create the plug-in definition file, you must enter the metadata source name in the sourcename element exactly as it appears in the “Supported Metadata Sources” topic.

Related Topics:

- "Available Metadata Sources" on page 213

Step 2. Create the Plug-in Definition File

The plug-in definition file is an XML file that you use to get image mapping information and to generate the plug-in. The plug-in definition file contains elements that specify the properties of the XConnect and model.

The plug-in definition file contains required and optional elements. Required elements specify properties such as the XConnect name, model owner, metadata source type, and metadata source name. Optional elements specify properties such as the icon directory, model icon, and model description.

Informatica provides the following sample plug-in definition file that you can use as a template:

```
<Informatica services installation directory>\services\MetadataManagerService\utilities
\mmxconpluginutil\xconnect-definition-template.xml
```

The following code shows the sample plug-in definition file:

```
<?xml version="1.0" encoding="utf-8" ?>
<xconnect xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation='xconndef.xsd' xmlns="http://www.informatica.com/XCONDEF">
    <name></name>
    <owner></owner>
    <domain></domain>
    <sourcename></sourcename>
</xconnect>
```

To create the plug-in definition file, copy the sample file and update the elements and element values.

Plug-in Definition File Elements

The plug-in definition file contains elements that specify the XConnect and model properties. The plug-in definition file must contain one of each required element. It can also contain one of each optional element.

The following table describes the elements in the plug-in definition file:

Element	Description
name	Required. Name of the XConnect, for example, Apache_Hadoop_Hive or QlikView. The name element cannot include the following characters: `/ \ : * ' ? " < > | [ ] &` Metadata Manager uses the name and owner elements to generate the model name. Metadata Manager names the model `<owner>.<name>`, for example, HypoStores.QlikView.
owner	Required. Name of the organization or department that creates the XConnect and model, for example, HypoStores or HypoStores_Sales. The owner element cannot include the following characters: `/ \ : * ' ? " < > | [ ] &` Metadata Manager uses the name and owner elements to generate the model name. Metadata Manager names the model `<owner>.<name>`, for example, HypoStores.QlikView.

domain	Required. Metadata source type. You must specify one of the following values:
	`- Business Intelligence`
	`- Data Integration`
	`- Data Modeling`
	`- Database Management`

Element	Description
sourcename	Required. Name of the metadata source from which you want to extract metadata, for example, `QlikView Files`, `Apache Hadoop Hive Server`, or `W3C XML Schema 1.0 (XSD)`. For a list of supported metadata sources, see the "Supported Metadata Sources" topic. You must enter the metadata source name in this element exactly as it appears in the "Supported Metadata Sources" topic.
iconDir	Optional. Directory that contains the icons for the model and the groups and classes in the model. You can specify a complete file path or a relative path. If you specify a relative path, the file path is relative to the following directory: `<Informatica services installation directory>\services\MetadataManagerService\utilities\mmxconpluginutil`
icon	Optional. File name of the image file that Metadata Manager uses for the model icon, for example, `qlikview_model_icon.gif`. The model icon must be in the icon directory that you specify in the iconDir element.
shortName	Optional. Short name for the model.
description	Optional. Description for the model.

Related Topics:

- "Available Metadata Sources" on page 213

Plug-in Definition File Example

The following code shows an example of a plug-in definition file for an XConnect that you use to extract metadata from QlikView Files:

```
<?xml version="1.0" encoding="utf-8" ?>
<xconnect xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation='xconndef.xsd' xmlns="http://www.informatica.com/XCONDEF">
    <name>QlikView</name>
    <owner>HypoStores</owner>
    <domain>Business Intelligence</domain>
    <sourcename>QlikView Files</sourcename>
    <iconDir>\QlikView\Icons</iconDir>
    <icon>qlikview_model_icon.gif</icon>
    <description>QlikView model created for HypoStores, Inc.</description>
</xconnect>
```

Step 3. Get the Image Mapping Information

After you create the plug-in definition file, you can use it to get the image mapping information for each group and class in the model. You need the image mapping information if you want to use custom icons for the groups and classes in the model. The image mapping information associates each group and class with an icon file.

If you do not want to use custom icons, you can skip this step. Metadata Manager uses the class icon ( ) for any group or class that does not have an icon file.

To get the image mapping information, run the mmXConPluginUtil generateImageMapping command with the definition file (-x) option, for example:

```
mmXConPluginUtil generateImageMapping -x C:\MMPlugInDefs\HypoStores_QlikViewDef.xml
```

mmXConPluginUtil generates a CSV text file that lists each group and class in the model and the corresponding icon file. It generates the image mapping file in the following directory, where the owner and name are defined in the plug-in definition file:

```
<Informatica services installation directory>\services\MetadataManagerService\utilities
\mmxconpluginutil\<owner>.<name>
```

mmXConPluginUtil names the image mapping file `mm-<owner>.<name>-xconnect.txt`.

For example:

```
<Informatica services installation directory>\services\MetadataManagerService\utilities
\mmxconpluginutil\HypoStores.QlikView\mm-HypoStores.QlikView-xconnect.txt
```

The following example shows part of an image mapping file for an XConnect that you use to extract metadata from QlikView Files:

```
Group,ReportAttribute.gif
StatisticsBox,Statistics Box.png
StraightTable,Table.gif
Variable,ReportAttribute.gif
Slider,Slider Calendar.png
SearchObject,Search Object.png
TableBox,Table Box.png
QVWModel,qvw.png
TextBox,Text Object.png
Document,Document.gif
…
```

In the previous example, the icon file for the Group class is `ReportAttribute.gif`. The icon for the StatisticsBox class is `Statistics Box.png`.

Step 4. Get the Icons

After you have the image mapping information, you can get the icons for the model and the groups and classes in the model. If you do not want to use custom icons, you can skip this step.

To use a custom icon for the model, find an image file, save it with the icon name you specified in the plug-in definition file, and copy it to the icon directory that you specified in the plug-in definition file. The model icon can be of any common image type such as BMP, GIF, JPG, or PNG.

To use a custom icon for a group or class, find an image file and save it with the name specified in the image mapping file. Then copy the image file to the icon directory that you specified in the plug-in definition file. A group or class icon must have the name and file type that is specified in the image mapping file.

For example, the model that you create contains a class called Conditions. In the image mapping file, the Conditions class is mapped to Filter.gif.

To find an icon for the Conditions class, perform the following tasks:

1. Search the internet for "conditions icons" or "filter icons."

   Alternatively, you can search for a similar icon in the Metadata Manager images directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mmapps\mm
   \images
   ```

2. Save the image as Filter.gif.
3. Copy the Filter.gif file to the icon directory that you specified in the plug-in definition file.

Repeat this process for all groups and classes in the model for which you want to use custom icons.

Rules and Guidelines for Icons

Use the following rules and guidelines when you create icons:

- All icons that you use must measure 16 x 16 pixels. Metadata Manager does not scale icons.
- You do not have to specify an icon for the model. If you do not specify an icon, Metadata Manager uses the custom model icon ( ) for the model and for all resources that are based on the model.
- You cannot remap a group or class to a different image file or file type. For example, if the Dimension class is mapped to dimension.gif, you cannot remap it to 3D_dimension.gif or to dimension.png.
- You do not have to add an image file for every group and class to the icon directory. If a group or class has no image file, Metadata Manager uses the class icon ( ) for the group or class.

Step 5. Generate the Plug-in

After you have the definition file and icons, you can create the plug-in. Use the mmXConPluginUtil command line program to create the plug-in.

To generate the plug-in, run the mmXConPluginUtil generatePlugin command with the definition file (-x) option. mmXConPluginUtil generates the plug-in as an XConnect archive (XAR) file. It generates the plug-in in the following directory, where the owner and name are defined in the plug-in definition file:

```
<Informatica services installation directory>\services\MetadataManagerService\utilities
\mmxconpluginutil\<owner>.<name>
```

mmXConPluginUtil names the plug-in `mm-<owner>.<name>-xconnect.xar`.

For example, in the plug-in definition file, you set the owner element to HypoStores and the name element to QlikView. You run the following command to generate the plug-in:

```
mmXConPluginUtil generatePlugin -x C:\MMPlugInDefs\HypoStores_QlikViewDef.xml
```

mmXConPluginUtil generates the following plug-in:

```
<Informatica services installation directory>\services\MetadataManagerService\utilities
\mmxconpluginutil\HypoStores.QlikView\mm-HypoStores.QlikView-xconnect.xar
```

Plug-in Structure

The plug-in is an XAR file that defines the XConnect. You can use a file archive program to open the plug-in file and verify the structure.

Warning: To prevent damage to the plug-in, do not edit any file or directory in the plug-in. To change the plug-in, update the plug-in definition file or the icons, and then regenerate the plug-in.

The following hierarchy shows the structure of the plug-in:

```
META-INF
    MANIFEST.MF
resources
    artifacts
        <owner>.<name>.bridges.xml
        <owner>.<name>.endpoint.txt
        <owner>.<name>.metamodel.xml
        <owner>.<name>.<source ID>.Resources.properties
        <owner>.<name>.<source ID>Options.xml
        <owner>.<name>.WhereUsed.properties
        mm-<owner>.<name>-xconnect.txt
    images
        <image files for the groups and classes in the model>
```

The plug-in contains the following directories:

META-INF

Contains the manifest file for the model, MANIFEST.MF. The manifest file specifies information such as the XConnect owner, Metadata Manager version, and model name.

resources\artifacts

Contains the artifact files required to create the model. In the artifact file names, the owner and name are defined in the plug-in definition file. The source ID is a shortened version of the sourcename that is defined in the plug-in definition file.

resources\images

Contains the icons for the groups and classes in the model.

Plug-in Structure Example

The following example shows the structure of a plug-in that you use to extract metadata from QlikView Files:

```
META-INF
    MANIFEST.MF
resources
    artifacts
        HypoStores.QlikView.bridges.xml
        HypoStores.QlikView.endpoint.txt
        HypoStores.QlikView.metamodel.xml
        HypoStores.QlikView.QlikViewFiles.Resources.properties
        HypoStores.QlikView.QlikViewFilesOptions.xml
        HypoStores.QlikView.WhereUsed.properties
        mm-HypoStores.QlikView-xconnect.txt
    images
        Button.png
        Chart.gif
        Column.gif
        Connection.png
        Document.gif
        …
```

Step 6. Create the Model from the Plug-in

To create the model from the plug-in, copy the plug-in to the Metadata Manager Service plug-ins directory. Metadata Manager imports the model when you enable the Metadata Manager Service.

1. Copy the plug-in to the Metadata Manager Service plug-ins directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mm-plugins
   \xconnect\<Metadata Manager Service name>
   ```

2. In the Administrator tool, recycle the Metadata Manager Service.

   Recycling the service disables and enables the service.

   Metadata Manager imports the model when the service is enabled.

After the Metadata Manager Service is enabled, open the Metadata Manager web application and verify that the model appears on the **Model** tab. On the **Load** tab, click **Actions** > **New Resource**, and verify that the resource type appears in the New Resource wizard.

Updating a Universal XConnect

To update a universal XConnect, regenerate the plug-in, copy it to the plug-ins directory, and recycle the Metadata Manager Service. Metadata Manager detects changes to the plug-in. If the plug-in has changed, Metadata Manager reloads the plug-in when the Metadata Manager Service is enabled.

After you update a universal XConnect, open the Metadata Manager web application and verify the model changes.

Deleting a Universal XConnect

You can delete any universal XConnect that you create. To delete the XConnect, delete the model from the **Model** tab, and then delete the plug-in from the plug-ins directory.

Before you delete a universal XConnect, you must delete all resources that are based on the model.

1. On the **Model** tab, select the model that you want to delete in the Model navigator.
2. Click **Actions** > **Delete**.
3. Click **OK**.

   Metadata Manager deletes the model and all classes for the model from the Model navigator and the Metadata Manager repository. Metadata Manager also deletes all associations for the model.
4. Delete the plug-in from the Metadata Manager Service plug-ins directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mm-plugins
   \xconnect\<Metadata Manager Service name>
   ```

Resource Creation

After you create a universal XConnect, you can create resources based on the model. You can create multiple resources that are based on the same model.

To create a universal resource, perform the following tasks:

1. Configure the metadata source, if required.
2. Create the resource on the **Load** tab.

Step 1. Configure the Metadata Source

Before you create a universal resource, you might have to configure the metadata source. If you do not correctly configure the metadata source, the metadata load can fail. The configuration requirements for a metadata source vary based on the metadata source.

For example, to configure the metadata source, you might have to complete some of the following tasks:

Verify that the source system is available and running.

When you extract metadata from a source system such as a business intelligence tool or a relational database, the source system usually needs to be available and running. When you extract metadata from a file, the source system does not usually need to be running.

Install the Metadata Manager Agent on the machine that runs the vendor supplied software.

To extract metadata from some business intelligence, data integration, or data modeling metadata sources, you must install the Metadata Manager Agent on the machine that runs the vendor supplied

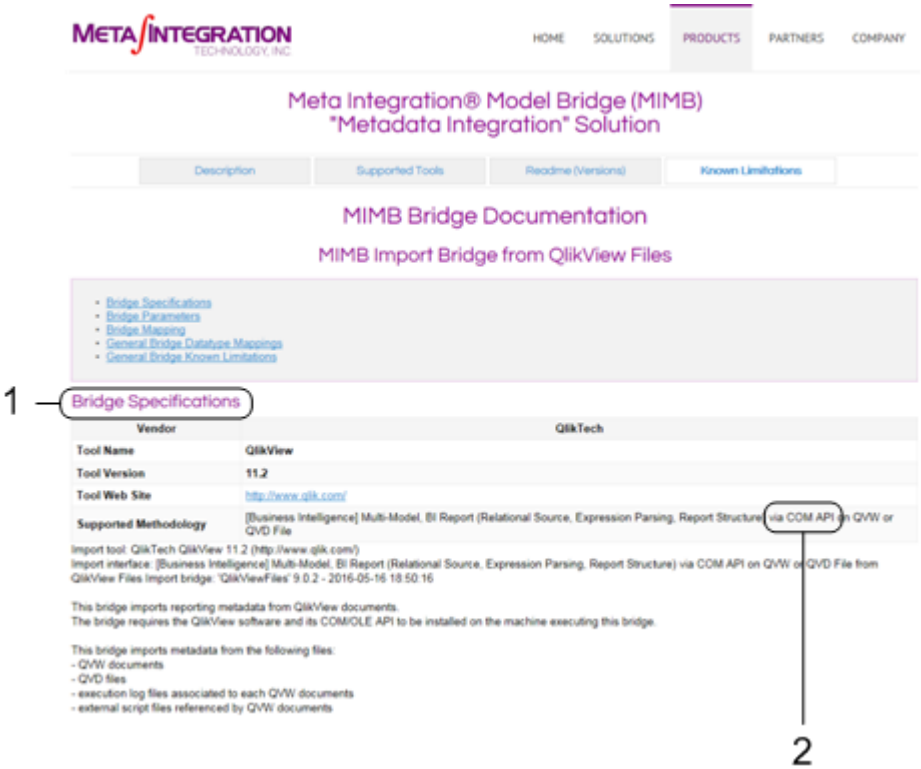
software. This is required when the Metadata Manager Agent uses COM APIs to extract metadata. For example, to extract metadata from QlikView Files, the Metadata Manager Agent and the QlikView software must be on the same machine. However, to extract metadata from Cognos, the Metadata Manager Agent does not have to be on the same machine as the Cognos Content Manager.

To verify the metadata source configuration requirements, see the website of Informatica's OEM partner, Meta Integration Technology Inc.:

http://www.metaintegration.net/Products/MIMB/SupportedTools.html

The Supported Tools page for the metadata source shows the configuration requirements. The Metadata Manager Agent metadata source configuration requirements are identical to the Meta Integration Model Bridge (MIMB) metadata source configuration requirements.

The following image shows an example of the Supported Tools page for the QlikView Files bridge:



1. The Bridge Specifications section shows the configuration requirements for the metadata source.
2. If the Metadata Manager Agent uses COM APIs to extract metadata, the Metadata Manager Agent and the vendor supplied software for the metadata source must be on the same machine.

Note: The referenced website belongs to a third party or third parties, not Informatica LLC. The site is subject to the possibility of errors, omissions or change. Informatica assumes no responsibility for the website, disclaims all warranties, either express or implied, including but not limited to, implied warranties of merchantability, fitness for a particular purpose, title and non-infringement, and disclaims all liability relating thereto.

Step 2. Create the Resource

After you configure the metadata source, you can create the resource. Create a universal resource to extract metadata from the metadata source.

1. On the **Load** tab, click **Actions** > **New Resource**.

   The **Resource Selection** window appears.
2. Select the resource type.
3. Click **Next**.

   The **Properties** page appears.
4. Enter the following information:

Property	Description
Name	Name for the resource. The resource appears in the **Resources** panel with this name. The name must be unique and have from one through 256 characters. It cannot include the following characters: `/ \ : * ' ? " < > | [ ]`
Description	Description for the resource. Description cannot exceed 4000 characters.
Hide in Summary Lineage	Hides the resource in the summary view of data lineage diagrams. Enable this option to hide the resource and its child objects in the summary view. Disable this option to display the resource and its child objects in the summary view. Default is disabled.

5. Click **Next**.

   The **Configuration** page appears.
6. Enter the configuration properties:

Property	Description
Agent URL	Host name and port number of the Metadata Manager Agent.
Source system version	Name and version of the resource. You cannot edit this field.

Property	Description
Always use latest source files	Uses the metadata source file in the location you provide each time you load the resource. If you enable this option, the path to the file must include an absolute path that is accessible from the Metadata Manager Agent machine. If you disable this option, Metadata Manager copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, Metadata Manager uses the copied metadata source file in the Metadata Manager application directory. This property is displayed when the metadata source is a file.
Auto assign connections	Metadata Manager configures connection assignments to relational database resource types during the resource load. If you disable this option, configure connection assignments in the resource properties after you create the resource. This property is displayed for data integration, business intelligence, and data modeling resources.

The other configuration properties vary based on the metadata source type. To get information about a property, hover the pointer over the property to display the tooltip.

7. If the metadata source is a file, click **Select** to add the metadata source file.

   If you configure Metadata Manager to use the latest source files, include the absolute path to the files that are accessible from the Metadata Manager Agent machine.

   If you do not configure Metadata Manager to use the latest source files, upload all the files to the Metadata Manager machine.

8. Click **Test Connection**.

   If the metadata source is a file, Metadata Manager validates the Metadata Manager Agent URL and the source file configuration. If you configured Metadata Manager to use the latest source file, Metadata Manager also validates that the source file exists in the specified path. If the source file is uploaded to Metadata Manager, Metadata Manager validates that the file is compatible with the resource type and version.

   If the metadata source is a source system, Metadata Manager validates the Metadata Manager Agent URL and tests the connection to the source system.

   If Metadata Manager cannot validate the Agent URL, validate the source file, or connect to the source system, an error message appears. Correct any error and test the connection again.

9. Click **Next**.

   The **Schedules** window appears.

10. To add a schedule, select **Attach a Schedule** and select a schedule in the **Schedule** list.

    If you have not created a schedule, you can assign a schedule to a resource after you create the resource.

11. Click **Finish**.

The resource appears in the **Resources** panel on the **Load** tab.

Metadata Extraction from a Source File

If you create a universal resource to extract metadata from a source file, you need to decide whether to extract metadata from the latest source file or from the source file in the Metadata Manager application directory. You specify whether to use the latest source file when you create the resource.

Extract metadata from the latest source file when the source changes frequently. To extract metadata from the latest source file, enable the **Always use latest source files** option when you create the resource. When

you enable this option, the Metadata Manager Agent uses the metadata source file in the location you provide each time you load the resource. If you enable this option, you must specify an absolute path to the file that is accessible from the Metadata Manager Agent machine.

Extract metadata from a source file in the Metadata Manager application directory when the source does not change frequently, and you want to decrease the time it takes to load the resource. To use a source file in the Metadata Manager application directory, disable the **Always use latest source files** option. Metadata Manager copies the metadata source file to the Metadata Manager application directory when you finish configuring the resource. Each time you load the resource, the Metadata Manager Agent extracts metadata from the file in the application directory.

The Metadata Manager application directory is the following directory:

```
<Informatica services installation directory>\services\MetadataManagerService\mm_files
\<Metadata Manager Service name>\mm_load\data_files\<resource ID>
```

If you use a source file in the Metadata Manager application directory and the metadata source changes, you might need to upload the file again. To re-upload the file, edit the resource and select a new metadata source file on the **Configuration** tab.

CHAPTER 11

Managing Resources

This chapter includes the following topics:

- Managing Resources Overview, 226
- Configure Connection Assignments, 227
- Upload Rule Sets, 230
- Purging Metadata, 232
- Refreshing the Resources Panel, 233
- Updating the Search Index, 233
- Customizing the List of Words to Ignore in Searches, 235

Managing Resources Overview

After you create resources, you can configure resources and manage metadata for a resource. To edit a resource, select the resource in the **Resources** panel of the **Load** tab and click **Edit**.

You can perform the following tasks for resources:

Configure connection assignments.

Configure connection assignments so that you can run data lineage analysis across metadata sources. You can configure connections from one packaged or universal resource to another packaged or universal resource.

Upload rule sets.

Upload rule sets so that you can run data lineage analysis across metadata sources that include a custom or business glossary resource. Metadata Manager uses the rule sets to link a custom resource or business glossary resource to another resource.

Purge metadata for a resource.

Delete resource metadata from the Metadata Manager warehouse.

Refresh the resource list.

Update the list of resources in the **Load** page.

Update a search index.

Manually update the search index if indexing fails during a resource load, if you change the Metadata Manager file location in the Administrator tool, or if you update the list of words to ignore in searches.

Configure Connection Assignments

Connection assignments specify how linkable objects in a packaged or universal resource can be related to matching objects in another packaged or universal resource. Metadata Manager can create links to corresponding objects in the resources on either side of the connection assignment. These cross-resource links allow to you run data lineage analysis across metadata sources.

To run data lineage analysis across metadata sources, assign a connection from one packaged or universal resource to another packaged or universal resource. Then, instruct Metadata Manager to create links between matching objects in the connected resources.

Use relational database, application, or Informatica Platform resources to connect other types of metadata sources. You can establish connections from the following resource types:

Business Intelligence

Establish connections to relational database or Informatica Platform resource types.

Data Modeling

Establish connections to relational database or Informatica Platform resource types.

Data Integration

Establish connections from Informatica Platform resources to relational database or other Informatica Platform resource types. Establish connections from Microsoft SQL Server Integration Services resources to relational database resource types. Establish connections from PowerCenter resources to SAP R/3, relational database, or Informatica Platform resource types.

You cannot establish connections from custom or business glossary resource types.

Automatic Connection Assignments

When you create or edit a resource, you can direct Metadata Manager to automatically configure connection assignments to relational database or Informatica Platform resource types. You might want to automatically configure connection assignments if a data integration, business intelligence, or data modeling resource contains many connections.

If you select **Auto Assign Connections** when you configure the connection assignment properties of a data modeling resource, Metadata Manager assigns one relational schema to each connection. You can edit a data modeling resource to manually assign multiple relational schemas to one connection.

When Metadata Manager automatically configures connection assignments, Metadata Manager does not override any manually assigned connections.

After you direct Metadata Manager to automatically configure connection assignments, complete one of the following tasks:

Load the resources.

The load process automatically establishes the connection assignments and then creates the links between objects in the connected resources. You must load the relational database resource types for the connection first.

Use the Resource Link Administration window to create the links.

If you have loaded the resources, direct Metadata Manager to create the links between objects in connected resources. The link process automatically configures the connection assignments and then creates the links.

Metadata Manager automatically configures connection assignments based on the best possible match. Metadata Manager obtains the list of connections for which it can assign automatic connections. It then

groups the connections based on connection subtype and the associated repository to ensure that resources are filtered based on the connection objects. For example, if a connection type is Oracle, Metadata Manager considers only Oracle resources and schemas for automatic connection assignment. After grouping the connections, Metadata Manager calculates the link count completeness score of the filtered connection objects for each connection assignment. It uses the connection object with the maximum link count for the automatic connection assignment.

Use the **Links** view in the **Load Details** tab to review the automatic connection assignments. Update any incorrect connection assignments and then create the links again.

Manual Connection Assignments

You can manually configure connection assignments to relational database or Informatica Platform resource types when you edit a resource. For data modeling resource types, you can configure multiple relational schemas to one connection. For business intelligence and data integration resource types, you can configure one relational schema to one connection.

Before you can manually configure connection assignments, you must load the relational database or Informatica Platform resource types for the connection.

After you configure connection assignments, complete one of the following tasks:

Load the resource.

The load process creates the links between objects in the connected resources.

Use the Resource Link Administration window to create the links.

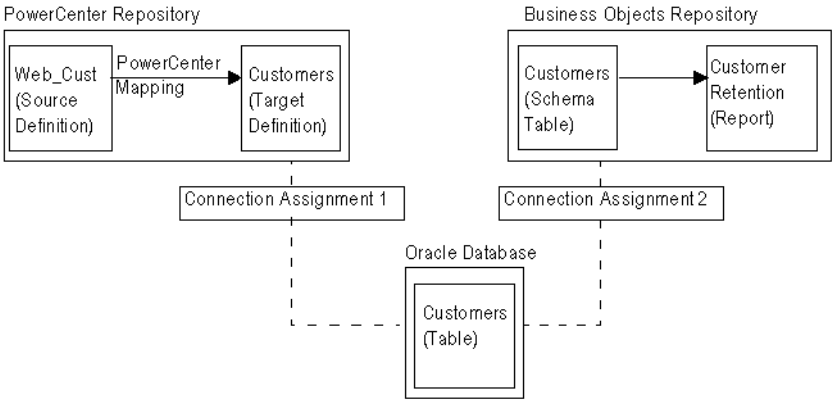
If Metadata Manager has loaded the resource, direct Metadata Manager to create the links between objects in the connected resources.

Connection Assignments Example

You use PowerCenter to extract customer information from Web_Cust and load it into Customers. Customers is a table in an Oracle database. Business Objects uses the information in Customers to populate the Customer Retention report. To view lineage among all source repositories, establish a connection assignment between the PowerCenter repository and the Oracle database and another connection assignment between the Business Objects repository and the Oracle database.

Metadata Manager has loaded the resources for these metadata sources. Use the Resource Link Administration window to direct Metadata Manager to create the links for the Oracle resource. Metadata Manager uses Connection_Assignment_1 to link objects in the Oracle database to objects in the PowerCenter repository. Metadata Manager uses Connection_Assignment_2 to link objects in the Oracle database to objects in the Business Objects repository.

The following figure shows an example of connection assignments:



Connection Assignment Properties

The following table describes the connection assignment properties:

Property	Description
Connection	Name of the connection in the data integration, business intelligence, or data modeling repository to the metadata source. You cannot edit this field.
Type	Metadata source type. You cannot edit this field.
User	User name used to connect to the metadata source. You cannot edit this field.
Catalog	Resource name in the metadata catalog.
Schema	Schema name for the resource.
Schema Status	Displays one of the following statuses for the source schema: - Active. The metadata for the schema exists in the Metadata Manager warehouse. - Purged. The metadata for the schema does not exist in the Metadata Manager warehouse. The metadata for the resource was purged, or the schema was removed during a resource load. If you reload the metadata from this source, Metadata Manager changes the status to active if the schema still exists in the source. You cannot edit this field.
Auto Assigned	Indicates whether Metadata Manager automatically configured the connection assignment. You cannot edit this field.
Use schema prefix	Metadata Manager uses the schema name in the model to link objects in connected resources. If you disable this option, Metadata Manager does not use the schema name to link objects. Metadata Manager can link objects to any source schema that contains all of the tables used by the business intelligence model. Disable this option if you did not extract the actual source schemas, but extracted other schemas that contain the same content.

Automatically Configuring Connection Assignments

1. On the **Load** tab, select a resource in the **Resources** panel.
2. In the Properties panel, click **Edit**.

The **Edit Resource** window appears.

3. Click the **Configuration** tab.
4. Select **Auto Assign Connections**.
5. Click **OK**.

To link objects in connected resources, load the resource or use the **Resource Link Administration** window. During the link process, Metadata Manager configures the connection assignments and then creates the links between objects in the connected resources. You must load the relational database or Informatica Platform resource types for the connection first.

Use the **Links** view in the **Load Details** tab to review the automatic connection assignments. Modify any incorrect assignments and then create the links again.

Manually Configuring Connection Assignments

You can remove any connection assignment that Metadata Manager automatically configured. You can also add additional connection assignments.

Before you can configure connection assignments, you must load the relational database or Informatica Platform resource types for the connection.

1. On the **Load** tab, select a resource in the **Resources** panel.
2. In the **Properties** panel, click **Edit**.

   The **Edit Resource** window appears.
3. Click the **Connection Assignment** tab.
4. Click **Refresh** to update the list of connections.
5. Select a connection, select the catalog and schema that you want to assign the connection to, and click **Assign**.
6. To remove a connection from a catalog and schema, click **Remove** for the connection.

   For example, you might want to remove a connection if the source schema was purged from the Metadata Manager warehouse.
7. Click **OK**.

To link objects or to remove links for removed connections, load the resource or use the **Resource Link Administration** window to create the links.

Upload Rule Sets

Linking rules are expressions that Metadata Manager uses to link matching objects across different resources. To run data lineage across metadata sources, you can define linking rule sets in linking rules files. Then, upload the files to the source or target resource configured in the file to create the rule sets in the Metadata Manager repository.

When you upload a rule set to a resource, Metadata Manager associates the rule set with the source and target resources identified in the file. If either the source or target resource does not exist, Metadata Manager still creates the rule set, but it is not valid. When you create the source or target resource, Metadata Manager associates the saved rule set with the resource and validates the rule set.

When you create or update a rule set, Metadata Manager does not create the links between the resources. To use the rules to link metadata objects between resources, you must load the resources or create the links in the **Resource Link Administration** window.

Use linking rules to create links between the following resource types:

- Custom resource to another custom resource
- Custom resource to a packaged resource
- Custom resource to a universal resource
- Custom resource to a business glossary resource
- Business glossary resource to a packaged resource
- Business glossary resource to a universal resource

Note: To link matching objects between different packaged or universal resources, configure connection assignments in the **Load** tab. If connection assignments do not create all of the required links, you can also use linking rules to create links between the resources.

For more information about configuring linking rules and linking rules files, see the *Metadata Manager Custom Metadata Integration Guide*.

Linking Rules Files

You define a linking rule set in a linking rules file. You create different types of linking rules files based on how you want to apply the linking rule set.

To apply a linking rule set to a pair of models, you create the following types of linking rules files:

Rule Set Definition File

An XML file that defines a linking rule set for a pair of models. You upload a rule set definition in the **Model** tab, and Metadata Manager associates it with the source and target model identified in the file. A rule set definition file takes a parameter file that identifies the pair of resources to which to apply the linking rules.

Rule Set Parameter File

An XML file that specifies the pair of resources to which to apply a rule set definition. It also contains parameter values for resource-specific attributes such as connection names and table names. You upload a rule set parameter file to the source or target resource identified in the file. When you upload the file, Metadata Manager creates the rule set for the resources. To create the rule set, Metadata Manager substitutes the parameters defined in the rule set definition file with the parameter values defined in the rule set parameter file.

To apply a linking rule set to a pair of resources, you create the following type of linking rules file:

Rule Set File

An XML file that defines a linking rule set for pair of resources. You upload a rule set file to the source or target resource identified in the file. When you upload the file, Metadata Manager creates the rule set for the resources.

Uploading a Rule Set

Upload a rule set file or a rule set parameter file to the source resource or the target resource. Upload the file to create the rule set or update an existing rule set in the Metadata Manager repository.

Before you upload a rule set parameter file to a resource, create and upload the rule set definition file to the source or target model.

1. On the **Load** tab, select a resource in the **Resources** panel.
2. In the **Properties** panel, click **Edit**.

   The **Edit Resource** window appears.
3. Click the **Linking Rules** tab.
4. Click **Upload**.

   The **Upload** dialog box appears.
5. Click **Browse**, select the rule set file or the rule set parameter file, and click **Open**.
6. Click **OK**.

   Metadata Manager uploads the files and creates or updates the rule set.

The **Linking Rules** tab in the **Properties** panel displays the rule set information for the resource.

Purging Metadata

You can delete metadata for a resource from the Metadata Manager warehouse. For example, if you no longer want to analyze metadata from an obsolete metadata source for a resource, delete metadata from the Metadata Manager warehouse. You cannot recover the purged metadata. Back up the Metadata Manager repository database before you purge metadata.

To delete the metadata, purge the metadata for the resource from the Metadata Manager warehouse. Metadata Manager purges all metadata from the warehouse. Purging metadata may take some time, based on the amount of metadata loaded for the resource. After you purge a resource, you can optimize the index to free up disk space used by the indexing files.

When the Metadata Manager warehouse uses Oracle database, you need to assign the CREATE TABLE and EXECUTE PROCEDURE permissions to the user. When you assign the **GRANT CREATE TABLE TO <MM_DB_USER>** permission, make sure you assign the permission to the user or schema of the Metadata Manager warehouse.

Note: If you added custom metadata to the metadata catalog on the **Browse** tab, you can delete the metadata from the catalog using the metadata catalog or by purging it.

1. On the **Load** tab, select the resource for which you want to purge metadata from the Metadata Manager warehouse.
2. Click **Actions** > **Purge Resource Metadata**.

   Metadata Manager purges the metadata from the Metadata Manager warehouse and displays the result of the purge operation in the Resources panel.
3. Optionally, click **Actions** > **Delete Resource** to delete the resource.

   Metadata Manager deletes the resource and all metadata for the resource from the Metadata Manager warehouse.

Refreshing the Resources Panel

The Resources panel on the **Load** tab contains a list of configured resources. When you add, update, or load a resource, the updated information for the resource appears in the list. When another user modifies the resource list, the updated information does not appear immediately in the Resources panel.

You can manually refresh the Resources panel to get updated information on the resources. Refresh the Resources panel to get the following updated information:

Added resources

Resources created by other users.

Description

Resource descriptions updated by other users.

Last status date

The date of the most recent load for a resource.

Last status

The most recent status for load and indexing operations for a resource.

Schedule status

Status updated for any resource schedule.

To refresh the Resources panel:

- On the **Load** tab, click the **Refresh Resources** icon.

Metadata Manager updates the Resources panel with the resource information stored in the Metadata Manager warehouse.

Updating the Search Index

Metadata Manager creates index files used to search for metadata objects in the Metadata Manager warehouse. When you perform a search, Metadata Manager searches the index files instead of the Metadata Manager warehouse.

The index files are binary files. Metadata Manager stores them in the location that you configured for Metadata Manager files when you created the Metadata Manager Service. By default, Metadata Manager stores the index files in the following location:

```
<Informatica installation directory>\services\MetadataManagerService\mm_files\<service name>
```

When you make a change in Metadata Manager that changes the metadata in the warehouse, Metadata Manager creates or updates index files. You can also update the index files manually through the **Configure Search Index** window.

You can perform the following tasks in the **Configure Search Index** window:

Optimize the index.

Optimize the index when search performance is degraded. When you optimize the index, Metadata Manager creates a single index file for each resource, which increases search performance.

Manually create indexes.

Manually create indexes if the indexing operation fails during a resource load, if you change the Metadata Manager file location in the Administrator tool, or if you update the list of words to ignore in searches.

Automatic Index Updates

Metadata Manager updates the index when you complete the following tasks:

- Load a resource.
- Purge a resource.
- Edit metadata objects.
- Make changes in the Shortcuts view. Changes include adding or editing saved searches, adding or modifying shortcuts, or adding or modifying folders.

Optimizing the Index

Metadata Manager incrementally updates an index for a resource when you make a change to the resource. The method that Metadata Manager uses to index the warehouse can create multiple index files for a single resource. As a result, searching through multiple files decreases search performance.

When you optimize the index, Metadata Manager creates a single index file for each resource, which increases search performance.

To optimize the search index:

1. On the Load tab, click **Actions** > **Configure Search Index**.

   The Configure Search Index window appears.
2. Click **Optimize Entire Index**.

   Metadata Manager optimizes the index for each resource.

Manually Creating Indexes

If indexing fails for a resource, if you change the Metadata Manager file location in the Administrator tool, or if you update the list of words to ignore in searches, you must manually update the index.

1. On the **Load** tab, click **Actions** > **Configure Search Index**.

   The **Configure Search Index** window appears.
2. Select the resource that you want to index. You can select individual resources or shortcuts.
3. Click **Index Selected Resources**.

   Metadata Manager updates the index files for the selected resources.

Troubleshooting the Search Index

I manually updated the search index for a resource, but the indexing operation failed due to insufficient disk space. When I updated the index again, Metadata Manager displayed the following error:

```
Cannot overwrite: <Informatica installation directory>\services\MetadataManagerService
\mm_files\<service name>\mm_index\<file name>.tmp
```

If the indexing process fails, the index files can become inconsistent. To successfully update the search index, stop the Metadata Manager Service, delete the index files indicated by the error message, and start the Metadata Manager Service. Then reindex the resource manually.

To re-create the entire search index, stop the Metadata Manager Service, delete all index files, and start the Metadata Manager Service. When the index directory is empty, the Metadata Manager Service reindexes all resources during startup.

Customizing the List of Words to Ignore in Searches

When you perform a keyword or advanced search, Metadata Manager ignores special characters and common words. You can use the default list of common words to ignore in a search or you can customize the list.

By default, Metadata Manager ignores the following common words:

```
a
an
and
are
as
at
be
but
by
for
if
in
into
is
it
no
not
of
on
or
such
that
the
their
then
there
these
they
this
to
was
will
with
```

To customize the list of words and phrases to ignore in a search, update the stopwords.txt file. The stopwords.txt file is located in the following directory:

```
<Informatica installation directory>\services\shared\jars\pc\classes\
```

Open the stopwords.txt file with a text editor and add or remove words and phrases. Enter each word or phrase to ignore on a single line in the file. Entries must be in lowercase characters and cannot contain the apostrophe character (').

After you update the stopwords.txt file, perform the following actions so that Metadata Manager uses the stopwords.txt file instead of the default word list:

1. Set the UseCustomStopWords property in the imm.properties file to true.
2. Disable and enable the Metadata Manager Service.
3. Manually update the search index for all resources.

Note: Although entries in the file must be in lowercase characters, searches are not case sensitive. For example, if you enter the word `for` in the stopwords.txt file, Metadata Manger ignores `for`, `For`, and `FOR`.

CHAPTER 12

Loading and Monitoring Resources

This chapter includes the following topics:

- Loading and Monitoring Resources Overview, 237
- Loading Resources, 238
- Linking Objects Across Resources, 239
- Monitoring Resources, 241
- Logs and Log Files, 246
- Troubleshooting Resource Loads, 249
- Scheduling Resource Loads, 250

Loading and Monitoring Resources Overview

After you configure the metadata source and create a resource, you can load the resource. When you load a resource, Metadata Manager uses the connection information for the resource to extract the metadata from the metadata source. Metadata Manager converts the extracted metadata into IME-format files and runs PowerCenter workflows to load the metadata into the Metadata Manager warehouse.

Use the **Load** tab to perform the following resource tasks:

Load a resource.

Load the source metadata for a resource into the Metadata Manager warehouse. Metadata Manager extracts metadata, indexes the metadata, and creates links between objects in resources that have connection assignments or linking rules.

Link objects across resources.

If you modify connection assignments or linking rules after loading a resource, create links between objects in the resources.

Monitor a resource.

View load and link details to monitor the load and link processes and get summary and error information after a resource load.

Troubleshoot the resource load

Use the log files generated by Metadata Manager and the PowerCenter Workflow Monitor to troubleshoot resource loads.

Schedule subsequent resource loads.

Create a schedule to select the time and frequency that Metadata Manager loads a resource. You can attach the schedule to a resource.

Loading Resources

You can start a resource load for Metadata Manager from the **Load** tab. Metadata Manager loads the resource and displays the results in the Resources panel.

When Metadata Manager loads a resource, it completes the following tasks:

Loads metadata.

Loads the metadata for the resource into the Metadata Manager warehouse.

Indexes the resource.

Creates or updates the index files for the resource.

Links objects across resources.

Creates links between objects in resources that share connection assignments or resources that have associated linking rules. If you configured automatic connection assignment, Metadata Manager configures the connection assignments and then creates the links.

Loading a Resource

To load a resource:

1. On the Load tab, select the resource that you want to load in the Resources panel.
2. Click **Actions** > **Start Load**.

   Metadata Manager adds the resource to the load queue, and then starts the load process.

   Note: You cannot change the resource properties if the status of the resource is Load Failed_Resumable. To edit the resource properties, cancel the load.
3. To cancel the load, click **Actions** > **Cancel**.
4. To view the load progress, click **Actions** > **View Load Details**.

When the resource load completes, Metadata Manager updates the Last Status Date and Last Status for the resource. You can view load details to view more information about the resource load.

Load Queue

When you load a resource, Metadata Manager places the resource in a load queue. The load queue controls the order in which Metadata Manager loads resources. Metadata Manager places resources in the load queue when you start the resource load from the Load tab or when a scheduled resource load begins.

If a resource load fails, Metadata Manager determines if the resource load can be resumed. If the resource load can be resumed, Metadata Manager keeps the resource in the load queue until the timeout interval for the resource load is exceeded. When the timeout interval is exceeded, Metadata Manager removes the resource from the load queue.

You can configure the number of resources that Metadata Manager loads simultaneously and the timeout interval for resource loads when you configure the Metadata Manager Service in Informatica Administrator.

Resuming a Failed Resource Load

You can resume the resource load if a resource load fails. Use the load details in Metadata Manager and the workflow and session logs in the PowerCenter Workflow Manager to troubleshoot the error and resume the resource load.

You can resume the resource load in the following situations:

The path building task fails.

You can resume the failed load at any time, until the Metadata Manager Service is disabled or until the load is cancelled.

PowerCenter runs the workflows, and the workflows can be resumed.

You must resume the failed load within the timeout period configured for the Metadata Manager Service. After the timeout period expires, Metadata Manager removes the resource from the load queue.

1. On the **Load** tab, select the resource in the Resources panel for which you want to resume the resource load.
2. Click **Actions** > **Resume Load**.

Metadata Manager continues loading the resource from the previous point of failure and completes the indexing and linking operations.

Linking Objects Across Resources

If you configure connection assignments or linking rules after loading a resource, create the links between objects in the resources to run data lineage analysis across metadata sources.

When Metadata Manager links objects between resources that share connection assignments, Metadata Manager determines if the object is used in other resources using a name-based matching method. The name-based matching method is not case sensitive. For example, a Source Qualifier transformation references “infa_customers,” and the database table name is “INFA_CUSTOMERS.” The name-based matching method creates a link between the Source Qualifier and the database table.

When Metadata Manager links objects between resources that have associated linking rules, Metadata Manager evaluates the expressions defined in the linking rules to link matching objects.

Creating Links for a Resource

To create links for a resource:

1. On the Load tab, click **Actions** > **Resource Link Administration**.

   The **Resource Link Administration** window appears.
2. Select the resources that you want to link, and click **Create Links**.

   Metadata Manager adds the resource to the link queue, and then starts the link process.
3. To cancel a link process, click **Actions** > **Cancel** in the Load tab.

When the linking completes, Metadata Manager updates the Last Status Date and Last Status for the resource.

Link Status

The Resource Link Administration window displays the link status for each resource.

The following table describes the statuses for links:

Status Name	Description
Link Request in Queue	Metadata Manager is creating links for another resource. This resource is in the link queue until Metadata Manager can process the request.
Linking Cancel Requested	You requested that Metadata Manager cancel the link process.
Linking Canceled	Metadata Manager canceled the link process.
Linking Failed	Metadata Manager could not successfully create links for this resource.
Linking in Progress	Metadata Manager is creating links for this resource.
Linking Skipped	Metadata Manager already created links for this resource using connection assignments. Metadata Manager did not have to modify the links because the connection assignments did not change or because the resource was not reloaded.
Linking Successful	Metadata Manager created the links for this resource.
Linking Successful (Some Linking Deferred)	Metadata Manager created the links for this resource. Metadata Manager deferred creating some links because another resource with connection assignments that involve this resource is concurrently being loaded or linked. Metadata Manager creates the deferred links after it finishes loading or creating links for the other resource. **Note:** You can load resources in any order. Metadata Manager re-creates the links when required.
Not Linked	Metadata Manager did not create links for this resource because the resource does not have any connection assignments or linking rules.

Rules and Guidelines for Creating Links

Use the following rules and guidelines when you create links for a resource:

- You cannot create links for a resource that Metadata Manager has not loaded or that is being loaded.
- You can create links for a resource that has failed to load.
- Metadata Manager can concurrently link resources that share connection assignments or linking rules. Metadata Manager uses the following rules and guidelines when it concurrently links resources:
  - When Metadata Manager is loading, updating, refreshing connections, purging, or deleting a resource, you cannot create links for the resource or for a resource that shares connection assignments or linking rules.
  - When Metadata Manager is creating links for a resource, you cannot load, update, refresh connections, purge, or delete the resource or a resource that shares connection assignments or linking rules.
  - If Metadata Manager is creating links for a resource and you load a resource that shares connection assignments or linking rules, the second resource waits in the load queue until the first resource completes linking.

- If Metadata Manager is creating links for a resource and you request link creation for a resource that shares connection assignments or linking rules, the second resource waits in the link queue until the first resource finishes linking.
- If Metadata Manager is loading a resource and you request link creation for a resource that shares connection assignments or linking rules, Metadata Manager defers creating links to the resource being loaded. Metadata Manager create the links when it finishes loading the first resource.
- If you request link creation for resources that share connection assignments or linking rules at the same time, Metadata Manager randomly chooses one resource to link first. Metadata Manager defers creating links to the resource in the link queue. When Metadata Manager creates links for the second resource, it creates the links to the first resource.

Monitoring Resources

You can monitor resource loads and monitor link details for resources. Monitor a resource load on the **Load Details** tab. Monitor the link process for resources that share connection assignments on the **Link Details** tab.

The **Load Details** tab displays the load progress and the results of the most recent resource load for a resource. The **Load Details** tab displays load events, a summary of objects, warnings, and errors, and session statistics for PowerCenter workflows.

The **Link Details** tab displays the link summary for resources that share connection assignments. The link summary displays the resource, connection, assigned database, assigned schema, links, missing links, and percentage of link completeness details.

Note: The **Link Details** tab does not display the link summary for resources that Metadata Manager linked using linking rules.

Related Topics:

- "Logs and Log Files" on page 246

Viewing Load Details

View load details for a resource on the **Load** tab.

1. On the **Load** tab, select the resource in the **Resources** panel.
2. Click **Actions** > **View Load Details**.

   The **Load Details** tab for the resource appears.
3. To enable automatic refresh of the log details, click the **Auto Refresh On** icon.
4. To disable automatic refresh of the log details, click the **Auto Refresh Off** icon.
5. To save the contents of the **Load Details** tab to a Microsoft Excel file, click **Actions** > **Save As**.

   By default, Metadata Manager names the file with the resource name and the start time of the resource load.

Load Details Tab

The Load Details tab includes the following views:

- **Log view.** Contains resource load events. Metadata Manager updates the Log view as it loads a resource. You can view warnings and errors on the Log view.
- **Objects view.** Contains summary information for metadata objects.
- **Errors view.** Contains summary information for errors.
- **Sessions view.** Contains session statistics for each session in the PowerCenter workflows that Metadata Manager uses to load metadata.

You can save the contents of the Load Details tab to a Microsoft Excel file. The Excel file contains a worksheet for each view in the Load Details tab.

Metadata Manager also creates a log file that contains the information displayed in the Load Details tab.

Log View

The Log view contains load events that are generated by Metadata Manager when it loads a resource. During a resource load, Metadata Manager updates the Log view as the load events occur. The events appear in a tree format. You can expand and collapse the tree to browse the load events. Each load event includes the date and time that the event occurred.

Use the Log view to view information about load operations, PowerCenter workflows and worklets, and errors that occur during the resource load. If an error occurs, the top-level event in the tree view becomes red.

The Log view contains load events for the following operations and tasks:

Operation	Description
Load	Metadata load tasks. Includes the following tasks: - Parameter file generation task. Metadata Manager uses parameter files to run PowerCenter workflows. - ETL task. Includes events for each PowerCenter worklet and workflow. - Metadata Manager Agent task. Includes events for the Metadata Manager Agent when it extracts and processes source metadata. - Path building task. Metadata Manager creates a unique access path for all extracted metadata objects. Load events may also include parser, file transfer, incremental load, and parameter file parser events, based on the type of resource you load.
Linking	Linking tasks to create links between objects in resources that share connection assignments or resources that have associated linking rules. If you configured automatic connection assignments, Metadata Manager configures the connection assignments and then creates the links.
Indexing	Metadata Manager creates index files used when you search for metadata objects.

To filter the events that appear in the Log view, select the level of events that you want to appear on the Log view in the Severity list. You can choose Information, Warning, and Error event types.

Objects View

The Objects view contains metadata objects added, deleted, and updated in the metadata catalog for each object class type.

The following table describes the columns in the Objects view:

Column	Description
Object Type	Class type of the source object extracted.
Preload Object Count	Number of metadata objects in the metadata catalog after the previous resource load.
Objects Added	Number of objects loaded into the metadata catalog.
Objects Deleted	Number of objects deleted from the metadata catalog.
Objects Updated	Number of objects updated in the metadata catalog.
Object Count	Total number of objects in the metadata catalog for the resource after the current resource load.

Errors View

The Errors view contains the number of read, write, and transformation errors for the PowerCenter workflows that load metadata into the Metadata Manager warehouse. You can get more information about the specific errors on the Log and Sessions views.

The following table describes the columns in the Errors view:

Column	Description
Type	Workflow type, organized by the type of object loaded into the Metadata Manager warehouse and staging tables. Includes the following workflow types: - Staging - Objects - Object Properties - Object Associations - Lineage Links - Expressions - Others
Read Errors	Number of errors encountered by the PowerCenter Integration Service while reading the source database or source files.
Write Errors	Number of errors encountered by the PowerCenter Integration Service when writing metadata to the Metadata Manager warehouse.
Transformation Errors	Number of errors encountered by the PowerCenter Integration Service while transforming metadata.

Sessions View

The Sessions view contains details about each PowerCenter workflow used to stage and load metadata and the sessions for each workflow. The Sessions view contains a separate section for each workflow. Use the session statistics to get more information about the workflow runs and any error encountered during a workflow or session run.

The following table describes the details included for each workflow in the Sessions view:

Column	Description
Session Name	Name of the session in the workflow.
Parent Name	Name of the workflow or worklet that includes the session.
Source Success	Number of rows that the PowerCenter Integration Service successfully read from the metadata source or metadata source file.
Source Fail	Number of rows that the PowerCenter Integration Service failed to read from the source.
Target Success	Number of rows that the PowerCenter Integration Service wrote to the Metadata Manager warehouse.
Target Fail	Number of rows that the PowerCenter Integration Service failed to write to the Metadata Manager warehouse.
Transformation Errors	Number of transformation errors in the session.
First Error Message	Text of the first error encountered in the session.
Start Time	Date and time the session started.
End Time	Date and time the session ended.

Viewing Link Details

You can view link details for resources that Metadata Manager linked using connection assignments. When you view the links details of a resource, you can export them to a Microsoft Excel file.

You cannot view link details for resources that Metadata Manager linked using linking rules.

1. On the Load tab, select the resource in the Resources panel.
2. Click **Actions** > **View Link Details**.

   The Link Details tab displays the actual and missing links for the resource.
3. To export the link details to a Microsoft Excel file, click **Actions** > **Export Details to Excel**.

   The File Download dialog box appears.
4. Click **Save** and specify the location to save the file.

   By default, Metadata Manager names the file with the resource name and the start time of the resource load.

Link Details Tab

The Link Details tab includes the link summary, which contains the following information:

- Name of resource associated with the connection
- Name of the connection in the source database
- Name of the resource that contains the assigned schema
- Schema name for the source database resource that the connection is assigned to
- Number of links associated with the connection and schema

- Number of missing links
- Percentage of links that are correctly associated with the schema

You can save the contents of the Link Details tab to a Microsoft Excel file. You can set the value of the Missing_Links_Report_Limit property in the IMM.properties file to limit the maximum number of missing links you want to export.

Links View

The **Links** view contains information about links created between objects in resources that share a connection assignment. Metadata Manager creates links during a resource load or when you direct Metadata Manager to create the links. Metadata Manager uses the links between objects in different resources to display data lineage across sources.

Metadata Manager updates the **Links** view during each resource load or link process.

The following table describes the columns in the **Links** view:

Column	Description
Resource	Name of the resource that owns the connection.
Connection	Name of the connection in the data integration, business intelligence, or data modeling repository to the metadata source.
Assigned Database	Name of the resource that contains the assigned schema.
Assigned Schema	Schema name for the resource that the connection is assigned to.
Links	Number of created links associated with the connection and schema.
Missing Links	Number of links associated with the connection and schema that Metadata Manager could not create. Missing links can occur because of incorrect connection assignments, outdated metadata for the resources, or a counterpart object that does not exist in the metadata source.
Link Completeness	Percentage of links in the connection that are correctly associated with the schema.

Exported Missing Link Details

You can export the details of objects that are not linked to an Excel file. Export the missing link details by selecting a row in the **Links** view of the **Link Details** tab and clicking **Actions** > **Export Details to Excel**.

The exported Microsoft Excel file contains the following worksheets:

Links

The **Links** view and worksheet display the results of the most recent resource load or link process.

Missing Link Details

Contains information about each linkable object that Metadata Manager did not create a link for. The Missing Link Details worksheet displays the current information in the Metadata Manager warehouse, and might not match the summary information on the Links view and worksheet. For example, if you purge a connected resource, the **Links** view and worksheet are not updated and still include missing links to the purged resource. The Missing Link Details worksheet displays the current information in the warehouse and does not include missing links to the purged resource.

The following table describes the columns in the Missing Link Details worksheet:

Column	Description
Connection	Name of the connection in the data integration, business intelligence, or data modeling repository to the metadata source.
Assigned Schema	Schema name for the resource that the connection is assigned to.
Expected Schema	Name of the schema in the resource that Metadata Manager expects to link the objects.
Expected Table	Name of the struct in the assigned schema in the connected resource that the referred struct can be linked to.
Expected Column	Name of the feature in the assigned schema in the connected resource that the referred feature can be linked to.
Referring Struct Location	Location of the linkable structure in the Metadata Manager catalog. A structure can be a table, view, or procedure.
Referring Through Feature	Name of the feature in the linkable structure. For example, a feature can be a column name in a table structure. Empty if the linkable structure does not have a feature.
Task	Name of the PowerCenter session that contains the linkable object. Used for PowerCenter resources only.

Load Details Log File

After a resource load completes, Metadata Manager creates a log file that contains details about the resource load. The log file contains all information displayed in the Load Details tab when you load a resource.

Metadata Manager names the file in the following format:

```
<resource name>_<day><month><date><time><time zone><year>
```

Metadata Manager creates the file in the following directory:

```
<Informatica installation directory>\logs\<node name>\services\MetadataManagerService
\<Metadata Manager service name>
```

Logs and Log Files

You can monitor resource load runs to determine whether they are successful. Use Metadata Manager logs and log files to view details about resource loads. You can also use the mmcmd command line program to get information about the status of a resource load.

Use the following logs in Metadata Manager to view details about resource loads and troubleshoot errors:

Load Details Tab

Contains resource load tasks, workflow information, worklet information, and load errors.

Metadata Manager Agent Log File

Contains information about a resource load generated by the Metadata Manager Agent.

Metadata Manager Service Log File

Contains log events generated by the Metadata Manager Service and log events generated by the Metadata Manager application.

Activity Log

Contains the status of resource load operations for all resources.

You can also use the PowerCenter Workflow Monitor to view PowerCenter workflows as they load the metadata. Use the session and workflow logs to troubleshoot errors. If you load multiple resources of the same resource type concurrently, the Integration Service runs multiple instances of the workflow that corresponds to the resource type. Each workflow instance includes separate workflow and session logs.

Note: Log events may appear in different languages based on the browser locale. Log events from third-party applications may display in a language other than the browser locale.

Metadata Manager Agent Log File

Metadata Manager uses the Metadata Manager Agent to extract metadata from business intelligence resources and resources that use metadata source files. During the metadata extraction process, Metadata Manager uses the Metadata Manager Agent to connect to metadata sources and extract metadata. Metadata Manager writes any log events generated during the metadata extraction process to the Metadata Manager Agent log file. The log events include calls to the Metadata Manager Agent from the Metadata Manager application and log events generated by the Metadata Manager Agent.

You can use the Metadata Manager Agent log file to troubleshoot errors that occur when the Metadata Manager Agent extracts metadata from a metadata source during a resource load. You can also use the file to get more information about metadata objects not extracted from a metadata source.

Metadata Manager writes to mm_agent.log in the following directory:

```
<Informatica installation directory>\logs\<node name>\services\MetadataManagerService
\<Metadata Manager service name>
```

The following table describes the log event types in mm_agent.log:

Event Type	Description
INFO	Log events that include the following information: - Calls to the Metadata Manager Agent from the Metadata Manager application - Connection to metadata sources - Metadata objects extracted from metadata sources
WARN	Log events about metadata objects not extracted from a metadata source. For example, if the Metadata Manager Agent could not extract documents or universes from Business Objects, the names of the objects appear in the log file.
FATAL	Log events that occur during the metadata extraction process that causes the extraction process to fail. For example, if the Metadata Manager Agent could not connect to a metadata source system, the error would appear in the log file.

By default, Metadata Manager truncates the log file when it reaches 10 MB. You can also manually truncate the log file.

Metadata Manager Service Log File

The Metadata Manager Service log file contains log events that the Metadata Manager Service generates and log events that the Metadata Manager application generates.

The Metadata Manager Service runs the Metadata Manager application in an Informatica domain. In addition to the log events that appear in Informatica Administrator, the Metadata Manager Service also creates a log file for events that occur when the Metadata Manager application runs.

Metadata Manager writes log events to mm.log in the following directory:

```
<Informatica installation directory>\logs\<node name>\services\MetadataManagerService
\<Metadata Manager service name>
```

You can use the Metadata Manager Service log file to troubleshoot errors that occur when you run the Metadata Manager Service or perform tasks in the Metadata Manager application. The Metadata Manager Service log file contains additional information about the log events, including the specific Metadata Manager modules that generate errors.

The following table describes the log events that mm.log contains:

Event Type	Description
Metadata Manager Service	Log events that occur when you start and run the Metadata Manager Service. Also includes configuration information for the Metadata Manager Service.
Metadata load	Log events that occur during a resource load.
Lineage	Log events that occur when you perform data lineage analysis on an object, navigate the data lineage diagram, and view metadata objects in the diagram.
Metadata access	Log events that occur when you use the Metadata Manager application to access metadata in the Metadata Manager repository.
Custom metadata	Log events that occur when you create, edit, delete, and import custom metadata.

By default, Metadata Manager truncates the log file when it reaches 10 MB. You can also manually truncate the log file.

To export the service log file, click **Help** > **Export Service Log**.

Activity Log

The activity log contains details about each resource load. Use the activity log to get more details about a specific resource load.

The following table describes the contents of the activity log:

Property	Description
Name	Name of the resource.
Task Type	Type of task performed by Metadata Manager. Metadata Manager performs the following tasks: - Metadata Load. Loads metadata into the Metadata Manager warehouse. - Link. Creates links between objects in resources that share connection assignments or that have associated linking rules. - Indexing. Creates or updates index files for the resource.
User	Metadata Manager user that started the resource load.
Start Date	Date and time the corresponding task started.
End Date	Date and time the corresponding task completed.
Duration	Length of time Metadata Manager spends completing the task.
Status	Status of the metadata load and indexing operations.

To view the contents of the activity log:

1. On the **Load** tab, click **Actions** > **View Activity Log**.

   The Activity Log tab appears.
2. To filter the contents of the Activity Log tab, select a time frame in the **Time** list.
3. To sort by column, click the column name.
4. To refresh the log to see recent changes, click **Actions** > **Refresh Resources**.

Troubleshooting Resource Loads

You can monitor a resource load run to determine whether it is successful. If a resource load fails, troubleshoot the failure and load the resource again.

I am trying to load a business intelligence or a data modeling resource, but the load fails because of inconsistencies in the model.

If the load fails because of inconsistencies in the model, perform one of the following actions:

- Fix the inconsistencies in the model and reload the resources.
- In the imm.properties file, change the MitiValidationLevel property value from basic to NONE. Restart the Metadata Manager Service and reload the resources.

I am trying to load a resource, but the load fails because Metadata Manager cannot find an IME file.

Check the value of the PowerCenter Integration Service Process property $PMSourceFileDir. Metadata Manager stores transformed metadata for packaged and universal resources in IME files in the

`$PMRootDir/SrcFiles` directory. If the $PMSourceFileDir property is not set to `$PMRootDir/SrcFiles`, Metadata Manager cannot find the IME files.

When I try to load a PowerCenter resource where the PowerCenter repository type is IBM DB2, the load fails. I get the following error in the DB2CLI log file: "SQL0101N The statement is too long or complex."

Check the value of the DB2 statement heap size configuration parameter. Increase the STMTHEAP value up to 16,384 pages.

When I try to load a PowerCenter resource where the PowerCenter repository type is IBM DB2, the load fails with deadlocks on the DB2 database.

Check the values of the MAXLOCKS, LOCKLIST, and LOCKTIMEOUT DB2 configuration parameters.

Update the parameters as follows:

- MAXLOCKS = 10 per application
- LOCKLIST = 16,384 or greater
- LOCKTIMEOUT = 60 or greater

When I load a Business Objects, Cognos, or OBIEE resource, Metadata Manager returns an out of memory error.

The Metadata Manager Agent can return this error if you extract a large amount of metadata from the metadata source. If you receive this error, perform either of the following actions:

- Reduce the number of worker threads that the Metadata Manager Agent uses to extract metadata asynchronously from the metadata source. You can view and update the number of worker threads in the configuration properties when you create or edit a resource. If the number of worker threads is not set in the configuration properties, you can view the number of worker threads that the Metadata Manager Agent uses in the following log file:

  ```
  <Metadata Manager Agent installation directory>\data\logs\logService\mimb<number>.log
  ```

- Try to increase the maximum Java Virtual Machine (JVM) heap size that the Metadata Manger Agent can allocate. On 64-bit Windows, the Metadata Manager Agent can run a 64-bit JVM with a virtually unlimited maximum JVM heap size. On 32-bit Windows, configure multiple resources, each with a subset of the total models that you want to extract from the metadata source.

I am assigned the Load Resources privilege for the Metadata Manager Service, but I get an "insufficient privileges" error when I try to load Business Glossary resources.

To load Business Glossary resources, the Load Resource, Manage Resource, and View Model privileges are required. You also need write permission on any business glossary resource that you want to load.

When I load a Cloudera Navigator resource, Metadata Manager returns an out of memory error.

To load Cloudera Navigator resources, the maximum heap size for the Metadata Manager Service must be at least 4096 MB (4 GB). Some Cloudera distributions require an even larger heap size. To increase the maximum heap size, open the Administrator tool, select the Metadata Manager Service, and increase the value of the **Max Heap Size** property.

Scheduling Resource Loads

Create and edit schedules for resource loads in the Manage Schedules window. When you create a schedule, you configure the schedule properties, including the start date, the frequency in which the resource loads, and the end date. Attach a schedule to a resource in the Schedule tab for the resource.

You can complete the following tasks for resource schedules:

- Create a schedule and configure the schedule properties.
- Edit the properties of a schedule.
- Attach a schedule to a resource to load the resource according to the properties in the schedule.
- View the resources that use a schedule.

Creating a Schedule

Create a schedule to select the time and frequency in which a resource loads. You can use the built-in schedules or create your own.

Metadata Manager includes the following built-in schedules:

- **Daily schedule.** Runs every day at midnight.
- **Weekly schedule.** Runs every Sunday at midnight.
- **Monthly schedule.** Runs on the first day of every month at midnight.

The following table describes the properties you configure when you create or edit a schedule:

Property	Description
Name	Name of the schedule. The schedule name appears in the Available Schedules list after you save the schedule. The name must be unique. It cannot exceed 256 characters or include the following characters: / \ : * ' ? " < > | [ ]
Description	Description of the schedule. Description cannot exceed 4,000 characters.
Starts On	Date and time the schedule starts. You can enter the month, day, and year, or you can use the calendar to select a date. Enter the time in the following format: HH:MM.
Repeats	Time period the schedule repeats. You can select Daily, Weekly, Monthly, or Never. Use Never to schedule a resource to load only once. If you select a weekly schedule, you can select the day of the week on which the schedule repeats.
Repeats Every	Number of times the schedule repeats for the chosen time period. You can select the number of days, weeks, and months between repeats of the load. Required if you configure the schedule to repeat daily, monthly, or yearly.
Repeats On	Day on which a weekly schedule repeats. You can select multiple days. This option appears if you select a weekly schedule for the time frame in which the schedule repeats.
No End Date	Select this option if you want the schedule to repeat indefinitely.
Ends On	Date and time the schedule stops. You can enter the month, day, and year, or use the calendar to select a date. Enter the time in the following format: HH:MM. Required if you configure an end date for the schedule.

To create a schedule:

1. On the Load tab, click **Actions** > **Manage Schedules**.

   The **Manage Schedules** window appears.
2. Click **Add**.
3. Enter the properties for the schedule.
4. Click **Save**.
5. To reset the configured properties, click **Clear**.

   The properties are reset to the previously saved version.
6. Click **Close**.

The schedule appears in the Available Schedules list.

Editing a Schedule

You can edit a schedule to change the schedule time and frequency. Any resource assigned to the schedule runs according to the updated schedule.

To edit a schedule:

1. On the Load tab, click **Actions** > **Manage Schedules**.

   The **Manage Schedules** window appears.
2. In the Available Schedules list, select the schedule you want to edit.
3. Enter the properties for the schedule.
4. Click **Save**.
5. To reset the configured properties, click **Clear**.

   The properties are reset to the previously saved version.
6. To see the resources assigned to the schedule, click **Scheduled Jobs**.
7. Click **Close**.

Attaching a Schedule to a Resource

To load a resource according to a schedule, attach the schedule to the resource. You can attach a schedule to a resource when you create the resource, or after you create the resource.

To attach a schedule to a resource:

1. On the Load tab, select the resource to which you want to add the schedule in the Resources panel.
2. In the Properties panel, click the **Schedule** tab.
3. Click **Edit**.

   The **Edit Resource** window appears.
4. Select **Attach a schedule**.
5. In the Schedule list, select a schedule.

   The schedule details appear in the Schedule tab.
6. Click **OK**.

CHAPTER 13

Managing Permissions

This chapter includes the following topics:

- Managing Permissions Overview, 253
- Configuring Permissions for Users and Groups, 255
- Configuring Permissions on the Metadata Catalog, 255

Managing Permissions Overview

You can view and configure user and group permissions on resources and metadata objects. Permissions determine which resources and metadata objects that Metadata Manager users can access on the **Browse** tab and the **Load** tab. Permissions do not affect objects on the **Model** tab.

By default, only Metadata Manager administrator users have access to the resources and metadata objects in the Metadata Manager warehouse. To grant access to these objects to other users, you must configure the permissions for Metadata Manager users and groups.

Permissions work with the Metadata Manager Service privileges that you configure for users and groups in the Administrator tool. To access a resource or metadata object, a user must have sufficient Metadata Manager Service privileges and appropriate permissions on the object. For example:

- To view a metadata object in the metadata catalog, a user needs the View Catalog privilege, read permission on the resource that contains the object, and read permission on the metadata object. To prevent the user from accessing other metadata objects within the resource, set the permission on the other objects to No Access.
- To view a business glossary in the Glossary view, a user needs the View Glossary privilege and read permission on the business glossary.
- To view a resource in the **Load** tab, a user needs the View Resource privilege and read permission on the resource.
- To load a resource, a user needs the Load Resource privilege and write permission on the resource.

For more information about Metadata Manager Service privileges, see the *Informatica Security Guide*.

Use the **Permissions** tab to configure permissions on resources and metadata objects.

You can complete the following tasks:

Configure permissions for users and groups.

Select a user or group, and then specify which resources and metadata objects that the user or group can access.

Configure permissions on metadata objects.

Select a resource or metadata object, and then specify which users and groups can access the object.

Users and Groups

Create and manage Metadata Manager users and groups in the Administrator tool.

You can complete the following tasks in the Administrator tool for users and groups:

Create and configure users.

Create and configure Metadata Manager user accounts.

Create and configure groups.

Create and configure groups for Metadata Manager.

Configure privileges and roles.

Configure Metadata Manager privileges and roles. The tasks that users and groups can perform in Metadata Manager depend on the privileges and roles that you assign to users and groups.

The Service Manager stores users and groups in the domain configuration database and copies the list of users and groups to the Metadata Manager repository. The Service Manager periodically synchronizes the list of users and groups in the repository with the users and groups in the domain configuration database.

For more information about configuring users and groups in the Administrator tool, see the *Informatica Security Guide*.

Permissions

Permissions in Metadata Manager determine the level of access that users and groups have on resources and metadata objects.

You can configure the following permissions:

Full control

Configure permissions on an object in the metadata catalog. Includes write and read permission.

Write

Write permission on a resource or metadata object. Includes read permission.

Read

Read permission on a resource or metadata object.

No access

User cannot access the resource or metadata object.

Permission not specified

User inherits permissions on the object from the parent object.

Rules and Guidelines for Permissions

Use the following rules and guidelines when you configure permissions:

- When you configure permissions on a resource or metadata object, child objects of the resource or metadata object inherit the permissions of the parent object.

- You cannot configure permissions on logical groups in the metadata catalog. For example, logical groups for an Oracle resource include the Indexes, Procedures, Tables, and Views groups. Metadata Manager groups all tables under the Tables logical group. You can configure permissions on the individual tables, but not on the Tables logical group.

Configuring Permissions for Users and Groups

View and configure permissions for users and groups on the **Permissions** tab. You can view the permissions on the resources and metadata objects for a user or group. You can also configure the permissions for the user or group.

To configure permissions for specific child objects of a parent object, set permissions for all child objects to No Access. Then configure the appropriate permissions for the child objects.

For example, user dave needs the Write permission only on the first two monthly revenue reports tables among the 100 monthly revenue reports tables under the Tables logical group in an Oracle resource. To configure permissions for dave, select the 100 monthly revenue reports tables, and set the permission to No Access. Then select the first two monthly revenue reports tables, and set the permission on the tables to Write.

1. On the **Permissions** tab, select the user or group in the **Users/Groups** pane.

   The **Permissions** pane displays the user or group permissions for each resource and metadata object in the metadata catalog.

   Note: Permissions preceded by an asterisk (*) are inherited from permissions on a parent object.
2. Click **Edit Permissions**.

   The **Edit Permissions** window appears.
3. Select the resource or metadata object for which you want to configure permissions.
4. Select the permission from the list and click **Apply**.
5. Click **OK**.

Configuring Permissions on the Metadata Catalog

View and configure permissions for resources and metadata objects on the **Permissions** tab. You can view the user and group permissions on the resources and metadata objects and configure the permissions for the objects.

When you select a resource or metadata object, Metadata Manager displays the users and groups for which you configured permissions. To configure permissions for a user or group that is not displayed, you can add the user or group when you configure permissions for the object.

Note: You can also configure permissions for a resource or metadata object from the **Browse** tab. Select the object and choose **Actions** > **Set Permissions for this Object** to switch to the **Permissions** tab.

1. On the **Permissions** tab, select a resource or metadata object.

   The **Permissions** pane displays the configured permissions for users and groups on the resource or metadata object.

   Note: Permissions preceded by an asterisk (*) are inherited from permissions on a parent object.

2. Click **Edit Permissions**.

   The **Edit Permissions** window appears.

3. To edit the permissions for a user or group, select the permission in the **Permission** list.
4. To remove the permissions for a user or group, click **Remove** for the corresponding user or group.
5. To add permissions for another user or group, select the user or group in the **Add another User/Group** list, select the permission, and click **Add**.
6. Click **OK**.

CHAPTER 14

Resource Migration

This chapter includes the following topics:

- Resource Migration Overview, 257
- Resource Migration Steps, 257
- Step 1. Copy the Plug-in for a Universal XConnect, 259
- Step 2. Migrate the Model, 259
- Step 3. Migrate the Resource Configuration, 260
- Step 4. Load the Resource, 262
- Step 5. Migrate Resource Metadata, 262

Resource Migration Overview

You can migrate packaged and universal resources between Metadata Manager instances. You might migrate resources when you move from a development to a production environment. Migrate resources so that you do not have to re-create them in the target environment.

The steps that you use to migrate resources vary based on whether you migrate a packaged resource or a universal resource and whether the resource uses custom classes, rule sets, custom class attributes, or business names.

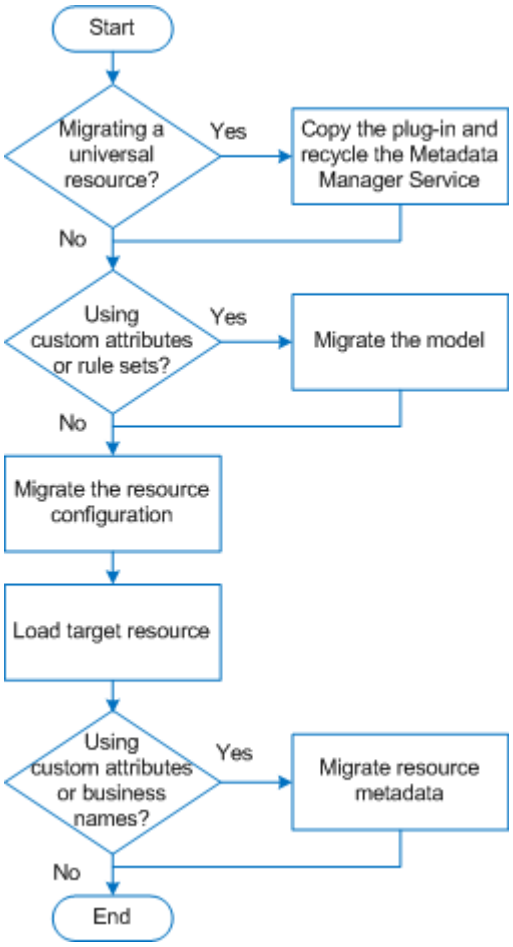
Note: The information in this chapter applies to migrating packaged and universal resources within the current Metadata Manager version. To migrate resources from a previous version of Metadata Manager to the current version, use the rmu or rcfmu command line program. For information about migrating custom resources, see the *Metadata Manager Custom Metadata Integration Guide*.

Resource Migration Steps

To migrate a packaged or universal resource between Metadata Manager instances of the same version, you must migrate the resource configuration and custom attributes to the target environment. If you migrate a

universal resource, you must also copy the plug-in to the target environment. To migrate objects, you export them from the source repository and import them into the target repository.

The following image shows the process to migrate a packaged or universal resource:



1. If you migrate a universal resource, copy the plug-in to the Metadata Manager Service plug-ins directory in the target environment, and then recycle the Metadata Manager Service.

   Metadata Manager imports the universal XConnect and model in the target environment when the Metadata Manager Service is enabled.

2. If you added custom class attributes to the model in the source environment or if the model has associated rule set definitions, migrate the model:

   a. Export the model from the source repository. On the **Model** tab, click **Actions** > **Export Selected Model**. Include the rule set definitions in the export file.

   b. Import the model into the target repository. On the **Model** tab, click **Actions** > **Import Selected Model**.

3. Migrate the resource configuration:

   a. Export the resource configuration from the source repository. On the **Load** tab, click **Actions** > **Export Resource Configuration**. If the resource has associated rule sets or parameter files, include them in the export file.

   b. Import the resource configuration into the target repository. On the **Load** tab, click **Actions** > **Import Resource Configuration**.

4. Load the resource in the target environment.

5. If you updated the values of custom attributes or the business names for objects in the source environment, migrate the resource metadata:
   a. Export the resource metadata from the source repository to a Microsoft Excel file. On the **Browse** tab, click **Actions** > **Export Metadata** > **Excel**.
   b. Import the resource metadata into the target repository. On the **Browse** tab, click **Actions** > **Import Metadata** > **Excel**.

Step 1. Copy the Plug-in for a Universal XConnect

If you migrate a universal resource, you must copy the plug-in from the source environment to the target environment. Recycle the Metadata Manager Service in the target environment to import the XConnect and model.

If you are not migrating a universal resource, skip this step.

1. Copy the plug-in .xar file from the Metadata Manager Service plug-ins directory in the source environment to the Metadata Manager plug-ins directory in the target environment.

   The Metadata Manager Service plug-ins directory is the following directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mm-plugins
   \xconnect\<Metadata Manager Service name>
   ```

2. In the Administrator tool in the target environment, recycle the Metadata Manager Service.

   Recycling the service disables and enables the service.

   Metadata Manager imports the XConnect and model in the target environment when the service is enabled.

After the Metadata Manager Service is enabled, open the Metadata Manager web application in the target environment, and verify that the model appears on the **Model** tab.

Step 2. Migrate the Model

If you added custom class attributes to the model in the source environment or if the model has associated rule set definitions, you must migrate the model. To migrate a model, you export the model from the source repository and import it into the target repository.

If you did not add custom class attributes to the model in the source environment, skip this step.

When you migrate a model, you export the model from the source Metadata Manager repository to a file. The model export file contains all the classes, attributes, and relationships for the model.

When you import a packaged or universal model into the target repository, Metadata Manager analyzes the contents of the model export file and compares it to the existing models. Metadata Manager imports the new and changed classes.

Exporting a Packaged or Universal Model

You can export one packaged or universal model to an export file.

Note: You cannot export the Business Glossary model from Metadata Manager. To export business glossary assets and templates, use the Analyst tool.

1. On the **Model** tab, click **Actions** > **Export Selected Model**.

   Metadata Manager prompts you to include rule set definitions in the export file.

2. If the model has associated rule set definitions, select **Yes**. Otherwise, select **No**.

   If you do not include rule set definitions in the export file, Metadata Manager creates an XML file that defines the model. If you include the rule set definitions, Metadata Manager creates a .zip file that contains the model export XML file plus an XML file for each rule set definition. The options to save the export file vary based on the browser.

Importing a Packaged or Universal Model

When you import a packaged or universal model, Metadata Manager imports the custom class attributes. If you import a model export .zip file, Metadata Manager also imports the rule set definitions.

Note: You cannot import a Business Glossary model in Metadata Manager. To import business glossary assets and templates, use the Analyst tool.

1. On the **Model** tab, click **Actions** > **Import Model**.

   The **Import Model** window appears.

2. Select the .xml or .zip file that contains the model that you want to import.
3. Click **Next**.
4. Select the model that you want to import, and click **Next**.

   The wizard analyzes the file and validates it against the models in the Metadata Manager repository. The wizard lists the new and changed classes that Metadata Manager will create or update. The wizard also lists the unchanged classes that Metadata Manager will not reimport.

5. Click **Import** to import the class attributes and rule set definitions.

Step 3. Migrate the Resource Configuration

To migrate the resource configuration for a packaged or universal resource, you export the resource configuration from the source Metadata Manager repository to a file. You can include rule sets and parameter definitions in the export file. You then import the file into the target Metadata Manager repository.

If you export the resource configuration without the rule sets and parameter definitions, Metadata Manager creates a resource configuration file with the .rcf extension that defines the resource properties and values. If you include rule sets and parameter definitions, Metadata Manager creates a compressed file with the .rcz extension. The compressed file contains the resource configuration file, rule set files, rule set parameter files, and all data and parameter files that are associated with the resource.

When you import the .rcf or .rcz file, Metadata Manager creates the resource if it does not exist. If the resource exists, Metadata Manager updates the resource configuration.

Exporting a Resource Configuration

Export the resource configuration from the source repository so that you can import it into the target repository. If the resource includes rule sets or parameter definitions, include them in the export file. You can also include or exclude the resource password and secure JDBC parameters.

1. On the **Load** tab, select a resource.
2. Click **Actions** > **Export Resource Configuration**.
3. Metadata Manager prompts you to include rule sets and parameter definitions in the export file.

   Select one of the following options:

Option	Description
Yes	Export all source files associated with the resource, including rule sets and parameter definitions.
No	Export the resource configuration only.

4. Metadata Manager prompts you to include the resource password in the export file.

   Select one of the following options:

Option	Description
Yes	Include the password and secure JDBC parameters in the resource configuration file. The password and secure JDBC parameters are encrypted in the resource configuration file.
No	Do not include the password or the secure JDBC parameters in the resource configuration file. **Note:** If the resource uses a password or secure JDBC parameters and you do not include this information in the export file, you must enter it when you import the resource configuration.

   If the resource does not use a password, select **No**.

   The options to save the export file vary based on the browser.

If you include rule sets and parameter definitions in the export file, Metadata Manager creates a file with the .rcz extension in the location you specify. If you export the resource configuration only, Metadata Manager creates a file with the .rcf extension in the location you specify.

Importing a Resource Configuration

Import the resource configuration into the target repository. If you included rule sets and parameter definitions when you exported the resource from the source repository, Metadata Manager imports the resource, rule set files, rule set parameter files, and all data and parameter files that are associated with the resource.

If you import a resource configuration file with the .rcf extension, Metadata Manager imports the resource configuration. If you import a resource configuration file with the .rcz extension, Metadata Manager imports the resource configuration plus all rule sets and all parameter definitions associated with the resource.

1. On the **Load** tab, click **Actions** > **Import Resource Configuration**.

   The **Import Resource Configuration** dialog box appears.
2. Select the import file.
3. If the resource uses a password and the resource configuration does not include the resource password, enter the resource password in the **Password** property.

4. If the resource uses secure JDBC parameters and the resource configuration does not include them, enter the parameters in the **Secure JDBC Parameters** property.

   Enter the parameters as name=value pairs separated by the delimiter character that the database driver requires.

   Note: If you do not enter the parameters, the Metadata Manager Service might not be able to create the resource.

5. Click **OK**.

   If the resource does not exist, Metadata Manager creates it. If the resource already exists, Metadata Manager updates the resource configuration.

Step 4. Load the Resource

After you import the resource configuration into the target repository, load the resource in the target environment. When you load the resource, Metadata Manager imports the metadata from the metadata source and creates the data lineage links.

If you updated the values of custom attributes or the business names for objects in the source environment, you must also migrate the resource metadata after you load the resource. You cannot import custom attribute values or business names for the resource in the target environment until you load the resource.

If you did not If you update the values of custom attributes or business names in the source environment, the migration process is complete after you load the resource.

Step 5. Migrate Resource Metadata

If you updated the values of custom attributes or the business names for objects in the source environment, you must migrate the resource metadata. To migrate resource metadata, export the resource metadata from the source repository to a Microsoft Excel file. Then, import the Excel file into the target repository.

If you did not update the values of custom attributes or business names in the source environment, skip this step.

When you import the Excel file into the target repository, Metadata Manager imports the custom attribute and business name values. Custom attributes are also called custom properties.

For example, in a development environment, you updated the Business Name property for most objects in a packaged resource. You want to migrate the business names to the production environment. Export the resource metadata to an Excel file and include the custom attributes and business names. When you import the Excel file in the target environment, Metadata Manager imports the business name values for the objects in the resource.

Export and import resource metadata between Metadata Manager repositories with the same version. You cannot import resource metadata from a different version.

For more information about exporting and importing custom properties and custom property values, see the *Metadata Manager Custom Metadata Integration Guide*.

Exporting Resource Metadata

If you updated the values of custom attributes for a packaged or universal resource in the source environment, export the resource metadata to a Microsoft Excel file.

1. On the **Browse** tab, select the resource for which you want to export custom attributes.
2. Click **Actions** > **Export Metadata** > **Excel**.

   Metadata Manager prompts you to include the Business Name attribute and other custom attributes.
3. Click **Yes** to export the attribute values to the Excel file.

   The options to save the export file vary based on the browser.

Importing Resource Metadata

If you updated the values of custom attributes for a packaged or universal resource in the source environment, import the resource metadata into the target environment. You import resource metadata from a Microsoft Excel file.

Before you import metadata for a resource, verify that the model and resource exist in the target environment and that the resource is loaded successfully. You cannot import resource metadata from the Microsoft Excel file if the resource is not loaded.

1. On the **Browse** tab, select the packaged or universal resource for which you want to import metadata.
2. Click **Actions** > **Import Metadata** > **Excel**.

   The **Import Catalog Metadata** window appears.
3. Select the Microsoft Excel file that contains the resource metadata, and click **Import**.

   Metadata Manager imports the attribute values and displays the number of metadata objects that were updated, not changed, not found, or not valid.

CHAPTER 15

Repository Migration

This chapter includes the following topics:

- Repository Migration Overview, 264
- Migrating the Repository when Domain Names and Encryption Keys are the Same, 264
- Migrating the Repository when Domain Names or Encryption Keys Differ, 265

Repository Migration Overview

You can migrate the Metadata Manager repository between domains. You might want to migrate the repository when you move from a development environment to a production environment.

When you migrate the repository, you back up the repository contents in the old domain and restore them to the repository in the new domain. You use the mmRepoCmd command line program to back up and restore the repository. The steps that you perform to migrate the repository differ based on whether the old domain and the new domain use the same domain names and encryption keys.

Note: To ensure that you can recover the repository if you encounter problems during migration, back up the old repository before you begin the migration process.

For more information about the mmRepoCmd command line program, see the *Metadata Manager Command Reference*.

Migrating the Repository when Domain Names and Encryption Keys are the Same

When the domain names and encryption keys are the same, back up the repository in the old domain, copy it to the new domain, and restore it.

Before you migrate the repository, create the new Metadata Manager repository database. You must also export users and groups from the old domain and import them into the new domain. You can use the infacmd command line program to export and import users and groups. For more information about infacmd commands, see the *Informatica Command Reference*.

1. In the old domain, use the mmRepoCmd backupRepository command to back up the repository contents to a binary file.

2. In the new domain, create the Metadata Manager Service and associate it with the new repository database.
3. Enable the Metadata Manager Service in the new domain.

   Note: The PowerCenter Repository Service and PowerCenter Integration Service must be running to enable the Metadata Manager Service.
4. Copy the repository back-up file from the back-up directory in the old domain to the back-up directory in the new domain.

   The back-up directory for repository back-up files is the following directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mm_files
   \<Metadata Manager Service name>\backup
   ```
5. In the new domain, use the mmRepoCmd restoreRepository command to restore the repository contents from the binary file.
6. In the new domain, recycle the Metadata Manager Service.

   The Metadata Manager Service drops and recreates the caches that store model and resource information.
7. In the new domain, manually create the search index for all resources.

   On the **Load** tab, click **Actions** > **Configure Search Index** and select all of the resources.

Migrating the Repository when Domain Names or Encryption Keys Differ

When the domain names or encryption keys differ, you must copy the encryption key file from the old domain, rename it, and upgrade the Metadata Manager Service. The upgrade process updates the domain name and encryption key in the new repository.

Before you migrate the repository, create the new Metadata Manager repository database. You must also export users and groups from the old domain and import them into the new domain. You can use the infacmd command line program to export and import users and groups. For more information about infacmd commands, see the *Informatica Command Reference*.

1. In the old domain, use the mmRepoCmd backupRepository command to back up the repository contents to a binary file.
2. In the new domain, create the Metadata Manager Service and associate it with the new repository database.
3. Enable the Metadata Manager Service in the new domain.

   Note: The PowerCenter Repository Service and PowerCenter Integration Service must be running to enable the Metadata Manager Service.
4. Copy the repository back-up file from the back-up directory in the old domain to the back-up directory in the new domain.

   The back-up directory for repository back-up files is the following directory:

   ```
   <Informatica services installation directory>\services\MetadataManagerService\mm_files
   \<Metadata Manager Service name>\backup
   ```
5. Copy the domain encryption key file, siteKey, from the old domain to the encryption key directory in the new domain and rename the copied file siteKey_old.

Warning: Do not overwrite the siteKey file in the new domain.

The encryption key directory in the new domain will contain two encryption key files, siteKey and siteKey_old.

6. In the new domain, use the mmRepoCmd restoreRepository command to restore the repository contents from the binary file that you copied from the old domain.
7. In the new domain, recycle the Metadata Manager Service.

   The Metadata Manager Service drops and recreates the caches that store model and resource information.
8. In the new domain, manually create the search index for all resources.

   On the **Load** tab, click **Actions** > **Configure Search Index** and select all of the resources.

APPENDIX A

Metadata Manager Login

This appendix includes the following topics:

- Metadata Manager Login Overview, 267
- Cookies, 267
- Logging in to Metadata Manager, 268
- Changing a Password, 268

Metadata Manager Login Overview

Log in to Metadata Manager through your web browser. You must have a user account to log in to Metadata Manager.

If the domain does not use Kerberos authentication, the Informatica Service Manager creates a cookie that it uses to authenticate your user name in Metadata Manager. The Service Manager deletes the cookie after 12 hours or when you log out of Metadata Manager. You can change the cookie timeout value.

Session timeout is the duration of inactivity after which the session information is destroyed. By default, the session timeout is 30 minutes. You can change the session timeout for Tomcat by updating the session-timeout element in the following file:

```
<INFA HOME>\tomcat\temp\<Metadata Manager Service name>\conf\web.xml
```

You can change your password after you log in.

Cookies

If the domain does not use Kerberos authentication, the Informatica Service Manager creates a cookie that it uses to authenticate your user name in Metadata Manager. The Service Manager creates the cookie when you log in to Metadata Manager.

If you access Metadata Manager again before the cookie expires, the Service Manager uses the authentication information in the cookie to log you in to Metadata Manager. You must have cookies enabled in your browser for the Service Manager to create the cookie.

If the browser session is inactive for 12 hours or you log out of Metadata Manager, the Service Manager deletes the cookie. You can change the timeout for the cookie. To change the timeout value, update the Session.timeOut property in the Metadata Manager imm.properties file.

Related Topics:

- "imm.properties" on page 269

Logging in to Metadata Manager

Log in to Metadata Manager through your web browser. The information that you enter to log in to Metadata Manager varies based on the domain security configuration. If you are already authenticated within the Informatica domain, Metadata Manager bypasses the login page.

1. Open the web browser.
2. In the address field, enter the following URL for the Metadata Manager login page:

   ```
   http(s)://<host>:<port>/mm
   ```

   In the URL, <host>:<port> represents the host name and port number of the machine that runs the Metadata Manager Service.

   If the node is configured for HTTPS with a keystore that uses a self-signed certificate, a warning message appears. To enter the site, accept the certificate.

   The login page appears.
3. Enter the login information.

   The information on the login page varies based on the domain security configuration. You might have to enter a user name, password, security domain, or namespace. If you do not know the security domain or the namespace that your user account belongs to, contact the Informatica domain administrator.
4. Click **Login**.

The first time that you log in with the user name and password provided by the Informatica domain administrator, change your password to maintain security.

Changing a Password

Change a password through the **Manage** menu.

1. Click **Manage** > **Account Settings**.

   The **Account Settings** window appears.
2. Enter the old password.

   Passwords can be up to 80 characters.
3. Enter a new password and confirm the new password.
4. Click **OK**.

APPENDIX B

Metadata Manager Properties Files

This appendix includes the following topics:

- imm.properties, 269
- searchpriorities.xml, 274

imm.properties

Use imm.properties to configure the following properties for Metadata Manager:

- Metadata Manager application properties
- Data lineage properties

After you configure properties in imm.properties, disable and enable the Metadata Manager Service for the changes to take effect.

By default, imm.properties is located in the following directory:

```
<Informatica installation directory>\services\shared\jars\pc\classes
```

Metadata Manager Application Properties

Use imm.properties to configure Metadata Manager application properties such as indexing performance and JDBC connection timeout interval.

The following table describes the Metadata Manager application properties in imm.properties:

Property	Description
Catalog_Import_Batch_Size	Number of elements that Metadata Manager processes in one batch when you import metadata for a custom resource from an XML file. Increase this value if errors occur during XML import. Specify any positive integer value. Default is 5000.
ElementFetch.ParamSize	Number of elements that Metadata Manager processes to calculate the impact summary. You can specify any value greater than zero. Decrease the value if errors occur during impact summary calculation. Default is 10,000.

Property	Description
ETL_Task_Run_Status_Poll_Interval	Interval, in seconds, in which the Metadata Manager Service writes ETL task run statistics to the mm.log file. Increase this value to write fewer messages to the log file. Specify any positive integer value. Default is 5.
GatherStatistics	Gathers statistics after loading resources if set to yes. You can gather statistics when the Metadata Manager repository is on any relational database. Gathering statistics improves performance of linking and catalog operations such as browse and lineage. However, there might be an increase in the time taken to load resources. Default is Yes. **Note:** If the Metadata Manager repository is on IBM DB2 and GatherStatistics is set to yes, ensure that the IBM DB2 user has execute permissions on SYSPROC.ADMIN_CMD and SYSPROC.REBIND_ROUTINE_PACKAGE.
Hide_Empty_Uneditable_Properties	Hides empty and uneditable property values in all Metadata Manager perspectives when set to the default value. Default is Y.
ImpactSummary.MaxObjects	The maximum number of objects to appear in the impact summary user interface. You can specify any non-negative integer value. If you specify zero, all objects appear in the impact summary user interface. Default is 150. **Note:** When you export the impact summary results, the value of the ImpactSummary.MaxObjects property does not apply and all objects are exported.
indexing.mergeFactor	Controls the number of metadata objects to store in memory before merging them into the index. Increase the default value to improve indexing performance for Metadata Manager. Default is 100. **Note:** If you set the value too high for your environment, a Java exception might occur due to too many open files.
indexing.ramBufferSize	Determines the amount of memory used to buffer metadata objects before they are merged into the index. Increase the default value to improve indexing performance for Metadata Manager. Default is 256 MB. **Note:** If you set the value too high for your environment, the following error might occur: `java.lang.OutOfMemoryError`
Load.OracleOptimizerDynamicSampling	Sets the Oracle session parameter OPTIMIZER_DYNAMIC_SAMPLING on the PowerCenter sessions that load to a Metadata Manager repository on Oracle. Enter one of the following values: - -1. Does not override the Oracle database setting. - 0. Disables dynamic sampling. - 1-10. Overrides the Oracle database setting for the PowerCenter load sessions. Improves Metadata Manager performance during a resource load. Contact your Oracle database administrator to get the appropriate value for your environment. Default is -1. **Note:** To use this option, Cost Based Optimization (CBO) must be enabled on the Oracle instance.

Property	Description
mail.from.defaultEmailId	Email address used as the default sender address when a user does not have an email address in the system. If you do not set this property, and the user profile does not contain an email address, the user cannot send email from Metadata Manager.
Missing_Links_Report_Limit	Limits the maximum number of missing links you want to export. Default is 64000.
Miti_Client_Version	Current version of the Metadata Manager Agent client used by Metadata Manager. The Metadata Manager Agent that you use to load resources must match this version.
MitiValidationLevel	Specifies the level of consistency check to perform while loading business intelligence and data modeling resources. Enter one of the following values: - basic - NONE - ADVANCED Default is NONE.
Publish.MaxObjects	Maximum number of objects to include in the export file when you export custom and business name properties for a resource, logical group, or metadata object. Default is 200. **Note:** When you increase this limit, the Metadata Manager Service consumes additional memory in direct proportion to the value that you specify. Therefore, Metadata Manager performance can decrease.
SAP_MAX_TABLES	Maximum number of tables Metadata Manager retrieves from SAP R/3 when you configure the components to extract from SAP R/3. SAP R/3 sources contain many tables. Use this setting to increase Metadata Manager performance when it retrieves application components, packages, and tables from SAP R/3.
search.allow.constant.score	Enables Metadata Manager to rewrite wildcard search queries in a more efficient form if required. If you enable this property, Metadata Manager does not rank some wildcard searches correctly. Enable this property if you run wildcard searches that can match large numbers of search terms, you have increased search.max.clause.count, and the machine does not have enough memory to further increase search.max.clause.count. Default is false.
search.max.clause.count	Maximum number of search terms that Metadata Manager can use in a contains, starts with, or wildcard search. For example, if you search for "cat*," Metadata Manager might create a query to find the terms "category" or "catalog" or "cat." If the number of search terms exceeds this limit, Metadata Manager cannot run the search. Default is 1024. Increase this limit if you run wildcard searches that can produce large numbers of search terms. If you increase this limit, the Metadata Manager service might consume large amounts of memory when you run a search.
search.max.docs	Maximum number of search results that Metadata Manager displays for a catalog search. Decrease the default value to improve search performance for Metadata Manager. Default is 1000. **Note:** If you set the value too high for your environment, the following error might occur: `java.lang.OutOfMemoryError`

Property	Description
Session.timeOut	Duration after which the cookie expires. When you log in to Metadata Manager, the Informatica Service Manager creates a cookie that it uses to authenticate your user name in Metadata Manager. If you access Metadata Manager again before the cookie expires, the Service Manager uses the authentication information in the cookie to log you in to Metadata Manager. You can set a value from 30 through 43,200 minutes.
shortcut.classes	Lists the classes that are shortcuts. When you add a shortcut class to this list of classes, children of that shortcut appear in the Catalog tree.
Show_Synthetic_Dates_In_Basic_Section	Displays the synthetic dates in the Basic or Advanced section of the class properties, in all Metadata Manager perspectives. Enter one of the following values: - Y. Displays the synthetic dates in the Basic section. - N. Displays the synthetic dates in the Advanced section. After you set this value, you cannot change the display location of these properties in the user interface. For a class, Source Creation Date, Source Update Date, MM Creation Date, and MM Update Date properties are referred as the synthetic date properties. Default is N.
UseCustomStopWords	Determines which list of common words that Metadata Manager ignores in a search. If you set this property to true, Metadata Manager uses the custom list in the stopwords.txt file. If you set this property to false, Metadata Manager uses the default list of common words to ignore in a search. Default is false.
xconnect.custom.failLoadOnErrorCount	Maximum number of errors that the Metadata Manager Service can encounter before the custom resource load fails. Specify any positive integer value. Default is 18,000.
xconnect.io.print.batch.errors	Number of errors that the Metadata Manager Service writes to the in memory cache and to the mm.log file in one batch when you load a custom resource. Increase this value to reduce the time it takes for the Metadata Manager Service to log the errors. Specify any positive integer value. Default is 100.

Data Lineage Properties

The following table describes the data lineage properties in imm.properties:

Property	Description
Lineage.Debug.ShowPerformanceDebugMessages	Writes the data lineage performance information to the mm.log file. If set to true, writes the following information to the log file: - Time taken to display the data lineage diagram. - Number of features and structures with connections in the diagram. - Number of objects displayed in the diagram. Metadata Manager prefixes the name of the object for which you ran the data lineage analysis to each performance message. Default is false.
Lineage.Flow.DefaultDownstreamGenerationLimit	Number of generations to display downstream from the source object in a data lineage diagram.
Lineage.Flow.DefaultNumberOfGenerationsToContinueLineage	Number of generations that appear when you use the arrow buttons to navigate the data lineage diagram.
Lineage.Flow.DefaultUpstreamGenerationLimit	Number of generations to display upstream from the source object in a data lineage diagram.
Lineage.PreCompute.ElementsInSingleTransaction	Maximum number of graph elements, including edges and vertices, that the Metadata Manager Service can process in a single transaction during lineage graph creation. When the number of elements reaches this limit, the Metadata Manager Service pages some information to disk instead of storing it in physical memory. Increase this value to reduce paging for large, complex data lineage diagrams. If you increase this value, verify that the machine that stores the graph database files has enough physical memory to support the increased transaction size. Default is 50,000.
Lineage.PreCompute.FetchBlockSize	Number of records that the Metadata Manager Service processes in one block when it retrieves data lineage linking information from the Metadata Manager warehouse to populate the graph database. If you increase this value, you might also need to increase the value of the Lineage.PreCompute.ElementsInSingleTransaction property because each block of records will contain additional graph elements. Default is 5000.

searchpriorities.xml

You can use the searchpriorities.xml file to specify the priority of the search results.

You can use the elements in the searchpriorities.xml file to create groups of class_ids, class_types, or favorite_types and assign a priority value to the group. You can assign a priority value to a group, where one indicates a low priority and ten indicates a high priority. The search results appear based on the priority assigned to the group.

By default, searchpriorities.xml is in the following directory:

```
<Informatica installation directory>\services\shared\jars\pc\classes
```

After you update the searchpriorities.xml file, you must complete the following tasks:

- Restart the Metadata Manager Service.
- Update the index for all resources.

Search Result Configuration

Set the priority of the search results in the searchpriorities.xml file.

The following table describes the elements and attributes in the searchpriorities.xml file:

Elements	Attributes	Description
search-label		Groups related entities. For example, you can specify a search label Table that could include entities like database tables, views and so on. You can specify any number of search labels.
	name	Provides a meaningful and unique name to a group of entities.
	priority	Assigns a priority between one and ten for a group. One indicates lowest priority and ten indicates highest priority. The search results appear based on the priority assigned to a group.
entry		Provides details of the entities in a search label group.
	type	Specifies the type of entity. Type can be Class_ID, Class_Type, or Favorite. You can use any combination of types when you define a group.
	value	Specifies the value of the search label entry type. You can specify the class_ID from IMW_Class, Class_Type from IMW_Class, and Favorite from MM_Favorite tables. You can also include custom classes in any group.

If the searchpriorities.xml file becomes invalid because of your changes, the Metadata Manager Service uses the default priorities to configure the search results and logs an error message.

Sample searchpriorities.xml File

The following example shows sample entries in a searchpriorities.xml file:

```
<?xml version="1.0" encoding="UTF-8"?>
<tns:search-labels xmlns:tns="http://www.example.org/searchlabels"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.example.org/searchlabels searchlabels.xsd ">
```

```
    <search-label name="FAVORITES" priority="9">
                <entry type="FAVORITE" value="Folder" />
                <entry type="FAVORITE" value="Shortcut" />
                <entry type="FAVORITE" value="SavedSearch" />
    </search-label>

    <search-label name="BG_TERMS" priority="8">
                <entry type="CLASS_ID"
value="com.informatica.businessglossary.BusinessTerm" />
    </search-label>

<search-label name="COLUMNS" priority="8">
        <entry type="CLASS_ID" value="com.informatica.db2.db2database.DB2Column" />
        <entry type="CLASS_ID"
value="com.informatica.netezza.netezzadatabase.NetezzaColumn" />
        <entry type="CLASS_ID"
value="com.informatica.oracle.oracledatabase.OracleColumn" />
        <entry type="CLASS_TYPE" value="Column" />
    </search-label>

    <search-label name="TABLES" priority="5">
                <entry type="CLASS_ID"
value="com.informatica.db2.db2database.DB2Table" />
                <entry type="CLASS_ID" value="com.informatica.erstudio.ERStudioTable" />
                <entry type="CLASS_ID" value="com.informatica.erwin.ERwinTable" />
    <entry type="CLASS_ID" value="com.Custom_Model.custom.View" />
    </search-label>

</tns:search-labels>
```

Entry Type Examples

You can use a combination of Class_ID, Class_Type, or Favorite entry types to define a group and assign a priority.

You can search for class IDs associated with PowerCenter that you want to include in a group. For example:

```
select class_uid from IMW_class where class_id like '%powercenter%'
```

You can search for columns associated with a database such as Oracle or DB2 that you want to include in a group. For example:

```
select class_type from IMW_class where class_type like '%Column%'
```

You can search for favorite types that you want to include in a group. For example:

```
select favorite_type from MM_Favorites
```

You can search for class IDs associated with custom classes. For example:

```
select * from imw_class where class_id like '%<custom class name>%'
```

APPENDIX C

Resource Configuration Files

This appendix includes the following topics:

- Resource Configuration Files Overview, 276
- Resource Configuration File Format, 277
- Passwords in Resource Configuration Files, 277
- Secure JDBC Parameters in Resource Configuration Files, 278
- Sample Resource Configuration File, 279

Resource Configuration Files Overview

A resource configuration file is an XML file that contains all configuration properties and values for a resource. A resource configuration file has the .rcf file name extension.

Note: The information in this appendix applies to resource configurations for packaged and universal resources. For information about resource configurations for custom resources, see the *Metadata Manager Custom Metadata Integration Guide*.

You can export resource configuration files, import resource configuration files, and change resource properties on the **Load** tab.

You can also export resource configuration files, import resource configuration files, and change resource properties through the following mmcmd commands:

getResource

Writes properties for the specified resource to a resource configuration file.

createResource

Creates a resource based on the properties in the specified resource configuration file.

updateResource

Updates a resource based on the properties in the specified resource configuration file.

assignConnection

Assigns connections to other metadata sources based on the properties in the specified resource configuration file.

assignParameterFile

For a PowerCenter resource, assigns parameter files to PowerCenter workflows based on the properties in the specified resource configuration file.

For more information about the mmcmd command line program, see the *Metadata Manager Command Reference*.

Resource Configuration File Format

A resource configuration file is an XML file that contains elements that define the properties and values for a resource. Not all elements are applicable for all resource types.

A resource configuration file can contain the following elements:

Parameters

Defines configuration properties.

Filters

Defines the components, folders, models, schemas, or universes that you want to load into the Metadata Manager warehouse.

For PowerCenter resources, you can set the refresh attribute to true to refresh the folders during reload. Set this attribute value to false if you do not want to refresh the folders during reload. Default is true.

MetadataInfo

Defines the metadata source files or the Microstrategy project source that you want to load into the Metadata Manager warehouse.

ConnectionAssignment

Defines the connections assigned to other metadata sources to run data lineage analysis across the metadata sources.

ParameterFileAssignment

For a PowerCenter resource, defines the parameter files to assign to PowerCenter workflows. Includes the name and fully qualified path for each parameter file. The parameter file must be in this directory. If the configuration file does not include a path, mmcmd looks for the parameter files in the mmcmd directory.

You can use a text editor to change values in a resource configuration file. For example, you might need to change the connect string, user name, and password parameters when you move a file to the production environment.

Values in the resource configuration file are case-sensitive according to the metadata source system.

Passwords in Resource Configuration Files

Resource configuration information for some resource types includes the resource password. For example, an Oracle resource configuration includes the password for the user account used to connect to the Oracle database. You can include or exclude the password in the resource configuration file.

Use the password parameter to determine how to store the password. The password parameter takes an optional argument, encrypted, that indicates whether the password is encrypted.

Use the password parameter to store the password in the following ways:

Exclude the password from the file.

Omit the password parameter from the file. Alternatively, you can include the password parameter but omit the parameter value. For example:

```
<parameter name="password"></parameter>
```

If you exclude the resource password and the resource type uses a password, Metadata Manager prompts you for the password when you import the resource configuration.

Include an encrypted password.

Use the mmcmd encrypt command to encrypt the password, and enter the encrypted string as the parameter value. For example:

```
<parameter name="password">WP+qtfYwB2KYLXID9jgC+6WHbMOg/94AO8R1nOC1vd0=</parameter>
```

The encrypt command uses the Informatica default encryption key to encrypt the password. For maximum security, store the resource configuration file in a secure location.

Include a plain text password.

Enter the plain text password as the parameter value, and set the encrypted attribute to false. For example:

```
<parameter name="password" encrypted="false">my_password</parameter>
```

If you include a plain text password, store the resource configuration file in a secure location.

When you import a resource configuration, you can specify the resource password. The Metadata Manager Service determines the password value as follows:

- If the resource configuration file includes the password, the Metadata Manager Service creates the resource with the password from the resource configuration file. If you specify a password during import, the Metadata Manager Service ignores it.
- If the resource configuration file does not include the password and the resource type requires a password, you must specify the password during import. If you do not specify the password, the Metadata Manager Service cannot create the resource.
- If the resource type does not use a password and you specify one during import, the Metadata Manager Service ignores the password that you specify.

Secure JDBC Parameters in Resource Configuration Files

Resource configuration information for some database management resource types includes secure JDBC parameters. You can include or exclude secure JDBC parameters in the resource configuration file.

Resource configuration information for the following database management resource types can include secure JDBC parameters:

- IBM DB2 for LUW
- IBM Informix
- Microsoft SQL Server
- Netezza
- Oracle

- Sybase ASE
- Teradata

For example, if secure communication is enabled for a Microsoft SQL Server metadata source, you might specify the truststore and keystore passwords as secure JDBC parameters.

When you export a resource configuration, you can include or exclude resource passwords and secure JDBC parameters in the resource configuration file. During export, Metadata Manager prompts you to include the resource password in the resource configuration file.

You have the following choices:

Include the password.

If you include the resource password and the resource uses secure JDBC parameters, Metadata Manager includes the secure JDBC parameters in the resource configuration file. In the resource configuration file, the advancedJDBCParameters parameter specifies the secure JDBC parameters. The parameters appear as an encrypted string.

Exclude the password.

If you exclude the resource password, Metadata Manager also excludes the secure JDBC parameters from the resource configuration file.

When you import a resource configuration, you can specify secure JDBC parameters. The Metadata Manager Service determines the values for secure JDBC parameters as follows:

- If the resource configuration file includes secure JDBC parameters, the Metadata Manager Service creates the resource with the parameter values from the resource configuration file. If you specify secure JDBC parameters during import, the Metadata Manager Service ignores them.
- If the resource configuration file does not include secure JDBC parameters and the resource requires them, you must specify the parameters during import. If you do not specify the secure JDBC parameters, the Metadata Manager Service might not be able to create the resource.
- If the resource configuration file does not include secure JDBC parameters and the resource type can include them, you can specify secure JDBC parameters during import. The Metadata Manager Service creates the resource with the parameters that you specify.
- If the resource type does not use JDBC parameters and you specify secure JDBC parameters during import, the Metadata Manager Service ignores the parameters that you specify.

Sample Resource Configuration File

The following example shows a sample resource configuration file for an Oracle resource:


```
<?xml version="1.0" encoding="UTF-8"?>
<resource name="Oracle_Sample" resourcetype="Oracle">
  <parameters>
    <parameter name="databaseType">Oracle</parameter>
    <parameter name="jdbcURL">jdbc:informatica:oracle://[host name]:
[port];SID=[sid];EncryptionMethod=SSL;HostNameInCertificate=[host
name];TrustStore=[truststore location];KeyStore=[keystore
location];ValidateServerCertificate=true</parameter>
    <parameter name="encoding">MS1252</parameter>
    <parameter name="userName">MyUser</parameter>
    <parameter name="connectString">MyDBName</parameter>
    <parameter name="password">bYXZZ0Ed008mELOEmKjKIg==</parameter>
    <parameter
name="advancedJDBCParameters">bxN41kMUjZIzQpKYn5Nempqs2QxrqaPOxuNAa7uEMmhUycRaCuxOFCev3ap
8CHpvNeWQsCpmROuOXyiF8zSzQ==</parameter>
```

```
  </parameters>
  <filters>
    <filter>FLOWS_FILES</filter>
  </filters>
</resource>
```

APPENDIX D

Glossary

attribute

Characteristic of a metadata object. An attribute is a property defined for a class that applies to all metadata objects of the class. For example, in a PowerCenter repository, the Session class contains attributes such as description, last run time, and creation date. An object property is a characteristic about a specific metadata object.

business glossary

Set of business term definitions. Each term can correspond to metadata objects in the metadata catalog.

business name

Property used to identify a metadata object according to the object's business usage. All classes in packaged, universal, and custom models have a business name. You can edit the business name property in Metadata Manager. You cannot edit any other properties of packaged or universal model classes.

business term

Metadata object that represents the business usage of metadata in the metadata catalog. A business term can include a description, a data steward, an owner, a rule that defines how the object is derived, a status, the business usage context, and a link to a reference table.

category

A group of related business terms. A business term can be part of zero or more categories. You can create nested categories. Grouping business terms in categories is optional.

class

Type of object a source repository can contain. Each class contains a set of attributes that describe the characteristics of objects of the class. Each class can have zero or more relationships to other classes. Related classes can be within the same model or in a different model. Each class has one related parent class in the same model. Each class can have zero or more related child classes in the same model.

connection assignment

Part of a resource configuration that specifies how linkable objects in a packaged or universal resource can be related to matching objects in another packaged or universal resource. Metadata Manager can create links to corresponding objects in the resources on either side of the connection assignment. These cross-resource links allow to you run data lineage analysis across metadata sources.

custom resource template

Contains the mapping rules between source custom metadata and the target model classes for a custom resource. The rules define how to create the custom objects and define the relationships between custom metadata objects and objects in other resources.

data lineage diagram

Diagram representing the conceptual flow of data from sources to targets. Data lineage analysis includes all possible paths for the data flow, and it may span multiple resources of different resource types. In data lineage analysis, boxes or nodes represent objects. Arrows represent flow relationships.

data steward

User or group in an organization who is responsible for the definition of a business term.

data structure

Object that contains fields with data. Examples of data structures include a PowerCenter source instance, PowerCenter target instance, PowerCenter source qualifier, database table, and database view. See also *field*.

deprecated resource

A resource that was valid in a previous version of Metadata Manager, but is not valid in the current version because the model has changed. You can delete, index, purge metadata for, and view configuration properties for a deprecated resource. You cannot create, configure, edit, load, or add schedules for a deprecated resource. To create, configure, edit, load, or add schedules for a deprecated resource, you must migrate the resource to the current version of Metadata Manager.

endpoint

Object in a metadata source that has a connection to another object in an external metadata source. Business Intelligence, Data Integration, and Data Modeling resource types contain endpoints.

field

Subset of a data structure that represents a single data item. Examples of fields include database table columns and view columns, PowerCenter transformation instance ports, and business intelligence report metrics and attributes.

link

Hyperlink to a document or web page. Any Metadata Manager object can have links. Use links to extend the information available about a metadata object, category, or business term.

A link can also be a relationship between objects from different resources. To run data lineage analysis across resources, assign connections from one resource to another or configure linking rules for the resources. Then, instruct Metadata Manager to create links between matching objects using the connection assignments or using the linking rules.

linking rule

Expression that Metadata Manager uses to create link relationships between matching objects across different resources. A linking rule defines the set of possible objects in a source resource, the set of possible objects in a target resource, and an expression that defines which source and target objects match. Matching objects should be linked.

linking rule set

A group of rules that links objects between two resources.

linking rules file

An XML file that contains linking rules, linking rule definitions, or linking rules parameters. Rule set files, rule set definition files, and rule set parameter files are all types of linking rules files.

logical group

Group of metadata objects of the same class and with the same parent object. Metadata Manager groups metadata objects into logical groups in the metadata catalog.

metadata catalog

Hierarchical view of the metadata in the Metadata Manager warehouse.

Metadata Exchange

Process that defines how to extract metadata from metadata sources and load the metadata into the Metadata Manager warehouse. Metadata Manager packages Metadata Exchanges for each of the supported metadata source types.

Metadata Manager Agent

Windows executable program or service that Metadata Manager uses to access metadata sources and extract source metadata for data modeling, business intelligence, and JDBC source types.

The Metadata Manager Agent must run on the same machine as the client of the metadata source. Based on the metadata source client location, you can use the Metadata Manager Agent located on the Metadata Manager application machine, or you can install the agent on another machine. During Metadata Exchange, a remote Metadata Manager Agent uses the TCP/IP network protocol to communicate with the Metadata Manager application.

Metadata Manager application

Web-based application that manages the metadata in the Metadata Manager warehouse. In Informatica Administrator, create a Metadata Manager Service to access the Metadata Manager application.

Metadata Manager repository

Contains the Metadata Manager warehouse and models. Metadata Manager uses models to define the classes and relationships that represent the metadata in metadata sources. The models include packaged models, optional universal models, and optional custom models. The Metadata Manager repository is stored as a set of tables and views in a relational database.

Metadata Manager Service

An application service that runs the Metadata Manager application in an Informatica domain. It manages access to metadata in the Metadata Manager warehouse.

Metadata Manager warehouse

Central warehouse repository that stores metadata from different metadata sources.

metadata source type

Source type from which Metadata Manager can extract metadata. Metadata Manager packages a model and a Metadata Exchange for each source type. Examples of metadata source types include Business Objects, PowerCenter, and Oracle databases. Each metadata source has one of the following source domains: application, business intelligence, data integration, data modeling, or relational.

model

Group of classes, relationships, and attributes that define the metadata that Metadata Manager can extract from a metadata source. Metadata Manager packages models for supported metadata sources. In addition to the packaged models, you can create universal models to define metadata sources for some business intelligence, data integration, data modeling, and database management metadata sources for which Metadata Manager does not package a model. You can also create custom models to define custom metadata.

object

Metadata element from a source repository. An instance of a class. Examples of objects include a PowerCenter mapping, a business intelligence report, or a database column.

Object Relationships Wizard

Creates associations between matching objects in a custom resource and objects in another resource. You define the classes and attributes to match.

owner (of a business term)

User or group in an organization who owns the definition of data and metadata.

permission

The level of access a user has to a metadata object. Even if a user has the privilege to perform certain actions, the user may also require permission to perform the action on a particular object. You define object permissions in Metadata Manager. An object can inherit permissions from the containing folder or resource.

PowerCenter Integration Service

A PowerCenter application service that runs the Metadata Exchange processes. The processes are data integration workflows that load source metadata into the Metadata Manager warehouse. The workflows are stored in the PowerCenter repository associated with the PowerCenter Integration Service. When you create a Metadata Manager Service, you configure the associated PowerCenter Integration Service.

PowerCenter repository

Contains the PowerCenter definitions of the Metadata Exchanges, including sources, targets, sessions, and workflows. The associated PowerCenter Integration Service uses the definitions to load source metadata into the Metadata Manager warehouse.

PowerCenter Repository Service

An application service in an Informatica domain that manages the PowerCenter repository. The PowerCenter repository contains the metadata objects for the Metadata Exchange processes used by Metadata Manager.

privilege

Determines the actions that users can perform in Metadata Manager. Use Informatica Administrator to assign privileges to users and groups for the Metadata Manager Service. See also *permission* on page 284.

relationship

Association between two classes or two specific metadata objects.

repository folder

Metadata object that contains other metadata objects. Folders appear under a resource or under another folder in the metadata catalog.

resource

Object that represents a source repository in Metadata Manager. Each resource configuration contains properties required to connect to the source repository, extract metadata from the source repository, and load the extracted metadata into the resource. A resource configuration also contains the connection assignments used to link objects in the resource to objects in other resources.

resource load

Process of extracting metadata from a metadata source system or source file and writing the metadata to the Metadata Manager warehouse. A resource load can include linking and indexing tasks. You can schedule a resource load to run at predefined intervals.

rule-based links

Links that Metadata Manager creates between matching objects across metadata sources based on rules that you configure to link the resources. You can configure rule-based links between a custom resource and another custom, packaged, universal, or business glossary resource. You can also configure rule-based links between a business glossary resource and a packaged or universal resource.

rule set definition file

An XML file that defines a linking rule set for a pair of models. A rule set definition file takes at least one rule set parameter file. The parameter file specifies the pair of resources to which to apply the rule set.

rule set file

An XML file that defines a linking rule set for a pair of resources.

rule set parameter file

An XML file that specifies the resources to which to apply a rule set definition. The parameter file also contains parameter values for resource-specific attributes such as connection names and table names.

shortcut

Pointer to a metadata object in the metadata catalog. You can create and organize shortcuts to commonly accessed objects in Metadata Manager.

source repository

Contains metadata objects that Metadata Manager extracts and loads into the Metadata Manager warehouse. Examples of source repositories include PowerCenter repositories, Business Objects repositories, and Oracle databases. See also *metadata source type* on page 284.

task

An object that moves data from one data structure to another. Examples of tasks include PowerCenter session instances and database views.

template

See *custom resource template* on page 282.

transformation

Object that determines how data flows between data structures. Transformations can be reusable or non-reusable. An example of a reusable transformation is a PowerCenter mapping. An example of a non-reusable transformation is a database view.

XConnect

The code and artifacts that Metadata Manager uses to extract metadata from a metadata source. The XConnect includes a model that represents the metadata source. Metadata Manager packages an XConnect and model for many types of application, business glossary, business intelligence, data integration, data modeling, and database management sources. You can create custom or universal XConnects to extract metadata from other metadata source types.

INDEX

A

activity log
  resource loads 249
alias physical table
  for Oracle Business Intelligence Enterprise Edition 72
alternate keys
  definition for ERwin 143
associations
  for data modeling tool views 150
  for Informix tables and constraints 180
  for Informix tables and triggers 179
  for Informix views and synonyms 180
  for Teradata tables and triggers 208

B

Business Glossary resources
  configuring metadata source 34
  configuring source connection 34
  connection properties 35
  creating 34
  objects extracted 36
  objects not extracted 36
  overview 33
business intelligence resources
  incremental loading 84
Business Objects
  configuring 38
  connection assignments 227
  creating resource 40
  exporting universes and documents 38
  extracted objects 44
  extracting from locked universes 40
  extracting from reports 40
  Metadata Manager Agent requirement 39
  overview 38
  reference information 44
  required clients and servers 40

C

case sensitivity
  for PowerCenter resources 126
  source repository metadata 239
Cloudera Navigator
  configuring source connection 153
  connection properties 154
  creating resource 153
  deleted entities 162
  entity relationships 161
  entity types extracted 152
  entity types not extracted 152
  filtering query templates 155
Cloudera Navigator *(continued)*
  finding Cloudera identity 160
  incremental loading guidelines 156
  incremental loading process 156
  lineage diagram differences 162
  linking for entities 163
  Metadata Manager Service maximum heap size 153
  Navigator server Java heap size 153
  organization of entities 159
  overview 152
  reference information 159
  search queries 157
  search query examplles 158
  search query rules and guidelines 157
  searching for entities 160
Cognos
  configuring 46
  configuring source connection 47
  connection assignments 227
  creating resource 47
  deprecated source versions 47
  displaying metadata 52
  extracted objects 51
  large configuration 47
  overview 46
  permissions 47
  reference information 51
  Repository Subset property 47
Command tasks
  PowerCenter resource 126
CommandLineTask
  PowerCenter resource 126
Component Inclusion List
  configuring for SAP 31
configuring search results
  searchpriorities.xml 274
CONNECT role
  Oracle 193
connection assignments
  automatic 227, 229
  business intelligence resource types 227
  configuring 227
  data integration resource types 227
  data modeling resource types 227
  example 228
  manual 228, 230
  properties 229
  rules and guidelines 240
cookie
  configuring timeout 267
  created during login 267
CSV file
  updating 85, 87, 149
custom metadata
  exporting metadata source files 86
  log file event type 248

custom metadata *(continued)*
purging 232
custom resource
adding metadata files 85, 87, 149
creating 86
template name 86
updating metadata source files 85, 87, 149
custom resources
template name 87
custom source
configuring metadata files 86

D

data lineage
configuring properties 273
for database management resources 210
inline views 126, 211
number of generations to display 273
performance messages 273
SAP 32
scope for PowerCenter 125
data modeling tools
data types 149
extracted objects 151
multiple models 151
name and description properties 151
reference information 149
relationships 150
specifying owners of objects 150
validation rules 150, 151
data types
for columns using domains 150
for data modeling tools 149
database heap size
IBM DB2 for LUW 164
Database Instance Name
parameter for Teradata 209
database management resources
data lineage 210
databases
loading schemas 209
schema Inclusion list 209
datatypes
for Teradata view columns 209
domains
data types for columns 150
for ERwin 142
drivers
installing Netezza JDBC 189

E

element IDs
for Informix 179
email
configuring default sender address 269
configuring non-reply address 269
Embarcadero ERStudio
exporting models 128
metadata files 128
Metadata Manager Agent requirement 128
overview 128
reference information 149
Errors view
Load Details 243
ERStudio
configuring metadata files 129
connection assignments 227
creating resource 129
objects extracted 131
reference information 131
ERwin
alternate keys 143
configuring 135
configuring metadata files 135
connection assignments 227
creating resource 135
data lineage 144
deprecated source versions 135
domain hierarchies 143
domains 142
Index UDPs 143
inversion keys 143
metadata file requirements 135
objects extracted 144
overview 134
reference information 142, 149
relationships 143
system-defined domains 142
event types
in Metadata Manager Agent log files 247
in Metadata Manager service log files 248
example
plug-in definition file 217
plug-in structure 220
examples
Cloudera Navigator search queries 158
expressions
for Microstrategy 65
extracted objects
name limitation for IBM DB2 z/OS 174

F

FATAL
log file event type 247
flat files
for PowerCenter resources 126
full control
permission 254
functions
extracted for IBM DB2 z/OS 174

G

groups
configuring 254
configuring permissions 255

H

hierarchies
for ERwin domains 143
host names
Teradata servers 209

I

IBM DB2 for LUW
configuring 164
configuring source connection 166
creating resource 166
database heap size 164
overview 164
permissions 165
reference information 169
IBM DB2 z/OS
configuring 170
configuring source connection 172
creating resource 172
data lineage 210
definition of schemas and qualifiers 174
extracted functions 174
installing PowerExchange 170
object name limitation for extracted objects 174
overview 170
reference information 174
IBM Informix
configuring 175
ODBC connection 176
overview 175
permissions 175
IME files
description 19
IME views
description 19
imm.properties
data lineage properties 273
Metadata Manager application properties 269
Metadata Manager email properties 269
Metadata Manager properties file 269
incremenatl loading
data source changes 84
exception scenarios 84
overview 84
index
definition 233
during load process 238
optimizing 234
task details 242
Index UDPs
for ERwin 143
INFO
log file event type 247
Informatica Metadata Extraction interface
description 18
Metadata Exchanges 19
Informatica Platform resources
application archive file connection properties 95
Command Line Utilities installation 90
compiled mappings 99
connection assignments 227
creating 91
Data Integration Service connection properties 93
data lineage restrictions 102
Data Quality transformations 100
dynamic mappings 99
folders in version 10.x 103
mapping extraction 98
mappings in version 10.x 99, 103
mappings that cannot be run 101
mappings within workflows 98
metadata source configuration 90
objects extracted 98
Informatica Platform resources *(continued)*
objects in multiple applications 103
objects not extracted 98
overview 89
parameter set example 96
parameter set rules 97
parameters in version 10.x 96
parameters in version 9.x 97
physical data objects in version 10.x 103
port-to-port lineage 102
reference information 98
resource file connection properties 95
unsupported transformations 98
Informix
configuring source connection 177
creating resource 177
data lineage 210
element IDs 179
objects extracted 179
reference information 179
table-to-constraint associations 180
table-to-trigger associations 179
trigger definitions 180
view definitions 180
view-to-synonym associations 180
inline views
data lineage 126, 211
Integration Service
use with Metadata Manager 17
inversion keys
definition for ERwin 143

J

JDBC
configuring 180
configuring source connection 181
creating resource 181
overview 180
reference information 183
JDBC drivers
installing Netezza 189

K

keys
ERwin alternate keys 143
ERwin inversion keys 143
keystore
generating for Metadata Manager Agent 26

L

library files
Sybase ASE 201
Lineage
log file event type 248
linking
concurrently 240
during load process 238
rules and guidelines 240
task details 242
linking resources
monitoring 241

linking rules
files 231
uploading to resources 230
linking rules files
description 231
links
creating 239
missing 245
status 240
Links view
Load Details 245
Load details
log file 246
Load Details
Errors view 243
Links view 245
Log view 242
Objects view 242
Sessions view 243
Load Monitor
using 250
load queue
configuring 238
Load tab
components 20
configuring PowerCenter parameter files 121
connection assignments 227
loading resources 237, 238
overview 20
purging metadata 232
refreshing resource list 233
updating the search index 233
loading
PowerCenter folders 120
Teradata schemas 209
loading business intelligence resources
incrematal loading 84
loading resources
activity log 249
load queue 238
logs and log files 246
monitoring 241
overview 238
troubleshooting 249
log files
Metadata Manager Agent 247
Metadata Manager Agent event types 247
Metadata Manager Service 248
Metadata Manager Service event types 248
resource loads 246
Log view
Load Details 242

M

mapplets
data lineage display 127
Metadata access
log file event type 248
metadata catalog
configuring permissions 255
Metadata Exchanges
description 19
Informatica Metadata Extraction interface 19
metadata files
adding to a resource 85, 87, 149
requirements for custom sources 86
metadata files *(continued)*
requirements for ERwin 135
universal resources 224
updating 85, 87, 149
metadata integration process
description 18
Metadata Manager
application description 16
architecture 15
configuration 21
configuring application properties 269
configuring email properties 269
interface 20
Load tab 20
Permissions tab 20
properties file 269, 274
working with resources 19
Metadata Manager Agent
description 17
generating keystore 26
installing 22, 73
log file 247
Metadata Manager repository
description 17
migration overview 264
migration steps 264, 265
Metadata Manager Service
configuring 21
description 16
log file 248
log file event type 248
Metadata Manager warehouse
loading metadata into 238
purging 232
metadata objects
configuring permissions 255
displaying for Microstrategy 65
purging 232
versioning for PowerCenter 116
metadata sources
description 18
list of 14
Microsoft Analysis and Reporting Services
configuring 53
creating resource 54
data lineage 57
Internet Information Services requirement 53
Metadata Manager Agent requirement 53
objects extracted 56
overview 53
permissions 53
reference information 56
Microsoft SQL Server
configuring 184
configuring source connection 185
creating resource 185
data lineage 210
extracting extended properties 188
objects extracted 188
objects not extracted 188
overview 184
permissions 184
UNIX environment variables 185
Microstrategy
connection assignments 227
creating resource 59
displaying objects 65
expressions 65

Microstrategy *(continued)*
extracted objects 62
Metadata Manager Agent requirement 59
multiple projects 58
overview 58
project user account requirements 58
reference information 62
reporting metadata extracted 62
missing links
details 245
mm_agent.log
Metadata Manager Agent 247
mm.log
Metadata Manager log file 248
models
exporting packaged models 260
exporting universal models 260
for data modeling tools 151
importing packaged models 260
importing universal models 260
migrating packaged models 259
migrating universal models 259
monitoring
linking resources 241
log files 246
resource loads 241

N

Netezza
configuring 189
configuring permissions 189
configuring source connection 190
creating resource 190
data lineage 210
installing the JDBC driver 189
installing the ODBC driver 190
objects extracted 192
overview 189
reference information 192
NLS_LENGTH_SEMANTICS parameter
Oracle 193
no access
permission 254

O

objects
extracted for Business Objects 44
extracted for Cognos 51
extracted for data modeling tools 151
extracted for Informix 179
extracted for Microsoft SQL Server 188
extracted for Microstrategy 62
extracted for Netezza 192
extracted for Oracle 199
extracted for Oracle Business Intelligence Enterprise Edition 71
extracted for Sybase ASE 203
extracted for Tableau 83
extracted for Teradata 207
owners for data modeling tools 150
Objects view
Load Details 242
ODBC connection
IBM Informix 176
ODBC driver
installing for Netezza 190
Oracle
configuration with Advanced Security Option 194
configuring source connection 195
creating resource 195
data lineage 210
incremental loading 198
objects extracted 199
overview 193
permissions 193
Public schema 200
public synonyms 200
reference information 199
showing synonyms 273
snapshots 200
Oracle Business Intelligence Enterprise Edition
alias physical table 72
configuring metadata source file 68
converting RPD file 66
creating resource 68
enabling web services 66
objects extracted 71
overview 66
reference information 71

P

parameter files
assigning to PowerCenter workflows 124
uploading 123
parameters
Component Inclusion List 31
Folder Inclusion List 120
Schema Inclusion List 209
Source Incremental Extract Window (in Days) 121
passwords
changing 268
resource configuration files 277
permissions
configuring 255
configuring for Netezza 189
description 254
full control 254
IBM DB2 for LUW 165
IBM Informix 175
metadata objects 255
Microsoft SQL Server 184
no access 254
Oracle 193
overview 253
PowerCenter 115
read 254
resources 255
rules and guidelines 254
Sybase ASE 201
Teradata 204
users and groups 255
write 254
Permissions tab
components 20
overview 20
PowerCenter
assigning parameter files to workflows 124
case sensitivity 126
Command tasks 126
configuring 115

PowerCenter *(continued)*
configuring source connection 117
connection assignments 227
connection properties 118
creating resource 117
data lineage display of mapplets 127
filtered and rejected records 125
flat files 126
IBM DB2 heap size 115
incremental extracts 124
loading folders 120
metadata object properties 125
object versions 116
Oracle extended statistics 115
overview 115
parameter file requirements 122
permissions 115
reference information 124
scope for data lineage 125
Source Incremental Extract Window (in Days) 121
unique constraint errors 127
uploading parameter files 123
versioned repository objects 115
PowerCenter parameter files
configuring 121
PowerCenter repository
use with Metadata Manager 17
PowerCenter Repository Service
use with Metadata Manager 18
PowerExchange
installing for IBM DB2 z/OS 170
privileges
configuring 254
projects
multiple for Microstrategy 58
properties
for PowerCenter metadata objects 125
names and descriptions for data modeling tools 151
properties file
imm.properties 269
searchpriorities.xml 274
Public schema
for Oracle database 200
public synonyms
for Oracle database 200

Q

qualifiers
definition for IBM DB2 z/OS 174

R

read
permission 254
records
rejected and filtered by PowerCenter resource 125
relationships
for data modeling tools 150
for ERwin 143
Repository Subset property
Cognos 47
requirements
for IBM DB2 z/OS 170
for Microstrategy project user account 58
for Netezza 189
resource
load task details 242
resource configuration files
exporting 261
importing 261
migrating for packaged resources 260
migrating for universal resources 260
overview 276
passwords 277
secure JDBC parameters 278
resource metadata
exporting for packaged resources 263
exporting for universal resources 263
importing for packaged resources 263
importing for universal resources 263
migrating for packaged resources 262
migrating for universal resources 262
resource migration
copying the plug-in 259
exporting a model 260
exporting a resource configuration 261
exporting resource metadata 263
importing a model 260
importing a resource configuration 261
importing resource metadata 263
loading the target resource 262
migrating resource metadata 262
migrating the model 259
migrating the resource configuration 260
overview 257
packaged resources 257
steps 258
universal resources 257
resources
adding metadata files 85, 87, 149
configuration files 276
configuring permissions 255
creating custom 86
creating for Business Glossary 34
creating for Business Objects 40
creating for Cloudera Navigator 153
creating for Cognos 47
creating for ERStudio 129
creating for ERwin 135
creating for IBM DB2 for LUW 166
creating for IBM DB2 z/OS 172
creating for Informatica Platform 91
creating for Informix 177
creating for JDBC 181
creating for Microsoft Analysis and Reporting Services 54
creating for Microsoft SQL Server 185
creating for Microstrategy 59
creating for Netezza 190
creating for Oracle 195
creating for PowerCenter 117
creating for SAP 29
creating for SAP Business Warehouse 74
creating for SAP PowerDesigner 145
creating for SQL Server Integration Services 106
creating for Sybase ASE 201
creating for Tableau 80
creating for Teradata 205
creating universal 223
description 18
linking 239
list of 14
loading 238
logs and log files 246

resources *(continued)*
migrating packaged resources 257
migrating universal resources 257
monitoring loads 241
refreshing list on Load tab 233
resuming a failed load 239
scheduling loads 250
troubleshooting a failed load 249
roles
configuring 254
RPD file
Oracle Business Intelligence Enterprise Edition 66
rule set
uploading to resources 230
rule-based linking
description 230
rules and guidelines 240

S

sample file
searchpriorities.xml 274
SAP
configuring 28
configuring Component Inclusion List 31
configuring maximum tables 269
creating resource 29
data lineage 32
extracted objects 32
installing transports 28
overview 28
reference information 31
user authorization profile 29
SAP Business Warehouse
creating resource 74
SAP PowerDesigner
connection assignments 227
creating resource 145
exporting models 145
metadata files 145
Metadata Manager Agent requirement 145
overview 145
reference information 148, 149
schedules
attaching to a resource 252
creating 251
editing 252
resource loads 250
schemas
definition for IBM DB2 z/OS 174
search
configuring index 233
stopwords.txt file 235
words to ignore 235
search results
configuring 274
searchpriorities.xml
configuring search results 274
Metadata Manager properties file 274
sample file 274
security
managing 253
SELECT_CATALOG_ROLE
Oracle 193
sessions
monitoring 250
statistics 243
Sessions view
Load Details 243
snapshots
for Oracle database 200
Source Incremental Extract Window (in Days)
PowerCenter 121
SQL Server Integration Services
configuring 104
configuring permissions 105
configuring source connection 106
creating resources 106
database availability 105
expressions in multiple data flows 115
extracting from protected packages 104
extraction rules for destinations 113
extraction rules for sources 113
extraction rules for transformations 114
file configuration properties 108
Metadata Manager Agent 105
objects extracted 110
objects in the metadata catalog 112
objects not extracted 111
overview 104
package summary 112
repository configuration properties 109
Script component handling 114
variable values file 105
status
link 240
stopwords.txt file
customizing 235
UseCustomStopWords property 269
Sybase ASE
configuring source connection 201
creating resource 201
data lineage 210
library files 201
objects extracted 203
overview 200
permissions 201
reference information 203
system domains
for ERwin 142

T

Tableau
configuring 80
creating resource 80
data lineage restrictions 84
extracted objects 83
Metadata Manager Agent requirement 80
overview 79
permissions 80
reference information 82
verifying Tableau Server 80
Teradata
configuring 204
configuring source connection 205
creating resource 205
data lineage 210
databases and users 208
incremental loading 207
index and constraint IDs 209
installing the JDBC driver 205
JAR files 205
limited metadata load 209

Teradata *(continued)*
objects extracted 207
overview 204
permissions 204
reference information 207
server host names 209
table-to-trigger associations 208
trigger properties 208
view column datatypes 209
transports
installing 28
triggers
definitions for Informix 180
properties for Teradata 208
troubleshooting
links 240
resource loads 249

U

UDPs
for ERwin indexes 143
unique constraint errors
PowerCenter 127
Universal Connectivity Framework
overview 212
universal resources
creating 223
creating a model from a plug-in 220
deleting the XConnect 221
icon guidelines 219
icons 218
image mapping 217
metadata source configuration 221
metadata source files 224
metadata source name 215
migrating the plug-in 259
model creation steps 214
overview 212
plug-in definition file creation 216
plug-in definition file elements 216
plug-in definition file example 217
plug-in generation 219
plug-in structure 219
universal resources *(continued)*
plug-in structure example 220
resource creation 221
sample plug-in definition file 216
supported metadata sources 213
Universal Connectivity Framework 212
updating the XConnect 221
XConnectl creation steps 214
universes
exporting to Business Objects repository 38
users
configuring 254
configuring permissions 255

V

validation rules
for data modeling tools 150, 151
view associations
for data modeling tools 150
views
definitions for Informix 180

W

WARN
log file event type 247
web services
Oracle Business Intelligence Enterprise Edition 66
workflows
description 18
monitoring 250
statistics 243
use by Metadata Manager 18
write
permission 254

X

XML file
Oracle Business Intelligence Enterprise Edition 66