Installation Guide for UNIX
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1 Introduction

1.1 Welcome to SAP Data Services

1.1.1 Welcome

SAP Data Services delivers a single enterprise-class solution for data integration, data quality, data profiling, and text data processing that allows you to integrate, transform, improve, and deliver trusted data to critical business processes. It provides one development UI, metadata repository, data connectivity layer, run-time environment, and management console—enabling IT organizations to lower total cost of ownership and accelerate time to value. With SAP Data Services, IT organizations can maximize operational efficiency with a single solution to improve data quality and gain access to heterogeneous sources and applications.

1.1.2 Documentation set for SAP Data Services

Become familiar with all the pieces of documentation that relate to your SAP Data Services product.

The latest Data Services documentation can be found on the SAP Help Portal.

Table 1:

<table>
<thead>
<tr>
<th>Document</th>
<th>What this document provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter SDK Guide</td>
<td>Information about installing, configuring, and running the Data Services Adapter SDK.</td>
</tr>
<tr>
<td>Administrator Guide</td>
<td>Information about administrative tasks such as monitoring, lifecycle management, security,</td>
</tr>
<tr>
<td></td>
<td>and so on.</td>
</tr>
<tr>
<td>Configuration Guide for CTS+</td>
<td>System landscape information and detailed steps for CTS+ configuration.</td>
</tr>
<tr>
<td>Customer Issues Fixed</td>
<td>Information about customer issues fixed in this release.</td>
</tr>
<tr>
<td></td>
<td><img src="NoteIcon" alt="Note" /> In some releases, this information is displayed in the Release Notes.</td>
</tr>
<tr>
<td>Designer Guide</td>
<td>Information about how to use Data Services Designer.</td>
</tr>
<tr>
<td>Documentation Map</td>
<td>Information about available Data Services books, languages, and locations.</td>
</tr>
<tr>
<td>Installation Guide for UNIX</td>
<td>Information about and procedures for installing Data Services in a UNIX environment.</td>
</tr>
<tr>
<td>Installation Guide for Windows</td>
<td>Information about and procedures for installing Data Services in a Windows environment.</td>
</tr>
<tr>
<td>Integrator Guide</td>
<td>Information for third-party developers to access Data Services functionality using web services and APIs.</td>
</tr>
<tr>
<td>Document</td>
<td>What this document provides</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Management Console Guide</td>
<td>Information about how to use Data Services Administrator and Data Services Metadata Reports.</td>
</tr>
<tr>
<td>Master Guide</td>
<td>Information about the application, its components and scenarios for planning and designing your system landscape. Information about SAP Information Steward is also provided in this guide.</td>
</tr>
<tr>
<td>Performance Optimization</td>
<td>Information about how to improve the performance of Data Services.</td>
</tr>
<tr>
<td>Performance Optimization</td>
<td></td>
</tr>
<tr>
<td>Reference Guide</td>
<td>Detailed reference material for Data Services Designer.</td>
</tr>
<tr>
<td>Release Notes</td>
<td>Important information you need before installing and deploying this version of Data Services.</td>
</tr>
<tr>
<td>Sizing Guide</td>
<td>Guidelines and recommendations on hardware requirements and software considerations for your implementation.</td>
</tr>
<tr>
<td>Technical Manuals</td>
<td>A compiled, searchable, “master” PDF of core Data Services books:</td>
</tr>
<tr>
<td></td>
<td>- Administrator Guide</td>
</tr>
<tr>
<td></td>
<td>- Configuration Guide for CTS+</td>
</tr>
<tr>
<td></td>
<td>- Designer Guide</td>
</tr>
<tr>
<td></td>
<td>- Reference Guide</td>
</tr>
<tr>
<td></td>
<td>- Management Console Guide</td>
</tr>
<tr>
<td></td>
<td>- Performance Optimization Guide</td>
</tr>
<tr>
<td></td>
<td>- Integrator Guide</td>
</tr>
<tr>
<td></td>
<td>- Supplement for Adapters</td>
</tr>
<tr>
<td></td>
<td>- Supplement for Google BigQuery</td>
</tr>
<tr>
<td></td>
<td>- Supplement for J.D. Edwards</td>
</tr>
<tr>
<td></td>
<td>- Supplement for Oracle Applications</td>
</tr>
<tr>
<td></td>
<td>- Supplement for PeopleSoft</td>
</tr>
<tr>
<td>Text Data Processing Extrac-</td>
<td>Information about building dictionaries and extraction rules to create your own extraction patterns to use with Text Data Processing transforms.</td>
</tr>
<tr>
<td>tion Customization Guide</td>
<td></td>
</tr>
<tr>
<td>Text Data Processing Language</td>
<td>Information about the linguistic analysis and extraction processing features that the Text Data Processing component provides, as well as a reference section for each language supported.</td>
</tr>
<tr>
<td>Reference Guide</td>
<td></td>
</tr>
<tr>
<td>Upgrade Guide</td>
<td>Information to help you upgrade from previous releases of Data Services and release-specific product behavior changes from earlier versions of Data Services to the latest release.</td>
</tr>
<tr>
<td>What’s New</td>
<td>Highlights of new key features in this SAP Data Services release. This document is not updated for support package or patch releases.</td>
</tr>
<tr>
<td>Workbench Guide</td>
<td>Provides users with information about how to use the Workbench to migrate data and database schema information between different database systems.</td>
</tr>
</tbody>
</table>

In addition, you may need to refer to several Supplemental Guides.

Table 2:

<table>
<thead>
<tr>
<th>Document</th>
<th>What this document provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplement for Adapters</td>
<td>Information about how to install, configure, and use Data Services adapters.</td>
</tr>
</tbody>
</table>

---

Installation Guide for UNIX

Introduction
What this document provides

Supplement for Google BigQuery
Information about interfaces between Data Services and Google BigQuery.

Supplement for J.D. Edwards
Information about interfaces between Data Services and J.D. Edwards World and J.D. Edwards OneWorld.

Supplement for Oracle Applications
Information about the interface between Data Services and Oracle Applications.

Supplement for PeopleSoft
Information about interfaces between Data Services and PeopleSoft.

Supplement for SAP
Information about interfaces between Data Services, SAP Applications, and SAP NetWeaver BW.

Supplement for Siebel
Information about the interface between Data Services and Siebel.

We also include these manuals for information about SAP BusinessObjects Information platform services.

<table>
<thead>
<tr>
<th>Document</th>
<th>What this document provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information platform services Administrator Guide</td>
<td>Information for administrators who are responsible for configuring, managing, and maintaining an Information platform services installation.</td>
</tr>
<tr>
<td>Information platform services Installation Guide for UNIX</td>
<td>Installation procedures for SAP BusinessObjects Information platform services on a UNIX environment.</td>
</tr>
<tr>
<td>Information platform services Installation Guide for Windows</td>
<td>Installation procedures for SAP BusinessObjects Information platform services on a Windows environment.</td>
</tr>
</tbody>
</table>

1.1.3 Accessing documentation from the Web

You can access the complete documentation set for SAP Data Services from the SAP Business Users Support site.

To do this, go to http://help.sap.com/bods.

You can view the PDFs online or save them to your computer.

1.1.4 SAP information resources

A list of information resource links.

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

Useful addresses at a glance:
Table 4:

<table>
<thead>
<tr>
<th>Address</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Support, Consulting, and Education services</td>
<td>Information about SAP Business User Support programs, as well as links to technical articles, downloads, and online discussions.</td>
</tr>
<tr>
<td><a href="http://service.sap.com/">http://service.sap.com/</a></td>
<td></td>
</tr>
<tr>
<td>Product documentation</td>
<td>SAP product documentation.</td>
</tr>
<tr>
<td><a href="http://help.sap.com/bods/">http://help.sap.com/bods/</a></td>
<td></td>
</tr>
<tr>
<td>SAP Data Services tutorial</td>
<td>Introduces core features, concepts and techniques to extract, transform, and load batch data from flat-file and relational database sources for use in a data warehouse.</td>
</tr>
<tr>
<td>SAP Data Services Community Network</td>
<td>Get online and timely information about SAP Data Services, including forums, tips and tricks, additional downloads, samples, and much more. All content is to and from the community, so feel free to join in and contact us if you have a submission.</td>
</tr>
<tr>
<td><a href="http://scn.sap.com/community/data-services">http://scn.sap.com/community/data-services</a></td>
<td></td>
</tr>
<tr>
<td>EIM Wiki page on SCN</td>
<td>The means with which to contribute content, post comments, and organize information in a hierarchical manner to so that information is easy to find.</td>
</tr>
<tr>
<td>Product Availability Matrix (PAM)</td>
<td>Information about supported platforms for SAP Data Services with a search function to quickly find information related to your platform.</td>
</tr>
<tr>
<td><a href="https://apps.support.sap.com/sap/support/pam">https://apps.support.sap.com/sap/support/pam</a></td>
<td></td>
</tr>
<tr>
<td>Blueprints</td>
<td>Blueprints for you to download and modify to fit your needs. Each blueprint contains the necessary SAP Data Services project, jobs, data flows, file formats, sample data, template tables, and custom functions to run the data flows in your environment with only a few modifications.</td>
</tr>
</tbody>
</table>

### 1.2 Naming Conventions

In this documentation, the following naming conventions apply:

**Terminology**

- “Data Services system” refers to “SAP Data Services”.
- “BI platform” refers to “SAP BusinessObjects BI platform”.

**Note**

The BI platform components required by Data Services may also be provided by SAP BusinessObjects Information platform services (IPS).

- “CMC” refers to the Central Management Console provided by the BI or IPS platform.
• “CMS” refers to the Central Management Server provided by the BI or IPS platform.

## Variables

Table 5:

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;INSTALL_DIR&gt;</td>
<td>The installation directory for the SAP software.</td>
</tr>
<tr>
<td></td>
<td>Default location:</td>
</tr>
<tr>
<td></td>
<td>• For Windows: C:\Program Files (x86)\SAP BusinessObjects</td>
</tr>
<tr>
<td></td>
<td>• For UNIX: $HOME/sap businessobjects</td>
</tr>
<tr>
<td>&lt;BIP_INSTALL_DIR&gt;</td>
<td>The root directory of the BI or IPS platform.</td>
</tr>
<tr>
<td></td>
<td>Default location:</td>
</tr>
<tr>
<td></td>
<td>• For Windows: &lt;INSTALL_DIR&gt;\SAP BusinessObjects Enterprise XI 4.0</td>
</tr>
<tr>
<td></td>
<td>• For UNIX: &lt;INSTALL_DIR&gt;/enterprise_xi40</td>
</tr>
</tbody>
</table>

**Note**

These paths are the same for both the SAP BusinessObjects BI platform and SAP BusinessObjects Information platform services.

<table>
<thead>
<tr>
<th>&lt;LINK_DIR&gt;</th>
<th>The root directory of the Data Services system.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Default location:</td>
</tr>
<tr>
<td></td>
<td>• All platforms</td>
</tr>
<tr>
<td></td>
<td>&lt;INSTALL_DIR&gt;/Data Services</td>
</tr>
<tr>
<td></td>
<td>This system environment variable is created automatically during installation.</td>
</tr>
<tr>
<td>Variables</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&lt;DS_COMMON_DIR&gt;</td>
<td>The common configuration directory for the Data Services system. Default location:</td>
</tr>
<tr>
<td></td>
<td>• Windows (Vista and newer) \ALLUSERSPROFILE\SAP BusinessObjects\Data Services</td>
</tr>
<tr>
<td></td>
<td>• Windows (Older versions) \ALLUSERSPROFILE\Application Data\SAP BusinessObjects\Data Services</td>
</tr>
<tr>
<td></td>
<td>• UNIX systems (for compatibility) \LINK_DIR</td>
</tr>
<tr>
<td></td>
<td>This system environment variable is created automatically during installation.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>Starting with Data Services 4.2 SP6, users can designate a different default location for DS_COMMON_DIR. If you cannot find the DS_COMMON_DIR in the listed default location above, ask your System Administrator to find out where the default location is for DS_COMMON_DIR.</td>
</tr>
<tr>
<td>&lt;DS_USER_DIR&gt;</td>
<td>The user-specific configuration directory for the Data Services system. Default location:</td>
</tr>
<tr>
<td></td>
<td>• Windows (Vista and newer) \USERPROFILE\AppData\Local\SAP BusinessObjects\Data Services</td>
</tr>
<tr>
<td></td>
<td>• Windows (Older versions) \USERPROFILE\Local Settings\Application Data\SAP BusinessObjects\Data Services</td>
</tr>
<tr>
<td></td>
<td>This user environment variable is created automatically during installation.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>This variable is used only for Data Services client applications on Windows, such as the Designer. &lt;DS_USER_DIR&gt; is not used on UNIX platforms.</td>
</tr>
</tbody>
</table>
2 Planning

You can install SAP Data Services on Windows, UNIX, or Linux platforms, with a combination of supported web servers, web application servers, database servers, and web technologies.

Consider the following points when you decide how the components that comprise Data Services are distributed:

- For a small development deployment, consider using the installation program's default options to install Data Services, SAP BusinessObjects Information platform services (IPS), and a web application server on a single host system.
- For a larger scale deployment, consider installing individual system components on dedicated host systems to host individual server functions over a network.
  For example: a single host dedicated to a web application server; a single host dedicated to the Data Services core system; and a single host dedicated to the SAP BusinessObjects IPS.

For more information about how to plan your installation, see the “Architecture” section of the Administrator Guide.

Before you install Data Services:

- Review your host systems to ensure that they meet the basic requirements.
  Consult the Product Availability Matrix available at https://support.sap.com/release-upgrade-maintenance/pam.html for a detailed list of supported environments and hardware requirements. This information includes specific version and patch-level requirements for web application servers, web browsers, databases, and operating systems.
- Ensure that the host systems in your deployment can communicate with each other across the network when you set up a deployment comprised of two or more host systems networked together.
- Determine the location of the components to be installed. This includes the specific subnet, machines, database, security, or cluster systems that will be used.

Related Information

Process flow [page 11]

2.1 Process flow

The planning process flow involves the following steps:

1. Determine system requirements.
2. Set up account permissions.
3. Determine network permissions.
4. Choose a web application server.
5. Choose a database server.

Related Information

- System requirements [page 12]
- Account permissions [page 14]
- Network permissions [page 17]
- Web application servers [page 21]
- Database servers [page 21]

2.2 System requirements

When you install SAP Data Services on a local drive, use the following guidelines:

- Before you run the installation program, ensure that the destination partition has enough room for the deployment to expand (when updates and new features are added in the future).
- If you want to install the deployment on the operating system partition, ensure that there is enough room for the deployment and the operating system.
- If you have previously installed any SAP products, the installation program will use the existing directory.

For a complete list of supported operating systems and hardware requirements, see the Product Availability Matrix (PAM) available at https://support.sap.com/release-upgrade-maintenance/pam.html.

2.2.1 System locale

The installation program requires the system to be configured with a UTF-8 locale.

To set your system locale to UTF-8, set the `LANG` or `LC_ALL` environment variables.

For example, on Linux:

```bash
export LANG=en_US.utf8
export LC_ALL=en_US.utf8
```

Note

The locale name may be different depending on your UNIX platform. To list the available locales on your system, use the `locale -a` command.
2.2.2 Additional SuSE requirements

Ensure that all required SuSE files are installed before installing Data Services.

A default install of SuSE 12 may not include files required to run the Data Services 32-bit installer. When installing on SuSE, the Data Services installer requires the libstdc++33-32bit-3.3.3-12.15.x86_64 package. It is provided via the SuSE support channel, and is contained in the “Legacy_Module_12_86_64” repositories.

To install the files, use the command:

zypper install libstdc++33*

2.2.3 Additional Red Hat Linux requirements

Ensure that all required Red Hat Linux files are installed before installing Data Services.

For details, see “Additional requirements for Red Hat Linux” in the Business Intelligence Platform Installation Guide for Unix or Information platform services Installation Guide for Unix.

2.3 Software dependencies

Before you install SAP Data Services, ensure that your host systems meet all software dependency requirements.

For complete information about software environment requirements, see the Product Availability Matrix (PAM) available at: https://support.sap.com/release-upgrade-maintenance/pam.html.

2.3.1 IPS installation

To install Information platform services (IPS), locate and run InstallIPS.sh to run an interactive installation of IPS.

The license key is embedded to run an interactive installation from the same location as the default installation program setup.exe.

2.3.2 Connection Manager requirements

To use the graphical user interface of the Data Services Connection Manager, you must install the GTK+2 library.

For more information about obtaining and installing the library, see http://www.gtk.org.
2.4 Account permissions

To install SAP Data Services, a user must have the following permissions:

Table 6:

<table>
<thead>
<tr>
<th>Category</th>
<th>Required permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>• Permission to read, write, and execute scripts in the destination directory.</td>
</tr>
<tr>
<td></td>
<td>• For a system install, root access is required (the installation program creates</td>
</tr>
<tr>
<td></td>
<td>start-up run control scripts in /etc/rc that start or stop the servers when</td>
</tr>
<tr>
<td></td>
<td>the host machine is started or stopped).</td>
</tr>
<tr>
<td>Network</td>
<td>Network connectivity through appropriate ports to all host systems in the deploy-</td>
</tr>
<tr>
<td></td>
<td>ment, access to shared file system directories for users of the deployment, and ap-</td>
</tr>
<tr>
<td></td>
<td>propriate network authentication privileges.</td>
</tr>
<tr>
<td>Database</td>
<td>Permission for the SAP user account to create and drop tables, and read, write, and</td>
</tr>
<tr>
<td></td>
<td>edit table rows.</td>
</tr>
</tbody>
</table>

In addition, it’s recommended that you use the same user account for installing Data Services and your web application server.

Additional notes

If your design, test, or production environment uses tightly controlled root-level administration, it’s recommended that you install the Job Server while logged on as a user without root-level access. Installing the Job Server with root-level access ensures that root-level access is not required to administer files and processes created by the Job Server.

Only a few administration functions require root-level access:

Table 7:

<table>
<thead>
<tr>
<th>Function</th>
<th>Required permissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduling jobs</td>
<td>Permission to access cron.</td>
</tr>
<tr>
<td>Automatically restarting the Job Server on</td>
<td>Autostart configuration edits must be made by a user with system-level authority.</td>
</tr>
<tr>
<td>system restart</td>
<td></td>
</tr>
</tbody>
</table>

2.4.1 Cron service

SAP Data Services schedules UNIX-based jobs by using the cron utility. If cron security uses cron.allow, the account that starts the Job Server must have an entry in the cron.allow file.
Table 8:

<table>
<thead>
<tr>
<th>Operating system</th>
<th>cron.allow location</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>/var/adm/cron/cron.allow</td>
</tr>
<tr>
<td>Solaris</td>
<td>/usr/lib/cron/cron.allow</td>
</tr>
<tr>
<td>Linux</td>
<td>/etc/cron.allow</td>
</tr>
</tbody>
</table>

For more information, see your cronman pages.

**Note**

Installing the Job Server without access to cron causes the following Job Server behavior:

- The Job Server can operate normally.
- The software cannot schedule a job to run on the Job Server.
- You can manually execute and monitor jobs from the Designer.

## 2.4.2 Additional UNIX and Linux requirements

UNIX and Linux have additional requirements for account permissions.

### Related Information

User account [page 15]
Locale [page 16]
Commands [page 16]
Installation [page 17]

### 2.4.2.1 User account

Create a user account and group under which the software’s background processes can run.

Use this account to perform the installation and run the software. The account does not require root privileges.

### Related Information

Additional UNIX and Linux requirements [page 15]
2.4.2.2 lokal

Before you install, set the installing account’s environment to use a supported UTF-8 locale and ensure that your console software supports UTF-8 character sets.

To ensure that your operating system uses the correct locale, set the LC_ALL and LANG environment variables to your preferred locale in your login environment.

For example, the following bash shell commands set the locale to the United States English UTF-8 locale:

```bash
export LANG=en_US.utf8
export LC_ALL=en_US.utf8
```

**Tip**

Type `locale` to check that all of the related locale environment variables (such as `LC_MONETARY`, `LC_NUMERIC`) were properly set by `LC_ALL`.

For a detailed list of supported Unix and Linux environments, see the Product Availability Matrix (PAM) available at: [https://support.sap.com/release-upgrade-maintenance/pam.html](https://support.sap.com/release-upgrade-maintenance/pam.html).

**Related Information**

Additional UNIX and Linux requirements [page 15]

2.4.2.3 Commands

For the installation program to run correctly, you must install specific utilities.

The following utilities must be installed on your system and available on the path:

<table>
<thead>
<tr>
<th>Utilities</th>
<th>/bin/sh</th>
<th>pwd</th>
<th>read</th>
<th>touch</th>
</tr>
</thead>
<tbody>
<tr>
<td>uname</td>
<td>expr</td>
<td>hostname</td>
<td>sed</td>
<td></td>
</tr>
<tr>
<td>awk</td>
<td>chown</td>
<td>grep</td>
<td>tail</td>
<td></td>
</tr>
<tr>
<td>tar</td>
<td>id</td>
<td>dirname</td>
<td>gzip</td>
<td></td>
</tr>
<tr>
<td>stty</td>
<td>ulimit</td>
<td>which</td>
<td>ping</td>
<td></td>
</tr>
</tbody>
</table>

If one of these utilities is not available on your system, install a version from your operating system vendor instead of from a third-party vendor (such as the GNU project).

**Note**

The output from a GNU version of a utility can differ significantly from the version provided by your operating system vendor. To prevent the installation program from encountering output in an unexpected format, ensure that no GNU utilities are used in the installing user account’s environment.
Related Information

Additional UNIX and Linux requirements [page 15]

2.4.2.4 Installation

A new installation can be one of two types:

Table 10:

<table>
<thead>
<tr>
<th>Installation type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User installation</td>
<td>The installed software is owned by the account that was used to run the installation program. This account must be used to start and stop the servers. Access to the root user account is not required to perform a user installation, and installation program will exit if it detects that it is being run as root.</td>
</tr>
<tr>
<td>System installation</td>
<td>A system installation is a finished user installation with system startup and shutdown run control scripts added. These scripts automatically start and stop SAP BusinessObjects Business Intelligence platform server functions as the operating system starts up or shuts down. The script to install the run control scripts must be run with root privileges after a user installation has completed.</td>
</tr>
</tbody>
</table>

Related Information

Additional UNIX and Linux requirements [page 15]

2.5 Network permissions

Guidelines to follow when you install across multiple host systems.

When you install SAP Data Services across multiple host systems, use the following guidelines to ensure your network functions properly:

- Each host system must be able to communicate with the Central Management Server (CMS). The CMS coordinates the functioning of all the servers in the deployment.
- Each host system must be able to communicate with the host that runs the repository database.
- Each client, such as the Designer, must be able to communicate with the Job Server(s).
- Each host system must use a fixed hostname. Fully-qualified hostnames are supported.

i Note

Ensure that deployment hostnames do not include any of the following characters: underscore (_), period (.), backslash (\), or forward-slash (/).
Note

If your servers are protected by a firewall, you may need to open the necessary ports to allow the client components to communicate with the servers.

2.5.1 Port assignments

For each of your host systems, verify that all ports to be used by SAP Data Services components are available and not in use by other programs.

For a development system, you can install many components on the same host. Installing on a single host simplifies many connections between components (the host name is always the same), but you must still define connections based on the TCP/IP protocol.

Related Information

Port requirements for Data Services server components [page 18]
Port requirements for Data Services client applications [page 19]

2.5.1.1 Port requirements for Data Services server components

There are specific communication ports that are used by Data Services server components.

If you deploy Data Services with firewalls, use this information to open the minimum number of ports in those firewalls.

Table 11: Server component default ports

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Default port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Server</td>
<td>Communication port</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td>Receives commands from Designers, Access Servers, and schedulers.</td>
<td></td>
</tr>
<tr>
<td>Request port</td>
<td>Request port</td>
<td>Dynamic</td>
</tr>
<tr>
<td></td>
<td>Communicates with the Designer for the notification server feature.</td>
<td></td>
</tr>
<tr>
<td>Adapter communication port (optional)</td>
<td>Receives commands and sends data to adapters. Required only if you are using adapters.</td>
<td>4000</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
<td>Default port</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Debugger port (optional)</td>
<td>Supports communication for the Designer interactive debugging feature.</td>
<td>5001</td>
</tr>
<tr>
<td>Access Server</td>
<td>Communication port</td>
<td>4001</td>
</tr>
<tr>
<td></td>
<td>Receives and sends messages from clients and services.</td>
<td></td>
</tr>
<tr>
<td>EIM Adaptive Processing</td>
<td>Metadata Browsing Service listener port</td>
<td>4010</td>
</tr>
<tr>
<td>Server</td>
<td>Communicates with the Data Services backend engine.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metadata Browsing Service JMX Connector communication port</td>
<td>4011</td>
</tr>
<tr>
<td></td>
<td>View Data Service listener port</td>
<td>4012</td>
</tr>
<tr>
<td></td>
<td>Communicates with the Data Services backend engine.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>View Data Service JMX Connector communication port</td>
<td>4013</td>
</tr>
</tbody>
</table>

**Note**

Use the Data Services Designer to configure fixed debugger and Job Server request ports.

### 2.5.1.2 Port requirements for Data Services client applications

Communication ports that are used by Data Services client applications and web applications.

If you deploy Data Services with firewalls, you can use this information to open the minimum number of ports in those firewalls.

#### Table 12: Designer port requirements

<table>
<thead>
<tr>
<th>Associated server</th>
<th>Port requirements</th>
<th>Default port</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI platform Central Management Server (CMS)</td>
<td>Name server port</td>
<td>6400</td>
</tr>
<tr>
<td></td>
<td>Request port</td>
<td>Dynamic</td>
</tr>
<tr>
<td>Data Services Job Server</td>
<td>Communication port</td>
<td>3500</td>
</tr>
<tr>
<td></td>
<td>Request port</td>
<td>Dynamic</td>
</tr>
<tr>
<td></td>
<td>Debugger port (optional)</td>
<td>5001</td>
</tr>
<tr>
<td>Repository database server</td>
<td>Connection port</td>
<td>Varies</td>
</tr>
</tbody>
</table>

#### Table 13: Workbench port requirements

<table>
<thead>
<tr>
<th>Associated server</th>
<th>Port requirements</th>
<th>Default port</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI platform Central Management Server (CMS)</td>
<td>Name server port</td>
<td>6400</td>
</tr>
<tr>
<td></td>
<td>Request port</td>
<td>Dynamic</td>
</tr>
</tbody>
</table>
### Table 14: Management Console port requirements

<table>
<thead>
<tr>
<th>Associated server</th>
<th>Port requirements</th>
<th>Default port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web application server</td>
<td>Communication port</td>
<td>8080</td>
</tr>
</tbody>
</table>

#### Note

Use the Central Management Console (CMC) to configure a fixed CMS request port.

For more information, see “Server Administration, Configuring server network settings, Configuring port numbers” the *BI platform Administrator Guide* or the *Information platform services Administrator Guide*.

#### Note

Use the Designer to configure fixed debugger and Job Server request ports.

### Related Information

Port requirements for Data Services server components [page 18]

### 2.6 Central Management Server (CMS)

Before you can install SAP Data Services, you must have a working SAP BusinessObjects BI platform Central Management Server (CMS).

The installation program creates Data Services InfoObjects in the CMS. Data Services relies on the CMS for:

- Centralized user and group management
- Flexible authentication methods
- Password enforcement policies
- Administrative housekeeping services
- RFC Server hosting
- Services for integrating other SAP software

#### Note

If you do not have a SAP BusinessObjects BI platform installation, the basic CMS functions required by Data Services can be provided by SAP BusinessObjects Information platform services (IPS).

If you choose to use IPS, use `InstallIPS` instead of `setup.sh` to launch the Information platform services installation program.

For information about installing SAP BusinessObjects IPS, see the *SAP BusinessObjects Information Platform Services Installation Guide*.

Other related installation notes:
During the Data Services installation, you are required to provide CMS login information. If you do not have this information available, you will not be able to proceed with the installation.

If you are using a distributed environment, the installation will be blocked if both of the following are true:

- The Data Services Administrator service (part of EIM APS) doesn’t exist in the landscape.
- The Data Services Administrator service (part of EIM APS) cannot be installed because there is no local SIA node pointing to the master CMS.

2.7 Web application servers

You can integrate SAP Data Services with a Java web application server. Tomcat is the default Java web application server provided by the SAP BusinessObjects BI platform and Information platform services. The web application server must be operational and accessible when you run the installation program.

For a complete list of supported web application servers, consult the Product Availability Matrix (PAM) available at https://support.sap.com/release-upgrade-maintenance/pam.html.

Note

The “Management Console” option installs only web applications to a supported Java web application server. This is useful for deploying web applications to nodes in a web application server cluster.

2.8 Database servers

You need a database to host the SAP Data Services repository. If you want to configure a repository during installation, the database server must be operational and accessible when you run the installation program.

SAP Sybase SQL Anywhere is the default database server provided by the SAP BusinessObjects BI platform and Information platform services.

The deployment also supports the following database servers:

- IBM DB2
- MySQL
- Oracle
- SAP HANA
- SAP Sybase SQL Anywhere
- SAP Sybase Adaptive Server Enterprise

Note

The database client and server must use the Unicode character set.

For a detailed list of supported database versions, revision levels, and requirements, consult the Product Availability Matrix (PAM) available at https://support.sap.com/release-upgrade-maintenance/pam.html.
2.9 Kernel parameters and user resource limits

It’s recommended that you use the following kernel parameters and user resource limits when installing SAP Data Services.

**Note**

In addition to the following requirements, if you intend to use the USA Regulatory Address Cleanse transform with caching of DPV and LACSLink directories, you must set your operating system’s Data Segment Size limit to Unlimited. This system parameter must be set before starting the software.

### 2.9.1 AIX user resource limits

For installations on AIX host systems, it’s recommended that you use the following user resource limits. You can display these settings by running the `ulimit -a` command from your Data Services user.

<table>
<thead>
<tr>
<th>User resource limit</th>
<th>Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>file (blocks)</td>
<td>4194302</td>
<td>At least 2 GB</td>
</tr>
<tr>
<td>data (kbytes)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>stack (kbytes)</td>
<td>2048</td>
<td>2 MB</td>
</tr>
<tr>
<td>memory (kbytes)</td>
<td>2097151</td>
<td>At least 2 GB</td>
</tr>
<tr>
<td>nofiles (descriptors)</td>
<td>2000</td>
<td>At least 2000</td>
</tr>
</tbody>
</table>

### 2.9.2 Solaris user resource limits

For installations on Solaris host systems, it’s recommended that you use the following user resource limits. You can display these settings by running the `ulimit -a` command from your Data Services user.

<table>
<thead>
<tr>
<th>User resource limit</th>
<th>Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>file (blocks)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>data (kbytes)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>stack (kbytes)</td>
<td>2048</td>
<td>2 MB</td>
</tr>
<tr>
<td>time (seconds)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>nofiles (descriptors)</td>
<td>1024</td>
<td>At least 1 K</td>
</tr>
<tr>
<td>coredump (blocks)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>vmemory (kbytes)</td>
<td>unlimited</td>
<td>Unlimited, at least 2 GB</td>
</tr>
</tbody>
</table>
2.9.3 Linux user resource limits

For installations on Linux host systems, it’s recommended that you use the following user resource limits. You can display these settings by running the `ulimit -a` command from your Data Services user.

Table 17:

<table>
<thead>
<tr>
<th>User resource limit</th>
<th>Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>file (blocks)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>data (kilobytes)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>stack (kilobytes)</td>
<td>2048</td>
<td>2 MB</td>
</tr>
<tr>
<td>time (cpu-seconds)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>nofiles (descriptors)</td>
<td>1024</td>
<td></td>
</tr>
<tr>
<td>coredump (blocks)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>memory (kilobytes)</td>
<td>unlimited</td>
<td></td>
</tr>
<tr>
<td>lockedmem (kilobytes)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>processes</td>
<td>7168</td>
<td></td>
</tr>
</tbody>
</table>
3 Preparation

How to prepare for the installation of SAP Data Services.

The following process flow outlines the steps involved in preparing for Data Services installation.

1. Gather the installation media or download the latest release and any patches or service packs from the support portal at https://support.sap.com/swdc.
2. Ensure that sufficient disk space is available to install, allowing both the operating system and the software to grow over time as patches or new components become available.
3. Decide which options you will change during the installation process. In most cases, you can accept the default values. More advanced installations require that you plan the installation process. The installer will prompt for the following information:
   ○ License information (the name of the user and company associated with your software).
   ○ Administrator-level connection information for the Central Management Server (CMS).
   ○ Repository database connection information, including type, connection, and authentication details.

Related Information

Prepare the repository database [page 24]

3.1 Prepare the repository database

Before you can create a repository for SAP Data Services, you must complete the following tasks:

- Create a database, tablespace or schema (if applicable), and an account for storing repository information.
- Record the database, tablespace, and account information so you can enter the details when prompted by the Data Services installation program.
- Ensure that your database server is configured to use Unicode character encoding (such as UTF-8).
- Ensure that the database accounts have privileges to create, modify, and delete tables, and to create stored procedures.
- When you use a database server on a network, install the appropriate database client drivers and verify that they work before you install Data Services. To establish which drivers are required for your database, contact your database administrator.
<table>
<thead>
<tr>
<th>Database</th>
<th>Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>TERADATA_12</td>
<td>Teradata</td>
</tr>
<tr>
<td>TERADATA_13</td>
<td></td>
</tr>
<tr>
<td>TERADATA_14</td>
<td></td>
</tr>
<tr>
<td>MYSQL_5_0</td>
<td>MySQL ODBC 3.51 Driver</td>
</tr>
<tr>
<td>MYSQL_5_X</td>
<td>MySQL ODBC 5.1 Driver</td>
</tr>
<tr>
<td>MYSQL_5_5</td>
<td>MySQL ODBC 5.2 Unicode Driver</td>
</tr>
<tr>
<td>SYBASE_IQ_15_X</td>
<td>Sybase IQ SYBASE_IQ_16_X = Sybase IQ</td>
</tr>
<tr>
<td>DB2_UDB_9_X</td>
<td>IBM DB2 ODBC DRIVER</td>
</tr>
<tr>
<td>DB2_UDB_10_X</td>
<td></td>
</tr>
<tr>
<td>INFORMIX_IDS_11_X</td>
<td>IBM INFORMIX ODBC DRIVER (64-bit)</td>
</tr>
<tr>
<td>NETEZZA_NPS_4_X</td>
<td>NetezzaSQL</td>
</tr>
<tr>
<td>NETEZZA_NPS_5_X</td>
<td></td>
</tr>
<tr>
<td>NETEZZA_NPS_6_X</td>
<td></td>
</tr>
<tr>
<td>NETEZZA_NPS_7_X</td>
<td></td>
</tr>
<tr>
<td>HANA_1_X</td>
<td>HDBODBC</td>
</tr>
<tr>
<td>SQLANYWHERE_12_X</td>
<td>SQL Anywhere 12</td>
</tr>
<tr>
<td>SQLANYWHERE_16_X</td>
<td>SQL Anywhere 16</td>
</tr>
</tbody>
</table>

During the installation process, you will be asked to supply a Central Management Server (CMS) registration name for the repository, as well as the connection and authentication credentials so that the installation program can initialize the repository database.

**Note**

The CMS registration name determines how the repository will appear in the Central Management Console (CMC), and it must be unique.

## Related Information

Requirements for third-party databases [page 26]
3.1.1 Requirements for third-party databases

Information that is required for third-party databases.

Table 19: Third-party database required information

<table>
<thead>
<tr>
<th>Database</th>
<th>Information required</th>
</tr>
</thead>
<tbody>
<tr>
<td>MySQL</td>
<td>● CMS registration name&lt;br&gt;● Database name&lt;br&gt;● Database server version&lt;br&gt;● Server name&lt;br&gt;● Port number (default is 3306)&lt;br&gt;● Login credentials used to access the database</td>
</tr>
<tr>
<td>SAP HANA</td>
<td>● CMS registration name&lt;br&gt;● Server name&lt;br&gt;● Database server version&lt;br&gt;● Port number (default is 30015)&lt;br&gt;● Login credentials used to access the database</td>
</tr>
<tr>
<td>SAP ASE</td>
<td>● CMS registration name&lt;br&gt;● Database name&lt;br&gt;● Server name&lt;br&gt;● Sybase connection string&lt;br&gt;● Port number&lt;br&gt;● Login credentials used to access the database</td>
</tr>
<tr>
<td>DB2</td>
<td>● CMS registration name&lt;br&gt;● Database name&lt;br&gt;● Server name: DB2 database alias&lt;br&gt;● Database server version&lt;br&gt;● Port number&lt;br&gt;● Login credentials used to access the database</td>
</tr>
</tbody>
</table>

**Note**

If you want to use DSN connections, defer repository creation to after installation and follow the steps in [DSN-less and TNS-less connections](page 31).

---

Installation Guide for UNIX
Preparation
## Database Information required

<table>
<thead>
<tr>
<th>Database</th>
<th>Information required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle</td>
<td>- CMS registration name</td>
</tr>
<tr>
<td></td>
<td>- Server: TNSNAMES connect identifier</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong></td>
</tr>
<tr>
<td></td>
<td>If you want to use TNS connections, defer repository creation to after installation</td>
</tr>
<tr>
<td></td>
<td>and follow the steps in [DSN-less and TNS-less connections](page 31)</td>
</tr>
<tr>
<td></td>
<td>- Database server version</td>
</tr>
<tr>
<td></td>
<td>- Port number</td>
</tr>
<tr>
<td></td>
<td>- SID</td>
</tr>
<tr>
<td></td>
<td>- Login credentials used to access the database</td>
</tr>
<tr>
<td>SAP Sybase SQL Anywhere</td>
<td>- CMS registration name</td>
</tr>
<tr>
<td></td>
<td>- Database name</td>
</tr>
<tr>
<td></td>
<td>- Database server version</td>
</tr>
<tr>
<td></td>
<td>- SQL Anywhere ODBC driver file</td>
</tr>
<tr>
<td></td>
<td>- Server name</td>
</tr>
<tr>
<td></td>
<td>- Port number</td>
</tr>
<tr>
<td></td>
<td>- Login credentials used to access the database</td>
</tr>
<tr>
<td>Bundled database</td>
<td>You can also use the default database that is bundled with the BI platform as the</td>
</tr>
<tr>
<td></td>
<td>Data Services repository host.</td>
</tr>
<tr>
<td></td>
<td>For more information, see [Configuring the bundled database](page 27)</td>
</tr>
<tr>
<td></td>
<td><strong>Caution</strong></td>
</tr>
<tr>
<td></td>
<td>If you use the bundled database as your Data Services repository host, you must use</td>
</tr>
<tr>
<td></td>
<td>the database client tools to manage backup and restore of the database. Be sure to</td>
</tr>
<tr>
<td></td>
<td>back up your repository before uninstalling the BI platform.</td>
</tr>
</tbody>
</table>

### 3.1.2 Configuring the bundled database

To use the bundled database for the Data Services repository, create a database in Sybase SQL Anywhere.

1. Set up the sql_anywhere environment.

```
source <BOE-install-dir>/sqlanywhere/bin64/ sa_config.sh
```

2. Create a Data Services repository database DS_REPO on sql_anywhere. If you do not specify a password, the default password is `<sql>` for `dba` user.

   The following command creates a database with a DBA user with the default password `<sql>`.

```
dbinit -t <BOE-install-dir>/sqlanywhere/database/DS_REPO.log -zn UTF8BIN -z UTF8BIN
<BOE-install-dir>/sqlanywhere/database/DS_REPO.db
```

   The following command creates a database with a `<uid>` user with the password `<pwd>`.

```
dbinit -t <BOE-install-dir>/sqlanywhere/database/DS_REPO.log -zn UTF8BIN -z UTF8BIN
<BOE-install-dir>/sqlanywhere/database/DS_REPO.db -dba <uid>,<pwd>
```
3. Stop the sqlAnywhere server.

   `<BOE-install-dir>/sap_bobj/sqlanywhere_shutdown.sh`

For more information about stopping servers, see the SAP BusinessObjects BI Platform Administrator Guide or the SAP BusinessObjects Information Platform Services Administrator Guide.

4. Add the Data Services repository database to the existing sqlAnywhere start scripts.

   New database: `<BOE-install-dir>/sqlanywhere/database/DS_REPO.db`

   sqlAnywhere start script: `<BOE-install-dir>/sap_bobj/sqlanywhere_startup.sh`

   The following command appends `DS_REPO.db` to the sqlAnywhere start scripts.

   `sed -ri s%"^(dbspawn.*)$"%"$1 "${SQLANYWHERE_DS_DBFILE}"% <BOE-install-dir>/sap_bobj/sqlanywhere_startup.sh`

5. Restart the sqlAnywhere server.

   `<BOE-install-dir>/sap_bobj/sqlanywhere_startup.sh`

**Bundled SQL Anywhere ODBC settings**

If you use a repository database that uses ODBC, during the installation of the bundled SQL Anywhere for the CMS and auditing database, the installation program attempts to find and write new DSN entries to an existing ODBC system information file. If no existing file is detected or set, the installation program will create a file with the new DSN entries at `<BIP_INSTALL_DIR>/sap_bobj/enterprise_xi40/odbc.ini`.

If you introduce new ODBC entries for reporting and analytic purposes, consolidate these entries into the same `.ini` file as the CMS and auditing database.

For more information, see the Information platform services Installation Guide for Unix.

### 3.1.3 Extra requirements for DB2

Extra requirements if you use DB2 for your repository database

<table>
<thead>
<tr>
<th>Requirement</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install the DB2 Application Enabler software</td>
<td>Use DB2 Control Center and DB2 Script Center to verify the connection between the Designer host system and the repository host system.</td>
</tr>
<tr>
<td>Ensure that the software has a temporary table space</td>
<td>Page size must be 32K.</td>
</tr>
</tbody>
</table>

### 3.1.4 Extra requirements for MySQL and Oracle, and SAP HANA

If you are using MySQL, Oracle, or SAP HANA for the repository database:
• Download the JDBC driver for the database. The Data Services installation program will ask you to provide its location during the installation process.

  i Note
  If you do not configure the repository during installation, you need to manually copy the JDBC driver to the correct location. For more information, see Configuring JDBC drivers for SAP HANA, Oracle, and MySQL [page 54].

• Ensure that the Data Services Connection Manager is configured. For more information about obtaining and using the unixODBC driver for MySQL, see “To configure MySQLODBC for DSN connections” in the Administrator Guide.

3.1.5 Extra requirements for Oracle

Extra requirements if you use Oracle for the repository database.

If you are using Oracle for the repository database:

Table 21: Extra requirements for Oracle

<table>
<thead>
<tr>
<th>Requirement</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grant the database account the connect, and resource roles, and grant the create any sequence privilege.</td>
<td>For Oracle 10G/R2, also grant the create view privilege.</td>
</tr>
<tr>
<td>Install the Oracle client software.</td>
<td>Use SQL*Plus to verify the connection between the Designer machine and the repository.</td>
</tr>
<tr>
<td>Download the JDBC driver for the database.</td>
<td>The Data Services installation program will ask you to provide its location during the installation process.</td>
</tr>
</tbody>
</table>

  i Note
  If you do not configure the repository during installation, you need to manually copy the JDBC driver to the correct location. For more information, see Configuring JDBC drivers for SAP HANA, Oracle, and MySQL [page 54].

  i Note
  To store multi-byte characters in a repository table when the repository is on an Oracle database, you must change the Oracle database character set to a code page that supports the multi-byte language that you plan to use, or you risk corrupting the metadata. For example, to store Japanese characters, change the Oracle database character set to either SHIFT_JIS or UTF8.
3.1.6 Extra requirements for Sybase

Extra requirements if you use Sybase for the repository database.

Table 22: Extra requirements for Sybase

<table>
<thead>
<tr>
<th>Requirement</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select the SAP ASE database properties option named <code>ddl in tran</code>.</td>
<td>You must select this option before you install Data Services to successfully create and validate the repository.</td>
</tr>
<tr>
<td>You may use both Sybase and Microsoft SQL Server on a Windows host system.</td>
<td>Ensure that the Sybase path precedes the Microsoft SQL Server path in the environment variable’s <code>%PATH%</code> statement</td>
</tr>
<tr>
<td>For Job Servers on UNIX, when you register a Sybase repository in the Central Management Console (CMC), the case you type for the database server name must match the associated case in the <code>SYBASE_Home/interfaces</code> file.</td>
<td>If the case does not match, you might receive an error because the Job Server cannot communicate with the repository.</td>
</tr>
<tr>
<td>SAP ASE database page.</td>
<td>Size should be 4K or more.</td>
</tr>
</tbody>
</table>

3.1.7 Extra requirements for SAP HANA

Extra requirements if you use SAP HANA for the repository database.

Table 23: Extra requirements for SAP HANA

<table>
<thead>
<tr>
<th>Requirement</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install bundled SQL Anywhere for the CMS and auditing database.</td>
<td>The installation program attempts to find and write new DSN entries to an existing ODBC system information file. If no existing file is detected or set, the installation program creates a file with the new DSN entries at <code>&lt;BIP_INSTALL_DIR&gt;/sap_bobj/enterprise_xi40/odbc.ini</code>. If you introduce new ODBC entries for reporting and analytic purposes, consolidate these entries into the same <code>.ini</code> file as the CMS and auditing database. For more information, see the <code>Information platform services Installation Guide for Unix</code> or <code>Information platform services Installation Guide for Windows</code>.</td>
</tr>
</tbody>
</table>
## 3.2 DSN-less and TNS-less connections

Data Services provides server name connections to databases that you use as a source or target Data Services repository.

Server name connections are also known as “DSN-less” and “TNS-less” connections. Server name connections eliminate the need to configure the same DSN (ODBC Data Source Name) or TNS (Transparent Network Substrate) entries on every machine in a distributed environment.

For the Data Services repository, the following database types are supported:

- For Oracle databases, you specify the server name, database name, and port instead of the TNS name.
- For DB2, MySQL, and SAP HANA databases, you specify the server name, database name, and port instead of the DSN name.

### Note

When you install Data Services, the repository defaults to a DSN-less or TNS-less connection. If you choose not to use a server name connection:

- Defer repository creation to after installation.
- Invoke the Repository Manager to subsequently create the repository.
  - On Windows, select the option *Use TNS name or Use data source name (DSN).*
  - On UNIX, specify the option to not use a server name connection.
- Log in to the Central Management Console (CMC) to register the repository and select the repository connection type on the *Data Services Repository Properties* screen:
  - For an Oracle database, select *Yes* in the drop-down list for *Use TNS name*.
  - For a DB2, MySQL, or SAP HANA database, select *Yes* in the drop-down list for *Use data source name (DSN)*.

---

<table>
<thead>
<tr>
<th>Requirement</th>
<th>More information</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Optional) Download the JDBC driver for the database.</td>
<td>Data Services includes a bundled JDBC driver for SAP HANA, however, you can also choose to use a newer driver version, if available. The Data Services installation program asks you to provide its location during the installation process.</td>
</tr>
</tbody>
</table>

### Note

If you do not configure the repository during installation, you need to manually copy the JDBC driver to the correct location. For more information, see *Configuring JDBC drivers for SAP HANA, Oracle, and MySQL* [page 54].
Note
This Data Services repository connection type setting on the CMC determines the connection type for logging into the Designer, running jobs, scheduling jobs, and so on.

For Data Services sources and targets, the following database types are supported for DSN-less and TNS-less connections:
- DB2 UDB
- Informix
- MySQL
- Netezza
- Oracle
- SAP HANA
- SAP Sybase IQ
- Teradata

Note
For the most current list of supported databases for server name connections, see the Release Notes.

3.3 Using the bundled SQL Anywhere database server for the CMS and HANA/MySQL as the Data Services repository

If you are using the bundled SQL Anywhere database server for the CMS, and plan to use HANA/MySQL as the Data Services repository, here is a prerequisite before deploying DS on top of BI/IPS.

1. You must find out which $ODBCINI for BI/IPS SQLA you should use. It will be either a self-defined variable or the BI bundled one located in `<IPS_INSTALL_DIR>/sap_bobj/enterprise_xi40/odbc.ini`.
2. You must provide the same $ODBCINI (either the self-defined variable or the BI/IPS bundled one located in `<IPS_INSTALL_DIR>/sap_bobj/enterprise_xi40/odbc.ini`) used for BI SQLA for DS.

3.4 Disable SSL on the Central Management Server (CMS)

The Data Services installation program does not support the SSL protocol during the installation process.

Before installing Data Services, check if your Central Management Server (CMS) has SSL enabled. If so, disable the SSL protocol on your CMS while you install Data Services.

For more information about disabling the SSL protocol, see the appropriate section in your CMS documentation:
- “Securing Information platform services, Configuring servers for SSL” in the SAP BusinessObjects Information platform services Administrator Guide
• “Securing the BI platform, Configuring servers for SSL” in the SAP BusinessObjects BI platform Administrator Guide
4 Installation

You can run the installation program several ways:

- **Interactive installation**
  An interactive wizard prompts for all information related to the installation. Use this option to select individual options from a series of screens. This is the default installation method. You have the option of running the installation using default configuration settings or without configuration.

- **Silent installation**
  Installation options are given on the command-line, which override the installation program's default values. The command-line can be used to give some or all installation options. When an installation option is not given on the command-line, the installation program uses a default value.
  Installation options can be given in a response file rather than directly on the command-line. This type of silent installation uses the `-r` command-line parameter to read installation options from the response file. Use this option if you want to install multiple machines with the same configuration. Installation options stored in the response file can be overridden by giving them on the command-line.
  When the `-q` (quiet mode) switch is used, the installation program does not prompt for any user input during the installation.

If the installation program encounters an unexpected condition and is unable to continue, it will undo any work completed up to that point and return the system to the state that it was in before the installation started.

4.1 Interactive installation using default configuration

During installation, you can choose the *Install with default configuration* option in the installation type screen to set up the Data Services repository and Job Server.

The installer performs the following tasks during installation:

- Creates the repository tables in the repository database.
- Associates the repository with a Job Server, if you create one later in the installation.
- Registers the repository in the BI platform Central Management Console (CMC).

Choosing to install Data Services using the default configuration enables you to log in to the Designer and execute jobs immediately after installing.

Related Information

*Interactive installation without configuration* [page 40]
4.1.1 Running an interactive installation with default configuration

When you install Data Services using the default configuration, you can accept the default settings for most options. (UNIX/Linux).

Log on and load, mount, or download the SAP Data Services installation media. Ensure that `LC_ALL` is set to a supported UTF-8 character set, such as `en_US.utf8`.

For example:

```
export LANG=en_US.utf8
export LC_ALL=en_US.utf8
```

The program saves the installation log file to `<INSTALL_DIR>/InstallData/logs/<DATE>/InstallDU<COMPONENT>.log`.

**Note**

The installation program requires a minimum of 80 columns and 30 rows to display correctly. If you are running the program in a terminal application, be sure to set the window size accordingly.

1. Change to the directory containing the `setup.sh` installation program.
   
   Set the destination folder from a command line using the `InstallDir=<DESTINATION_DIR>` parameter.
   
   For example, to install the Data Services system into the `/opt/sap` directory, use the command
   
   ```
   ../setup.sh InstallDir=/opt/sap
   ```
   
   The installation program starts and the pre-installation information screen appears.

2. Press `Enter` to continue the installation.
   
   The destination folder selection screen appears.

3. Review the destination folder shown.
   
   This is the folder into which the installation program will install Data Services. If the folder does not exist, the installation program creates it.
   
   The prerequisite check screen appears.

4. The installation program checks for required components. Review the results and decide whether to continue the installation, or cancel the installation and correct any unmet requirements. To view the temp install log, use the command:
   
   ```
   /tmp/<date>/setup*.log
   ```
   
   If a dependency prerequisite condition is critical, the installation program will not allow the installation to proceed. If the missing or unsupported component is optional, you have the option to either continue with the installation process or stop and correct the condition. The installation program provides information about how to correct the condition.
   
   During a silent installation, the installation program does not display the results of dependency prerequisites. See Running a silent installation [page 41](#) for more information.
   
   The welcome screen appears.

5. Review the welcome screen.
   
   The license agreement screen appears.

6. Review and accept the license agreement.
   
   The user information screen appears.
7. Enter the product keycode you purchased.

   ➤ Tip
   Store the keycode in a safe place in case you need to reinstall the software.

The language selection screen appears.

8. Select a language from the list to install support for that language.
   The software automatically selects the language currently being used by the operating system. You cannot
deselect the English language because the English language is used if a problem is detected with an individual
language.

The Central Management Server (CMS) selection screen appears.

9. Choose whether to specify the CMS administrator login information.
   ○ Choose Specify CMS: Complete the options based on the option descriptions in Specify CMS [page 37].
   ○ Choose Skip CMS. The installation program continues without presenting the options to create a CMS. If
     you select this option, continue with the installation following the steps in Running an interactive
     installation without configuration [page 41].

For important information about choosing the option to skip CMS, see Skip CMS [page 38]
If you select Specify CMS, the installation type screen appears.

10. Select install with default configuration.

   ➤ Note
   If you choose Skip CMS, the installation defaults to Install without configuration and skips this step.
   Continue with the steps in Running an interactive installation without configuration [page 41]

The feature selection screen appears.

11. Select the Data Services components that you want to install. See Data Services component descriptions
    [page 39].
    The specify local repository database type screen appears.

12. Select the repository database type.
    The repository database connection screen appears.

13. Create a new local repository following the steps in Creating a local repository during installation [page 40].
    When you create a local repository during installation, the installation program performs the following tasks:
    ○ Creates the repository tables in the repository database.
    ○ Associates the repository with the Job Server (if you selected Job Server in the feature selection screen).
    ○ Registers the repository in the BI platform Central Management Conosle (CMC).

By performing these tasks, the administer can log in to the Designer and execute jobs immediately
following installation.

   ➤ Note
   You can optionally skip the repository configuration and configure repositories after installation.

The start installation confirmation screen appears.

14. Press Enter to begin the installation process.
The installation completion screen appears. During installation, the progress bar illustrates the progress of the installation as a whole. During the installation process, the installation program saves your installation selections in a cache, transfers files, and performs additional configuration actions.

**i Note**
The installation program installs SAP activity and resource monitoring tools. These tools enable you to provide detailed technical information about your installation in the event of a problem.

### 4.1.2 Specify CMS

During an interactive installation with default configuration, the installation program guides you through setting up Data Services InfoObjects, Adaptive Processing Server (APS) services, and Management Console features. Enter administrator-level connection information for your Central Management Server (CMS).

A CMS user name with administrative privileges is required to validate the CMS and perform necessary checks for deployment.

**i Note**
To use Data Services (for example, to register a repository to CMS or use the Designer, Workbench, or Management Console features), you must have at least one CMS in your landscape where Data Services InfoObjects are deployed via EIM APS Services or Management Console feature deployment on Windows or Unix/Linux server.

Table 24: Specify CMS option descriptions

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td>Name of the host machine where the Central Management Server (CMS) is installed.</td>
</tr>
<tr>
<td><strong>Enables SSL</strong></td>
<td>Specify whether the CMS uses Secure Socket Layer (SSL).</td>
</tr>
<tr>
<td><strong>Restriction</strong></td>
<td>SSL is not supported during Data Services installation.</td>
</tr>
<tr>
<td><strong>User</strong></td>
<td>User name of the administrative CMS user. The default is Administrator.</td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>Password for the CMS user. The password for the default Administrator account is defined during the BI platform installation process.</td>
</tr>
</tbody>
</table>
### Option Description

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication mode</td>
<td>Authentication mode used by the CMS.</td>
</tr>
</tbody>
</table>

**Restriction**

Data Services only supports the Enterprise authentication method during installation.

### Caution

The installation program must restart the Server Intelligence Agent (SIA) before it continues with the installation. Therefore, ensure that the SIA is not in use and that the input file repository server is enabled and can start automatically before proceeding.

### Related Information

Running an interactive installation with default configuration [page 35]

### 4.1.3 Skip CMS

If you choose *Skip CMS* during the interactive installation, you must ensure that the Adaptive Processing Server (APS) services, which are required for Data Services (and Information Steward) product usage, are deployed to at least one CMS in your landscape.

When you choose *Skip CMS*, the installation type screen is not displayed because the installation type defaults to *Install without configuration* (that is, it skips repository and Job Server configuration). This means that after installation, you must configure a repository (create and register to the CMS) and Job Server to use Data Services.

**Restriction**

If this is the only system where Data Services is installed or if this is the only system that hosts Information Steward, do not select the *Skip CMS* option.

### Related Information

Running an interactive installation with default configuration [page 35]
4.1.4 Data Services component descriptions

During an interactive installation, you select the Data Services components to install. The following table provides descriptions for the Data Services components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Server</td>
<td>The Job Server starts engine processes to perform data extraction, transformation, and movement.</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong></td>
</tr>
<tr>
<td></td>
<td>You can also configure the Job Server after installation.</td>
</tr>
<tr>
<td>Management Console</td>
<td>The Management Console includes web applications that provide browser-based administration, analysis, and reporting capabilities for Data Services.</td>
</tr>
<tr>
<td>APS Services</td>
<td>The Adaptive Processing Server (APS) services are deployed on the BI (or IPS) platform and provide Data Services with basic administration, metadata browsing, view data, data quality, and RFC server capabilities. These services are used by Data Services and other applications such as SAP Information Steward.</td>
</tr>
<tr>
<td>Message Client</td>
<td>The Message Client API provides C++ and Java APIs that allow you to connect to Data Services real-time services with external applications.</td>
</tr>
<tr>
<td>Text Data Processing</td>
<td>Supports processing of unstructured text in multiple languages.</td>
</tr>
<tr>
<td>Languages</td>
<td><strong>Note</strong></td>
</tr>
<tr>
<td></td>
<td>Text Data Processing support for English is installed by default and cannot be uninstalled. Select additional languages if you want to process unstructured text in other languages.</td>
</tr>
<tr>
<td>DataDirect ODBC Drivers</td>
<td>The DataDirect drivers allow Data Services to connect to ODBC data sources on UNIX and Windows platforms.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Installs the complete Data Services documentation set. Documentation is also available on the SAP Business User Support site at <a href="http://help.sap.com/bods">http://help.sap.com/bods</a>.</td>
</tr>
</tbody>
</table>

**Related Information**

Running an interactive installation with default configuration [page 35]
4.1.5 Creating a local repository during installation

Steps to create a local repository during an interactive installation of Data Services with the default configuration.

Follow the steps in Running an interactive installation with default configuration [page 35] until you get to the step to create a new local repository. Then perform the following steps:

1. Choose the database type that you want to use to host the repository.
2. If you choose SAP HANA, MySQL, or Oracle database type, specify the location of the database JDBC driver files.
   
   If you choose SAP HANA, you can also choose to use the bundled JDBC driver.
3. If you choose SAP HANA, MySQL, and SQL_Anywhere, specify the driver name which is used for the DSN-Less configuration connection string. You can leave it set to the default value.
4. Enter the connection information for the repository database.

Tip

The repository registration name is the logical name for the repository that will appear in the Central Management Console (CMC) and the client login screens where the repository is selected.

Note

You can also use the database server bundled with the BI platform to host the Data Services repository. for more information about using the bundled database, see Configuring the bundled database [page 27].

The software creates the new repository and the start installation confirmation screen appears. Continue following the steps in Running an interactive installation with default configuration [page 35].

4.2 Interactive installation without configuration

During installation, you can choose to install Data Services without configuration, meaning you install without configuring the Data Services InfoObjects, Adaptive Processing Server (APS) and Management Console.

Typically, you would choose to install Data Services without configuration to install the Data Services client feature on Windows or to install the Job Server standalone feature on a Windows or Unix/Linux server.

After installing without configuration, you must ensure that the APS Services, which are required for Data Services and Information Steward product usage, are deployed to at least one CMS in your landscape.

During this type of installation, the installation program does not present the screens to create a local repository or set up the repository database connection.

Related Information

Running an interactive installation without configuration [page 41]
4.2.1 Running an interactive installation without configuration

Instructions to run an interactive installation without configuring the repository and Job Server.

Follow the steps in Running an interactive installation with default configuration [page 35], however, choose Skip CMS when the Central Management Server (CMS) connection screen appears.

**Note**

If you select Specify CMS in the CMS connection screen and continue, the installation type screen appears, where you choose to install with or without configuration. However, when you select skip CMS, the installation program automatically chooses the option to Install without configuration, and skips to the feature selection screen.

**Note**

For important information about choosing the option to skip CMS, see Skip CMS [page 38].

1. In the feature selection screen, select the Data Services components that you want to install. See Data Services component descriptions [page 39] for component descriptions.

   The configuration reuse screen appears.

2. To reuse configurations from a previous installation, select Reuse an existing configuration and navigate to the location of the DSConfig.txt from the previous installation. To skip configuration, select Skip configuration.

   **Note**

   If you are reusing configurations from a previous installation of Data Services 14.x or higher, DSConfig.key must also be in the same folder. Previous versions do not require DSConfig.key.

The start installation confirmation screen appears.

3. Press **Enter** to begin the installation process.

   During the installation process, the installation program saves your installation selections in a cache, transfers files, and performs additional configuration actions.

   The installation completion screen appears.

4.3 Running a silent installation

A silent installation is when you install Data Services by entering commands into a command-line. Every option in the installation wizard can be given from the command-line.

Installation options can be given directly on the command-line as a parameter, or can be stored in a response file.
4.3.1 Installation options on command-line

Installation options can be passed directly to the installation program from the command-line as a parameter. For example, the installation option `DSConfigJSPort=3501` can be given on the command-line as a parameter when running the installation program to set the Job Server port number to 3501, instead of the default value of 3500.

In the following example of giving the `DSConfigJSPort` parameter on the command-line, ellipses (```[...]``` indicate where other installation options would normally be present:

```bash
./setup.sh [..] DSConfigJSPort=3501 [..]
```

4.3.2 Installation options in a response file

Installation options can be stored in a response file, which is a text file containing installation option parameters in key-value format.

When using a response file to give installation options, the installation program is run from the command-line with the `-r <RESPONSE_FILE>` parameter, where `<RESPONSE_FILE>` is the name of the response file.

The response file contains multiple installation options, with one installation option per line. In the following example, the response file is given as a parameter:

```bash
./setup.sh [..] -r $HOME/response.ini [..]
```

For example, the installation option `DSConfigJSPort=3501` can be given on a line in the response file to set the Job Server port number to 3501, instead of the default value of 3500.

In the following example of giving the `DSConfigJSPort` parameter in a response file, ellipses (```[...]``` indicate where other installation options would normally be present:

```plaintext
[...]
DSConfigJSPort=3501
[...]
```

4.3.3 Command-line switch parameters

The following table lists the switch parameters that can be given to the installation program on the command-line to perform a silent installation.
Table 26:

<table>
<thead>
<tr>
<th>Switch parameter</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>-w &lt;FILENAME&gt;</td>
<td>Writes a response file to &lt;FILENAME&gt;, containing the options selected from the installation wizard.</td>
<td>./setup.sh -w &quot;$HOME/response.ini&quot;</td>
</tr>
<tr>
<td>-r &lt;FILENAME&gt;</td>
<td>Reads installation options from a response file named &lt;FILENAME&gt;.</td>
<td>./setup.sh -r &quot;$HOME/response.ini&quot;</td>
</tr>
<tr>
<td>-q</td>
<td>Installs with no console output or prompting. If a problem is encountered, the installation program will write a message to the installation log file and exit.</td>
<td>./setup.sh -q -r &quot;$HOME/response.ini&quot;</td>
</tr>
</tbody>
</table>

4.3.3.1 Using a response file

To use a response file, run the installation program with the -r <RESPONSE_FILE> parameter. The installation program reads all installation options from the response file, and no further input is required.

For example, the following command reads installation options from the response file $HOME/response.ini:

```
./setup.sh -r $HOME/response.ini
```

To override an installation option in a response file, give that option on the command-line. Installation options given on the command-line take precedence over the options in the response file. For a complete list of installation options, see “Installation option parameters”.

If an unexpected condition is encountered, the installation program writes an error message to the installation log file and exits. Installation activity, warnings, and errors are written to the installation log file in the folder:

```
<INSTALL_DIR>/InstallData/logs/<DATE>/InstallDU<COMPONENT>.log
```

If the <INSTALL_DIR> folder has not been created by the time the installation program exits, look for install.log in the temporary folder specified by the system <TEMP> environment variable.

Related Information

Installation option parameters [page 45]

4.3.3.1.1 Writing a response file

To create a response file, run the installation program with the -w <RESPONSE_FILE> parameter and select the desired installation options with the installation wizard. When the wizard completes, the installation program exits and the response file is created. The response file can then be used for future installations.
For example, the following command creates the response file \$HOME/response.ini:

```
./setup.sh -w \$HOME/response.ini
```

Once created, the response file can be updated with a text editor.

**Note**

When you specify passwords in the installation program, they are stored in the response file as ****** for security reasons. You will need to specify the parameters on the command-line.

For example, specify the DSCMSPassword=<password> on the command-line:

```
./setup.sh -r \$HOME/response.ini DSCMSPassword=<password>
```

### 4.3.3.1.2 Reading a response file

A response file installation is started on the command-line, but installation options are read from an ASCII text file with the options stored in key-value format. A response file installation is useful when setting up a cluster, or for creating development or test environments with standardized options.

When an option is given both on the command-line and in a response file, the command-line options take precedence over the response file options. This feature allows an administrator to override an option in a response file when required, and provides three levels of precedence for installation options:

1. Installation options given on the command-line take highest precedence, and will always override response file and default values.
2. Installation options given in a response file are used when not given on the command-line, and override default values.
3. Installation option default values are used when not given on the command-line or in a response file.

For example, the following command reads installation options from the response file \$HOME/response.ini, but overrides the response file’s setting for the installation destination folder:

```
./setup.sh -r \$HOME/response.ini InstallDir=/opt/sap/sap_bobj/
```

### 4.3.3.2 Quiet mode installations

A quiet mode installation is a command-line installation that does not prompt for installation options. Installation options must be provided on the command-line or in a response file. Any installation options not provided on the command-line or in a response file will be left at their default values.

The -q switch bypasses the installation program’s installation wizard, and allows an installation to be performed with no human input and no console output.
For example, the following command uses the responses in $HOME/response.ini and overrides the installation destination folder (set to /opt/sap/sap_bobj instead of the current working folder).

```
./setup.sh -q -r $HOME/response.ini InstallDir=/opt/sap/sap_bobj/
```

If an unexpected condition is encountered, an error message is written to the installation log file and the installation program exits. Installation activity, warnings, and errors are written to the installation log file in the folder:

```<INSTALL_DIR>/InstallData/logs/<DATE>/InstallDU<COMPONENT>.log```

If the `<INSTALL_DIR>` folder has not been created by the time the installation program exits, look for `install.log` in the temporary folder specified by the system `<TEMP>` environment variable.

### 4.3.4 Installation option parameters

The following table lists the parameters that can be used to select installation options both on the command-line and in response files.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SetupUILanguage=&lt;CODE&gt;</td>
<td>Determines the language for the installation program to use during the installation. Substitute the language code where <code>&lt;CODE&gt;</code> is:</td>
</tr>
<tr>
<td></td>
<td>• English: EN</td>
</tr>
<tr>
<td>InstallDir=&lt;PATH&gt;</td>
<td>Destination folder into which the installation program will install the software.</td>
</tr>
<tr>
<td>SelectedLanguagePacks=&lt;CODE&gt;</td>
<td>Installs language support for users and administrators to interact with SAP Data Services in a supported language. If more than one language pack is to be installed, use a semi-colon delimited list without spaces, within quotes, to separate each code. In the following example, language support for English will be installed:</td>
</tr>
<tr>
<td></td>
<td>Substitute the following language codes where <code>&lt;CODE&gt;</code> is:</td>
</tr>
<tr>
<td></td>
<td>• English: EN</td>
</tr>
<tr>
<td></td>
<td>• Japanese: JA</td>
</tr>
<tr>
<td></td>
<td>• Turkish: TR</td>
</tr>
<tr>
<td>ProductKey=&lt;KEY&gt;</td>
<td>Product license key issued when you purchased the software. Substitute <code>&lt;KEY&gt;</code> with the product key in the format XXXXX-XXXXXX-XXXXXX-XXXXXX.</td>
</tr>
<tr>
<td>ChooseSLDIntegration=&lt;VALUE&gt;</td>
<td>Determines whether SAP System Landscape Directory (SLD) support will be enabled or not. To enable SLD integration, set <code>&lt;VALUE&gt;</code> to integrate. To disable SLD integration, set <code>&lt;VALUE&gt;</code> to nointegrate.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSCMSAuth=&lt;TYPE&gt;</td>
<td>Authentication type used by the Central Management Server (CMS). Substitute the authentication type where &lt;TYPE&gt; is:</td>
</tr>
<tr>
<td></td>
<td>● Enterprise authentication: secEnterprise</td>
</tr>
<tr>
<td></td>
<td><strong>Restriction</strong></td>
</tr>
<tr>
<td></td>
<td>Data Services supports only the Enterprise authentication method during installation.</td>
</tr>
<tr>
<td>DSCMSEnableSSL=&lt;SWITCH&gt;</td>
<td>Specifies whether the Central Management Server (CMS) uses SSL security. If the CMS is configured for SSL support, set &lt;SWITCH&gt; to 1. If the CMS is not configured for SSL support, set &lt;SWITCH&gt; to 0.</td>
</tr>
<tr>
<td>DSCMSNode=&lt;NODE&gt;</td>
<td>Specifies the node name for the Central Management Server (CMS). Substitute &lt;NODE&gt; with the CMS node name.</td>
</tr>
<tr>
<td>DSCMSSystem=&lt;HOST&gt;</td>
<td>Hostname of the Central Management Server (CMS). Substitute &lt;HOST&gt; with the CMS hostname.</td>
</tr>
<tr>
<td>DSCMSUser=&lt;USER&gt;</td>
<td>User name for the CMS administrator account. Substitute &lt;USER&gt; with the user name.</td>
</tr>
<tr>
<td>DSCMSPassword=&lt;PASSWORD&gt;</td>
<td>Password for the CMS administrator account. Substitute &lt;PASSWORD&gt; with the password.</td>
</tr>
<tr>
<td>DSConfigASSelection=&lt;SKIP&gt;</td>
<td>Determines whether to configure a new Access Server during installation. This option is no longer set during installation. Set this option &lt;VALUE&gt; to skip.</td>
</tr>
<tr>
<td>DSConfigCMSSelection=&lt;VALUE&gt;</td>
<td>Determines whether to configure InfoObjects and the Management Console on a CMS during installation. To configure CMS-hosted components, set &lt;VALUE&gt; to install. To not configure CMS-hosted components, set &lt;VALUE&gt; to skip.</td>
</tr>
<tr>
<td>DSConfigJSSelection=&lt;VALUE&gt;</td>
<td>Determines whether to configure a new Job Server during installation. To configure a new Job Server, set &lt;VALUE&gt; to new. To not configure a new Job Server, set &lt;VALUE&gt; to skip.</td>
</tr>
<tr>
<td>DSConfigJSServerName=&lt;NAME&gt;</td>
<td>Server name for the Job Server to create during the installation process. Substitute &lt;NAME&gt; with the Job Server name.</td>
</tr>
<tr>
<td>DSConfigJSServerPort=&lt;PORT&gt;</td>
<td>Network TCP listening port number used by the Job Server. Substitute &lt;PORT&gt; with the port number.</td>
</tr>
<tr>
<td>DSConfigMergeSelection=&lt;VALUE&gt;</td>
<td>Determines whether the installation program will merge an existing DSConfig.txt configuration file with the new installation configuration. To merge an existing configuration file, set &lt;VALUE&gt; to install. To not merge an existing configuration file, set &lt;VALUE&gt; to skip.</td>
</tr>
<tr>
<td>DSExistingDSConfigFile=&lt;PATH&gt;</td>
<td>Existing DSConfig.txt configuration file to merge with the new installation configuration. Substitute &lt;PATH&gt; with the full path of the existing configuration file.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>DSInstallInfoObjects=*VALUE*</td>
<td>Determines whether or not the installation program will configure the Data Services InfoObjects on the Central Management Server (CMS) during the installation process. To configure the InfoObjects during installation, set *VALUE* to true. To not configure the InfoObjects, set *VALUE* to false.</td>
</tr>
<tr>
<td>DSInstallTypeSelection = *VALUE*</td>
<td>Determines the type of installation to run. To run the installation with default configuration, set *VALUE* to EXPRESS. To run the installation without configuration, set *VALUE* to CUSTOM.</td>
</tr>
<tr>
<td>DSJSDetailCacheDirectory=*DIRECTORY*</td>
<td>Directory where the Job Server pageable cache should be configured. Substitute *DIRECTORY* with the full directory path.</td>
</tr>
<tr>
<td>DSJSDetailCommPort=*PORT*</td>
<td>Network TCP listening port number used by the Job Server for adapter and message broker communication. Substitute *PORT* with the port number.</td>
</tr>
<tr>
<td>DSJSDetailEnableSSL=*SWITCH*</td>
<td>Determines whether SSL support will be enabled on the Job Server. To enable SSL on the Job Server, set *SWITCH* to 1. To not enable SSL support, set *SWITCH* to 0.</td>
</tr>
<tr>
<td>DSJSDetailEndPort=*PORT*</td>
<td>Ending network TCP listening port number used by the Job Server when sending data between data flows or sub data flows. Substitute *PORT* with the port number.</td>
</tr>
<tr>
<td>DSJSDetailStartPort=*PORT*</td>
<td>Starting network TCP listening port number used by the Job Server when sending data between data flows or sub data flows. Substitute *PORT* with the port number.</td>
</tr>
<tr>
<td>DSJSDetailSupportComm=*SWITCH*</td>
<td>Determines whether or not the Job Server will support adapter or message broker communication. To enable communication support on the Job Server, set *SWITCH* to 1. To not enable communication support, set *SWITCH* to 0.</td>
</tr>
<tr>
<td>DSJSPCacheEnableSSL=*SWITCH*</td>
<td>Determines whether or not SSL support will be enabled for pageable cache on the Job Server. To enable SSL support, set *SWITCH* to 1. To not enable SSL support, set *SWITCH* to 0.</td>
</tr>
<tr>
<td>DSLoginInfoAccountSelection=*VALUE*</td>
<td>Determines whether the Data Services service will log onto the host system using the system account or a specific user account. To log onto the host system using the system account, set *VALUE* to system. To log onto the host system using a specific user account, set *VALUE* to this.</td>
</tr>
<tr>
<td>DSLoginInfoThisPassword=*PASSWORD*</td>
<td>Password for the account that the Data Services service should use to log onto the host system. Substitute *PASSWORD* with the password.</td>
</tr>
<tr>
<td>DSLoginInfoThisUser=*USER*</td>
<td>User name for the account that the Data Services service should use to log onto the host system. Substitute *USER* with the user name.</td>
</tr>
<tr>
<td>DSMDSJMXPort=*PORT*</td>
<td>Network TCP listening port number used by the Metadata Browsing Service for the JMX connector. Substitute *PORT* with the port number.</td>
</tr>
<tr>
<td>DSMDSPort=*PORT*</td>
<td>Network TCP listening port number used by the Metadata Browsing Service. Substitute *PORT* with the port number.</td>
</tr>
<tr>
<td>DSM_REPO_CREATE_UPGRADE=*VALUE*</td>
<td>Determines whether to create or upgrade a Data Services local repository during the installation process. To create a new local repository, set *VALUE* to Create.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSRepoDBDataSource=&lt;blank&gt;</td>
<td>Stores the ODBC System DSN. This option no longer used.</td>
</tr>
<tr>
<td>DSRepoDBHost=&lt;HOST&gt;</td>
<td>Hostname for the database server that will contain the Data Services repository. Substitute &lt;HOST&gt; with the hostname.</td>
</tr>
<tr>
<td>DSRepoDBName=&lt;NAME&gt;</td>
<td>Database name for the database that will contain the Data Services repository. Substitute &lt;NAME&gt; with the database name.</td>
</tr>
<tr>
<td>DSRepoDBPasswd=&lt;PASSWORD&gt;</td>
<td>Password for the database account that will be used to access the repository database. Substitute &lt;PASSWORD&gt; with the account password.</td>
</tr>
<tr>
<td>DSRepoDBPort=&lt;PORT&gt;</td>
<td>Network TCP listening port number used by the database that will host the Data Services repository. Substitute &lt;PORT&gt; with the port number.</td>
</tr>
<tr>
<td>DSRepoDBType=&lt;TYPE&gt;</td>
<td>Type of database that will host the Data Services repository. Substitute the database type where &lt;TYPE&gt; is:</td>
</tr>
<tr>
<td></td>
<td>● MySQL: MySQL</td>
</tr>
<tr>
<td></td>
<td>● Oracle: Oracle</td>
</tr>
<tr>
<td></td>
<td>● DB2: DB2</td>
</tr>
<tr>
<td></td>
<td>● SAP HANA: HANA</td>
</tr>
<tr>
<td></td>
<td>● SAP Sybase SQL Anywhere: SQL_Anywhere</td>
</tr>
<tr>
<td></td>
<td>● SAP ASE: Sybase</td>
</tr>
<tr>
<td>DSRepoDBUser=&lt;USER&gt;</td>
<td>User name for the database account that will be used to access the repository database. Substitute &lt;USER&gt; with the account user name.</td>
</tr>
<tr>
<td>DSRepoDBVersion=&lt;VALUE&gt;</td>
<td>The version of the database that will host the Data Services repository. Substitute the database version where &lt;VALUE&gt; is:</td>
</tr>
<tr>
<td></td>
<td>● Oracle 10g: ORACLE10</td>
</tr>
<tr>
<td></td>
<td>● Oracle 11g: ORACLE11</td>
</tr>
<tr>
<td></td>
<td>● DB2 UDB 9.x: DB2V9</td>
</tr>
<tr>
<td></td>
<td>● DB2 UDB 10.x: DB2V10</td>
</tr>
<tr>
<td></td>
<td>● MySQL 5.0: MYSQL5v1</td>
</tr>
<tr>
<td></td>
<td>● MySQL 5.1: MYSQL5v2</td>
</tr>
<tr>
<td></td>
<td>● MySQL 5.5: MYSQL5v5</td>
</tr>
<tr>
<td></td>
<td>● HANA 1.x: HANA</td>
</tr>
<tr>
<td></td>
<td>● SQL Anywhere 12.x: SQLANYWHERE12</td>
</tr>
<tr>
<td></td>
<td>● SQL Anywhere 16.x: SQLANYWHERE16</td>
</tr>
<tr>
<td>DSRepoNameForCMS=&lt;NAME&gt;</td>
<td>Name that will be used to register the Data Services repository in the Central Management Server (CMS). Substitute &lt;NAME&gt; with the repository name.</td>
</tr>
<tr>
<td>DSRepoOracleSID=&lt;VALUE&gt;</td>
<td>User-specific Oracle SID required to use Oracle as the repository database.</td>
</tr>
<tr>
<td>DSRepoSelection=&lt;VALUE&gt;</td>
<td>Determines whether or not to configure a new repository during the installation process. To configure a new repository, set &lt;VALUE&gt; to new. To not configure a new repository, set &lt;VALUE&gt; to existing.</td>
</tr>
<tr>
<td>DSRepoWindowsAuth=&lt;SWITCH&gt;</td>
<td>Specifies whether or not the repository database uses Windows authentication. If the database uses Windows authentication, set &lt;SWITCH&gt; to 1. If the database uses a different authentication method, set &lt;SWITCH&gt; to 0.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSVDSJMXPort=&lt;PORT&gt;</td>
<td>Network TCP listening port number used by the Viewdata Service for the JMX connector. Substitute &lt;PORT&gt; with the port number.</td>
</tr>
<tr>
<td>DSVDSPort=&lt;PORT&gt;</td>
<td>Network TCP listening port number used by the Viewdata Service. Substitute &lt;PORT&gt; with the port number.</td>
</tr>
<tr>
<td>Features=&lt;CODE&gt;</td>
<td>List of components to install. To select multiple features, use a comma-delimited list without spaces to give each code. In the following example, the Job Server and Access Server will be selected for install:</td>
</tr>
<tr>
<td></td>
<td>Features=DataServicesJobServer,DataServicesAccessServer</td>
</tr>
<tr>
<td></td>
<td>For a complete list of feature codes, see Feature codes [page 49].</td>
</tr>
<tr>
<td>DSNNewCommonDir=&lt;new_location&gt;</td>
<td>Enter a new location for the Data Services common directory. Windows only. Use for an upgrade installation when you want to change the location of the DS_COMMON_DIR. The new location must have access rights for all users, must be a fixed local drive, and must have sufficient disk space to contain the configuration and log files. The common directory contains configuration files and log files that the software components read from and write to during installation, upgrade, and runtime. The software moves all folders and sub folders to the new location from the existing location except for the files in the log folder (and sub folders). The installer creates a log folder in the new location, but does not automatically move the files. The new log folder is empty except for log files from the installation/update that you just performed. You can move the contents of the previous log folder to the new log folder.</td>
</tr>
<tr>
<td>ISCommonDirChanged=0 or 1</td>
<td>Enter 0 or 1. Windows only. Use only during a new or an upgrade installation to indicate if you changed the location of the DS_COMMON_DIR.</td>
</tr>
<tr>
<td></td>
<td>● 0 = Did not change location</td>
</tr>
<tr>
<td></td>
<td>● 1 = Changed location</td>
</tr>
<tr>
<td>DSCommonDir=&lt;default_location&gt; or &lt;new_location&gt;</td>
<td>Enter either the Data Services default location or a new location. Windows only. Use for a fresh installation of Data Services.</td>
</tr>
</tbody>
</table>

### 4.3.4.1 Feature codes

Use the following feature codes to select features for installation. To select multiple features, separate each feature code with a comma, without spaces. For example, the following feature list selects the Job Server and documentation files:

```plaintext
features=DataServicesJobServer,DataServicesDocumentation
```
Note
English is installed automatically.

- root: install all features
  - DataServicesServer: install all server components
    - DataServicesJobServer
    - DataServicesAccessServer
  - DataServicesClient: install all client components
    - DataServicesDesigner (Designer and Workbench)
  - DataServicesManagementConsole
  - DataServicesEIMServices: install services to the Adaptive Processing Server (APS)
  - DataServicesMessageClient
  - TextDataProcessingLanguages: install all text data processing languages
    - TextDataProcessingArabic
    - TextDataProcessingBokmal
    - TextDataProcessingCatalan
    - TextDataProcessingCroatian
    - TextDataProcessingCzech
    - TextDataProcessingDanish
    - TextDataProcessingDutch
    - TextDataProcessingFarsi
    - TextDataProcessingFrench
    - TextDataProcessingGerman
    - TextDataProcessingGreek
    - TextDataProcessingHebrew
    - TextDataProcessingHungarian
    - TextDataProcessingItalian
    - TextDataProcessingJapanese
    - TextDataProcessingKorean
    - TextDataProcessingNynorsk
    - TextDataProcessingPolish
    - TextDataProcessingPortuguese
    - TextDataProcessingRomanian
    - TextDataProcessingRussian
    - TextDataProcessingSerbian
    - TextDataProcessingChinese (Simplified Chinese)
    - TextDataProcessingSlovak
    - TextDataProcessingSlovenian
    - TextDataProcessingSpanish
    - TextDataProcessingSwedish
    - TextDataProcessingThai
    - TextDataProcessingTChinese (Traditional Chinese)
4.3.4.2 Response file example

The following example response file contains options for installing SAP Data Services using Microsoft SQL Server as the repository database type.

### Example

In this example, the response file is named \$HOME/response.ini.

```ini
### *** property.ChooseSLDIntegration.description ***
chooseSLDintegration=nointegrate
### #property.CMSAuthMode.description#
dscmsauth=secEnterprise
### #property.CMSEnabledSSL.description#
dscmsenablessl=0
### #property.CMSNode.description#
dscmsnode=boenode
### #property.CMSNodeList.description#
dscmsnodelist=boenode
### CMS administrator password
dscmspassword=******
### #property.CMSServerName.description#
dscmsystem=localhost
### #property.CMSServerPassword.description#
dscmspassword=******
### #property.CMSServerName.description#
dscmsystem=localhost
### #property.CMSServerPassword.description#
dscmspassword=******
### #property.CMSServerName.description#
dscmsystem=localhost
### #property.CMSServerPassword.description#
dscmspassword=******
### #property.DSConfigASCommPort.description#
dsconfigascommport=4000
### #property.DSConfigASDirectory.description#
dsconfigasdirectory=/opt/sap/sap/dataservices/bin/AccessServer_1
### #property.DSConfigASEnableAS.description#
dsconfigasenableas=1
### #property.DSConfigASEnableASSSL.description#
dsconfigasenableasssl=1
### #property.DSConfigASSelection.description#
dsconfigasselection=new
### #property.DSConfigCMSSelection.description#
dsconfigcmsselection=install
### #property.DSConfigJSServerSelection.description#
dsconfigjsselection=new
### #property.DSConfigJSCommPort.description#
dsconfigjscommport=3500
### #property.DSConfigJSServerName.description#
dsconfigjsservername=JobServer_1
### #property.DSConfigJSServerPort.description#
dsconfigjsserverport=3500
### #property.DSConfigMergeSelection.description#
dsconfigmergeselection=skip
### #property.DSExistingDSConfigFile.description#
dsexistingdsconfigfile=
### #property.DSExistsOnCMS.description#
dsexistsoncms=1
### #property.DSInstallInfoObjects.description#
dinstallinfoobjects=false
### #property.DSJSDetailCacheDirectory.description#
dsjsdetaillnfoobjects=false
### #property.DSJSDetailCommPort.description#
dsjsdetailcommport=4001
### #property.DSJSDetailEnabledSSS.description#
dsjsdetailenablessl=1
```
### #property.DSJSDetailEndPort.description#
dsjsdetailendport=32767
### #property.DSJSDetailStartPort.description#
dsjsdetailstartport=1026
### #property.DSJSDetailSupportComm.description#
djsdetailsupportcomm=0
### #property.DSJSPCACHEEnableSSL.description#
djspcacheenablesssl=1
### #property.DSLoginInfoAccountSelection.description#
dsglogininfoaccountselection=this
### #property.DSLoginInfoThisPassword.description#
dsglogininfothispassword=******
### #property.DSLoginInfoThisUser.description#
dsglogininfothisuser=DOMAIN\USER
### JMX connector
dsmjsjmxport=3889
### Metadata service port
dsmdsport=9001
### #property.DSMoreThanOneCMSNode.description#
dsmorethanonecmssnode=0
### #property.DSRepoCreateUpgrade.description#
dspcreateupgrade=create
### #property.DSRepoDBDataSource.description#
dspodbdatasource=
### #property.DSRepoDBHost.description#
dspodbdhost=localhost
### #property.DSRepoDBName.description#
dspodbname=ds_repo
### #property.DSRepoDBPasswd.description#
dspodbpasswd=dpasswd
### #property.DSRepoDBPort.description#
dspodbdport=1433
### #property.DSRepoDBType.description#
dspodbtype=Microsoft_SQL_Server
### #property.DSRepoDBUser.description#
dspodbuser=dbuser
### #property.DSRepoNameForCMS.description#
dspopnameforcms=shared_new
### #property.DSRepoOracleConnStr.description#
dspooracleconnstr=
### #property.DSRepoOracleRAC.description#
dspooraclerac=No
### #property.DSRepoOracleSID.description#
dspooraclesid=
### #property.DSRepoSelection.description#
dsposelection=existing
### #property.DSRepoWindowsAuth.description#
dspowindowsauth=0
### JMX connector
dsvdsjmxport=8899
### Viewdata service port
dsvdsport=9988
### Installation folder for SAP products
installation=/opt/sap/sap_bobj/
### Keycode for the product.
productkey=XXXXX-XXXXXXX-XXXXXXX-XXXX
### Name of company registered for this product.
registeredcompany=Company Name
### Name of user registered for this product.
registereduser=UserName
### #property.SelectedLanguagePack.description#
selectedlanguagepacks=en
### *** property.SetupUILanguage.description ***
setupuilanguage=en
### Available features
### ------------------
### root
### DataServicesServer
DataServicesJobServer
DataServicesAccessServer
DataServicesClient
DataServicesDesigner
DataServicesManagementConsole
DataServicesEIMServices
DataServicesRFCService
DataServicesAdminService
DataServicesMetadataService
DataServicesViewdataService
DataServicesMessageClient
TextDataProcessingLanguages
TextDataProcessingArabic
TextDataProcessingBokmal
TextDataProcessingCatalan
TextDataProcessingCroatian
TextDataProcessingCzech
TextDataProcessingDanish
TextDataProcessingDutch
TextDataProcessingFarsi
TextDataProcessingFrench
TextDataProcessingGerman
TextDataProcessingGreek
TextDataProcessingHebrew
TextDataProcessingHungarian
TextDataProcessingItalian
TextDataProcessingJapanese
TextDataProcessingKorean
TextDataProcessingNynorsk
TextDataProcessingPolish
TextDataProcessingPortuguese
TextDataProcessingRomanian
TextDataProcessingRussian
TextDataProcessingSerbian
TextDataProcessingSlovak
TextDataProcessingSlovenian
TextDataProcessingSpanish
TextDataProcessingSwedish
TextDataProcessingThai
TextDataProcessingTChinese
TextDataProcessingTurkish
DataServicesDataDirect
DataServicesDocumentation

Installation Guide for UNIX

Installation
5  Post-Installation

There are several tasks that you perform after the installation program has finished.

When the installation is complete, review the information in the post installation steps screen. If you are not using the bundled Tomcat web application server, you must deploy web applications with the WDeploy web application deployment tool.

During installation, you have the option to create a single repository that will be registered in the CMC, a single Job Server, and a single Access Server. For more complex configurations, or if you need to make changes, you need to perform additional configuration steps such as creating users and groups, registering repositories in the CMC, and configuring Job and Access Servers.

For your reference, the installer saves a copy of the post installation instructions in the following location:

<DS_COMMON_DIR>/log/PostInstallationInstructions.txt

5.1  Re-enabling SSL on the Central Management Server (CMS)

If you use the SSL protocol on your Central Management Server (CMS), and disabled it prior to installing Data Services, re-enable it, if needed.

For more information about enabling the SSL protocol, read about configuring servers for SSL in the Administrator guide for the platform you are using:

- Information platform services Administrator Guide
- Business Intelligence Platform Administrator Guide

5.2  Configuring JDBC drivers for SAP HANA, Oracle, and MySQL

If you are using an SAP HANA, Oracle, or MySQL database as a Data Services repository, source, or target and did not configure the JDBC driver during installation, you must manually copy your JDBC driver to the locations required by Data Services.

1. Download the JDBC driver for your database to a location on the Data Services host system.
2. Copy the JDBC driver to all locations required by Data Services.
   - For the SAP HANA database:
     - <LINK_DIR>/ext/lib
     - <BIP_INSTALL_DIR>/java/lib/bundles
3. Refresh the JDBC configuration.
   ○ If you are using Data Quality reports, use WDeploy to re-deploy all Data Services web applications to your application server with the new JDBC driver configuration.
   ○ If you are not using Data Quality reports, use the Central Management Console (CMC) to restart the EIM Adaptive Processing Server.
     For more information about restarting services in the CMC, see the SAP BusinessObjects BI Platform Administrator Guide or the SAP BusinessObjects Information platform services Administrator Guide.

Related Information

WDeploy [page 78]

5.3 Configuring repositories

Before you can use the Data Services system, you need to configure repositories and register them in the Central Management Console (CMC).

In general, the process to configure a Data Services repository is:

1. Create a database for the repository on your database server.
2. Create the repository in the database with the Repository Manager.
3. Log into the CMC.
4. Register the repository in the CMC with the Data Services application.
5. Assign user access to the repository with the Data Services application.

For more information about creating and configuring repositories, see the Administrator Guide.

5.4 Configuring users and groups

Before you can use the Data Services system, you need to configure users and groups in the Central Management Console (CMC).

In general, the process to configure Data Services users and groups is:
1. Log into the CMC. To create and modify user accounts, you must log in as a user with administrative access.
2. Create user accounts and assign them to Data Services user groups with the Users and Groups application.
3. Assign repository access to your users and groups with the Data Services application.

For more information about configuring users and groups for Data Services, see the Administrator Guide.

5.5 Configuring Job and Access Servers

If you did not configure them during installation, you need to use the Server Manager to configure Job Servers for batch jobs and Access Servers for real-time applications before you can use the Data Services system.

In general, the process to configure Data Services Job Servers and Access Servers is:

1. Add and configure Job Servers with the Server Manager.
   a. Add the Job Server configuration.
   b. Associate local and profiler repositories with the Job Server.
2. Add and configure Access Servers with the Server Manager.
3. Restart the Data Services service and verify that the Job and Access Servers are running.

For more information about using the Server Manager to configure Job and Access Servers, see the Administrator Guide.

5.6 Configuring profiler repository connectivity

For the Designer to connect to a profiler repository, you can configure either of the following connection types:
- Server name (also known as DSN-less or TNS-less) connections
- DSN or TNS connections

To use DSN-less and TNS-less connections:
1. Login to the Central Management Console (CMC) and register the local repository and select the repository connection type on the Data Services Repository Properties screen:
   ○ For an Oracle database, select No in the drop-down list for Use TNS name.
   ○ For a DB2, MySQL, or SAP HANA database, select No in the drop-down list for Use data source name (DSN).
2. Register the profiler repository and select the connection type to also TNS-less or DSN-less.
3. Configure the ODBC driver for the database type.
   ○ For Windows, use the ODBC Driver Selector. For details, see “Using the Windows ODBC Driver” in the Administrator Guide.
   ○ For UNIX, use the Connection Manager. For details, see “Using the Connection Manager for UNIX systems” in the Administrator Guide.

For DSN or TNS connections, the database connectivity settings on all host machines in the Data Services deployment must match. Without matching connectivity settings, the results of profiling tasks will not be visible.
from within the Designer. Ensure that the same profiler database connectivity settings are used on each host machine.

**Example**

**MySQL repository**

In this example, the profiler repository is a MySQL database running on a separate host machine from the Designer. The Job Server is configured on the same host machine as the MySQL database, and all its connectivity settings to the database are configured on that host machine. For example, the DSN information.

When the Designer submits a profiler task to the Job Server, the Job Server has the information required to connect to the profiler repository and the profiler request is processed successfully.

If the Designer then tries to view the profiled data, it attempts to connect to the profiler repository directly and not through the profiler server. If connectivity to the profiler database is not configured on the Designer host machine, the results of the profiling task will not be visible.

However, if the same DSN and connectivity settings are already configured on the Designer host machine, the results of the profiling task are visible as expected.

5.7  Deploying web applications

The Data Services installation program only automatically deploys web applications to the application server bundled with the BI platform.

If the installation program did not automatically deploy web applications to your web application server, you must deploy them manually with the WDeploy tool, or with the web application server administrative console. The WDeploy tool automates the deployment of web applications to supported web application servers.

If you have not previously deployed the Data Services web applications to this application server, you must undeploy and redeploy all SAP web applications.

To use the WDeploy GUI to undeploy and redeploy the web applications:

1. Start the WDeploy GUI.
   ```bash
   ./wdeployGUI.sh
   ```
2. Specify your application server type and enter any configuration information required for your application server type.
3. Undeploy all SAP web applications.
4. Deploy all SAP web applications.

**Note**

If the BI platform web applications have previously been deployed on the web application server, the deployment operation may take several minutes.

You can also use the `undeployall` and `deployall` commands to deploy the web applications from the command line.

```bash
./wdeploy.sh <server_type> undeployall -Das_admin_password=<password>
```
.%/wdeploy.sh <server_type> deployall -Das_admin_password=<password>

For more information about the server types and more advanced options available in WDeploy, such as deploying only a single web application, see “Additional Information, WDeploy”.

Related Information

WDeploy [page 78]

5.8 Connecting to Hadoop

Data Services can connect to Apache Hadoop frameworks, including HDFS and Hive sources and targets. Data Services must be installed on Linux in order to work with Hadoop.

Data Services also supports Hadoop on the Windows platform (Hortonworks HDP 2.2.6 only).

For information about deploying SAP Data Services on a Hadoop MapR cluster machine, see SAP Note 2404486.

For more information, see the "Hadoop" section in the Reference Guide.

5.9 Troubleshooting installation problems

Errors that prevent installation progress (for example, an incorrect server name, user name, or password) result in an immediate error message describing the problem.

For some common issues, such as the service scheduler failing to launch SAP Data Services, reboot the host system after installation has finished.

5.9.1 Repository problems

Common repository-related installation errors include:

- The DBMS connection was lost while building the repository tables. If this happens, recreate the repository with the Repository Manager.
- There is not enough space available in the database for the repository tables. If this happens, use your DBMS administration tools to allocate more space for the repository and run the Repository Manager.

If you experience problems when upgrading or creating a repository, you can select the Show Details check box before you click Update or Create again. This option allows you to view the SQL code that SAP Data Services uses to perform these operations. The Show Details option can help you diagnose problems.

For more information about the Repository Manager, see the Administrator Guide.
5.9.2 Windows and UNIX issues

There are several small (and easily resolved) installation issues that can occur when you install Data Services on Windows or UNIX/Linux.

5.9.2.1 File or application in use

Windows 7 or Windows Server 2008.

When you install or uninstall SAP Data Services on Windows 7 or Windows Server 2008, you may receive messages about files in use or applications that should be closed. You can safely ignore these messages and continue to install or uninstall the software.

Ignoring these messages has no impact on the installation or behavior of the software.

5.9.2.2 Update to file access rights failed

Windows 7 or Windows Server 2008.

When you install Data Services on Windows 7, or Windows Server 2008, you may receive this warning if the installation setup program is unable to set file access rights.

To manually update the file access rights, you can use the `grantFileAccess.bat` batch file. This batch file is installed to the `<LINK_DIR>/bin` folder and takes one parameter as input, the software's common configuration directory (`<DS_COMMON_DIR>`).

For example, on Windows Server 2008:

```bash
grantFileAccess.bat "C:\ProgramData\SAP BusinessObjects\Data Services"
```

If the path contains spaces, you must enclose it in double quotes.

5.9.2.3 Windows 2012 Datacenter error

Error: SAP Data Services Designer - Cannot open trace file.

When you log in to Microsoft Window Server 2012 Datacenter as Power User, you cannot run Designer as Power User or Run as Administrator. To correct this issue, you must set the `\ProgramData` folder to shared:

1. In Explorer, locate and right click the `C:\ProgramData` folder.
2. Select `Share with > Specific people`.
3. Select `Everyone` or the specific users that should have access to the folder and click `Add`.
4. Set the `Permission Level` for each user to `Read/Write` and click `Share`.
5.9.2.4 The xml mapping file can not be found or loaded

Applicable when you install Data Services 4.0 Service Pack 2 on top of Data Services 4.0 (and Service Pack 1 is not installed).

When you install Data Services under this circumstance, you might get an error message telling you that the installer could not find or load the xml mapping file.

To resolve this issue, run a Repair installation:

1. Close all Data Services applications (for example, Designer, License Manager, and so on) in all user sessions.
2. End all Data Services jobs that are currently running.
3. Log off all user sessions that are logged into the machine (for example, remote desktop connections). To view a list of users that are logged into a machine, go to the Task Manager window and click the Users tab.
4. Go to Start > Control Panel > Programs and Features.
5. Right-click on the current version of SAP Data Services and click Uninstall/Change and select Repair.

5.9.2.5 An OCX file is missing or you can't register it

Applicable when you install Data Services 4.0 Service Pack 2 on top of Data Services 4.0 (and Service Pack 1 is not installed).

When you install Data Services under this circumstance, you might get an error message telling you that the VSFLEX8N.OCX or BODIFFCTRL.OCX file is missing or that you do not have the required privileges to register the file.

To resolve this issue, use the REGSVR32.EXE utility to register the file:

1. Right-click on the Command Prompt icon and select Run as Administrator.
2. Enter one of the following commands:
   ○ regsvr32.exe "%LINK_DIR%\bin\BODIFFCTRL.OCX"
   ○ regsvr32.exe "%LINK_DIR%\system32\VSFLEX8N.OCX"

5.9.2.6 Installation is slow

Applicable for Data Services 4.2 Service Pack 2 and Data Services 4.2 Service Pack 2 Patch 1.

When you install Data Services under this circumstance, on a machine with BOE or IPS, make sure that you enter your CMS logon information during installation. If you don't, the installation process may take longer than normal to run.

This can happen in the following installation scenarios:

- New installation of SAP Data Services 4.0 SP2
- Update install from previous versions to SAP Data Services 4.0 SP2
- Update install from SAP Data Services 4.0 SP2 to SAP Data Services 4.0 SP2 Patch1
5.9.2.7 Failure in CMS connection when installing from UNC path

Applicable when you launch Data Services setup executable from the UNC path `\machinename\..\..\..\..`.

A failure might occur in the CMS connection screen when you launch the Data Services setup executable from the UNC path (`\machinename\..\..\..\..`). This happens because the CLASSPATH path exceeds the operating system limitation.

To resolve the issue, copy the install package to a local file system, or map to a local drive, and launch the package from a local file system or mapped local drive.

5.9.2.8 Can't add or remove keycodes in License Manager

When using License Manager, you may not have the necessary permissions to add or remove keycodes from the Windows registry.

**Note**

Having the UAC (User Access Control) option enabled may limit access to the registry.

To resolve this issue, launch the License Manager as an administrator (right-click on the License Manager icon and select Run as administrator) before trying to add or remove keycodes.

5.9.2.9 Trouble with update install

You might get an error while performing an Update installation while you have SAP Data Services applications open in a current user session or in other user session.

As a result, Data Services applications may not launch correctly or you might get an error telling you that you have missing files.

To resolve this issue, you must run a Repair installation by doing the following:

1. Close all Data Services applications (for example, Designer, License Manager, and so on) in all user sessions.
2. End all Data Services jobs that are currently running.
3. Log off all user sessions that are logged into the machine (for example, remote desktop connections). To view a list of users that are logged into a machine, go to the Task Manager window and click the Users tab.
4. Go to Start > Control Panel > Programs and Features.
5. Right-click on the current version of Data Services and click Uninstall/Change and select Repair.
5.9.2.10 Trouble with modify install

Features are not enabled or installed.

In the Maintenance Installation window, the feature tree selections may not be correct or a feature may show as already installed when doing the following:

1. Go to Start \ Control Panel \ Programs and Features
2. Right-click on the current version of Data Services and click Uninstall/Change and select Repair.
3. Click Next and then click Back.
4. Click Modify and then click Next.

If you proceed with the incorrect selections, all unselected features (if previously installed) will be uninstalled and only the current features shown as selected will be kept or installed.

To resolve this issue, do the following:

1. Click Cancel and then Exit Setup to exit the current maintenance installation window.
2. Re-launch the maintenance installation.
3. Click Modify and then click Next. This refreshes the feature tree selections and correctly displays the installed features as checked.
4. Run a Modify installation by adding or removing features as needed.

5.9.2.11 Requirement to launch Install IPS executable

The Install IPS executable is generated by Visual Studio 2005, and therefore, it has a dependency on Microsoft Visual C++ 2005 Redistributable Package.

Because of this dependency, you may have a problem launching the installIPS.exe program.

Before you launch the Install IPS program, follow these steps:

1. Download and install vcredist_x64.exe on your system. vcredist_x64.exe is a redistributable library from Microsoft. Get it from the Microsoft website or from the Data Services Deployment Unit at <top package level>\dunit\tp.microsoft.vcredist-8.0-core-64\actions.
2. Double-click on InstallIPS.exe to launch the package.


5.9.2.12 Missing Data Services icon on the CMC

Applicable If the Data Services icon is missing in the Central Management Console (CMC).

Some users have noticed that the Data Services icon is missing in their CMC. This can happen if there are trailing spaces in the CMC name in the installer. You can fix this by opening the installer and removing the trailing spaces from the CMS name.
5.9.2.13 Cleansing Package installation tips

There was a change in how you install the Cleansing Package files that Data Services needs.

Previously, you had to load the predefined shipped cleansing packages into the Data Services repository to install them. Currently, the cleansing package files are installed by the SAP Data Quality Management Cleansing Packages installer. These cleansing packages are stored in the Information platform services or Business Intelligence platform as InfoObjects.

**Note**

You need to point to your IPS instance during the cleansing package installation.

Follow the steps below to verify that you have the cleansing packages installed correctly:

1. Open the Data Cleanse transform within Data Services.
2. In the Transform Configuration Editor window, click the Option tab.
3. Expand the Cleansing Package option and make sure the desired cleansing packages are available.

5.9.2.14 Special character(s) in install path

If there are special characters in the installation path for Data Services, the installation pre-requisite checks will fail.

For example, the special characters in D:\[install]\ (the brackets) will cause a check to fail.

Remove special characters from path names to resolve this issue.

5.9.2.15 Incorrect message displayed for UNIX installation

An incorrect message may appear at the end of a UNIX installation.

The message displayed at the end of a UNIX install or uninstall may be incorrect. Make sure that you press press Enter at the end, even if the message says to click Finish.

5.9.2.16 Error Linux/UNIX install directory on NSF file system

Run Data Services UNIX/Linux installation on a physical drive.

If you install Data Services in UNIX/Linux into a Network Shared Folder (NFS) file system, you may see an error. Resolve the error, and get better run-time performance by installing Data Services on a physical drive for UNIX/Linux.
5.10 Making changes to your Data Services system

5.10.1 Removing SAP Data Services

These instructions describe the process to permanently uninstall Data Services from a host system.

**Note**

The Data Services installation program will only remove the SAP-supplied person and firm cleansing package if it has not been modified. If the cleansing package has been modified, you must delete it manually using the Central Management Console (CMC).

It is recommended that you back up the CMS database and your repository databases before uninstalling Data Services.

1. Change directory to `<INSTALL_DIR>`.
2. Run the command `./modifyOrRemoveProducts.sh` to start the removal program.

Log files, configuration files for web applications, and web applications will not be removed by the removal program. Any remaining folders can be removed manually with the `rm -R <DIR>` command.

The software has been removed from the host system.

5.10.2 Running a silent uninstallation

A silent mode installation is a command-line installation that does not prompt for installation options. Installation options must be provided on the command-line or in a response file. Any installation options not provided on the command-line or in a response file will be left at their default values.

**Note**

The Data Services installation program will only remove the SAP-supplied person and firm cleansing package if it has not been modified. If the cleansing package has been modified, you must delete it manually using the Central Management Console (CMC).

It is recommended that you back up the CMS database and your repository databases before uninstalling Data Services.

To run a silent uninstallation:

1. Change to the directory containing the `setup.sh` installation program.
2. To create a response file that will be used to run the uninstallation, run the command `./setup.sh -w <response file path>/<response file name>` (for example, `InstallDir=/opt/sap/sap_bobj/`).

   Data Services will go into maintenance mode.
3. Select Remove from the menu and follow the options included in the wizard.
4. Open the response file and change the password from `<*****>` to your Data Services password.
5. Run the command `./setup.sh -r <response file path> <response file name>` (for example, `InstallDir=/opt/sap/sap_bobj/`).
5.10.3 Installing new or additional features (Linux)

New or additional features can be installed from a fresh installation by selecting any additional features from the installer Select Feature window. If you upgrade an existing installation, you must run the Modify Installation script to add (or remove) new features as applicable.

After upgrading the application:

1. Change directory to `<INSTALL_DIR>`.
2. Run the command `./modifyOrRemoveProducts.sh` to start the modify program.
3. Enter the password for the Central Management Server (CMS) administrator user, and then press Enter.
4. Select any features you want to install, and then press Enter.
6 Additional Information

6.1 Directory data

To correct addresses and assign codes with SAP Data Services, the Global Address Cleanse, USA Regulatory Address Cleanse, and Geocoder transforms rely on directories, or databases. When transforms use the directories, it’s similar to the way that you use the telephone directory. A telephone directory is a large table in which you look up something you know—someone’s name—and locate something that you don’t know—their phone number.

6.1.1 Directory listing and update schedule

For detailed information about directories, see the latest directories update on the SAP Help Portal. Open http://help.sap.com/bods, select Additional Information, and scroll down to Addressing Directories. Open the documentation link for Help Portal Analytics Knowledge Center.

For more information about the directory release schedule, see SAP Knowlege Base Article 2281775.

Table 28: All World
Lastline data for over 200 countries.

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR ALL WORLD</td>
<td>ga_all_world_gen.dir</td>
<td>2.95 GB</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

Table 29: Australia

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR AUSTRALIA</td>
<td>ga_au_paf.dir</td>
<td>4.11 GB</td>
<td>Monthly</td>
</tr>
</tbody>
</table>
### Table 30: Canada

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR CANADA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>POC address data:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canadapoc.dir</td>
<td></td>
<td>131 MB</td>
<td>Monthly</td>
</tr>
<tr>
<td>● cancitypoc.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canfsapoc.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canpcipoc.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canpcm.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-POC address data:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canada.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● cancity.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canfsa.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● canpci.dir</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 31: Geocoder

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP GEOPARC AUSTRALIA - HERE</td>
<td>geo_au_nt.dir</td>
<td>6.1 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>(Parcel)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAP GEO DIR CANADA - HERE</td>
<td>geo_ca_nt.dir</td>
<td>5.0 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR FRANCE - HERE</td>
<td>geo_fr_nt.dir</td>
<td>9.4 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR GERMANY - HERE</td>
<td>geo_de_nt.dir</td>
<td>5.6 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR SWITZERLAND - HERE</td>
<td>geo_ch_nt.dir</td>
<td>881 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR UK - HERE</td>
<td>geo_gb_nt.dir</td>
<td>2.5 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR US - HERE</td>
<td>AdvancedGeoFeatures.ZIP</td>
<td>22.05 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>geo_us_nt.dir</td>
<td>544 KB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>basic_geo_us_nt.dir</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ageo*.dir</td>
<td>3.2 GB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cgeo2.dir</td>
<td>793 MB</td>
<td></td>
</tr>
<tr>
<td>Package name</td>
<td>Directory filename</td>
<td>Approximate size</td>
<td>Updated</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>SAP GEO PARCEL US - HERE</td>
<td>AdvancedGeoFeatures. ZIP</td>
<td>22 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td></td>
<td>geo_us_nt.dir</td>
<td>544 KB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ageo*.dir</td>
<td>3.2 GB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ageo*_pt.dir</td>
<td>2.85 GB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cgeo2.dir</td>
<td>793 MB</td>
<td></td>
</tr>
<tr>
<td>SAP ADDR GEO US - TOMTOM</td>
<td>ageo*.dir</td>
<td>5.26 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>(Address-Level GeoCensus)</td>
<td>geo_us_nt.dir</td>
<td>544 KB</td>
<td></td>
</tr>
<tr>
<td>SAP CENT GEO US - TOMTOM</td>
<td>cgeo2.dir</td>
<td>793 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>(Centroid-Level GeoCensus)</td>
<td>geo_us_nt.dir</td>
<td>129 GB</td>
<td></td>
</tr>
<tr>
<td>SAP GEO DIR AUSTRIA - TOMTOM</td>
<td>geo_at_tt.dir</td>
<td>7.08 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR BELGIUM - TOMTOM</td>
<td>geo_be_tt.dir</td>
<td>1.13 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR DENMARK - TOMTOM</td>
<td>geo_dk_tt.dir</td>
<td>955 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR ESTONIA - TOMTOM</td>
<td>geo_ee_tt.dir</td>
<td>7.9 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR FINLAND - TOMTOM</td>
<td>geo_fi_tt.dir</td>
<td>1.4 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR ITALY - TOMTOM</td>
<td>geo_it_tt.dir</td>
<td>6.4 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR LIECHTENSTEIN - TOMTOM</td>
<td>geo_li_tt.dir</td>
<td>6.27 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR LITHUANIA - TOMTOM</td>
<td>geo_lt_tt.dir</td>
<td>1.77 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR LUXEMBOURG - TOMTOM</td>
<td>geo.lu_tt.dir</td>
<td>70 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR NETHERLANDS - TOMTOM</td>
<td>geo_nl_tt.dir</td>
<td>1.7 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR NORWAY - TOMTOM</td>
<td>geo_no_tt.dir</td>
<td>9.85 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR POLAND - TOMTOM</td>
<td>geo_pl_tt.dir</td>
<td>2 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Package name</td>
<td>Directory filename</td>
<td>Approximate size</td>
<td>Updated</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>--------------------</td>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>SAP GEO DIR PORTUGAL - TOMTOM</td>
<td>geo_pt_tt.dir</td>
<td>1.2 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR SPAIN (PARC) - TOMTOM</td>
<td>geo_es_tt.dir</td>
<td>7.9 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR SWEDEN - TOMTOM</td>
<td>geo_se.tt.dir</td>
<td>1.4 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR TURKEY - TOMTOM</td>
<td>geo_tr.tt.dir</td>
<td>2.5 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP GEO DIR US (PARC) - TOMTOM</td>
<td>Contains 11 files:</td>
<td></td>
<td>Quarterl</td>
</tr>
<tr>
<td></td>
<td>● ageol_pt.dir to</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>● geo_us_nt.dir</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.4 GB</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

Table 32: International

**Note**
You will receive files only for those countries that your company has purchased.
<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR LITHUANIA</td>
<td>ga_lt_paf.dir</td>
<td>166 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR LUXEMBURG</td>
<td>ga_lu_paf.dir</td>
<td>11.3 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR MEXICO</td>
<td>ga_mx_paf.dir</td>
<td>1.59 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR NEW ZEALAND</td>
<td>ga_nz_paf.dir</td>
<td>926 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR NORWAY</td>
<td>ga_no_paf.dir</td>
<td>78 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR POLAND</td>
<td>ga_pl_paf.dir</td>
<td>278 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR PORTUGAL</td>
<td>ga_pt_paf.dir</td>
<td>335 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR RUSSIA</td>
<td>ga_ru_paf.dir</td>
<td>1.05 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR SLOVAKIA</td>
<td>ga_sk_paf.dir</td>
<td>11.3 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR SOUTH KOREA</td>
<td>ga_kr_paf.dir</td>
<td>8 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR SPAIN</td>
<td>ga_es_paf.dir</td>
<td>1.04 GB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR SWEDEN</td>
<td>ga_se_paf.dir</td>
<td>489 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR SWITZERLAND</td>
<td>ga_ch_paf.dir</td>
<td>491 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR TURKEY</td>
<td>ga_tr_paf.dir</td>
<td>506 MB</td>
<td>Quarterly</td>
</tr>
<tr>
<td>SAP ADDR DIR UNITED KINGDOM</td>
<td>ga_gb_paf.dir</td>
<td>11.2 GB</td>
<td>Quarterly</td>
</tr>
</tbody>
</table>

Table 33: Netherlands

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR NETHERLANDS</td>
<td>ga_nl_paf.dir</td>
<td>379 MB</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

Table 34: U.S.

For more information about the U.S. directory release schedule, see SAP Knowleage Base Article [1639407](#).

<table>
<thead>
<tr>
<th>Package name</th>
<th>Directory filename</th>
<th>Approximate size</th>
<th>Updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP ADDR DIR US</td>
<td>ZIP4:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(US National ZIP+4 and eLOT 2009 - Current formats)</td>
<td>cityxx.dir</td>
<td>1.7 MB</td>
<td>Monthly</td>
</tr>
<tr>
<td></td>
<td>revzip4.dir</td>
<td>1 MB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zcfxx.dir</td>
<td>2.1 MB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zip4us.dir</td>
<td>755 MB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zip4us.rev</td>
<td>95 MB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>zip4us.shs</td>
<td>4 MB</td>
<td></td>
</tr>
</tbody>
</table>
### 6.1.2 Directory summary report

The directory summary report provides information about the contents of the directories. The report is included in the directory package, if available, and has the file name `dir_summary_report_<mmmyy>.html`.

### 6.1.3 U.S. directory expiration

We publish and distribute the ZIP4 and supporting directory files under a non-exclusive license from the USPS. The USPS requires that our software disables itself when a user attempts to use expired directories.

If you do not install new directories as you receive them, the software issues a warning in the log files when the directories are due to expire within 30 days. To ensure that your projects are based on up-to-date directory data, it's recommended that you heed the warning and install the latest directories.

**Note**

Incompatible or out-of-date directories can render the software unusable. The directories are lookup files used by SAP software. The system administrator must install monthly or bimonthly directory updates to ensure that they are compatible with the current software.
Expiration schedule

You can choose to receive updated U.S. national directories on a monthly or bimonthly basis. Bimonthly updates are distributed during the even months. Directory expiration guidelines are:

- ZIP4 and Auxiliary, DPV, eLOT, and Z4Change Directories expire on the first day of the fourth month after directory creation. When running in non-certified mode, ZIP4 and Auxiliary, DPV, eLOT, and Z4Change directories expire on the first day of the fourteenth month after directory creation.
- LACSLink directories expire 105 days after directory creation.
- SuiteLink directories expire on the first day of the third month after directory creation.

6.1.3.1 U.S. National and Auxiliary files

The U.S. National and Auxiliary file self-extracting files are named as follows.

Table 35:

<table>
<thead>
<tr>
<th>Directory name</th>
<th>Zip file name</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Address-level GeoCensus</td>
<td>us_ageo1_2.exe</td>
</tr>
<tr>
<td></td>
<td>us_ageo3_4.exe</td>
</tr>
<tr>
<td></td>
<td>us_ageo5_6.exe</td>
</tr>
<tr>
<td></td>
<td>us_ageo7_8.exe</td>
</tr>
<tr>
<td></td>
<td>us_ageo9_10.exe</td>
</tr>
<tr>
<td>U.S. Centroid-level GeoCensus</td>
<td>us_cgeo.exe</td>
</tr>
<tr>
<td></td>
<td>us_cgeo1.exe</td>
</tr>
<tr>
<td></td>
<td>us_cgeo2.exe</td>
</tr>
</tbody>
</table>

Related Information

Unzipping directory files [page 75]

6.1.4 International directory expiration

Incompatible or out-of-date directories can render the software unusable. The directories are lookup files used by SAP software. The system administrator must install monthly or quarterly directory updates to ensure that they are compatible with the current software.
Expiration schedule

Table 36:

<table>
<thead>
<tr>
<th>Directory</th>
<th>Directory access regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>In certified mode, the directories expire 3 months after the directory creation date. In non-certified mode, the directories expire 15 months after the directory creation date.</td>
</tr>
<tr>
<td>Canada</td>
<td>In certified mode, the POC directories are valid for 30 days. In order to qualify for the mailing discount, users must run the software with the same-month POC address directory. The POC address data can only be used in certified mode. In non-certified mode, the regular address directories do not expire.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>In certified mode, the directories expire 6 months after the directory creation date. In non-certified mode, directory expiration is not enforced.</td>
</tr>
<tr>
<td>International</td>
<td>Directory files do not expire.</td>
</tr>
</tbody>
</table>

6.1.5 Where to copy directories

We recommend that you install the directory files in a common file system directory local to the host system on which SAP Data Services is installed. By default, the software looks for directories in `<DS_COMMON_DIR>/DataQuality/reference_data`. If you place your directories in a different location, you must update your substitution file.

**Note**

If you use both HERE (formerly NAVTEQ) and TomTom directories, make sure that you install them in separate locations.

6.1.5.1 Copying international directory files to a non-default location

If you use the Global Address Cleanse transform’s Global Address engine or Global Suggestion Lists’ Global Address engine and store your data directories in a location other than the default (`<DS/Common_DIR>/DataQuality/reference_data`), do the following:

1. Stop any data flows that use the Global Address engine or Global Suggestion Lists.
2. Copy the following files from `<DS_COMMON_DIR>/DataQuality/reference_data` to the location where you store your data directories:
   - `ga_directory_db.xml`
   - `ga_country.dir`
Note
Every time you install an SAP Data Services software update, copy the reference files from the default location to where you store your directories.

Note
Copy the reference files over to the location where you store your data directories before you install the new directories.

3. Update the RefFilesAddressCleanse substitution parameter configuration to the new reference directory location.

6.1.6 Installing and setting up SAP Download Manager

Before you can download directory files, you need to install and set up SAP Download Manager.

To install and set up SAP Download Manager:
1. Access the SAP Service Marketplace (SMP): http://service.sap.com/bosap-support
2. Select Downloads.
3. Select Download Basket.
4. Click the Get Download Manager button.
5. Follow the steps to install and set up the SAP Download Manager.

6.1.7 Downloading directory files

The address and geocoding directories are available for download from the SAP ONE Support Launchpad on the SAP Support Portal.

To download directories:
2. Select Address Directories & Reference Data > Address Directories.
3. On the Address Directories & Reference Data page, select Current Directories.
   The list of directories licensed to your company is displayed.
4. Click the check box to the left of the directory name(s) that you want to download. To select all directories, click the check box to the left of the Name heading.
5. Click the Add Selected Items to Download Basket icon. The selected files are placed in the Download Basket.
6. Run the Download Manager to start the download process.

6.1.8 Unzipping directory files

1. Locate the `<filename>.zip` that you want to unzip.
2. Type `unzip -d <outputfolder> <filename>.zip`.
3. Repeat for each required file.

6.2 High-availability support

If you run SAP Data Services on AIX and you have High Availability Clustered Multi-Processing (HACMP) software version 4.4.0, use HACMP software to minimize downtime of your system. The software includes start and stop scripts that support HACMP software.

About HACMP software

HACMP software makes applications and software systems highly available, restoring essential services when a system component or application fails. To support HACMP software, you replicate software and hardware systems to guarantee backup of essential services. Within HACMP software, you define each complete system as a resource group. When a component fails in a resource group, HACMP software quickly restores essential services by starting the failed system on an alternate computer, called a node, or group of networked computers, called a cluster.

To use HACMP software to make a system highly available:

1. Define the system as a resource group (a logical group that the HACMP software and AIX operating system manages).
2. Install the necessary components to support the system on duplicate hardware systems, creating clusters or nodes that can support identical services that the system processes.
3. Define takeover relationships that determine which cluster or node supports the resource group at any given time. There are three types of takeover relationships:

   - **Cascading**: Clusters are listed along with a priority rank. Control of the resource group goes to the active cluster with the highest priority ranking. Control can change due to failure or to the reactivation of a cluster with a higher priority rank.
   - **Rotating**: Clusters are listed along with a priority rank. Control of the resource group goes to the active cluster with the highest priority ranking. Control only changes due to the failure of a cluster.
   - **Concurrent**: Multiple clusters support the resource group at the same time.
6.2.1 Using the software with HACMP

SAP Data Services contains start and stop scripts that support HACMP software. These scripts run when a new cluster takes control of the software resource group. The start script:

- Identifies jobs scheduled before the previous cluster failed and launches those jobs in recovery mode
- Identifies jobs scheduled to start during cluster down time and launches those jobs
- Synchronizes the cron file on the new cluster with the cron file on the previous cluster

When using the software with HACMP, you should be aware of several requirements and restrictions:

- There can be no single point of failure, or the additional availability provided by HACMP is compromised.
- You must use the same user ID on all clusters where you install the software.
- The database systems that support jobs—the repository, sources, and targets—must also be highly available.
- You cannot use a concurrent takeover relationship for the software resource group.
- You can use HACMP only with batch jobs.
- You must enable automatic recovery for all scheduled jobs.
- You must also enable the recurrent option for all scheduled jobs.

6.2.1.1 Using the software with HACMP

1. Install the Job Server on a file system in the shared volume group from a single cluster node.
2. On each cluster node, define the same mount point for the file system. SAP Data Services and its configuration is made available for the rest of the cluster nodes.
3. Copy the start and stop scripts (acta_start.sh and acta_stop.sh) from the <LINK_DIR>/hacmp directory to the HACMP scripts directory on each of the cluster nodes.
4. In the HACMP software:
   a. Define the software as a resource group (a logical group that the HACMP software and AIX operating system manages).
   b. Define takeover relationships that determine which cluster or node supports the software resource group at any given time.
   c. Designate the start and stop scripts as the start and stop scripts for the software resource group.

5. Configure the software to use HACMP.

6.2.1.2 Configuring the software to use HACMP

1. Run the Server Manager.

   $ cd $LINK_DIR/bin/
   $ . ./al_env.sh
   $ ./svrcfg

   ** Note 
   The second command sets required environment variables before ./svrcfg starts the Server Manager.

   The Server Manager main screen appears.

2. Enter 1 and stop the Job Service.

3. Enter 7 to configure HACMP.

   The HACMP configuration screen appears.

   ** Current HACMP Configuration for Data Services Resource Group **
   -----------------------------------------------
   Service IP Label                    Domain Name
   ----------------                    -----------
   aixserver1                        
   -----------------------------------------------

   e: Edit Configuration     y: Re-sync all repos     q: Quit

4. Configure HACMP.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E</strong></td>
<td>Specifies the Service IP Label used while configuring the SAP Data Services resource group.</td>
</tr>
<tr>
<td></td>
<td>When you finish configuration, the software resynchronizes all repositories with the current Service IP Label and domain name. This means:</td>
</tr>
<tr>
<td></td>
<td>○ The Job Service must be stopped prior to editing the configuration.</td>
</tr>
<tr>
<td></td>
<td>○ You must re-add repository connections to the Management Console, reconfigure real-time services and adapters, and reschedule batch jobs.</td>
</tr>
<tr>
<td><strong>Y</strong></td>
<td>Manually resynchronizes all repositories.</td>
</tr>
<tr>
<td>Command</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>Resynchronizing all repositories is not required unless you see an error message after editing the configuration. For example, a repository might not get updated to use the configured Service IP Label if the associated database is unavailable. After correcting the problem, you can use this option to resynchronize the repository.</td>
</tr>
</tbody>
</table>

5. Enter `q` and then `x` to exit the Server Manager.

## 6.3 WDeploy

WDeploy is installed as a part of SAP BusinessObjects Enterprise to aid in the deployment of web applications to Java-based web application servers.

The WDeploy tool provides a graphical method of running the `wdeploy deployall` or `wdeploy undeployall` commands. To perform other deployment operations, such as deploying one web component at a time, use the command-line version of WDeploy.

The WDeploy GUI defaults to an English interface, but prompts the user to choose a language if any language packs are installed and the tool is run for the first time. The following language packs are supported:

- Czech
- Simplified Chinese
- Traditional Chinese
- Danish
- Dutch
- English
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Norwegian Bokmal
- Polish
- Portuguese
- Russian
- Spanish
- Swedish
- Thai
6.3.1 WDeploy prerequisites

Ensure that you know the specific WDeploy prerequisites based on the Web application you choose.

Read about the WDeploy software and hardware prerequisites, and other information in the SAP BusinessObjects Business Intelligence document Web Application Deployment Guide. Find the most recent documentation on our Customer Portal.

To use the WDeploy GUI tool, ensure that the following requirements are met:

- When using WebSphere 6 or WebSphere 7 with a non-default profile name (a profile name that isn’t set to AppSrv01), manually update the as_profile_name parameter in the config.websphereX configuration file before launching the WDeploy GUI tool.
  
  For example:
  1. Update as_profile_name in config.websphereX.
  2. Launch the WDeploy GUI tool.
  3. Select “WebSphere 6” or “WebSphere 7” and provide all parameters.
  4. Perform the deployment.

  For information on giving the profile name with the WDeploy command-line tool, see WebSphere 6 or 7 configuration file.

- Set the JAVA_HOME environment variable to the desired JDK folder. For example, JAVA_HOME may be set to:
  
  `<BIP_INSTALL_DIR>/java`

  Or:
  
  `<BIP_INSTALL_DIR>/<PLATFORM>64_x64/jdk`

- Ensure that the host system has a minimum of 5 GB of free space available in /tmp for the deployment of web applications. You cannot use the TEMP environment variable to define a location other than /tmp.

- Ensure that the web application server host system has at least 15 GB of free hard disk space before attempting to deploy web applications.

- Ensure that the host system has at least 4 GB of RAM. When using SAP NetWeaver AS Java 7.2, ensure that the host system has at least 8 GB of RAM.

- Ensure that the host web application server minimum heap size (-Xms), maximum heap size (-Xmx), and Permanent Generation (-XX:MaxPermSize) settings are configured. For example:

  `JAVA_OPTS=-Xms128m -Xmx1024m -XX:MaxPermSize=512`

  **Note**

  For SAP NetWeaver AS 7.2, ensure that the maximum heap size is at least 2048 megabytes:

  `JAVA_OPTS=-Xms128m -Xmx2048m -XX:MaxPermSize=512`

- Set the PERL_HOME environment variable.
If you do not already have Perl 5.8.9 installed, set PERL_HOME to `<BIP_INSTALL_DIR>/InstallData/setup.engine/perl`.

It is recommended that you use the version of Perl installed with SAP BusinessObjects Enterprise. To use your own version of Perl 5.8.9, ensure that the following modules are also installed:

- **Text::CharWidth**
  
  Gets the number of occupied columns of a string on terminal. For more information, see the CharWidth.pm article at [http://search.cpan.org](http://search.cpan.org).

- **Text::WrapI18N**
  
  Line wrapping module with support for multibyte, fullwidth, and combining characters and languages without whitespaces between words. For more information, see the WrapI18N.pm article at [http://search.cpan.org](http://search.cpan.org).

### 6.3.2 Starting WDeploy

Open the WDeploy graphical user interface (GUI), or start WDeploy using a command line.

When the WDeploy GUI tool is run for the first time, it prompts for which language to use for displaying information in the user interface. Select a language and continue.

### 6.3.3 Deploying or undeploying components

The WDeploy GUI tool allows users to deploy and undeploy all Web applications to a Web application server.

Before deploying or undeploying Web applications to a Web application server, ensure that the WDeploy Web application server configuration file (`config.<WEB_APP_SERVER>`) is correctly configured.

Any Web applications that are not deployed automatically by SAP BusinessObjects BI platform or Information Platform Service (IPS) during installation, or by WDeploy are unaffected.

#### Note

Not all Web applications are deployed automatically. You must deploy all Web applications that are not deployed automatically with the WDeploy command-line tool or with the Web application server administrative console.

1. In the WDeploy GUI, select one of the following options:
   - **Deploy all available SAP Web Applications to the server**
   - **Undeploy all available SAP Web Applications from the server**

2. Select a supported Web application server from the **Select Web Application Server Type** dropdown list.

   The software displays remaining options based on the Web application server type you chose.

3. Click **Options** to set the following advanced options:
   - WDeploy work directory (`work_dir`)
   - Web applications source locations (`app_source_tree` and `war_dir`)
   - Web application root context
4. Complete all required remaining options and click Run.

Related Information

Advanced options [page 81]

6.3.4 Advanced options

The WDeploy GUI tool Options screen allows you to select custom folders to use for the deployment of web applications.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select WDeploy work directory</strong></td>
<td>Select the folder in which WDeploy manipulates the web applications WAR or EAR archives (for example, to split static and dynamic content in a web application). This folder stores the results of the wdeploy predeploy action, and stores data required to undeploy web applications. Example value: &lt;BIP_INSTALL_DIR&gt;/wdeploy/workdir</td>
</tr>
<tr>
<td><strong>Select Source location of web applications:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Web application source tree location</strong></td>
<td>The location of source used to create WAR or EAR                                                                                               Example value: &lt;BIP_INSTALL_DIR&gt;/warfiles/webapps</td>
</tr>
<tr>
<td><strong>Select Source location of web applications:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Generic WAR files location</strong></td>
<td>The location of source content used to create the generic WAR files. Example value: &lt;BIP_INSTALL_DIR&gt;/java/applications</td>
</tr>
<tr>
<td><strong>Web applications root context</strong></td>
<td>Select the web application root context path to which all web applications are deployed. Example value: /BOE</td>
</tr>
</tbody>
</table>

**Note**

Non-English characters in paths are not valid in the WDeploy GUI tool.
6.3.5 Running WDeploy from the command line

Use the wdeploy command line tool to deploy the Data Services web application components to a web application server and perform other advanced deployment functions unavailable in the GUI tool. The web components that are available to deploy include the following:

- DataServices
- Doc
- Webservice

By default, the wdeploy tool and the web components are installed to the following locations during the SAP Business Objects Business Intelligence or IPS installation:

- `wdeploy`: `<BIP_INSTALL_DIR>/wdeploy`
- web components: `<BIP_INSTALL_DIR>/warfiles/webapps`

Syntax

```
wd_deploy.sh <server_type> [-Das_admin_password=<password>] [-DAPP=<app_name>] <command>
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;server_type&gt;</code></td>
<td>Specifies the type of the web application server.</td>
</tr>
<tr>
<td></td>
<td>Available values for <code>&lt;server_type&gt;</code> include:</td>
</tr>
<tr>
<td></td>
<td>- apache</td>
</tr>
<tr>
<td></td>
<td>- jboss7</td>
</tr>
<tr>
<td></td>
<td>- sapappsvr73</td>
</tr>
<tr>
<td></td>
<td>- tomcat6</td>
</tr>
<tr>
<td></td>
<td>- tomcat7</td>
</tr>
<tr>
<td></td>
<td>- weblogic11</td>
</tr>
<tr>
<td></td>
<td>- websphere7</td>
</tr>
<tr>
<td>- Das_admin_password=&lt;password&gt;</td>
<td>Specifies the administrator password to use to deploy the application.</td>
</tr>
<tr>
<td></td>
<td>Note: For Tomcat web application servers, the password is not required.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>&lt;DAPP=&gt;&lt;app_name&gt;</td>
<td>Specifies the web application component to deploy. Available values for &lt;app_name&gt; include:</td>
</tr>
<tr>
<td></td>
<td>• DataServices</td>
</tr>
<tr>
<td></td>
<td>• doc</td>
</tr>
<tr>
<td></td>
<td>• webservice</td>
</tr>
<tr>
<td>&lt;command&gt;</td>
<td>Specifies the command for wdeploy to execute. Available values for &lt;command&gt; include:</td>
</tr>
<tr>
<td></td>
<td>• deploy</td>
</tr>
<tr>
<td></td>
<td>Prepares and deploys a single web application component to the web application server.</td>
</tr>
<tr>
<td></td>
<td>• deployall</td>
</tr>
<tr>
<td></td>
<td>Prepares and deploys all web application components to the web application server.</td>
</tr>
<tr>
<td></td>
<td>• undeploy</td>
</tr>
<tr>
<td></td>
<td>Removes a single web application component from the web application server.</td>
</tr>
<tr>
<td></td>
<td>• undeployall</td>
</tr>
<tr>
<td></td>
<td>Removes all web application components from the web application server.</td>
</tr>
</tbody>
</table>

### 6.3.5.1 Configuring Wdeploy

To configure the Wdeploy configuration file to specify the web application server settings:

1. Open the configuration file for your web application server. By default, the configuration files are installed to <BIP_INSTALL_DIR>/wdeploy/conf.
   
   Available configuration files include:
   - config.apache
   - config.jboss7
   - config.sapappsvr73
   - config.tomcat6
   - config.tomcat7
   - config.weblogic11
   - config.websphere7
   - config.websphere8
2. Set the parameters to match your application server settings.
3. Save and close the configuration file.

### 6.3.5.2 Deploying all web components

Deploying all web components deploys DataServices, Doc, and Webservice. To deploy all web content:
1. Access `<BIP_INSTALL_DIR>/wdeploy` from the command prompt.

2. Run `wdeploy` with the deployall command:
   
   ```
   wdeploy.sh <server_type> deployall -Das_admin_password=<password>
   ```

   **Note**
   Tomcat does not require a password. When you deploy on Tomcat, exclude the `-Das_admin_password=<password>` parameter.

3. Open the `DataServices.html` file located in `<LINK_DIR>/ext` and change the default port number to match the port number for your web application server. For example, the default port number for Tomcat is 8080.

   ```
   <META HTTP-EQUIV=Refresh CONTENT="0; URL=http://hostname:8080/DataServices/">
   ```

   All web components are deployed to the web application server.

   **Example**
   WebSphere 6
   ```
   wdeploy.sh websphere6 deployall -Das_admin_password=mypass
   ```

   **Note**
   After you deploy the web applications on Tomcat, you must restart the Tomcat application server for the changes to take effect.

### 6.3.5.3 Deploying one web component

To deploy a single web application component:

1. Access `<BIP_INSTALL_DIR>/wdeploy` from the command prompt.

2. Run `wdeploy` with the deploy command and the `-DAPP=<app_name>` parameter:

   ```
   wdeploy.sh <server_type> -Das_admin_password=<password> -DAPP=<app_name> deploy
   ```

   **Note**
   Tomcat does not require a password. When you deploy on Tomcat, exclude the `-Das_admin_password=<password>` parameter.

   The specified web component is deployed to the web application server.

   **Example**
   DataServices on WebLogic 10
   ```
   wdeploy.sh weblogic10 -Das_admin_password=mypass -DAPP=DataServices deploy
   ```
6.3.5.4 Verifying deployment

To verify the deployment was performed properly:

1. Check whether the web applications have been deployed to the correct location.
   - On Tomcat: $CATALINA_HOME/webapps
   - On WebSphere: `<server_folder>/installedApps/<Node_Cell_folder>`
     For example, `C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv01\installedApps\SHG-D-01-CAONode01Cell`
   - On WebLogic: `<server_folder>/stage`  
     For example, `C:\bea\wlserver_10.0\samples\domains\wl_server\servers\examplesServer\stage`

2. Log in to the Central Management Console and add a repository.
3. Log in to the Management Console and click on each of the modules.
   Each module should display correctly.
4. (Optional) Verify that you can add a web service successfully.
5. Click About to verify that the version is up-to-date.

### 6.3.5.5 Undeploying all web components

Undeploying all web components undeploys DataServices, Doc, Webservice. To undeploy all web components:

1. Access `<BIP_INSTALL_DIR>/wdeploy` from the command prompt.
2. Run `wdeploy` with the undeploy all command:
   
   ```
   wdeploy.sh <server_type> undeployall -Das_admin_password=<password>
   ```

**Note**

Tomcat does not require a password. When you deploy on Tomcat, exclude the `-Das_admin_password=<password>` parameter.

All web components are removed from the web application server.
6.3.5.6 Undeploy one web component

To undeploy a single web component:

1. Access `<BIP_INSTALL_DIR>/wdeploy` from the command prompt.
2. Run `wdeploy` with the undeploy command and the `-DAPP=<app_name>` parameter:
   ```
   wdeploy.sh <server_type> -Das_admin_password=<password> -DAPP=<app_name> undeploy
   ```

   **Note**
   Tomcat does not require a password. When you deploy on Tomcat, exclude the `-Das_admin_password=<password>` parameter.

The specified web component is removed from the web application server.

**Example**

DataServices.war on WebLogic 10

wdeploy.sh weblogic10 -Das_admin_password=mypass -DAPP=DataServices undeploy

**Note**
After you undeploy the web application on Tomcat, you must restart the Tomcat application server for the changes to take effect.

6.3.6 Deploying web applications in a distributed environment

In a distributed deployment where the Data Services web applications are deployed to a different system than the Central Management Server (CMS), a broken link may appear in a Central Management Console (CMC) that resides on the same host system as the CMS.

For example, consider the following deployment:
To manually deploy the Data Services web application and repair the broken link on Host A:

1. Copy the `BOE` directory from Host B to Host A.
   By default, the `BOE` directory is located in `<BIP_INSTALL_DIR>/warfiles/webapps/`.
2. Use `wdeploy` to deploy the BOE web application on Host A:
   - Deploy all SAP web applications from the command-line or GUI.
   - Or
   - Deploy only the BOE web application from the command-line.

### Related Information

- [WDeploy](page 78)
- [Deploying all web components](page 83)
- [Deploying one web component](page 84)

### 6.3.7 Deploying on WebLogic 10.3

If you are deploying SAP BusinessObjects BI platform and Data Services on WebLogic 10.3, you must perform the following steps:

1. Clean the WebLogic environment or undeploy the Data Services and BI platform deployment if there is a previous deployment. Undeployment can be done from the WebLogic administration console.
2. Move the `<BOE_INSTALL>/warfiles/webapps/DataServices/WEB-INF/lib/wstx-asl-3.2.1.jar` file to another location, such as to the desktop or `<BOE_INSTALL>/warfiles`.
3. Run `wdeploy`. The deployment will fail on Data Services, but the Data Services application is uploaded to WebLogic.
4. Go to the WebLogic console, and click Deployment. If you see a warning under Change Center, click Undo all changes.
5. Copy the `wstx-asl-3.2.1.jar` file to the Data Services WebLogic deployment area: `<Weblogic>\<domain>\servers\<instance>\upload\DataServices\app\DataServices\WEB-INF\lib`.
6. Run `wdeploy` again.
7. Restart the WebLogic server.
6.3.8 JBoss 7.1 administrative console manual deployment

Ensure that the web application server is installed, configured, and running (either in standalone or domain mode depending on your environment).

1. Use the wdeploy predeploy command to create WAR files such as Dataservices.war that can be deployed manually to JBoss:
   wdeploy.bat jboss7 -DAPP=DataServices predeploy
   The wdeploy predeploy command creates an exploded WAR file structure for the Web Services web applications (folders named DataServices.war).

2. Copy the files listed below from the following WDeploy RSA module directory: <BIP_INSTALL_DIR>/SAP BusinessObjects Enterprise XI 4.0/wdeploy/rsa_module
   - certjFIPS.jar
   - cryptojFIPS.jar
   - ssljFIPS.jar
   - module.xml

3. On your JBoss application server, create an rsa/main directory under modules/com, and paste all files copied in Step 1 to <JBOSS_INSTALL_DIR>/modules/com/rsa/main
   When the WAR files are created, copy them to a new location before deploying to JBoss using the JBoss Command Line Interface (CLI).

4. From the JBoss bin directory, run the command jboss-cli --connect to start the JBoss CLI and connect to the application server.

5. Run the /deployment command on the compressed WAR file or exploded WAR folder. If you are deploying to a managed domain, also run the /server-group command.
   Assume for the following examples that the WAR is stored in C:/BIPwebapps/ and the server group is named main-server-group.
   - For compressed .war files, such as DataServices.war set the archive value to true:
     Standalone server:
     ```
     /deployment=DataServices.war:add(enabled="true", runtime-name="DataServices.war", content=[{"path"=>"C:/BIPwebapps/DataServices.war","archive"=>true}])
     ```
     Managed domain:
     ```
     /deployment=DataServices.war:add(runtime-name="DataServices.war", content=[{"path"=>"C:/BIPwebapps/DataServices.war","archive"=>true}]) /server-group=main-server-group /deployment=DataServices.war:add(enabled=true)
     ```
   - For exploded .war files, such as DataServices.war set the archive value to false:
     Standalone server:
     ```
     /deployment=DataServices.war:add(enabled="true", runtime-name="DataServices.war", content=[{"path"=>"C:/BIPwebapps/DataServices.war","archive"=>false}])
     ```
     Managed domain:
     ```
     /deployment=DataServices.war:add(runtime-name="DataServices.war", content=[{"path"=>"C:/BIPwebapps/DataServices.war","archive"=>false}]) /server-group=main-server-group /deployment=DataServices.war:add(enabled=true)
     ```
6.4 Deploy Data Services Web applications on SAP NetWeaver 7.3

To deploy SAP Data Services Web applications to SAP NetWeaver 7.3 or higher, you must follow a different procedure than you use with other Web application servers such as WebLogic or WebSphere.

Before you can deploy Data Services Web applications to SAP NetWeaver, the following prerequisites must be met:

- You are using a Windows Server 2008 or higher or UNIX host.
- You are using SAP NetWeaver 7.3 or higher.
- You install either SAP BusinessObjects BI platform or Information Platform Services (IPS)
- You install SAP Data Services.
- You install NetWeaver 7.3 or higher using the same host agent as the SAP BusinessObjects BI platform or Information Platform Services (IPS) and Data Services.

**i Note**
To ensure you use compatible versions of SAP software, consult the Product Availability Matrix (PAM) at https://apps.support.sap.com/sap/support/pam.

There are two phases involved in deploying Data Services Web applications to NetWeaver 7.3 or higher:

- **Predeployment:** Use the WDeploy tool to prepare the environment.
- **Software Update Manager (SUM):** SUM is a multi-purpose tool that supports various processes, such as performing a release upgrade, installing enhancement packages, applying support package stacks, installing add-ons, or updating single components.

**i Note**
View all information for SUM in the SAP Customer Portal beginning with the System Maintenance section of the Software Logistics Toolset (SL Toolset) page at https://support.sap.com/sltoolset.

6.4.1 Setting compression for HTML and HTM files

Before deploying SAP Data Services Web applications to an SAP NetWeaver Application Server component (any version), ensure that .html and .htm files are never compressed.

Use the following example to set the compression for your applicable version of SAP NetWeaver Application Server 7.3 or higher component.

1. Logon to your SAP Administrator portal.
   For example, in your browser, type http://<servername>:<1128>/nwa. Use port number 1128 when you use HTTP and port 1129 when you use HTTPS.
2. Select **Configuration** ➔ **Infrastructure** ➔ **Java System Properties**.
3. On the **Services** tab, select **HTTP provider**.
4. Under **Extended Details**, modify the **AlwaysCompressed** and **NeverCompressed** properties as follows:
   - **AlwaysCompressed**: Remove ‘*.htm’, ‘*.html’, and ‘text/html’ from this property. The **AlwaysCompressed** field cannot be blank. If this field is blank after you remove the listed properties, enter a space.
   - **NeverCompressed**: Add ‘*.htm’, ‘*.html’, ‘text/html’ to this property.
5. Save your changes and exit the SAP Administrator portal.

### 6.4.2 Predeploying with WDeploy

Use WDeploy to generate the necessary SCA (Service Component Architect) files that you manually deploy to the SAP NetWeaver Web application server.

Before you begin, undeploy any existing Data Services Web applications that are currently running on the server.

Read about WDeploy at [WDeploy](page 78).

The system administrator user that performs the following steps must be the same system administrator as for SAP BusinessObjects BI platform or IPS installation and Data Services installation.

1. Run the WDeploy **predeploy** command or **predeployall** command to generate SCA files.
   - `./wdeploy.sh sapappsvr73 -DAPP=DataServices predeploy`
   - `./wdeploy.sh sapappsvr73 predeployall`

   **Note**

   You cannot use the WDeploy GUI to run the **predeploy** or **predeployall** commands.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>predeploy</td>
<td>Prepares a Web application for deployment to the target Web application server.</td>
</tr>
<tr>
<td>predeployall</td>
<td>Prepares all Web applications for deployment to the target Web application server.</td>
</tr>
</tbody>
</table>

The WDeploy command saves the resulting SCA files to the following location: `<INSTALL_DIR>/sap_bobj/enterprise_xi40/wdeploy/workdir/sapappsvr73/application`

2. Continue with the deployment process by following the steps in [Downloading and unpacking SUM](page 91).
6.4.3 Downloading and unpacking SUM

Before you can perform a manual deployment of Data Services Web applications to SAP NetWeaver, obtain the Software Update Manager (SUM) tool, and prepare it for deployment.

If you already have downloaded the SUM tool, make sure that you are using the most recent version.

Ensure that the Web application server is installed, configured, and running.

i Note
Obtain all information about SUM, including a link to the download center, and access to SUM guides, by visiting the Customer Support Portal at https://support.sap.com/sltoolset. The link takes you to the Software Logistics Toolset (SL Toolset) page. Scroll down to System Maintenance to see the SUM section.

You need SUM to deploy Web applications to SAP NetWeaver.

The instructions require that you be an administrator and that you enter the SAP system identification code that you used when you installed SAP NetWeaver.

1. Download SUM from the SAP Software Download Center at https://support.sap.com/swdc.
2. Unpack SUM to the same system that hosts SAP NetWeaver technology platform, with network access to the location where you deploy the SCA packages with WDeploy.
3. Unpack SUM with the following command:

```
SAPCAR - xvf <download directory>/<path>/<Archive>.SAR -R <SAPNW_INSTALL_DIR>:
/usr/sap/<sapsid>
```

Enter sapsid in lower case. Enter your SAP system identification code in the command above in lower case.

When you extract the files, the software creates a folder named SUM under the specified path.
4. Continue with the deployment following the steps in Deploying Data Services Web applications to NetWeaver with the Software Update Manager (SUM) [page 91].

6.4.4 Deploying Data Services Web applications to NetWeaver with the Software Update Manager (SUM)

If you have not deployed SAP Data Services Web applications to the SAP NetWeaver Application Server, follow this fresh deployment method.

Make sure that you meet the following requirements:

- You are an administrator user and you use the system identification code that you specified when you installed SAP NetWeaver.
- You have write permission for the <DS_COMMON_DIR> folder.
- The Web application server is installed, configured, and running.
- The SUM software is downloaded, unpacked, and configured.
The SCA files are generated by WDeploy.

Follow these steps to manually deploy SAP Data Services Web applications to SAP NetWeaver:

1. Set the Data Services environment so that it is accessible.
   a. Set the \$LINK_DIR environment variable to point to `<dataservices_install_directory>/dataservices`
   b. Set \$DS_COMMON_DIR environment variable to point to `<dataservices_install_directory>/dataservices`.
   c. Restart the NetWeaver application server daemon after Data Services setup.

2. Ensure that all server processes on the Java instance are started.

3. Copy all SCA files that you generated with WDeploy and place them into the following folder:
   `<SAPNW_INSTALL>/usr/sap/Trans/EPS/in`

4. Start the NetWeaver Application Server component.

5. Execute the command `startsap ALL`.

6. Start the SUM server process:
   a. Start the SUM process as root user from the SUM directory.
   b. Execute the following command: `STARTUP confighostagent <SAPSID>`.

7. Start the SUM graphical user interface (GUI) from a browser at `http://<host>:<port>/lmsl/sumjava/<SAPSID>/index.html`
   **About port:** When you use http, use port 1128. When you use https, use port 1129.

8. In the Define Target step, choose Manually prepared directory and enter the path to the SCA files in the Stack file or Directory path text box:
   Enter `<SAPNW_INSTALL>/usr/sap/Trans/EPS/in`

9. Click Next.

   The update procedure starts.

10. When the update procedure completes, the deployment process is finished. The SUM displays a confirmation tab. If there are warnings or errors, you may be able to click Back to fix the errors in SUM before trying to deploy again.

   **Note**

   For details about the deployment, open the latest ProcessOverview.html report, stored in `<SAPNW_INSTALL>/usr/sap/<sapsid>/SUM/sdt/htdocs`.

   For more information about troubleshooting, see the SAP NetWeaver Web Application Deployment Guide.
6.4.5 Undeploying Data Services Web applications

Use the command line console to undeploy the Data Services Web applications from SAP NetWeaver. The Software Update Manager (SUM) tool does not support an undeployment process. Therefore, perform the following steps to undeploy the Web applications:

1. On the SAP NetWeaver 7.3 or higher host system, go to `<install_dir>/usr/sap/<AS_ID>/<instance_folder>/j2ee/console`.
2. Run `textconsole` and log on using your NetWeaver user name and password.
3. Check if the Web application is already deployed by using the `list_app` command.
4. Use the `undeploy` command to undeploy the Data Services Web applications.

   ```
   undeploy name=<web_app_name> on_deploy_error=stop
   
   where <web_app_name> is the name of the Web application that you want to undeploy.
   ```

   Data Services has two Web applications that need to be undeployed:
   ○ SBOP_DS_MANAGEMENT_CONSOLE
   ○ SBOP_DS_MANAGEMENT_CONSOLE_DOC

6.4.6 Updating an existing deployment

Update the deployed SAP Data Services Web applications to SAP NetWeaver 7.3 or higher for a support pack or patch.

**Note**

You can alternatively choose to undeploy the existing Data Services Web applications and perform a fresh deployment with the NetWeaver support pack or patch. For undeployment steps, see Undeploying Data Services Web applications [page 93].

To update an existing Web application deployment:

1. Update the `SAP_metadata.properties` file version to the new NetWeaver version.

   By default, the properties file is located in `<BIP_INSTALL_DIR>/wdeploy/SDLDSupport/NWSLD/<warfile>`.

   **Note**

   Ensure that you set the support pack or patch version to a higher value than the one in the deployed version.

2. Follow the predeployment configuration steps in WDeploy to generate new SCA files.
3. Follow the deployment steps in the Software Update Manager (SUM) tool GUI.

   When you update Web applications with the SUM tool, the software displays existing versions and the target version during the process.
Related Information

Predeploying with WDeploy [page 90]
Deploying Data Services Web applications to NetWeaver with the Software Update Manager (SUM) [page 91]
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