



Informatica® B2B Data Exchange
10.5.3

High Availability Installation Guide

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Table of Contents

Preface	6
Informatica Resources.	6
Informatica Network.	6
Informatica Knowledge Base.	6
Informatica Documentation.	6
Informatica Product Availability Matrices.	7
Informatica Velocity.	7
Informatica Marketplace.	7
Informatica Global Customer Support.	7
 Chapter 1: Introduction to High Availability.....	 8
High Availability Overview.	8
Cluster Configuration Types.	8
Cluster Components.	9
B2B Data Exchange Server Cluster Components.	9
Operation Console Cluster Components.	10
 Chapter 2: Set Up the High Availability Environment.....	 12
Set Up the High Availability Environment Overview.	12
Two-Node High Availability Cluster.	12
PowerCenter Environment for a B2B Data Exchange Cluster.	12
High Availability Prerequisites.	13
Setting Up a High Availability Storage Solution.	13
Set Up a Clustered File System.	13
Configure Cluster Management Software.	13
Installation Prerequisites.	14
User Accounts.	15
Port Numbers.	15
Verify the Minimum System Requirements.	16
Verify the Database Requirements.	17
Install the Prerequisite Software.	18
Configure Access to the Data Transformation Service.	18
Configure Microsoft SQL Server Database.	19
Opening Ports to the Partners Portal.	19
Configure a Shared File System.	19
Configure the Document Store.	20
Configure File Endpoints.	20
Configure the Archive Service.	20
Configure JMS Messages Data Directories.	20

Chapter 3: Set Up a High Availability Cluster on Windows.....	22
B2B Data Exchange High Availability on Windows Overview.	22
Step 1. Install the Document Store.	23
Step 2. Install B2B Data Exchange on the First Node.	23
Step 3. Install B2B Data Exchange on the Second Node.	37
Step 4. Install Informatica Managed File Transfer on the First and Second Node.	44
Step 5. Configure B2B Data Exchange Properties for High Availability.	45
Step 6. Configure the Informatica Managed File Transfer Properties for High Availability.	45
Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions.	46
Step 8. Configure the Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions.	47
Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability.	47
Step 10. Configure the Message Broker for B2B Data Exchange High Availability.	47
Step 11. Configure the Dashboard and Reports.	48
Restarting B2B Data Exchange.	49
Restarting Informatica Managed File Transfer.	50
 Chapter 4: Steps to Setting Up a High Availability Cluster in Linux.....	 51
B2B Data ExchangeHigh Availability on Linux Overview.	51
Step 1. Install the Document Store.	52
Step 2. Install B2B Data Exchange on the First Node.	52
Step 3. Install B2B Data Exchange on the Second Node.	57
Step 4. Install Informatica Managed File Transfer on the First and Second Node.	60
Step 5. Configure B2B Data Exchange Properties for High Availability.	61
Step 6. Configure the Informatica Managed File Transfer Properties for High Availability.	62
Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions.	62
Step 8. Configure Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions.	63
Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability.	63
Step 10. Configure the Message Broker for B2B Data Exchange High Availability.	63
Step 11. Configure the Dashboard and Reports.	64
Restart Services.	65
 Chapter 5: Optional High Availability Configuration.....	 66
Optional High Availability Configuration Overview.	66
Install B2B Data Exchange.	66
Install B2B Data Exchange in a Multi-Machine Cluster.	67
Install B2B Data Exchange on a Single-Machine Cluster.	67
HTTP Load Balancer	68
Configuring Load Balancer Properties.	68
Configuring Sticky Sessions.	69
Configuring Tomcat for Sticky Sessions.	69
JMS Discovery	69
Multicast Capability Test.	70

B2B Data Exchange Server Configuration Properties.	70
B2B Data Exchange JMS Broker Configuration Properties.	71
JMS Properties in PowerCenter.	71
Configuring Multicast JMS Discovery.	72
Configuring Unicast JMS Discovery.	72
Configuring Redelivery Plugins.	73
Configure Database Connections for Oracle.	73
Define System Properties for PowerCenter Workflows.	74
Operation Console.	74
Configuring a Proxy Server for the Operation Console.	74
Configuring Tomcat for Single-Machine Clusters.	74
Appendix A: Troubleshooting High Availability.	76
Troubleshooting High Availability.	76
Load Balancer Troubleshooting.	77
Appendix B: High Availability Log Messages.	78
High Availability Log Messages.	78
Appendix C: Port Number Reference.	80
Port Number Reference.	80
Appendix D: Glossary.	82
Index.	84

Preface

Use the B2B Data Exchange High Availability Guide to learn how to configure a high availability cluster on which you can install and run B2B Data Exchange. The guide also includes troubleshooting instructions, a description of log messages, and a port number reference.

Informatica Resources

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- View product availability information.
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Informatica Product Availability Matrices

Product Availability Matrices (PAMs) indicate the versions of the operating systems, databases, and types of data sources and targets that a product release supports. You can browse the Informatica PAMs at <https://network.informatica.com/community/informatica-network/product-availability-matrices>.

Informatica Velocity

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

You can find Informatica Velocity resources at <http://velocity.informatica.com>. If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

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

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

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To find online support resources on the Informatica Network, visit <https://network.informatica.com> and select the eSupport option.

CHAPTER 1

Introduction to High Availability

This chapter includes the following topics:

- [High Availability Overview, 8](#)
- [Cluster Configuration Types, 8](#)
- [Cluster Components, 9](#)

High Availability Overview

When you use B2B Data Exchange to process documents and events on a large scale, you need to provide continuous service even if one component fails. You set up a high availability environment with failover mechanisms that can handle a failed server or service.

You can configure a high availability cluster with multiple machines in a network or with a single multi-processor machine. A high availability cluster includes multiple installations of typical B2B Data Exchange components that communicate with each other in the background while providing a single point of operation for users.

Cluster Configuration Types

You determine which cluster type to use based on the organization requirements and available hardware resources. Most of the configuration steps are identical for both cluster types.

You can set up and configure the following high availability cluster types:

- **Multi-machine cluster.** Consists of several computers that contain identical installations of B2B Data Exchange. Each computer in the cluster can take over in case the other computer fails.
- **Single-machine cluster.** Consists of multiple B2B Data Exchange installations on a single multi-processor computer. When you configure a single-machine cluster, you modify port numbers in each subsequent instance to prevent conflicts.

Cluster Components

The high availability cluster consists of multiple instances of B2B Data Exchange and related component. You use a similar configuration for multi-machine and single-machine clusters.

The cluster normally consists of the following main parts:

- Server cluster. Handles document and event processing between B2B Data Exchange and PowerCenter.
- Operation Console cluster. Handles browser requests from Operation Console users with a load balancer.

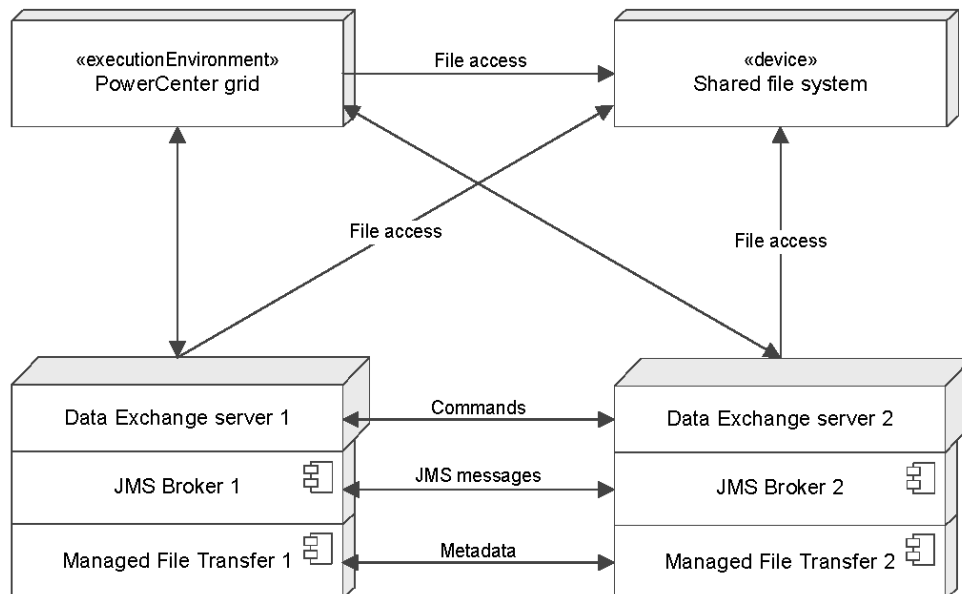
B2B Data Exchange Server Cluster Components

The B2B Data Exchange server cluster handles document and event processing between the B2B Data Exchange server, JMS Broker, Managed File Transfer, and PowerCenter.

The B2B Data Exchange server cluster typically consists of the following components:

- B2B Data Exchange server. Processes events and documents.
- B2B Data Exchange JMS Broker. Transfers JMS messages between the B2B Data Exchange server and PowerCenter. The JMS messages represent documents and events.
- B2B Data Exchange Managed File Transfer. Processes documents through Managed File Transfer endpoints.
- Shared file system. Contains the document store, File Receive and File Send endpoint documents, archive service, and the JMS messages data directory.
- PowerCenter grid. Processes documents from the B2B Data Exchange server with workflows.

The following image shows an example of a B2B Data Exchange server cluster configuration:



This cluster consists of two B2B Data Exchange server instances, two B2B Data Exchange JMS Broker instances, a PowerCenter environment, and a shared file system. The B2B Data Exchange server instances

also include the optional Managed File Transfer component. The communication lines between the B2B Data Exchange servers and the PowerCenter grid represent the JMS, RMI, and Web Service message flows.

This cluster configuration does not require you to install the B2B Data Exchange server on each of the PowerCenter nodes. The installation location has no impact on the necessary configuration changes.

An active-active server cluster configuration is recommended for a Windows environment. Use an active-passive configuration for the JMS broker with an active-active server configuration for B2B Data Exchange.

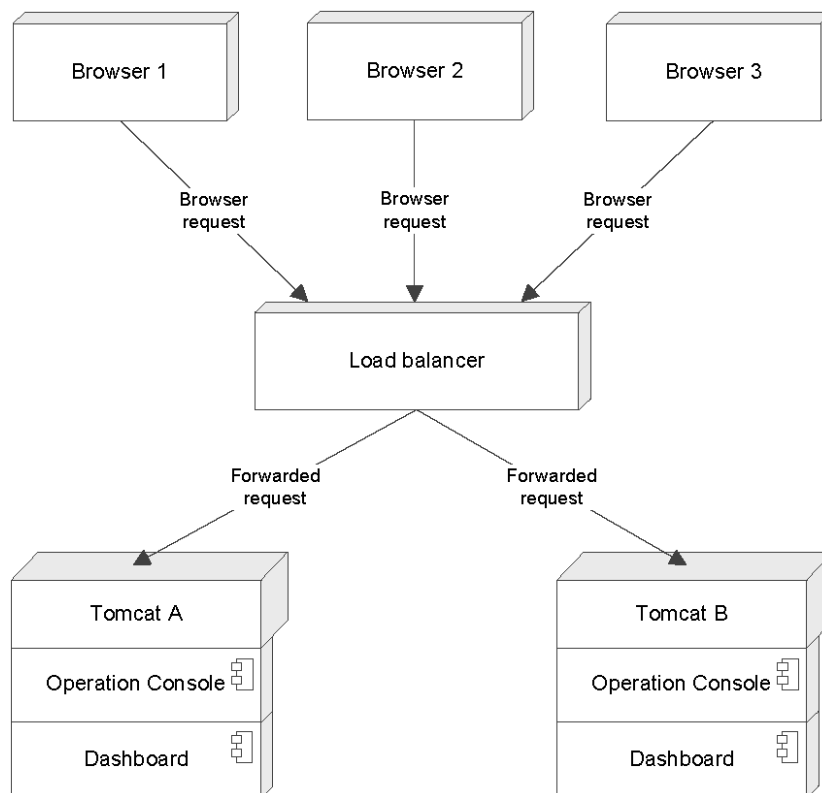
Operation Console Cluster Components

The Operation Console cluster handles browser requests to and from Operation Console users. The cluster uses a load balancer to distribute the requests between multiple Tomcat instances.

The Operation Console cluster typically consists of the following components:

- Browser clients. B2B Data Exchange users log in to the browsers and perform actions in the Operation Console.
- Load balancer. Receives requests from each Operation Console browser and forwards the requests to the available Tomcat server instance.
- Tomcat Operation Console server. Receives and processes forwarded requests from the load balancer.

The following figure shows an example of the Operation Console cluster configuration:



This cluster consists of three browser clients, one load balancer, and two Tomcat instances that run the Operation Console and the Dashboard. The communication lines between the components represent actions that users perform in the Operation Console that the load balancer distributes between the Tomcat instances. Synchronize the clocks of all machines in the cluster to within 30 seconds of each other to ensure proper handling of browser requests.

Note: The Dashboard is available if you installed the Dashboard and Reports component.

CHAPTER 2

Set Up the High Availability Environment

This chapter includes the following topics:

- [Set Up the High Availability Environment Overview, 12](#)
- [High Availability Prerequisites, 13](#)
- [Installation Prerequisites, 14](#)
- [Configure a Shared File System, 19](#)

Set Up the High Availability Environment Overview

When you use B2B Data Exchange to process documents and events on a large scale, you need to provide continuous service even if one component fails. You set up a high availability environment with fail-over mechanisms that can handle a failed server or service.

Before you start installing B2B Data Exchange, you need to set up the high availability environment and set up machines to meet the installation requirements. Verify that you have all the user account credentials, and prepare your environment for installing and running B2B Data Exchange.

Two-Node High Availability Cluster

A two-node cluster consists of two nodes that contain identical installations of B2B Data Exchange. Each node in the cluster can take over in case the other computer fails.

PowerCenter Environment for a B2B Data Exchange Cluster

Before you set up the B2B Data Exchange high availability cluster, your PowerCenter environment must be ready. Verify that the machine where the PowerCenter services are installed is accessible to B2B Data Exchange.

Setting up a two-node B2B Data Exchange cluster does not require you to install B2B Data Exchange on each of the PowerCenter nodes. You can install B2B Data Exchange on nodes where the PowerCenter services are installed, or on different nodes.

For more information, see the *B2B Data Exchange Installation and Configuration Guide*.

Note: The PowerCenter services must be running when you install B2B Data Exchange on the cluster nodes.

High Availability Prerequisites

Before you set up the high availability environment, verify that your system meets the following prerequisites:

- It is recommended that the B2B Data Exchange repository is on a high availability database, such as Oracle Real Application Clusters.
- The high availability environment includes a clustered file system, such as Global File System (GFS) or Veritas Cluster File System (VxCFS).
- The cluster consists of two active B2B Data Exchange server nodes.
- The PowerCenter real-time workflows are active and running.
- A load balancer is installed, such as the F5 Load Traffic Manager or the Apache HTTP Server. For the F5 Load Traffic Manager, we recommend creating sticky session profiles with cookie persistence or source address affinity persistence.
- The clocks on all B2B Data Exchange nodes are synchronized to within 30 seconds of each other. Use the Network Time Protocol (NTP) to synchronize the clocks.
- Both cluster nodes are installed in the same physical location. Geographically distributed nodes are not supported.

Setting Up a High Availability Storage Solution

When you set up the high availability environment, you determine which storage solution to use for the B2B Data Exchange repository database and the document store.

To increase reliability, a high availability storage system typically consists of a group of reliable and fast hard drives on which you install the database or file system. In the environment that is described in this article, a Storage Area Network (SAN) storage system is used.

In the storage system, you can mount any high-performance hard drives, such as RAID, SSD, or SCSI. To optimize performance, use RAID 1+0 hard drives.

Set Up a Clustered File System

Install and configure a clustered file system on which to store shared components, such as the document store.

A clustered file system is a distributable file system that utilizes the high availability physical storage configuration. The clustered file system you install depends on the type of high availability storage solution.

When you use an SAN storage solution, you need to install the clustered file system separately. For example, you can use the Veritas Cluster File System (VxCFS) file system or the Global File System (GFS). The recommended file system is VxCFS.

Configure the clustered file system to use hardware-based I/O fencing for all of the nodes in the cluster.

Configure Cluster Management Software

Use cluster management software to monitor the status of the services that run on each node in the cluster and troubleshoot service failure.

You configure the software to start or stop services on each node in the cluster in case one or more services fail. For example, if you use an active/passive cluster, you can configure the cluster manager to stop all of the services in the active node and start all of the services in the passive node in case one of the services in the active node fails.

A cluster manager typically consists of the following components:

- Main application that manages the entire cluster and sends commands to start, stop, or verify the availability of the services. You can install the application anywhere in the cluster. To improve reliability, install the application outside of the cluster.
- Agent that monitors and reports the status of the services in each node to the main application. The agent can start or stop the services with commands from the main application. You install the agent on each node in the cluster and define which services to monitor.

If you use Veritas Cluster Server or Veritas Storage Foundation High Availability file systems, you can download and install the Veritas Cluster System (VCS) Agent for Informatica. The VCS Agent contains built-in functions that provide continuous cluster monitoring for B2B Data Exchange services. Each agent instance communicates with the main VCS application with minimal configuration steps.

To download and install the VCS Agent, go to <https://sort.veritas.com/agents> and select **Informatica** from the Application list. For deployment and configuration information, see article 144446 in the Informatica Knowledge Base.

Installation Prerequisites

Before you install B2B Data Exchange, set up the machines to meet the installation requirements, verify that you have all the user account credentials, and prepare your environment for installing and running B2B Data Exchange.

Note: B2B Data Exchange and the PowerCenter Integration Service that B2B Data Exchange uses must be installed on the same type of operating system. Both must be installed either on a machine or machines that are running Windows operating systems, or on a machine or machines that are running non-Windows operating systems.

The following components must reside on machines with the same locale and the same time zone:

- B2B Data Exchange server
- B2B Data Exchange repositories
- B2B Data Exchange Operation Console clients
- PowerCenter Repository Service that B2B Data Exchange uses
- PowerCenter Integration Service that B2B Data Exchange uses

User Accounts

Before you install, verify that you have the user names and passwords for the required database and domain accounts.

The following table describes the required user accounts:

User Account	Description
Database	<p>Database user account that you use to log in to the database server and create tables and views for the B2B Data Exchange repository. If you install the Dashboard and Reports component, you also use a user account for the operational data store.</p> <p>You must install all the repositories on the same type of database server. You must create a separate user account for each repository.</p> <p>The user accounts must have privileges to perform the following actions:</p> <ul style="list-style-type: none">- Select data from tables and views.- Insert data into tables, delete data from tables, and update data in tables.- Create, change, and delete the following elements:<ul style="list-style-type: none">- Tables- Views- Synonyms- Indexes- Custom data types- Triggers- Create, change, delete, and run stored procedures and functions. <p>If you use a Microsoft SQL Server database, you must set up separate databases for each repository. It is recommended that you grant database owner privileges to the user accounts.</p>
If you use B2B Data Exchange with Informatica domain authentication: Informatica domain administrator	Administrator account for the Informatica domain.
If you use B2B Data Exchange with Informatica domain authentication: Informatica security domain	User account for Informatica domain authentication. The user account must be created in the Informatica Administrator tool with the manage roles/groups/users privileges. The B2B Data Exchange administrator synchronizes the user account after the installation.

Port Numbers

The installer sets the default port numbers for the installation components. If another application uses the same port number as one of the installation components, a port conflict might prevent the component from running correctly or cause errors.

You can change the port numbers after installation. Before you start B2B Data Exchange, verify that the port numbers do not conflict with other applications and change the port numbers in B2B Data Exchange to prevent port conflicts.

The following table describes the default port numbers:

Port Number	Description
18000	UDP multicast port that B2B Data Exchange uses for internal communications.
18005	Operation Console shutdown port. Only required to be available on the machine where B2B Data Exchange is installed.
18050	Port that the Operation Console uses for internal communications.
18080	Operation Console HTTP port. Required only if you use an HTTP port for the Operation Console.
18095	RMI port for B2B Data Exchange server startup and shutdown.
18095 and 18096	RMI ports that the Operation Console and PowerCenter workflows use to communicate with the B2B Data Exchange server.
18100	Port that the B2B Data Exchange server uses for internal communications.
18443	Operation Console HTTPS port. Required only if you use an HTTPS port for the Operation Console.
18616	Port for the B2B Data Exchange JNDI provider. This port is also the JMS listener port for the B2B Data Exchange JMS Broker.

Verify the Minimum System Requirements

Verify that your system meets the minimum requirements.

The following table describes the minimum system requirements:

System	Requirement
Operating system	<ul style="list-style-type: none">- Microsoft Windows- IBM AIX- Sun Solaris- Red Hat Linux- SUSE Linux
Processor	<ul style="list-style-type: none">- Minimum: 2 CPU cores- Recommended: 8 CPU cores
RAM	8 GB
Disk space	<ul style="list-style-type: none">- Minimum: 3 GB- Recommended: 8 GB
Browser	<ul style="list-style-type: none">- Microsoft Internet Explorer- Google Chrome- Microsoft Edge

The following table describes the minimum system requirements to run the installer:

System	Requirement
RAM	512 MB
Disk space	1 GB

For more information about product requirements and supported platforms, see the Product Availability Matrix on Informatica

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

Verify the Database Requirements

Verify that your database meets the requirements for running B2B Data Exchange.

The following table describes the database requirements for B2B Data Exchange:

Database Component	Description
Database System	<p>Type of database on which to install the repositories. You can use one of the following database systems:</p> <ul style="list-style-type: none">- Oracle- Microsoft SQL Server <p>If you install the Dashboard and Reports component, you do not need to install the operational data store on the same machine on which you install B2B Data Exchange.</p> <p>Note: If you install the Dashboard and Reports component, your B2B Data Exchange and operational data store repositories are installed on Microsoft SQL Servers, and you use PowerCenter version 10, you must configure the repository connections in PowerCenter Workflow Manager. For details, see GUID-C2D5669F-F2EE-4BFB-8809-644202DB405B.</p>
Disk space	<p>512 MB of disk space for the core application.</p> <p>You also need additional space based on the number of messages that you need to process and the type of processing required.</p> <p>The frequency of message archiving also affects the disk space requirement.</p>
Database connections	<p>One or more database connections must always be available.</p> <p>The number of required connections depends on the number of endpoints and the number of documents processed concurrently. Use the following formula to calculate the number of required database connections :</p> $(\text{NumberOfEndpoints} + \text{Maximum number of concurrent processes} + 3) \times 3 + 2$ <p>If you do not have enough database connections available, B2B Data Exchange might fail or encounter database deadlocks.</p>

Database Unicode Support

If you require Unicode support, create the B2B Data Exchange repository database with the following settings:

- Oracle databases: use the AL32UTF8 Unicode character set.
- Microsoft SQL Server: it is recommended that you use data types that support Unicode data: nchar, nvarchar, and ntext.

Microsoft SQL Server Collation

If you use Microsoft SQL Server, the collation for the B2B Data Exchange repository must not be case sensitive.

Install the Prerequisite Software

Install the prerequisite software on your machine.

- **PowerCenter.** Install PowerCenter before you install B2B Data Exchange. Make sure to install PowerCenter services on a machine that is accessible to B2B Data Exchange. After you install PowerCenter, verify that the PowerCenter Web Services Hub is running.
If you do not install the PowerCenter services on the same machine that you install B2B Data Exchange, install the PowerCenter pmrep command line utility on the machine where you install B2B Data Exchange. Verify that B2B Data Exchange and PowerCenter can be accessed with the same drive and file path..
- **Data Transformation.** Install Data Transformation on the machine where you install B2B Data Exchange before you install the B2B Data Exchange server plug-in for PowerCenter.
- **Java Development Kit (JDK).** On IBM AIX operating systems, install the IBM JDK version 8.0.5.16 (8.0 Service Refresh 5 Fix Pack 16) and configure the INFA_JDK_HOME environment variable before you install B2B Data Exchange. Verify that the login shell can access the INFA_JDK_HOME environment variable. For more information about Java installation, see the Java website at the following address: <https://www.ibm.com/developerworks/java/jdk/fixes/8/index.html>
The software available for download at the referenced links belongs to a third party or third parties, not Informatica LLC. The download links are subject to the possibility of errors, omissions or change. Informatica assumes no responsibility for such links and/or such software, disclaims all warranties, either express or implied, including but not limited to, implied warranties of merchantability, fitness for a particular purpose, title and non-infringement, and disclaims all liability relating thereto.
For more information about product requirements and supported platforms, see the Product Availability Matrix on Informatica Network: <https://network.informatica.com/community/informatica-network/product-availability-matrices>
- **Microsoft Visual C++ 2008 Redistributable Package (x86).** Install this package if you use the B2B Data Exchange PowerCenter Client plug-in on a Windows Server 2008 64-bit operating system.
The software available for download at the referenced links belongs to a third party or third parties, not Informatica LLC. The download links are subject to the possibility of errors, omissions or change. Informatica assumes no responsibility for such links and/or such software, disclaims all warranties, either express or implied, including but not limited to, implied warranties of merchantability, fitness for a particular purpose, title and non-infringement, and disclaims all liability relating thereto.
- **Java Cryptography Extension (JCE).** Install this package if you are installing B2B Data Exchange with Managed File Transfer on an IBM AIX operating system.

Configure Access to the Data Transformation Service

Configure the PowerCenter Integration Service to access the Data Transformation service.

When you run workflows for B2B Data Exchange that include an Unstructured Data transformation, the PowerCenter Integration Service must be able to access a Data Transformation service.

Configure Microsoft SQL Server Database

If you use a Microsoft SQL Server database for the B2B Data Exchange repository, enable the `READ_COMMITTED_SNAPSHOT` database option. If you install the Dashboard and Reports component, enable this option on the operational data store as well.

Note: If you use Microsoft SQL Server 2012, you can set the option **Is read committed snapshot on** in Microsoft SQL Server Management Studio to **true** instead.

1. Open an SQL query for the database server with rights to set database options.
2. Run the following SQL statements:

```
ALTER DATABASE [<database_name>] SET SINGLE_USER WITH ROLLBACK IMMEDIATE
```

3. Run the following SQL query:

```
ALTER DATABASE <database_name> SET READ_COMMITTED_SNAPSHOT ON
```

4. To verify that this option is set, run the following SQL query:

```
SELECT is_read_committed_snapshot_on FROM sys.databases WHERE name =  
'<database_name>'
```

If the option is set, the query returns the value 1. If the option is not set, the query returns the value 0.

5. Run the following SQL statement to forcefully disconnect all users from the system:

```
ALTER DATABASE [<database_name>] SET MULTI_USER
```

Opening Ports to the Partners Portal

If you want to install the Partners Portal, enable access to the portal in the firewall by opening the HTTP or HTTPS ports from the external network to the Portal server.

Configure the firewall to allow URLs that start with the suffix `/dx-portal` and `/dx-portal-help` only.

To ensure that outside access to the Partners Portal is securely performed, assign the external hostname URL for the portal to the **dx.portal.url** system property. For more information about configuring system properties in the B2B Data Exchange Operation Console, see the *B2B Data Exchange Administrator Guide*.

Configure a Shared File System

You configure B2B Data Exchange components on a shared file system to improve performance and reliability when B2B Data Exchange processes documents and events. Each system component can use a different shared file system as long as every server can access it using the same file path.

Install and configure the following components on a shared file system:

- Document store
- File Receive and File Send endpoints
- Archive service
- JMS messages data directory

Configure the Document Store

Install the document store on a shared network drive so that it is accessible by all the B2B Data Exchange Server instances.

If you process documents by reference, the Informatica domain nodes that run workflows need to use the same file references to access the shared file system. All B2B Data Exchange and Informatica domain nodes require access to the same file server and all nodes must use the same path to the file server. For example, the path `\\shared\\storage_1\\B2B Data Exchange\\document_store\\file_one.txt` must point to the same file from all nodes.

If you upgrade a single instance of B2B Data Exchange Server to a cluster environment and the document store is not accessible by all the nodes in the cluster, you must move the document store to a shared location.

In the repoutil command line utility, run the moveDocumentStore command with the following syntax in a single line:

```
repoutil -c moveDocumentStore -t dx -l <B2B Data Exchange repository jdbc URL> -u <user name> -p <password> --docStore <new document store location>
```

The following example shows a repoutil script for moving the document store in a node that uses a UNIX operating system:

```
./repoutil.sh -c moveDocumentStore -t dx  
-l "jdbc:informatica:oracle://xsvcs103:1521;ServiceName=drep02_taf" -u dxadmin -p  
mypassword --docStore="/u02/app/infa_shared/DX_doc_store"
```

For more information about the repository utility, see the *B2B Data Exchange Administrator Guide*.

Note: Do not move the document store manually. If you manually move the document store, B2B Data Exchange will not reference document attachments for events correctly.

Configure File Endpoints

Define the storage directory for documents that B2B Data Exchange processes through File Receive and File Send endpoints to point to a shared file system that all server instances can access.

For more information about endpoints, see the *B2B Data Exchange Operator Guide*.

Configure the Archive Service

You can run multiple archive tasks in parallel on several B2B Data Exchange Server instances. Verify that there are no conflicts in the archiving criteria, such as multiple instances writing to the same archive file.

For more information about archiving, see the *B2B Data Exchange Administrator Guide*.

Configure JMS Messages Data Directories

Define a shared and reliable location for the cluster to use when sending and receiving JMS messages. The data directory locations may differ depending on the cluster component that processes the JMS messages and the operating system that you use.

If you change the default directory, add the `dx.jms.dataDirectory` property to the relevant configuration file and set the value to the new directory, such as: `dx.jms.dataDirectory=C:/data_directory`

The configuration files for each cluster component that processes JMS messages are located in the following folders:

- **B2B Data Exchange JMS Broker:** <Data Exchange Installation Directory>\DataExchange\message-broker\conf\activemq.xml
- **Data Exchange server:** <Data Exchange Installation Directory>\DataExchange\conf\dx-configuration.properties
- **Operation Console:** <Data Exchange Installation Directory>\DataExchange\tomcat\shared\classes\dx-configuration.properties

The following table describes the default JMS message storage directories for all parts of the B2B Data Exchange JMS Broker component:

Part	Default Directory Location
Windows service	<Data Exchange Installation Directory>\DataExchange\message-broker\data\
Windows command line script	<Data Exchange Installation Directory>\DataExchange\message-broker\data\
UNIX command line script	<Data Exchange Installation Directory>/DataExchange/message-broker/data/

The following table describes the default JMS message storage directories for all parts of the Data Exchange server component:

Part	Default Directory Location
Windows service	<Data Exchange Installation Directory>\DataExchange\activemq-data\
Windows command line script	<Data Exchange Installation Directory>\DataExchange\activemq-data\
UNIX command line script	<Data Exchange Installation Directory>/DataExchange/activemq-data/

The following table describes the default JMS message storage directories for all parts of the Operation Console component:

Part	Default Directory Location
Windows service	<WindowsServicesWorkingDirectory>\activemq-data Note: The typical working services working directory is: C:\Windows\System32\
Windows command line script	<Data Exchange Installation Directory>\DataExchange\tomcat\bin\activemq-data\
UNIX command line script	<Data Exchange Installation Directory>/tomcat/bin/activemq-data/

CHAPTER 3

Set Up a High Availability Cluster on Windows

This chapter includes the following topics:

- [B2B Data Exchange High Availability on Windows Overview, 22](#)
- [Step 1. Install the Document Store, 23](#)
- [Step 2. Install B2B Data Exchange on the First Node, 23](#)
- [Step 3. Install B2B Data Exchange on the Second Node, 37](#)
- [Step 4. Install Informatica Managed File Transfer on the First and Second Node, 44](#)
- [Step 5. Configure B2B Data Exchange Properties for High Availability, 45](#)
- [Step 6. Configure the Informatica Managed File Transfer Properties for High Availability, 45](#)
- [Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions, 46](#)
- [Step 8. Configure the Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions, 47](#)
- [Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability, 47](#)
- [Step 10. Configure the Message Broker for B2B Data Exchange High Availability, 47](#)
- [Step 11. Configure the Dashboard and Reports, 48](#)
- [Restarting B2B Data Exchange, 49](#)
- [Restarting Informatica Managed File Transfer, 50](#)

B2B Data Exchange High Availability on Windows Overview

Install B2B Data Exchange in graphical mode for a high availability cluster that consists of two B2B Data Exchange nodes in the following environment:

- The B2B Data Exchange nodes are running a Windows operating system.
- The B2B Data Exchange repository and the operational data store are on an Oracle database.
- The repositories and the document store are on a Storage Area Network (SAN) storage system.

Before you install, verify that your environment meets the minimum system requirements.

The actual configuration steps may vary according to the cluster type and the B2B Data Exchange components that you use. Tasks vary according to whether you install B2B Data Exchange on a single-

machine cluster or multiple-machine cluster, what type of JMS discovery mode you select, and which B2B Data Exchange components you install.

For information about other configuration options, see [Chapter 5, “Optional High Availability Configuration” on page 66](#).

Step 1. Install the Document Store

Install the document store on a shared network drive so that it is accessible by all the B2B Data Exchange Server instances.

If you process documents by reference, the Informatica domain nodes on which you run workflows need use the same file references to access the shared file system. All B2B Data Exchange and Informatica domain nodes require access to the same file server and all nodes must use the same path to the file server. For example, the path `\\shared\storage_1\B2B Data Exchange\document_store\file_one.txt` must point to the same file from all nodes.

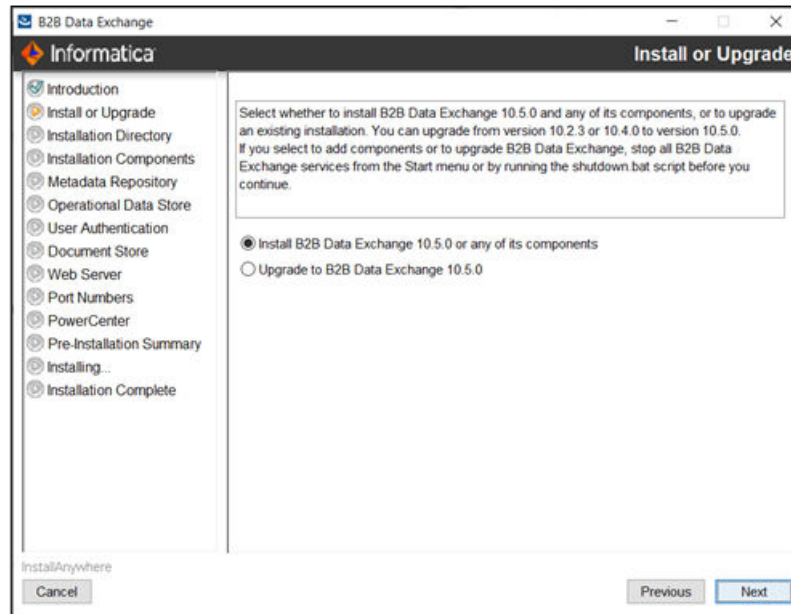
Step 2. Install B2B Data Exchange on the First Node

Install B2B Data Exchange on the first cluster node.

Note: The installation of B2B Data Exchange on the first cluster node is not identical to the installation on the second node. Do not perform this procedure on the second node.

1. Log in to the machine with the user account that you want to use to install B2B Data Exchange.
To prevent permission errors, use the same account to install B2B Data Exchange and PowerCenter.
2. Close all other applications.
3. Run `Install.exe` from the directory where you downloaded the installer.
The **Introduction** page appears.
4. Read the instructions, and then click **Next**.

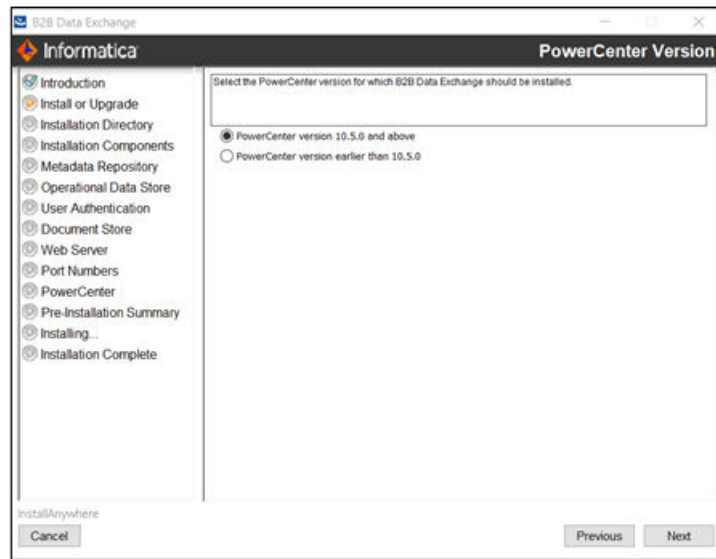
The **Install or Upgrade** page appears.



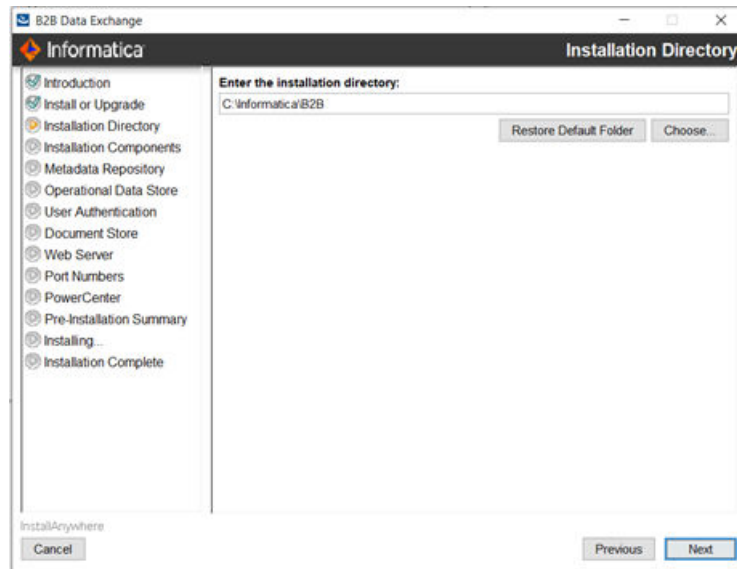
5. Select the option to install B2B Data Exchange, and then click **Next**.

The **PowerCenter Version** page appears.

6. On the **PowerCenter version** page, , select the PowerCenter version for which to install B2B Data Exchangeand then click **Next**.



The **Installation Directory** page appears:



7. Select the components to install:

B2B Data Exchange

Installs the core B2B Data Exchange application.
Selected by default.

B2B Data Exchange Partners Portal

Installs the B2B Data Exchange Partners Portal component. You must install B2B Data Exchange to install the Partners Portal component.
Selected by default.

B2B Data Exchange Dashboard and Reports

Installs the B2B Data Exchange Dashboard and Reports component.
Cleared by default.

Note:

- The Dashboard using metadata directory is installed by default. Select this component to view the reports in the Dashboard using operational data store. For more information, see the *B2B Data Exchange Administrator Guide* and *B2B Data Exchange Operator Guide*.
- If you install the Dashboard and Reports component, you must import the operational data store event loader after you install B2B Data Exchange.

B2B Data Exchange PowerCenter server plug-in

Installs the B2B Data Exchange plug-in for the PowerCenter services. After the installation, you register the plug-in to the PowerCenter repository.
Selected by default.

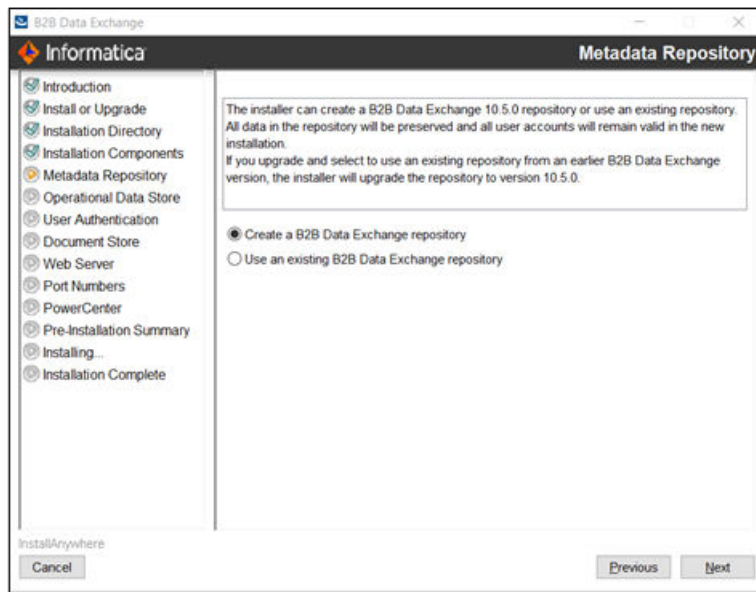
B2B Data Exchange PowerCenter client plug-in

Installs the B2B Data Exchange plug-in for the PowerCenter Client. Install this component on every machine that runs the PowerCenter Client.
Selected by default.

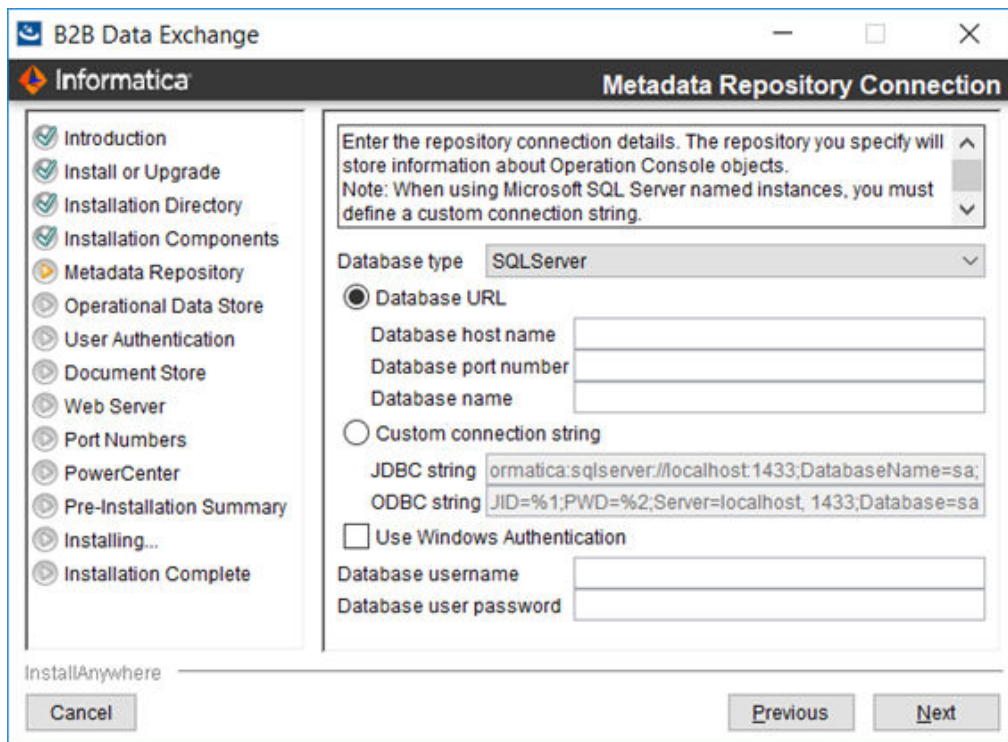
8. Click **Next**.

The **Metadata Repository** page appears.

9. On the **Metadata Repository** page, select one of the following options:
- **Create a B2B Data Exchange repository.** Creates a repository in the database.
 - **Use an existing B2B Data Exchange repository.** Uses the tables and data in an existing B2B Data Exchange repository and upgrades the repository.



10. Click **Next**.
The **Metadata Repository Connection** page appears.



11. Enter values in the following fields:

Database type

Type of database to use for the B2B Data Exchange metadata repository. You can choose one of the following options:

- Oracle
- Microsoft SQL Server

Database URL

Location of the database.

If you select this option, enter the values in the following fields:

- **Database host name.** Host name of the machine where the database server is installed.
- **Database port.** Port number for the database. The default port number for Oracle is 1521. The default port number for Microsoft SQL Server is 1433.
- **Database SID.** System identifier for the database if the database is Oracle. Enter either a fully qualified ServiceName or a fully qualified SID.

Note: It is recommended that you enter a ServiceName in this field.

- **Microsoft SQL Server database .** Database name.

Custom Connection String

Connection string to the database.

If you select this option, enter values in one of the following fields:

- **JDBC string.** JDBC connection string to the metadata repository.
- **ODBC string.** ODBC connection string to the metadata repository. Available if you install the PowerCenter Client plug-in. The installer cannot verify the validity of the ODBC string.

Use Windows Authentication

Instructs B2B Data Exchange to authenticate user names against the Microsoft Windows authentication mechanism. Available when you select a Microsoft SQL Server database.

Database username

Name of the database user account for the database where you do not use Windows authentication.

Database user password

Password for the database account for the database where you do not use Windows authentication. B2B Data Exchange stores the password as an encrypted string.

12. Click **Next**.

If you selected the **B2B Data Exchange Dashboard and Reports** component, the **Operational Data Store** page appears. If you did not select the Dashboard and Reports component, go to [Step 5. Configure User Authentication](#).

13. This applies only if you want to use the deprecated dashboard. On the **Operational Data Store** page, select one of the following options:

- **Create an operational data store repository.** Creates an operational data store repository in the database.
- **Use an existing operational data store repository.** Uses the tables and data in an existing operational data store repository.

14. Click **Next**.

The **Operational Data Store Database Connection** page appears.

15. Enter values in the following fields:

Database URL

Location of the database. If you select this option, enter the values in the following fields:

- **Database host name.** Host name of the machine where the database server is installed.
- **Database port number.** Port number for the database. The default port number for an Oracle database is 1521. The default port number for a Microsoft SQL server is 1433.
- **Database SID.** System identifier for the database if you select Oracle as the database. Enter either a fully qualified ServiceName or a fully qualified SID.

Note: It is recommended that you enter a ServiceName in this field.

- **Microsoft SQL Server database .** Database name.

Custom Connection String

Connection string to the database. If you select this option, enter values in one of the following fields:

- **JDBC string.** JDBC connection string to the Operational Data Store.
- **ODBC string.** ODBC connection string to the Operational Data Store. Available if you install the PowerCenter Client plug-in. The installer cannot verify the validity of the ODBC string.

Note: If you use a named Microsoft SQL Server database instance, you cannot connect to the database instance using the **Database URL** option. Use the **Custom Connection String** option.

For example:

```
jdbc:informatica:sqlserver://MYSQLSERVERCOMPUTERHOSTNAME  
\MYDBINSTANCENAME;DatabaseName=MYDATABASENAME;
```

Use Windows Authentication

Instructs B2B Data Exchange to authenticate user names against the Microsoft Windows authentication mechanism. Available when you select a Microsoft SQL Server database.

Database username

Name of the operational data store user account for the database where you do not use Windows authentication.

Database user password

Password for the operational data store account for the database where you do not use Windows authentication. B2B Data Exchange stores the password as an encrypted string.

16. Click **Next**.

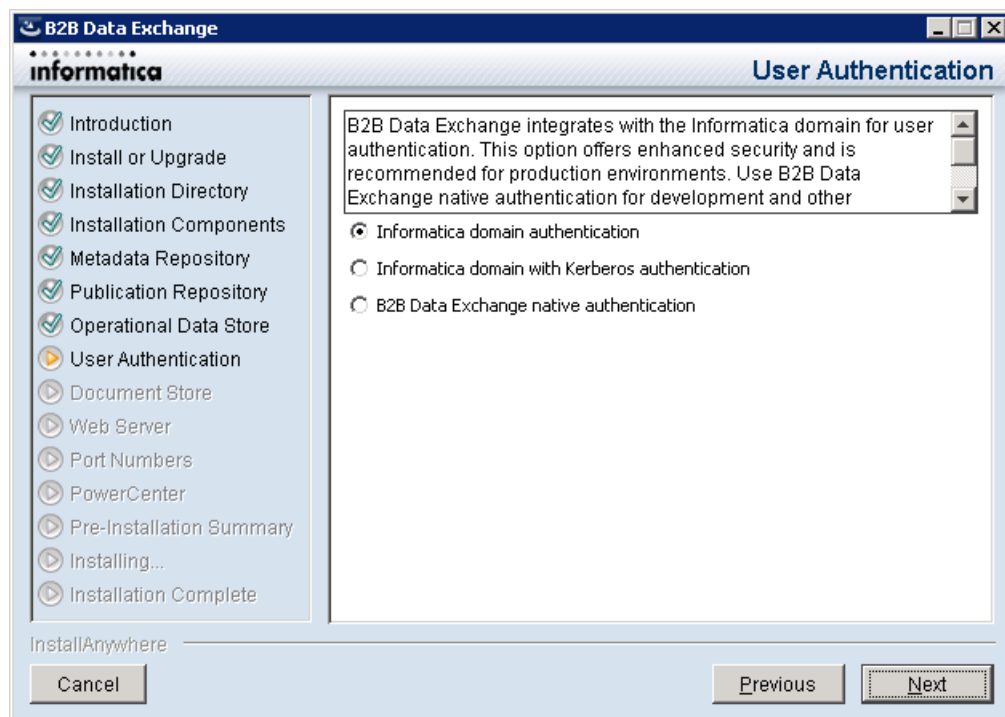
If you create a repository in the database, the **User Authentication** page appears. If you select an existing repository, the installer selects the existing authentication method. Go to [Step 6. Configure Document Store, Web Server, and Port Numbers](#).

17. On the **User Authentication** page, choose the type of user authentication that you want to use.

- Choose **Informatica domain authentication** to manage user credentials in the Informatica domain and synchronize user information with B2B Data Exchange. Use Informatica domain authentication for production environments. For more information, see [19](#).

Note: If your Informatica domain uses Kerberos authentication, choose the option **Informatica domain with Kerberos authentication**.

- Choose **Informatica domain with Kerberos authentication** if the Informatica domain uses Kerberos authentication. Use Informatica domain with Kerberos authentication for production environments. For more information, see [20](#).
- Choose **B2B Data Exchange native authentication** to manage user credentials locally in B2B Data Exchange. Use native authentication in development and staging environments. For more information, see [21](#).



18. Enter the authentication information, and then click **Next**.

The **Data Exchange Document Store** page appears.

19. If you select the **Informatica Domain Authentication** option on the User Authentication page, you can configure the Informatica domain authentication settings on the Informatica Platform Authentication page.

Configure settings for the following fields:

Gateway host

Host name of the Informatica security domain server. B2B Data Exchange stores the host name in the `pwc.domain.gateway` system property.

Gateway port number

Port number for the Informatica security domain gateway. B2B Data Exchange stores the port number in the `pwc.domain.gateway` system property. Use the gateway HTTP port number to connect to the domain from the PowerCenter Client. You cannot use the HTTPS port number to connect to the domain.

Username

User name to access the Administrator tool. You must create the user in the Administrator tool and assign the **manage roles/groups/user** privilege to the user.

Password

Password of the Informatica security domain user.

Security domain

Name of the Informatica security domain where the user is defined.

Security group

Optional. Security group within the Informatica security domain where B2B Data Exchange users are defined in the following format:

```
<security group>@<domain>
```

If you leave the field empty, the Informatica security domain synchronizes only the B2B Data Exchange administrator user account.

B2B Data Exchange stores the security group in the `dx.authentication.groups` system property in the following format:

```
<group name>@<security group>[:<groupname>@<security group>]
```

20. If you select the **Informatica domain with Kerberos authentication** option on the User Authentication page, you can configure the authentication settings on the Informatica Domain with Kerberos Authentication page.

Configure settings for the following fields:

Kerberos configuration file

File that stores Kerberos configuration information, usually named `krb5.conf`

The installation copies the file to the following location:

```
<DXInstallationDir>/shared/conf/security/krb5.conf
```

Operation Console SPN name

Service Principal Name (SPN) for the B2B Data Exchange Operation Console.

B2B Data Exchange stores the SPN in the `dx-security-config.properties` property file, in the `dx.kerberos.console.service.principal.name` property.

Operation Console keytab file

Location of the keytab file for the B2B Data Exchange Operation Console SPN.

The installer copies the file to the following location:

```
<DXInstallationDir>/shared/conf/security/HTTP_console.keytab
```

B2B Data Exchange stores the location of the keytab file in the `dx-security-config.properties` property file, in the `dx.kerberos.console.keytab.file` property.

If you change the property to point to a different file, you must enter the absolute path to the file using the following format:

```
file://<full_path>
```

System Administrator

B2B Data Exchange system administrator credentials.

Enter the credentials in the following format:

```
<username>@<SECURITY_DOMAIN>
```

Note: You must enter `<SECURITY_DOMAIN>` in uppercase letters.

Gateway host

PowerCenter domain gateway host.

Gateway port number

PowerCenter domain gateway port number.

Security group

Optional. Security group within the Informatica security domain where B2B Data Exchange users are defined in the following format:

```
<security_group>@<domain>
```

If you leave the field empty, the Informatica security domain synchronizes only the B2B Data Exchange administrator user account.

B2B Data Exchange stores the security group in the `dx.authentication.groups` system property in the following format:

```
<group name>@<security_group>[:<groupname>@<security_group>]
```

21. If you select the **B2B Data Exchange native authentication** option on the **User Authentication** page, you need to enter the B2B Data Exchange administrator user name on the **Operation Console Administrator** page. B2B Data Exchange uses this value for the user name and password when you log in to the Operation Console.
22. On the **Data Exchange Document Store** page, accept the default directory or enter the directory where you want to create the document store directory.

B2B Data Exchange stores documents and files in the document store during processing. The document store directory must be accessible to B2B Data Exchange, PowerCenter services, and Data Transformation.

The screenshot shows the 'Data Exchange Document Store' configuration window. On the left is a navigation pane with a list of steps: Introduction, Install or Upgrade, Installation Directory, Installation Components, Metadata Repository, Operational Data Store, User Authentication, Document Store (highlighted with a play icon), Web Server, Port Numbers, PowerCenter, Pre-Installation Summary, Installing..., and Installation Complete. The main area contains the instruction 'Select the directory where B2B Data Exchange stores documents during processing.' Below this is a text field with the path 'C:\Informatica\B2B1\DataExchange\dx-data'. To the right of the text field are two buttons: 'Restore Default Folder' and 'Choose...'. At the bottom of the window are 'Cancel', 'Previous', and 'Next' buttons. The 'Next' button is highlighted with a blue border.

23. Click **Next**.

The **Web Server** page appears.

The screenshot shows the 'Web Server' configuration window. The navigation pane on the left is identical to the previous window, but 'Web Server' is now highlighted with a play icon. The main area contains the instruction 'Specify the Web Server (Tomcat) port numbers and connection details.' followed by a note: 'If you select HTTP and HTTPS ports, HTTPS will always be used and HTTP requests will be redirected to the HTTPS port.' Below this are several configuration options: a checked checkbox for 'Enable HTTPS', a 'Connector port number' text field, two radio buttons for 'Use a keystore file generated by the installer' (selected) and 'Use an existing keystore file', a 'Keystore password' text field, a 'Keystore file' text field with a browse button (...), a checked checkbox for 'HTTP connector port number', and a 'Server shutdown listener port number' text field. At the bottom are 'Cancel', 'Previous', and 'Next' buttons. The 'Next' button is highlighted with a blue border.

24. Enter values in the following fields:

Enable HTTPS

Instructs B2B Data Exchange to use secure network communication when you open the Operation Console in the browser. If you select HTTPS and HTTP, the Operation Console switches existing HTTP connections with HTTPS connections.

Connector port number

Port number for the Tomcat connector to use when you open the Operation Console with HTTPS. The default value is 18443.

Use a keystore file generated by the installer

Instructs the installer to generate a keystore file with an unregistered certificate. If you select this option, ignore the security warning that you receive from the browser the first time you open the Operation Console.

Use an existing keystore file

Instructs the installer to load an existing keystore file. Enter values in the following fields:

- Keystore password. Password for the keystore file.
- Keystore file. Path to the keystore file.

The keystore file must be in the Public Key Cryptography Standard (PKCS) #12 format.

HTTP connector port number

Port number for the HTTP connector. If you clear this field, your browser must connect to the B2B Data Exchange server with HTTPS when you log in to the Operation Console. The default value is 18080.

Server shutdown listener port number

Port number for the listener that controls the Tomcat server shutdown. The default value is 18005.

25. Click **Next**.

The **Port Numbers** page appears.

The screenshot shows a window titled "B2B Data Exchange" with a sub-header "Port Number". On the left is a navigation pane with a list of steps: Introduction, Install or Upgrade, Installation Directory, Installation Components, Metadata Repository, Operational Data Store, User Authentication, Document Store, Web Server, Port Numbers (highlighted with a yellow arrow), PowerCenter, Pre-Installation Summary, Installing..., and Installation Complete. The main area contains the text "Specify the JMX listener port number for the B2B Data Exchange JMS Broker." and a text input field labeled "JMX listener port number". At the bottom, there are "Cancel", "Previous", and "Next" buttons. The "Next" button is highlighted with a dashed border.

26. Enter the port number for the B2B Data Exchange JMS Broker JMX listener port or accept the default port, and then click **Next**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter or the B2B Data Exchange client plug-in for PowerCenter components, the **PowerCenter Location** page appears. If you did not select the PowerCenter server or client components, the **PowerCenter Web Services Hub** page appears.

27. On the **PowerCenter Web Services Hub** page, enter the PowerCenter web services details.

Web Services Hub URL

URL that the PowerCenter Web Services Hub uses when B2B Data Exchange transfers documents to PowerCenter for processing with batch workflows.

Service name

Name of the PowerCenter Repository Service.

Node host name

Host name of the node that runs the PowerCenter Repository Service.

Node port number

Port number of the node that runs the PowerCenter Repository Service.

Username

Name of the PowerCenter Repository Service user.

Password

Password for the PowerCenter Repository Service user. B2B Data Exchange stores the password as an encrypted string.

Security domain

Optional. Name of the Informatica security domain in which the PowerCenter Repository Service user is stored.

Default is Native.

28. Click **Next**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter component, the **PowerCenter Domain Settings** page appears.

If you did not select the PowerCenter server component, the **PowerCenter pmrep Command Line Utility Location** page appears. Go to step [6](#).

The screenshot shows a Windows-style window titled "B2B Data Exchange" with a standard title bar (minimize, maximize, close). Below the title bar is a dark header bar with the Informatica logo on the left and the text "PowerCenter Domain Settings" on the right. The main content area is divided into two panes. The left pane contains a vertical list of installation steps, each with a circular icon: Introduction, Install or Upgrade, Installation Directory, Installation Components, Metadata Repository, Operational Data Store, User Authentication, Document Store, Web Server, Port Numbers, PowerCenter (highlighted with an orange arrow), Pre-Installation Summary, Installing..., and Installation Complete. The right pane contains a text box with the instruction "Specify the Informatica domain, the administrator user account, and the PowerCenter Integration Service to run workflows." Below this are five input fields: "Domain name", "Node name", "Domain administrator username", "Domain administrator password", and "Integration Service name". At the bottom of the window, there is a status bar with the text "InstallAnywhere" on the left, a "Cancel" button in the center, and "Previous" and "Next" buttons on the right.

29. Enter values in the following fields:

Domain name

Name of the Informatica domain that contains the PowerCenter Integration Service that runs B2B Data Exchange workflows.

Node name

Node in the Informatica domain on which the PowerCenter Integration Service runs.

Domain administrator username

Name of the Informatica domain administrator.

Domain administrator password

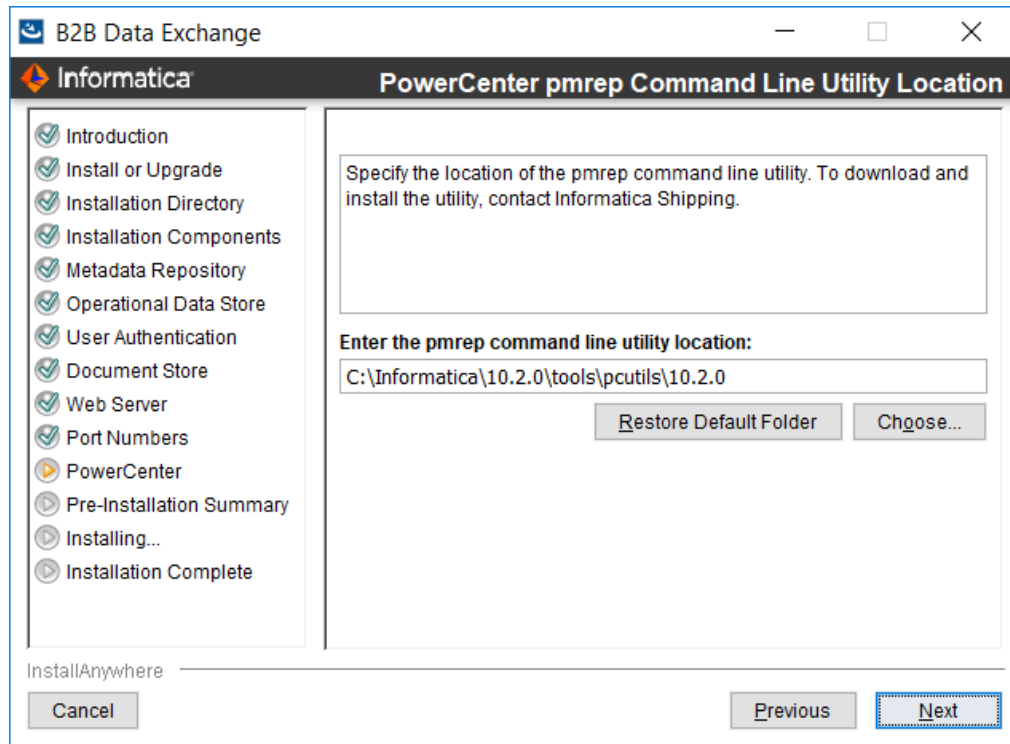
Password for the Informatica domain administrator. B2B Data Exchange stores the password as an encrypted string.

Integration Service name

The name of the PowerCenter Integration Service that B2B Data Exchange uses to run workflows.

30. Click **Next**.

The **PowerCenter pmrep Command Line Utility Location** page appears.



31. Specify the location of the pmrep command line utility.

The location of the utility depends on whether or not you install B2B Data Exchange on the machine where the PowerCenter services are installed.

Environment	Location of the pmrep command line utility
B2B Data Exchange installed on the machine where the PowerCenter services are installed	<PowerCenter_services_installation_folder> \<PowerCenter_version>\tools\pcutils \<PowerCenter_version>
B2B Data Exchange and PowerCenter services installed on different machines	<PowerCenter_client_installation_folder> \<PowerCenter_version>\clients\PowerCenterClient \client\bin

32. Click **Next**.

The **Pre-Installation Summary** page appears.

33. If you installed the B2B Data Exchange PowerCenter server plug-in, follow the wizard instructions to register the plug-in to the PowerCenter repository, and then click **Next**.

The **Installation Complete** page appears.

34. Click **Done** to close the installer.

35. To view the log files that the installer generates, navigate to the following directory:
<DXInstallationDir>\logs.

36. Perform the required post-installation tasks. For more information, see the section "Post-Installation Tasks" in the *B2B Data Exchange Installation and Configuration Guide*.

Note: Perform only the tasks that are relevant for your environment.

37. Optionally, perform additional configuration tasks. For more information, see the section "Optional B2B Data Exchange Configuration" in the *B2B Data Exchange Installation and Configuration Guide*.

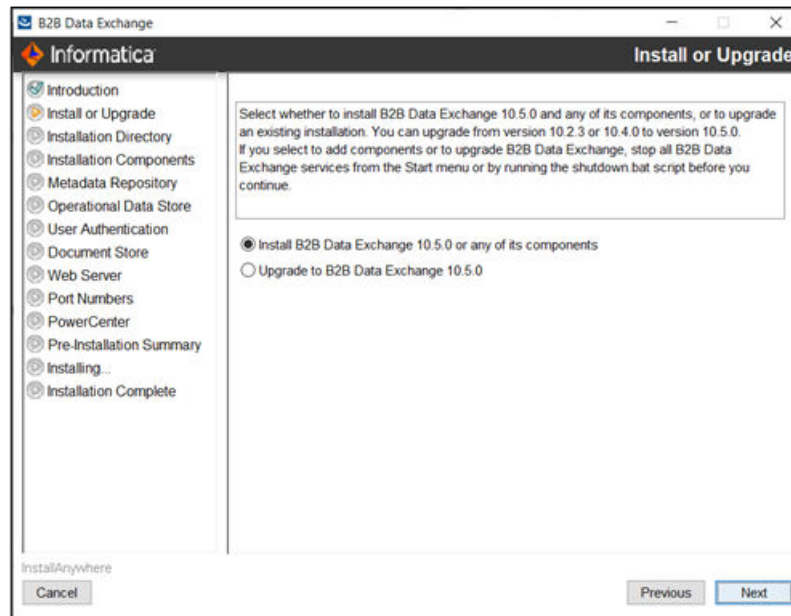
Step 3. Install B2B Data Exchange on the Second Node

Install B2B Data Exchange on the second cluster node.

Note: The installation of B2B Data Exchange on the second cluster node is not identical to the installation on the first node. Do not perform this procedure on the first node.

1. Log in to the machine with the user account that you want to use to install B2B Data Exchange.
To prevent permission errors, use the same account to install B2B Data Exchange and PowerCenter.
2. Close all other applications.
3. Run `Install.exe` from the directory where you downloaded the installer.
The **Introduction** page appears.
4. Read the instructions, and then click **Next**.

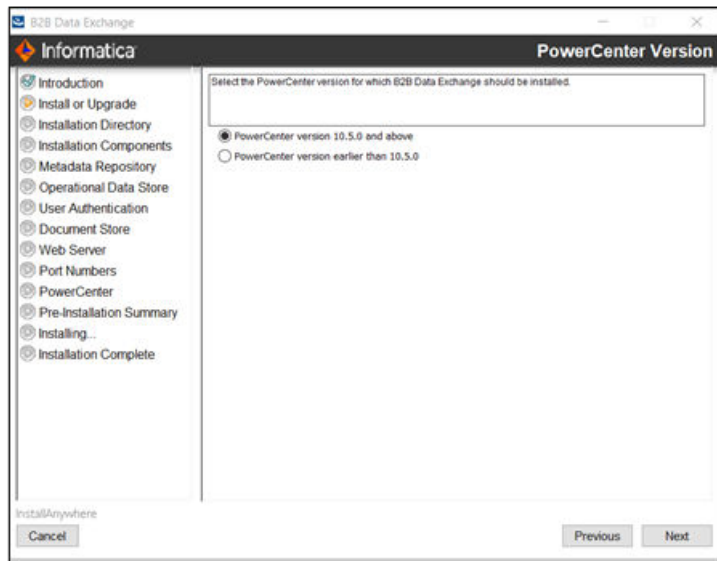
The **Install or Upgrade** page appears.



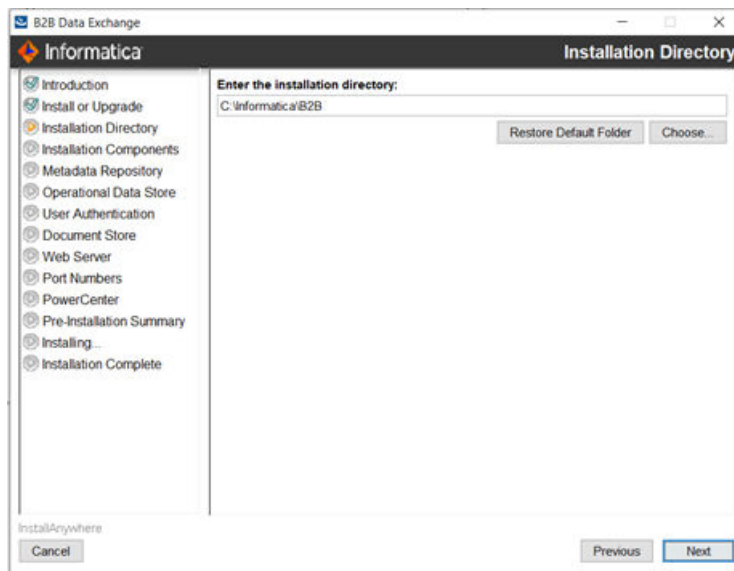
5. Select the option to install B2B Data Exchange, and then click **Next**.

The **PowerCenter Version** page appears.

- On the **PowerCenter version** page, , select the PowerCenter version for which to install B2B Data Exchange and then click **Next**.



The **Installation Directory** page appears:



- Select the components to install:

B2B Data Exchange

Installs the core B2B Data Exchange application.
Selected by default.

B2B Data Exchange Partners Portal

Installs the B2B Data Exchange Partners Portal component. You must install B2B Data Exchange to install the Partners Portal component.
Selected by default.

B2B Data Exchange Dashboard and Reports

Installs the B2B Data Exchange Dashboard and Reports component.
Cleared by default.

Note:

- The Dashboard using metadata directory is installed by default. Select this component to view the reports in the Dashboard using operational data store. For more information, see the *B2B Data Exchange Administrator Guide* and *B2B Data Exchange Operator Guide*.
- If you install the Dashboard and Reports component, you must import the operational data store event loader after you install B2B Data Exchange.

B2B Data Exchange PowerCenter server plug-in

Installs the B2B Data Exchange plug-in for the PowerCenter services. After the installation, you register the plug-in to the PowerCenter repository.
Selected by default.

B2B Data Exchange PowerCenter client plug-in

Installs the B2B Data Exchange plug-in for the PowerCenter Client. Install this component on every machine that runs the PowerCenter Client.
Selected by default.

8. Click **Next**.

The **Metadata Repository** page appears.

9. In the **Metadata Repository** page, enter **Use an existing B2B Data Exchange repository**.

10. Click **Next**.

The **Metadata Repository Connection** page appears.

The screenshot shows the 'B2B Data Exchange' window with the 'Metadata Repository Connection' tab selected. On the left is a navigation pane with various installation steps, including 'Metadata Repository' which is currently active. The main area contains instructions to enter repository connection details. The 'Database type' is set to 'SQLServer'. Under 'Database URL', the 'Database host name', 'Database port number', and 'Database name' fields are empty. Under 'Custom connection string', the 'JDBC string' is 'ormatica:sqlserver://localhost:1433;DatabaseName=sa;' and the 'ODBC string' is 'JID=%1;PWD=%2;Server=localhost, 1433;Database=sa'. The 'Use Windows Authentication' checkbox is unchecked. At the bottom, there are 'Cancel', 'Previous', and 'Next' buttons.

11. Enter the same values that you entered in the fields when you installed B2B Data Exchange on the first node.

12. Click **Next**.

If you selected to install the B2B Data Exchange Dashboard and Reports component, the **Operational Data Store** page appears. If you did not select to install the Dashboard and Reports component, go to step [17](#) to configure the Web Server connection.

13. In the **Operational Data Store** section, enter **Use an existing operational data store repository**.

The **Operational Data Store Database Connection** section appears.

14. Enter the same values that you entered in the fields when you installed B2B Data Exchange on the first node.

15. Click **Next**.

The **Web Server** page appears.

B2B Data Exchange

Informatica Web Server

Introduction

Install or Upgrade

Installation Directory

Installation Components

Metadata Repository

Operational Data Store

User Authentication

Document Store

Web Server

Port Numbers

PowerCenter

Pre-Installation Summary

Installing...

Installation Complete

Specify the Web Server (Tomcat) port numbers and connection details.

If you select HTTP and HTTPS ports, HTTPS will always be used and HTTP requests will be redirected to the HTTPS port.

☒ Enable HTTPS

Connector port number

☒ Use a keystore file generated by the installer

☐ Use an existing keystore file

Keystore password

Keystore file

☒ HTTP connector port number

Server shutdown listener port number

InstallAnywhere

Cancel Previous Next

16. Enter values in the following fields:

Enable HTTPS

Instructs B2B Data Exchange to use secure network communication when you open the Operation Console in the browser. If you select HTTPS and HTTP, the Operation Console switches existing HTTP connections with HTTPS connections.

Connector port number

Port number for the Tomcat connector to use when you open the Operation Console with HTTPS. The default value is 18443.

Use a keystore file generated by the installer

Instructs the installer to generate a keystore file with an unregistered certificate. If you select this option, ignore the security warning that you receive from the browser the first time you open the Operation Console.

Use an existing keystore file

Instructs the installer to load an existing keystore file. Enter values in the following fields:

- Keystore password. Password for the keystore file.
- Keystore file. Path to the keystore file.

The keystore file must be in the Public Key Cryptography Standard (PKCS) #12 format.

HTTP connector port number

Port number for the HTTP connector. If you clear this field, your browser must connect to the B2B Data Exchange server with HTTPS when you log in to the Operation Console.

The default value is 18080.

Server shutdown listener port number

Port number for the listener that controls the Tomcat server shutdown.

The default value is 18005.

17. Click **Next**.

The **Port Numbers** page appears.

The screenshot shows a window titled "B2B Data Exchange" with a sub-header "Port Number". On the left is a navigation pane with a list of steps: Introduction, Install or Upgrade, Installation Directory, Installation Components, Metadata Repository, Operational Data Store, User Authentication, Document Store, Web Server, Port Numbers (highlighted with a yellow arrow), PowerCenter, Pre-Installation Summary, Installing..., and Installation Complete. The main area contains the text "Specify the JMX listener port number for the B2B Data Exchange JMS Broker." and a text input field labeled "JMX listener port number". At the bottom, there are three buttons: "Cancel", "Previous", and "Next" (which is highlighted with a blue border).

18. Enter the port number for the B2B Data Exchange JMS Broker JMX listener port or accept the default port, and then click **Next**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter or the B2B Data Exchange client plug-in for PowerCenter components, the **PowerCenter Location** page appears. If you did not select the PowerCenter server or client components, the **PowerCenter Web Services Hub** page appears.

19. On the **PowerCenter Web Services Hub** page, enter the PowerCenter web services details.

Web Services Hub URL

URL that the PowerCenter Web Services Hub uses when B2B Data Exchange transfers documents to PowerCenter for processing with batch workflows.

Service name

Name of the PowerCenter Repository Service.

Node host name

Host name of the node that runs the PowerCenter Repository Service.

Node port number

Port number of the node that runs the PowerCenter Repository Service.

Username

Name of the PowerCenter Repository Service user.

Password

Password for the PowerCenter Repository Service user. B2B Data Exchange stores the password as an encrypted string.

Security domain

Optional. Name of the Informatica security domain in which the PowerCenter Repository Service user is stored.

Default is Native.

20. Click **Next**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter component, the **PowerCenter Domain Settings** page appears.

If you did not select the PowerCenter server component, the **PowerCenter pmrep Command Line Utility Location** page appears. Go to step [6](#).

The screenshot shows a window titled "B2B Data Exchange" with a sub-header "Informatica PowerCenter Domain Settings". On the left is a vertical list of installation steps, each with a circular icon: Introduction, Install or Upgrade, Installation Directory, Installation Components, Metadata Repository, Operational Data Store, User Authentication, Document Store, Web Server, Port Numbers, PowerCenter (highlighted with an orange arrow), Pre-Installation Summary, Installing..., and Installation Complete. The main area contains a text box with the instruction: "Specify the Informatica domain, the administrator user account, and the PowerCenter Integration Service to run workflows." Below this are four input fields: "Domain name", "Node name", "Domain administrator username", and "Domain administrator password" (grouped together), followed by "Integration Service name". At the bottom left is a "Cancel" button, and at the bottom right are "Previous" and "Next" buttons. The "InstallAnywhere" logo is visible in the bottom left corner of the window frame.

21. Enter values in the following fields:

Domain name

Name of the Informatica domain that contains the PowerCenter Integration Service that runs B2B Data Exchange workflows.

Node name

Node in the Informatica domain on which the PowerCenter Integration Service runs.

Domain administrator username

Name of the Informatica domain administrator.

Domain administrator password

Password for the Informatica domain administrator. B2B Data Exchange stores the password as an encrypted string.

Integration Service name

The name of the PowerCenter Integration Service that B2B Data Exchange uses to run workflows.

22. Click **Next**.

The **PowerCenter pmrep Command Line Utility Location** page appears.

23. Specify the location of the pmrep command line utility.

The location of the utility depends on whether or not you install B2B Data Exchange on the machine where the PowerCenter services are installed.

Environment	Location of the pmrep command line utility
B2B Data Exchange installed on the machine where the PowerCenter services are installed	<PowerCenter_services_installation_folder> \<PowerCenter_version>\tools\pcutils \<PowerCenter_version>
B2B Data Exchange and PowerCenter services installed on different machines	<PowerCenter_client_installation_folder> \<PowerCenter_version>\clients\PowerCenterClient \client\bin

24. Click **Next**.
The **Pre-Installation Summary** page appears.
25. If you installed the B2B Data Exchange PowerCenter server plug-in, follow the wizard instructions to register the plug-in to the PowerCenter repository, and then click **Next**.
The **Installation Complete** page appears.
26. Click **Done** to close the installer.
27. To view the log files that the installer generates, navigate to the following directory:
<DXInstallationDir>\logs.
28. Perform the required post-installation tasks. For more information, see the section "Post-Installation Tasks" in the *B2B Data Exchange Installation and Configuration Guide*.
Note: Perform only the tasks that are relevant for your environment.
29. Optionally, perform additional configuration tasks. For more information, see the section "Optional B2B Data Exchange Configuration" in the *B2B Data Exchange Installation and Configuration Guide*.

Step 4. Install Informatica Managed File Transfer on the First and Second Node

Install Informatica Managed File Transfer on the first cluster node and then on the second cluster node.

1. Login to the target Windows system as an administrator.
2. Download the B2B Data Exchange installer `Install.exe` file.
3. On the first node, execute the downloaded `Install.exe` file and follow the prompts on the screens.
4. On the second node, execute the downloaded `Install.exe` file and follow the prompts on the screens. When you are requested to select a repository, select to use an existing Managed File Transfer repository. Enter the same values that you entered in the fields when you installed the first node.

Step 5. Configure B2B Data Exchange Properties for High Availability

Configure B2B Data Exchange properties on both of the cluster nodes.

1. On both of the cluster nodes, open the B2B Data Exchange properties configuration file from the following location:

```
<DXInstallationDir>\conf\dx-configuration.properties
```

2. Add a comment indicator to the `dx.jms.multicastAddress` property.
3. Remove the comment indicator from the `dx.AMQ.discovery` property.
4. Remove the comment indicator from the `dx.AMQ.static.discovery.address` property and replace the syntax example with real values. Each node in the cluster requires two entries.

For example:

```
dx.AMQ.static.discovery.address=static:(tcp://10.10.10.1:18100,tcp://  
10.10.10.1:18050,tcp://10.10.10.2:18100,tcp://10.10.10.2:18050)?  
jms.prefetchPolicy.queuePrefetch=1
```

5. In the `dx.cluster.name` property, provide the same name for every cluster node.
6. Save the file on both cluster nodes.
7. On both of the cluster nodes, perform steps 2 to 6 in the following file:

```
<DXInstallationDir>\DataExchange\tomcat\shared\classes\dx-configuration.properties
```
8. Ensure that you have load balanced the B2B Data Exchange servers as relevant to the type of load balancer. Load balance the B2B Data Exchange URL at port 19553.
9. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
10. Change the value of the `dx.console.url` property to the load balancer URL, in the following format:
`http://<load_balancer>:<load_balancer_port>/dx-console.`
For example: `http://host1:80/dx-console`
11. Change the value of the `dx.endpoint.jms.provider.url` property to use failover transport. Each node in the cluster requires one entry.

For example:

```
failover://(nio://node1:18616,nio://node2:18616)?jms.prefetchPolicy.queuePrefetch=1
```

Step 6. Configure the Informatica Managed File Transfer Properties for High Availability

Configure Informatica Managed File Transfer properties on both of the cluster nodes.

1. Ensure that you have load balanced the Managed File Transfer servers as relevant to the type of load balancer.
2. On the first node, open the cluster configuration file from the following location:

```
<MFTInstallationDir>\server\config\cluster.xml. Perform the following steps:
```

- a. For the `systemName` property, provide a unique name for the cluster node, for example `NodeA`.

- b. For the `clusterBindAddress` property, provide the IP address for the node, for example `10.75.141.164`.
3. Similarly, on the second node, open the cluster configuration file `<MFTInstallationDir>\server\config\cluster.xml`. Perform the following steps:
 - a. For the `systemName` property, provide the name of the second cluster node, for example `NodeB`.
 - b. For the `clusterBindAddress` property, provide the IP address for the node, for example `10.75.141.138`.
4. On both nodes, open the configuration file from the following location:
`<MFTInstallationDir>\server\config\dx-configuration.properties`. Perform the following steps:
 - a. For the `dx.server.host` property, provide the load balancer IP.
 - b. For the `dx.server.port` property, provide the relevant load balancer port.
5. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
6. When you define the required system properties, set the value of the `infamft.console.url` property to the load balancer URL, in the following format: `http://<load_balancer>:<load_balancer_port>/informaticamft`.
 For example: `http://host1:80/informaticamft`

Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions

Configure HTTP load balancer sticky sessions on both of the B2B Data Exchange cluster nodes.

1. On both of the cluster nodes, create a backup of the following file:

```
<DXInstallationDir>\DataExcahnge\tomcat\conf\server.xml
```

Name the backup file `server.xml.bak`

2. On both of the cluster nodes, in the file `server.xml`, change the value of the attribute `jvmRoute` in the element `Engine` to the physical computer name, for example, `Tomcat-A`. The value of the `jvmRoute` attribute must be unique for each Tomcat instance.
3. Save the file on both cluster nodes.

Step 8. Configure the Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions

Configure HTTP load balancer sticky sessions on both of the Informatica Managed File Transfer cluster nodes.

1. On both of the cluster nodes, create a backup of the following file:

```
<MFTInstallationDir>\server\tomcat\conf\server.xml
```

Name the backup file `server.xml.bak`

2. On both of the cluster nodes, in the file `server.xml`, add the new attribute `jvmRoute` in the element `Engine` to the physical computer name, for example, `Tomcat-A`. The value of the `jvmRoute` attribute must be unique for each Tomcat instance.
3. Save the file on both cluster nodes.

Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability

Configure PowerCenter settings for B2B Data Exchange high availability. You configure the settings once for the entire cluster.

1. On a PowerCenter Client machine open PowerCenter Workflow Manager, select **Connections > Application**, and change the JNDI provider URL of the JMS connection factory, for example:

```
failover:(nio://10.36.8.26:18616,tcp://10.36.8.38:18616)
?jms.prefetchPolicy.queuePrefetch=1
```

2. Open the Informatica Administrator tool, and then open the **Processes** tab of the PowerCenter Integration Service.
3. In the environment variable list, in the `DX_SERVER_URL` variable, enter an address and port number for each of the B2B Data Exchange cluster nodes in the following format:

```
rmi://<node1_address>:<port>[;rmi://<node2_address>:<port>]
```

For example: `rmi://node1:18095;rmi://node2:18095`

Verify that the port number matches the value in the `dx.rmi.port` configuration property.

4. Configure any other node-dependent PowerCenter Integration Service properties, such as the Java system properties, to use the IP addresses and port numbers of the B2B Data Exchange cluster nodes.

Step 10. Configure the Message Broker for B2B Data Exchange High Availability

Configure the B2B Data Exchange JMS Broker on both of the cluster nodes.

1. On both of the cluster nodes, open the JMS Broker configuration file from the following location:

```
<DXInstallationDir>\DataExchange\message-broker\conf\activemq.xml
```

2. In the `<broker>` element, in the `dataDirectory` attribute, enter the name of a shared directory. For example:

```
<broker xmlns="https://activemq.apache.org/schema/core/" brokerName="localhost" dataDirectory="\users\infa\node1" useJmx="true">
```

Enter a different directory on each cluster node.

3. In the `<broker>` element, add the following element:

```
<plugins>
  <redeliveryPlugin fallbackToDeadLetter="true" sendToDlqIfMaxRetriesExceeded="true">
    <redeliveryPolicyMap>
      <redeliveryPolicyEntries>
        <!-- a destination specific policy -->
        <redeliveryPolicy queue="SpecialQueue" maximumRedeliveries="4"
redeliveryDelay="10000"/>
      </redeliveryPolicyEntries>
        <!-- the fallback policy for all other destinations -->
        <defaultEntry>
          <redeliveryPolicy maximumRedeliveries="10" initialRedeliveryDelay="1000"
redeliveryDelay="1000"/>
        </defaultEntry>
      </redeliveryPolicyMap>
    </redeliveryPolicyMap>
  </redeliveryPlugin>
</plugins>
<schedulerSupport="true">
```

4. In the `<kahaDB>` element, in the `directory` attribute, enter the name of a shared storage directory. For example:

```
<kahaDB directory="\users\infa\sharedFolder"
checksumJournalFiles="true"
checkForCorruptJournalFiles="true" />
```

Enter the same directory for both cluster nodes.

5. In the `<transportConnector>` element, in the `uri` attribute, enter the IP address of the standard message transfer connector. For example:

```
<transportConnector name="openwire" uri="nio://0.0.0.0:18616"
useQueueForAccept=false"/>
```

Enter the same IP address and port number for both cluster nodes.

6. Save the file on both cluster nodes.

Step 11. Configure the Dashboard and Reports

If the Dashboard and Reports component is installed, perform the following task on all the cluster nodes.

1. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
2. In the `dx.dashboard.url` system property, enter the load balancer URL in the following format: `http://<load_balancer>:<load_balancer_port>/dx-dashboard`

For example:

```
http://host1:80/dx-dashboard
```

3. Configure the operational data store (ODS) workflow file with the standard PowerCenter high availability configuration. The workflow file resides in the following location:

```
<DXInstallationDir>\powercenter\ETL\DX_ETL_SQLSERVER.XML
```


For more information about configuring ODS, see *B2B Data Exchange Installation and Configuration* guide.

4. To restart the Tomcat server, restart the DataExchange services. Perform the following steps:
 - a. In the Start menu, click **Informatica > B2B Data Exchange**.
 - b. Select **Stop Services**.
 - c. After all the services stop, select **Start Services**.
All the B2B Data Exchange services start.
5. If you customized the Dashboard, deploy the customization on all of the machines in the cluster.
6. To make changes to a Dashboard user setting and apply the changes to all Dashboard users, perform the following steps:
 - a. Set the shared folder directory in the `dx.dashboard.users.layout.path` system property. For example `\\NetworkDir\\SavedDashboards`.
 - b. In the shared folder for the saved dashboard application, such as `\\NetworkDir\\SavedDashboards`, find the `default_dashboard.json` and `dxdashboard<userID>.json` files.
The `default_dashboard.json` file has the default settings for the Dashboard. Each user has a unique `dxdashboard<userID>.json` file, named with the user ID for that user, that contains the Dashboard settings for that user.
 - c. Take a backup of the `default_dashboard.json` file.
 - d. Change settings for a particular user. Take a backup of the `dxdashboard<userID>.json` file for the user whose settings you changed and want to replicate.
 - e. To overwrite the default dashboard settings, rename the `dxdashboard<userID>.json` file for the user whose settings you changed to `default_dashboard.json`.
 - f. Delete the `dxdashboard<userID>.json` files.

Restarting B2B Data Exchange

On Windows operating systems, you can use the Start menu to start and stop all B2B Data Exchange services. You cannot start or stop a single service from the Start menu.

1. In the Start menu, click **Informatica > B2B Data Exchange**.
2. Select **Stop Services**.
All the B2B Data Exchange services stop.
3. After the services stop, select **Start Services**.
All the B2B Data Exchange services start.
4. After the services start, select **Operation Console**.
The B2B Data Exchange **Operation Console** opens in a Web browser.
5. In the operation console, click **Administration > System properties**. In the `dx.dashboard.users.layout.path` property, provide the path of the shared location of the dashboard layout files. The file includes the customization made to the tabs and panels in the dashboard.
For example: `\\NetworkDir\\ SavedDashboards`.

Restarting Informatica Managed File Transfer

On Windows operating systems, stop and the restart Informatica Managed File Transfer.

1. Login with an administrator account.
 2. Go to **Control Panel > Administrative tools > Services**.
 3. In the **Services** window, right-click on **Managed File Transfer** and select **Stop**.
 4. After the services stop, right-click on **Managed File Transfer** and select **Start Services**.
- All the Managed File Transfer services start.

CHAPTER 4

Steps to Setting Up a High Availability Cluster in Linux

This chapter includes the following topics:

- [B2B Data ExchangeHigh Availability on Linux Overview, 51](#)
- [Step 1. Install the Document Store, 52](#)
- [Step 2. Install B2B Data Exchange on the First Node, 52](#)
- [Step 3. Install B2B Data Exchange on the Second Node, 57](#)
- [Step 4. Install Informatica Managed File Transfer on the First and Second Node, 60](#)
- [Step 5. Configure B2B Data Exchange Properties for High Availability, 61](#)
- [Step 6. Configure the Informatica Managed File Transfer Properties for High Availability, 62](#)
- [Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions, 62](#)
- [Step 8. Configure Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions, 63](#)
- [Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability, 63](#)
- [Step 10. Configure the Message Broker for B2B Data Exchange High Availability, 63](#)
- [Step 11. Configure the Dashboard and Reports, 64](#)
- [Restart Services, 65](#)

B2B Data ExchangeHigh Availability on Linux Overview

Install B2B Data Exchange in console mode for a high availability cluster that consists of two B2B Data Exchange nodes in the following environment:

- The B2B Data Exchange nodes are running a Linux operating system.
- The B2B Data Exchange repository and the operational data store are on an Oracle database.
- The repositories and the document store are on a Storage Area Network (SAN) storage system.

Before you install, verify that your environment meets the minimum system requirements.

The actual configuration steps may vary according to the cluster type and the B2B Data Exchange components that you use. Tasks vary according to whether you install B2B Data Exchange on a single-machine cluster or multiple-machine cluster, what type of JMS discovery mode you select, and which B2B Data Exchange components you install.

For information about other configuration options, see [Chapter 5, “Optional High Availability Configuration” on page 66](#).

Step 1. Install the Document Store

Install the document store on a shared network drive so that it is accessible by all the B2B Data Exchange Server instances.

If you process documents by reference, the Informatica domain nodes that run workflows need use the same file references to access the shared file system. All B2B Data Exchange and Informatica domain nodes require access to the same file server and all nodes must use the same path to the file server. For example, the path `//shared/storage_1/B2B Data Exchange/document_store/file_one.txt` must point to the same file from all nodes.

Step 2. Install B2B Data Exchange on the First Node

Install B2B Data Exchange on the first node.

Note: The installation of B2B Data Exchange on the first node is not identical to the installation on the second node. Do not perform this procedure on the second node.

1. Log in to the machine with the user account that you want to use to install B2B Data Exchange.
To prevent permission errors, use the same account to install B2B Data Exchange and PowerCenter.
2. Close all other applications.
3. Run the `Install.bin -i console` command.
The **Introduction** section appears.
4. Read the instructions, and then press **Enter**.
The **Install or Upgrade** section appears.
5. Select to install B2B Data Exchange, and then press **Enter**.
The **PowerCenter Version** section appears.
6. Select the PowerCenter version for which you want to install B2B Data Exchange, and then press **Enter**.
The **Installation Directory** section appears.
7. In the **Installation Directory** section, enter the absolute path to the installation directory or accept the default directory, and then press **Enter**.
The **Installation Components** section appears and displays a numbered list of the components to install.
8. Enter a comma-separated list of numbers for the components to install or accept the default components:
1-B2B Data Exchange
Installs the core B2B Data Exchange application.
Selected by default.

2-B2B Data Exchange Partners Portal

Installs the B2B Data Exchange Partners Portal component. You must install B2B Data Exchange to install the Partners Portal component.

Selected by default.

3-B2B Data Exchange Dashboard and Reports

Installs the B2B Data Exchange Dashboard and Reports component.

Cleared by default.

Note:

- The Dashboard using metadata directory is installed by default. Select this component to view the reports in the Dashboard using operational data store. For more information, see the *B2B Data Exchange Administrator Guide* and *B2B Data Exchange Operator Guide*.
- If you install the Dashboard and Reports component, you must import the operational data store event loader after you install B2B Data Exchange.

4-B2B Data Exchange Server Plug-in for PowerCenter

Installs the B2B Data Exchange PowerCenter server plug-in component. After the installation, register the plug-in to the Powercenter repository.

Selected by default.

9. Press **Enter**.

The **Metadata Repository** section appears.

10. Select **1- Create a B2B Data Exchange repository** and press **Enter**.

The **Metadata Repository Connection** section appears.

11. Enter **1** to select Oracle as the B2B Data Exchange metadata repository database type.

12. Enter the number for the metadata repository database connection type:

1- Database URL

Location of the database. If you select this option, enter values in the following fields:

- Database host name. Host name of the machine where the database server is installed.
- Database port number. Port number for the database. Default port number is 1521.
- Database SID. System identifier for the database. Enter either a fully qualified ServiceName or a fully qualified SID.

Note: It is recommended that you enter a ServiceName in this field.

2- Custom Connection String

Connection string to the database. If you select this option, enter values in one of the following fields:

- JDBC string. JDBC connection string to the database.
- ODBC string. ODBC connection string to the database. Available if you install the PowerCenter client plug-in. The installer cannot verify the validity of the ODBC string.

3- Database username

Name of the database user account for the Oracle database.

4- Database user password

The password for the database account for the Oracle database. B2B Data Exchange stores the password as an encrypted string.

13. Press **Enter**.

If you selected to install the B2B Data Exchange Dashboard and Reports component, the **Operational Data Store** section appears. If you did not select to install the Dashboard and Reports component, go to step [17](#) to configure user authentication.

14. In the **Operational Data Store** section, enter **1- Create an operational data store repository**.

15. Enter values in the following fields:

1- Database URL

Location of the database. If you select this option, enter values in the following fields:

- Database host name. Host name of the machine where the database server is installed.
- Database port number. Port number for the database. The default port number is 1521.
- Database SID. System identifier for the database. Enter either a fully qualified ServiceName or a fully qualified SID.

Note: It is recommended that you enter a ServiceName in this field.

2- Custom Connection String

JDBC connection string to the operational data store.

3- Database username

Name of the database user account for the Oracle database.

4- Database user password

The password for the database account for the Oracle database. B2B Data Exchange stores the password as an encrypted string.

16. Press **Enter**.

The **User Authentication** section appears.

17. Choose the type of user authentication that you want to use.

- Choose Informatica domain authentication to manage user credentials in the Informatica domain and synchronize user information with B2B Data Exchange. Use Informatica domain authentication for production environments.

If you choose Informatica domain authentication, enter values in the following fields:

Gateway host

Host name of the Informatica security domain server. B2B Data Exchange stores the host name in the `pwc.domain.gateway` system property.

Gateway port

Port number for the Informatica security domain gateway. B2B Data Exchange stores the port number in the `pwc.domain.gateway` system property. Use the gateway HTTP port number to connect to the domain from the PowerCenter Client. You cannot use the HTTPS port number to connect to the domain.

Password

Password of the Informatica security domain user.

Username

User name to access the Administrator tool. You must create the user in the Administrator tool and assign the **manage roles/groups/user** privilege to the user.

Security domain

Name of the Informatica security domain where the user is defined.

Security group

Optional. Security group within the Informatica security domain where B2B Data Exchange users are defined in the following format:

```
<security_group>@<domain>
```

If you leave the field empty, the Informatica security domain synchronizes only the B2B Data Exchange administrator user account.

B2B Data Exchange stores the security group in the dx.authentication.groups system property in the following format:

```
<group_name>@<security_group>[;<groupname>@<security_group>]
```

- If you choose **B2B Data Exchange native authentication**, enter the B2B Data Exchange administrator user name. B2B Data Exchange uses this value for the user name and password when you log in to the Operation Console.

18. Press **Enter**.

The **Document Store** section appears.

19. Enter the directory where B2B Data Exchange stores documents and files during processing or accept the default directory, and then press **Enter**.

The document store directory must be accessible to B2B Data Exchange, PowerCenter services, and Data Transformation.

20. Press **Enter**.

The **Web Server** section appears.

21. Configure the Web Server connection.

- a. Enter the number for the network communication protocol or accept the default protocol:

1- Enable HTTPS

Instructs B2B Data Exchange to use secure network communication when you open the Operation Console in the browser.

If you select HTTPS and HTTP, the Operation Console switches existing HTTP connections with HTTPS connections.

2- Enable HTTP

Instructs B2B Data Exchange to use regular HTTP network communication when you open the Operation Console in the browser.

- b. If you selected **Enable HTTPS**, enter values in the following fields:

Connector port number

Port number for the Tomcat connector to use when you open the Operation Console with HTTPS.

The default value is 18443.

Use a keystore file generated by the installer

Instructs the installer to generate a keystore file with an unregistered certificate. If you select this option, ignore the security warning that you receive from the browser the first time you open the Operation Console.

Use an existing keystore file

Instructs the installer to load an existing keystore file. Enter values in the following fields:

- Keystore password. Password for the keystore file.

- Keystore file. Path to the keystore file.

The keystore file must be in the Public Key Cryptography Standard (PKCS) #12 format.

- If you selected **Enable HTTP**, enter values in the following fields:

HTTP connector port number

Port number for the HTTP connector. If you clear this field, your browser must connect to the B2B Data Exchange server with HTTPS when you log in to the Operation Console.
The default value is 18080.

Server shutdown listener port number

Port number for the listener that controls the Tomcat server shutdown.
The default value is 18005.

- Press **Enter**.

The **Port Numbers** section appears.

- Enter the port number for the B2B Data Exchange JMS Broker JMX listener port or accept the default port, and then press **Enter**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter or the B2B Data Exchange client plug-in for PowerCenter components, the **PowerCenter Location** section appears. If you did not select to install the PowerCenter server or client components, go to step [26](#).

- Enter the directory where you installed PowerCenter or accept the default directory, and then press **Enter**.

- Enter 1 to connect to the PowerCenter Web Services Hub, and then press **Enter**.

- Enter the URL that the PowerCenter Web Services Hub uses when B2B Data Exchange transfers documents to PowerCenter for processing with batch workflows or accept the default directory, and then press **Enter**.

The **PowerCenter Repository Service** section appears.

- Enter the name of the PowerCenter repository service, and then press **Enter**.

- Enter values in the following fields:

Node host name

Host name of the node that runs the PowerCenter Repository Service.

Node port number

Port number of the node that runs the PowerCenter Repository Service.

Username

Name of the PowerCenter Repository Service user.

Password

Password for the PowerCenter Repository Service user. B2B Data Exchange stores the password as an encrypted string.

Security domain

Optional. Name of the Informatica security domain in which the PowerCenter Repository Service user is stored.
Default is Native.

- Press **Enter**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter component, the **Informatica Domain** section appears. If you did not select to install the PowerCenter server component, go to step [33](#).

30. Enter values in the following fields:

Domain name

Name of the Informatica domain that contains the PowerCenter Integration Service that runs B2B Data Exchange workflows.

Node name

Node in the Informatica domain on which the PowerCenter Integration Service runs.

Domain administrator user name

Name of the Informatica domain administrator.

Domain administrator password

Password for the Informatica domain administrator. B2B Data Exchange stores the password as an encrypted string.

31. Press **Enter**.
32. Enter the name of the PowerCenter Integration Service that B2B Data Exchange uses to run workflows, and then press **Enter**.
33. Verify that the installation information is correct, and then press **Enter**.
During the installation process, the installer displays progress information.
34. If you installed the B2B Data Exchange PowerCenter server plug-in, follow the on-screen instructions to register the plug-in to the PowerCenter repository, and then press **Enter**.
35. To view the log files that the installer generates, navigate to the following directory:
`<DXInstallationDir>\logs`
36. Perform the required post-installation tasks. For more information, see the section "Post-Installation Tasks" in the *B2B Data Exchange Installation and Configuration Guide*.
Note: Perform only the tasks that are relevant for your environment.
37. Optionally, perform additional configuration tasks. For more information, see the section "Optional B2B Data Exchange Configuration" in the *B2B Data Exchange Installation and Configuration Guide*.

Step 3. Install B2B Data Exchange on the Second Node

Install B2B Data Exchange on the second node.

Note: The installation of B2B Data Exchange on the second node is not identical to the installation on the first node. Do not perform this procedure on the first node.

1. Log in to the machine with the user account that you want to use to install B2B Data Exchange.
To prevent permission errors, use the same account to install B2B Data Exchange and PowerCenter.
2. Close all other applications.
3. Run the `Install.bin -i console` command.
The **Introduction** section appears.
4. Read the instructions, and then press **Enter**.
The **Install or Upgrade** section appears.

5. Select to install B2B Data Exchange, and then press **Enter**.
The **PowerCenter Version** section appears.
6. Select the PowerCenter version for which you want to install B2B Data Exchange, and then press **Enter**.
The **Installation Directory** section appears.
7. In the **Installation Directory** section, enter the absolute path to the installation directory or accept the default directory, and then press **Enter**.
The **Installation Components** section appears and displays a numbered list of the components to install.
8. Enter a comma-separated list of numbers for the components to install or accept the default components:

1-B2B Data Exchange

Installs the core B2B Data Exchange application.
Selected by default.

2-B2B Data Exchange Partners Portal

Installs the B2B Data Exchange Partners Portal component. You must install B2B Data Exchange to install the Partners Portal component.
Selected by default.

3-B2B Data Exchange Dashboard and Reports

Installs the B2B Data Exchange Dashboard and Reports component.
Cleared by default.

Note:

- The Dashboard using metadata directory is installed by default. Select this component to view the reports in the Dashboard using operational data store. For more information, see the *B2B Data Exchange Administrator Guide* and *B2B Data Exchange Operator Guide*.
- If you install the Dashboard and Reports component, you must import the operational data store event loader after you install B2B Data Exchange.

4-B2B Data Exchange Server Plug-in for PowerCenter

Installs the B2B Data Exchange PowerCenter server plug-in component. After the installation, register the plug-in to the Powercenter repository.
Selected by default.

9. Press **Enter**.
The **Metadata Repository** section appears.
10. Select **Use an existing B2B Data Exchange repository**, and then click Next.
The **Metadata Repository Connection** section appears.
11. Enter the same values that you entered in the fields when you installed B2B Data Exchange on the first node.
12. Press **Enter**.
If you selected to install the B2B Data Exchange Dashboard and Reports component, the **Operational Data Store** section appears. If you did not select to install the Dashboard and Reports component, go to step [16](#) to configure the Web Server connection.
13. In the **Operational Data Store** section, enter **1- Use an existing operational data store repository**.
The **Operational Data Store Database Connection** section appears.
14. Enter the same values that you entered in the fields when you installed B2B Data Exchange on the first node.

15. Press **Enter**.

The **Web Server** section appears.

16. Configure the Web Server connection.

- a. Enter the number for the network communication protocol or accept the default protocol:

1- Enable HTTPS

Instructs B2B Data Exchange to use secure network communication when you open the Operation Console in the browser.

If you select HTTPS and HTTP, the Operation Console switches existing HTTP connections with HTTPS connections.

2- Enable HTTP

Instructs B2B Data Exchange to use regular HTTP network communication when you open the Operation Console in the browser.

- b. If you selected **Enable HTTPS**, enter values in the following fields:

Connector port number

Port number for the Tomcat connector to use when you open the Operation Console with HTTPS.

The default value is 18443.

Use a keystore file generated by the installer

Instructs the installer to generate a keystore file with an unregistered certificate. If you select this option, ignore the security warning that you receive from the browser the first time you open the Operation Console.

Use an existing keystore file

Instructs the installer to load an existing keystore file. Enter values in the following fields:

- Keystore password. Password for the keystore file.
- Keystore file. Path to the keystore file.

The keystore file must be in the Public Key Cryptography Standard (PKCS) #12 format.

- c. If you selected **Enable HTTP**, enter values in the following fields:

HTTP connector port number

Port number for the HTTP connector. If you clear this field, your browser must connect to the B2B Data Exchange server with HTTPS when you log in to the Operation Console.

The default value is 18080.

Server shutdown listener port number

Port number for the listener that controls the Tomcat server shutdown.

The default value is 18005.

17. Press **Enter**.

The **Port Numbers** section appears.

18. Enter the port number for the B2B Data Exchange JMS Broker JMX listener port or accept the default port, and then press **Enter**.

If you selected to install the B2B Data Exchange server plug-in for PowerCenter or the B2B Data Exchange client plug-in for PowerCenter components, the **PowerCenter Location** section appears. If you did not select the PowerCenter server or client components, go to step [24](#).

19. Enter the directory where you installed PowerCenter or accept the default directory, and then press **Enter**.

20. Enter 2 to skip the **Web Services Hub URL** option, and then press **Enter**.
If you selected to install the B2B Data Exchange server plug-in for PowerCenter component, the **Informatica Domain** section appears. If you did not select to install the PowerCenter server component, go to step [24](#).
21. Enter values in the following fields:
 - Domain name**
Name of the Informatica domain that contains the PowerCenter Integration Service that runs B2B Data Exchange workflows.
 - Node name**
Node in the Informatica domain on which the PowerCenter Integration Service runs.
 - Domain administrator user name**
Name of the Informatica domain administrator.
 - Domain administrator password**
Password for the Informatica domain administrator. B2B Data Exchange stores the password as an encrypted string.
22. Press **Enter**.
23. Enter the name of the PowerCenter Integration Service that B2B Data Exchange uses to run workflows, and then press **Enter**.
24. Verify that the installation information is correct, and then press **Enter**.
During the installation process, the installer displays progress information.
25. If you installed the B2B Data Exchange PowerCenter server plug-in, follow the on-screen instructions to register the plug-in to the PowerCenter repository, and then press **Enter**.
26. To view the log files that the installer generates, navigate to the following directory:
`<DXInstallationDir>\logs`
27. Perform the required post-installation tasks. For more information, see the section "Post-Installation Tasks" in the *B2B Data Exchange Installation and Configuration Guide*.
Note: Perform only the tasks that are relevant for your environment.
28. Optionally, perform additional configuration tasks. For more information, see the section "Optional B2B Data Exchange Configuration" in the *B2B Data Exchange Installation and Configuration Guide*.

Step 4. Install Informatica Managed File Transfer on the First and Second Node

Perform the following steps to install B2B Data Exchange on each node.

1. Create or designate a non-root user on the system that will be used to install and run the B2B Data Exchange application. This user will be the owner of all files created during installation as well as files written to the file system during use.
2. Login to the server.
3. Download the B2B Data Exchange UNIX installer `Install.bin` file.
4. Open a Terminal window.

5. Change the directory to where the installer file was downloaded.
6. Run the installer on the first node. Follow the on-screen instructions to complete the installation.
7. On the second node, follow the same steps, execute the downloaded installer, and follow the prompts on the screens. When you are requested to select a repository, select to use an existing Managed File Transfer repository. Enter the same values that you entered in the fields when you installed the first node.

Step 5. Configure B2B Data Exchange Properties for High Availability

Configure B2B Data Exchange properties on both of the cluster nodes.

1. On both of the cluster nodes, open the B2B Data Exchange properties configuration file from the following location:
`<DXInstallationDir>/conf/dx-configuration.properties`
2. Add a comment indicator to the `dx.jms.multicastAddress` property.
3. Remove the comment indicator from the `dx.AMQ.discovery` property.
4. Remove the comment indicator from the `dx.AMQ.static.discovery.address` property and replace the syntax example with real values. Each node in the cluster requires two entries.

For example:

```
dx.AMQ.static.discovery.address=static:(tcp://node1:18100,tcp://node1:18050,tcp://
node2:18100,tcp://node2:18050)?jms.prefetchPolicy.queuePrefetch=1
```

5. In the `dx.cluster.name` property, provide the same name for every cluster node.
6. Save the file on both cluster nodes.
7. On both of the cluster nodes, perform steps 2 to 6 in the the following file:
`<DXInstallationDir>/DataExchange/tomcat/shared/classes/dx-configuration.properties`
8. Ensure that you have load balanced the B2B Data Exchange servers as relevant to the type of load balancer. Load balance the B2B Data Exchange URL at port 19553.
9. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
10. Change the value of the `dx.console.url` property to the load balancer URL, in the following format:
`http://<load_balancer>:<load_balancer_port>/dx-console.`

For example: `http://host1:80/dx-console`

11. Change the value of the `dx.endpoint.jms.provider.url` property to use failover transport. Each node in the cluster requires one entry.

For example:

```
failover://(nio://node1:18616,nio://node2:18616)?jms.prefetchPolicy.queuePrefetch=1
```

Step 6. Configure the Informatica Managed File Transfer Properties for High Availability

Configure Informatica Managed File Transfer properties on both of the cluster nodes.

1. Ensure that you have load balanced the Managed File Transfer servers as relevant to the type of load balancer.
2. On the first node, open the cluster configuration file from the following location:
`<MFTInstallationDir>\server\config\cluster.xml`. Perform the following steps:
 - a. For the `systemName` property, provide a unique name for the cluster node, for example `NodeA`.
 - b. For the `clusterBindAddress` property, provide the IP address for the node, for example `10.75.141.164`.
3. Similarly, on the second node, open the cluster configuration file `<MFTInstallationDir>\server\config\cluster.xml`. Perform the following steps:
 - a. For the `systemName` property, provide the name of the second cluster node, for example `NodeB`.
 - b. For the `clusterBindAddress` property, provide the IP address for the node, for example `10.75.141.138`.
4. On both nodes, open the configuration file from the following location:
`<MFTInstallationDir>\server\config\dx-configuration.properties`. Perform the following steps:
 - a. For the `dx.server.host` property, provide the load balancer IP.
 - b. For the `dx.server.port` property, provide the relevant load balancer port.
5. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
6. When you define the required system properties, set the value of the `infamft.console.url` property to the load balancer URL, in the following format: `http://<load_balancer>:<load_balancer_port>/informaticamft`.
For example: `http://host1:80/informaticamft`

Step 7. Configure the B2B Data Exchange HTTP Load Balancer Sticky Sessions

Configure HTTP load balancer sticky sessions on both of the B2B Data Exchange cluster nodes.

1. On both of the cluster nodes, create a backup of the following file:

```
<DXInstallationDir>/DataExchange/tomcat/conf/server.xml
```

Name the backup file `server.xml.bak`

2. On both of the cluster nodes, in the file `server.xml`, change the value of the attribute `jvmRoute` in the element `Engine` to the physical computer name, for example, `Tomcat-A`. The value of the `jvmRoute` attribute must be unique for each Tomcat instance.
3. Save the file on both cluster nodes.

Step 8. Configure Informatica Managed File Transfer HTTP Load Balancer Sticky Sessions

Configure HTTP load balancer sticky sessions on both of the Informatica Managed File Transfer cluster nodes.

1. On both of the cluster nodes, create a backup of the following file:

```
<MFTInstallationDir>/server/tomcat/conf/server.xml
```

Name the backup file `server.xml.bak`

2. On both of the cluster nodes, in the file `server.xml`, change the value of the attribute `jvmRoute` in the element `Engine` to the physical computer name, for example, `Tomcat-A`. The value of the `jvmRoute` attribute must be unique for each Tomcat instance.
3. Save the file on both cluster nodes.

Step 9. Configure PowerCenter Settings for B2B Data Exchange High Availability

Configure PowerCenter settings for B2B Data Exchange high availability. You configure the settings once for the entire cluster.

1. On a PowerCenter Client machine open PowerCenter Workflow Manager, select **Connections > Application**, and change the JNDI provider URL of the JMS connection factory, for example:

```
failover:(nio://10.36.8.26:18616,tcp://10.36.8.38:18616)
?jms.prefetchPolicy.queuePrefetch=1
```

2. Open the Informatica Administrator tool, and then open the **Processes** tab of the PowerCenter Integration Service.
3. In the environment variable list, in the `DX_SERVER_URL` variable, enter an address and port number for each of the B2B Data Exchange cluster nodes in the following format:

```
rmi://<node1_address>:<port>[;rmi://<node2_address>:<port>]
```

For example: `rmi://node1:18095;rmi://node2:18095`

Verify that the port number matches the value in the `dx.rmi.port` configuration property.

4. Configure any other node-dependent PowerCenter Integration Service properties, such as the Java system properties, to use the IP addresses and port numbers of the B2B Data Exchange cluster nodes.

Step 10. Configure the Message Broker for B2B Data Exchange High Availability

Configure the B2B Data Exchange JMS Broker on both of the cluster nodes.

1. On both of the cluster nodes, open the JMS Broker configuration file from the following location:

```
<DXInstallationDir>\DataExchange\message-broker\conf\activemq.xml
```

2. In the `<broker>` element, in the `dataDirectory` attribute, enter the name of a shared directory. For example:

```
<broker xmlns="https://activemq.apache.org/schema/core/" brokerName="localhost" dataDirectory="/users/infa/node1" useJmx="true">
```

Enter a different directory on each cluster node.

3. In the `<broker>` element, add the following element:

```
<plugins>
  <redeliveryPlugin fallbackToDeadLetter="true" sendToDlqIfMaxRetriesExceeded="true">
    <redeliveryPolicyMap>
      <redeliveryPolicyMap>
        <redeliveryPolicyEntries>
          <!-- a destination specific policy -->
          <redeliveryPolicy queue="SpecialQueue" maximumRedeliveries="4"
            redeliveryDelay="10000"/>
        </redeliveryPolicyEntries>
        <!-- the fallback policy for all other destinations -->
        <defaultEntry>
          <redeliveryPolicy maximumRedeliveries="10" initialRedeliveryDelay="1000"
            redeliveryDelay="1000"/>
        </defaultEntry>
      </redeliveryPolicyMap>
    </redeliveryPolicyMap>
  </redeliveryPlugin>
</plugins>
```

4. In the `<kahaDB>` element, in the `directory` attribute, enter the name of a shared storage directory. For example:

```
<kahaDB directory="/users/infa/sharedFolder"
        checksumJournalFiles="true"
        checkForCorruptJournalFiles="true" />
```

Enter the same directory for both cluster nodes.

5. In the `<transportConnector>` element, in the `uri` attribute, enter the IP address of the standard message transfer connector. Enter the same port number that you entered in the `dx.endpoint.jms.provider.url` system property, in "Step 4: Configure B2B Data Exchange Properties for High Availability". For example:

```
<transportConnector name="openwire" uri="nio://0.0.0.0:18616?
  useQueueForAccept=false"/>
```

Enter the same IP address and port number for both cluster nodes.

6. Save the file on both cluster nodes.

Step 11. Configure the Dashboard and Reports

If you installed the Dashboard and Reports component, perform this task on both of the cluster nodes.

1. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
2. In the `dx.dashboard.url` system property, enter the load balancer URL in the following format: `http://<load_balancer>:<load_balancer_port>/dx-dashboard`

For example:

```
http://host1:80/dx-dashboard
```

3. Configure the operational data store (ODS) workflow file with the standard PowerCenter high availability configuration. The workflow file resides in the following location:

```
<DXInstallationDir>/powercenter/ETL/DX_ETL.xml
```


4. Restart the Tomcat server.
5. If you customized the Dashboard, deploy the customization on all of the machines in the cluster.

Restart Services

Restart B2B Data Exchange and Informatica Managed File Transfer on both cluster nodes.

1. To stop B2B Data Exchange perform the following steps:
 - a. Change the working directory to the directory where B2B Data Exchange is installed.
 - b. Run the script `shutdown.sh`.
2. To start B2B Data Exchange run the script `startup.sh`.
3. To stop Informatica Managed File Transfer perform the following steps:
 - a. Open a Terminal window.
 - b. Change the working directory to the directory where Managed File Transfer is installed.
 - c. Stop the Managed File Transfer by executing the running the following command:
`mft-server.sh stop`
4. To start Informatica Managed File Transfer run the following command:
`mft-server.sh start`.

CHAPTER 5

Optional High Availability Configuration

This chapter includes the following topics:

- [Optional High Availability Configuration Overview, 66](#)
- [Install B2B Data Exchange, 66](#)
- [HTTP Load Balancer, 68](#)
- [JMS Discovery, 69](#)
- [Configure Database Connections for Oracle, 73](#)
- [Define System Properties for PowerCenter Workflows, 74](#)
- [Operation Console, 74](#)

Optional High Availability Configuration Overview

Optional configuration includes tasks that you might want to perform when you install B2B Data Exchange in a configuration other than a two-machine high availability setup.

The configuration details vary according to whether you install B2B Data Exchange on a single-machine cluster or multiple-machine cluster, what type of JMS discovery mode you select, and which B2B Data Exchange components you install.

Install B2B Data Exchange

You install B2B Data Exchange either on a multi-machine cluster or a single-machine cluster. Choose the type of installation based on the cluster type that you set up.

Ensure that the B2B Data Exchange components that you install are identical between all the nodes in the cluster.

Install B2B Data Exchange in a Multi-Machine Cluster

In a multi-machine cluster, you install B2B Data Exchange on each computer in the cluster in the same way that you install a single B2B Data Exchange instance.

Install the same B2B Data Exchange components on each node in the cluster.

Install B2B Data Exchange on a Single-Machine Cluster

After you install the first B2B Data Exchange instance on a machine with multiple processors, you can install up to four additional instances to create a single-machine cluster. Perform additional steps to configure the subsequent instances within the cluster. You can install up to five B2B Data Exchange instances on a single computer.

By default, the B2B Data Exchange installer assigns port numbers beginning with 18xxx. In subsequent installations, you can use port numbers beginning with 28xxx for the second instance, 38xxx for the third instance, and so on. For a list of port numbers in B2B Data Exchange, see [Appendix C, "Port Number Reference" on page 80](#).

1. Install the first copy of B2B Data Exchange. For further information, see [#unique_85](#) or [#unique_86](#).
2. Stop all of the B2B Data Exchange processes.
3. Run the B2B Data Exchange installer with the following changes:
 - a. In the **Installation Location** screen, select a different installation directory for each subsequent installation.
 - b. In the **Database Connection** screen, choose to use an existing B2B Data Exchange repository and enter the same database connection properties as the first installation.
 - c. In the **Web Server** screen, modify the default HTTP or HTTPS connector port number and the server shutdown listener port number.
 - d. In the **Port Number** screen, modify the JMX listener port number.

. For further information, see [#unique_85](#) or [#unique_86](#).
4. After you install all of the B2B Data Exchange instances, modify the port numbers in each of the cluster components to prevent conflicts.

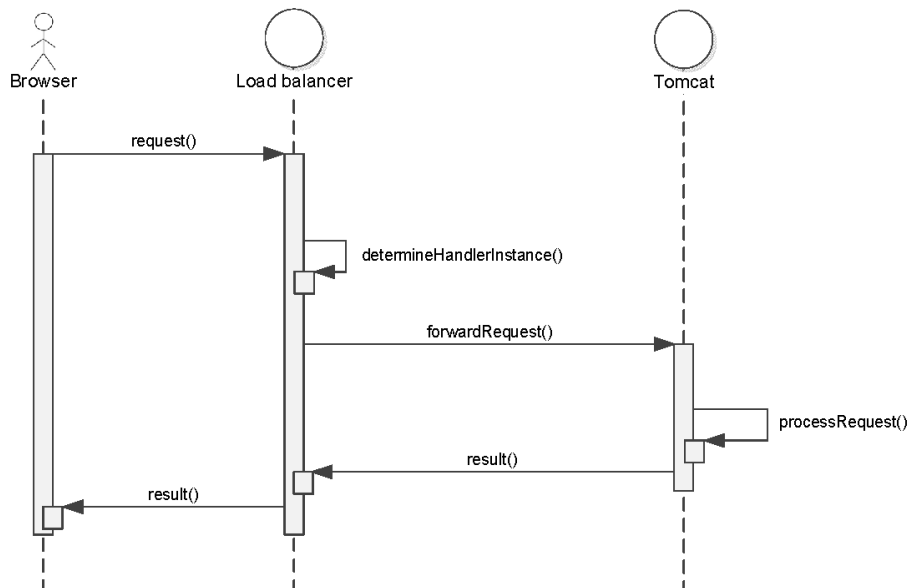
For more information about modifying port numbers, see the Informatica How-To Library article *Modifying the Default B2B Data Exchange Port Numbers*:

https://kb.informatica.com/h2l/HowToLibrary/1/0083_DeploymentExample.zip

HTTP Load Balancer

You use a load balancer in the high availability cluster to distribute the workload evenly over two or more servers and to achieve optimal network performance.

The following figure shows how the load balancer forwards browser requests to one of the Tomcat instances:



In this diagram, the browser sends the request to the load balancer. The load balancer determines which Tomcat instance will handle the request and forwards the request to the Tomcat instance. The Tomcat instance processes the request and sends the result back to the load balancer. The load balancer forwards the result back to the browser.

The load balancer determines which Tomcat computer handles each request. This computer might vary from request to request and depends on the configuration.

You can use any load balancing software or hardware.

Configuring Load Balancer Properties

Configure B2B Data Exchange system properties for the load balancer.

1. In the B2B Data Exchange Operation Console, from the Navigator, open **Administration > System Properties**.
2. Change the value of the `dx.console.url` property to the load balancer URL, in the following format:
`http://<load_balancer>:<load_balancer_port>/dx-console`.
For example: `http://host1:80/dx-console`
3. Change the value of the `dx.endpoint.jms.provider.url` property to use failover transport. Each node in the cluster requires one entry.

For example:

```
failover://(nio://node1:18616,nio://node2:18616)?jms.prefetchPolicy.queuePrefetch=1
```

Configuring Sticky Sessions

A sticky session is a session that uses a single server to handle all user traffic for a specific browser. In a sticky session, after the browser creates a session, the same server that received the first session continues to process all requests from that session until the user logs out of the browser.

When you enable sticky sessions, the load balancer forwards all requests from a specific browser to the same server until the user ends the session, regardless of the load on the servers in the cluster. For example, if browser 1 starts a session and the load balancer forwards the initial request to Tomcat A, all subsequent requests are sent to Tomcat A.

Sticky sessions do not require multicast transmission to multiple destinations and do not generate additional network traffic or reduce performance. However, if a server fails, all existing sessions on that server end without a failover mechanism and all users must manually log in to a different server.

Configuring Tomcat for Sticky Sessions

Configure properties in the file `<DXInstallationDir\DataExchange\tomcat\conf\server.xml`. Each item that needs to be changed is marked with an "INFA change cluster" XML comment in `server.xml`. Search for this string to find the required locations.

1. Create a backup of the file `server.xml` and call it `server.xml.bak`.
2. Change the value of the attribute `jvmRoute` on the element `Engine` to the physical computer name, for example, `Tomcat-A`. The value of the `jvmRoute` attribute must be unique for each Tomcat instance, therefore, use the computer name. Otherwise, the load balancer cannot consistently route the requests and sessions to the correct machine.

Note: Failure to edit `jvmRoute` might cause unexpected results.

JMS Discovery

When you set up the high availability environment, you can configure the cluster to send and receive JMS messages. The JMS messages consist of documents and events that B2B Data Exchange and PowerCenter process.

The following JMS discovery modes are available:

- Unicast. Static discovery mode in which all of the machines in the cluster receive all of the incoming documents. Choose unicast mode if your network environment does not support multicast communication. Unicast discovery mode is strongly recommended.
- Multicast. Dynamic discovery mode in which a single machine receives and routes all of the documents to all of the machines in the cluster. Choose multicast mode if you want to utilize a single point of entry to the cluster and do not want to manage the IP address of each node in the cluster separately.

To use multicast mode, you perform the multicast capability test to determine whether your network environment supports multicast communication.

Multicast Capability Test

The multicast capability test determines whether multicast communication is enabled in your network environment.

1. Download the **mtools** package from the following location:
<https://community.informatica.com/solutions/1470>
2. Extract the package to each computer that you want to test.
3. Navigate to the directory `mtools/<OS Version>/. The supported operating systems are Windows, Linux (x86), AIX-5-powerpc64, SunOS-5.10-i386, SunOS-5.10-sparc.`
4. If you use default multicast address (224.252.253.254) and its default multicast port (18162), run the following commands:
 - On the first machine: `mdump 224.252.253.254 18162.`
 - On all other machines: `mssend -b1 -m20 -n5 224.252.253.254 18162`

If the test is successful, the output displays the following information:

- The output in the first machine indicates that five messages, numbered 0 to 4, were received. Each message should be 20 bytes long.
- The output in the second machine indicates that five messages were sent. Each messages should be 20 bytes long.

B2B Data Exchange Server Configuration Properties

You configure JMS discovery for each B2B Data Exchange server node in the cluster based on the mode that you want to use.

To configure JMS discovery, you modify configuration properties in all copies of the `dx-configuration.properties` file. The B2B Data Exchange server file is located in the following directory: `<DXInstallationDir>\conf\`. The Operation Console file is typically located in the following directory: `<DXInstallationDir>\DataExchange\tomcat\shared\classes`.

The following table describes the JMS discovery configuration properties:

Property	Description
<code>dx.console.jms.unicastAddress</code>	IP address and port number of the Operation Console to use in unicast mode. Default value: 0.0.0.0:18050 For single-machine clusters, each B2B Data Exchange server instance must have a different port number.
<code>dx.jms.multicastAddress</code>	IP address and port number of the Operation Console to use in multicast mode. Default value: 224.252.253.254:18000 For single-machine clusters, each B2B Data Exchange server instance must have a different port number.
<code>dx.cluster.name</code>	Logical name of the B2B Data Exchange server cluster. Must be identical for all of the nodes in the cluster.

B2B Data Exchange JMS Broker Configuration Properties

You modify certain properties in the B2B Data Exchange JMS Broker configuration file to enable JMS communication between the nodes in the clusters. Modify the settings in all of the copies of the configuration file.

The `activemq.xml` file is typically located in the following directory: `<DXInstallationDir>\message-broker\conf\`

Each property is marked with the comment `INFA change (cluster)` in the configuration file.

Note: Do not use an active-active configuration for the ActiveMQ cluster.

The following table describes the properties to modify:

Property	Description
<code>networkConnector name</code>	<p>IP address of the network connector in the cluster that enables multiple B2B Data Exchange JMS Broker instances to communicate. You remove the comment indicators from the property with the value that matches the discovery mode you use.</p> <p>Syntax for unicast mode:</p> <pre><networkConnector name="dxhosts" uri="static:(tcp://10.36.8.26:18616, tcp://10.36.8.38:18616)"/></pre> <p>Syntax for multicast mode:</p> <pre><networkConnector name="default-nc" url="multicast://224.252.253.254:18162 ?group=dx.cluster.name"/></pre>
<code>transportConnector name</code>	<p>IP address of the standard message transfer connector.</p> <p>Syntax:</p> <pre><transportConnector name="openwire" uri="nio://0.0.0.0:18616? useQueueForAccept=false"/></pre> <p>For single-machine clusters, each B2B Data Exchange JMS Broker instance must have a different port number.</p>
<code>dx.cluster.name</code>	<p>Logical name of the Data Exchange server cluster. Must be identical for all of the nodes in the cluster.</p>

JMS Properties in PowerCenter

To improve reliability when B2B Data Exchange sends JMS messages to PowerCenter, you can limit the number of concurrent JMS messages that PowerCenter receives. Use the JNDI Provider URL property in the PowerCenter JNDI Connection Factory to limit the pre-fetch size for incoming JMS messages.

If you process a high volume of small JMS message, increase the pre-fetch limit to reduce the total processing time for incoming messages. If you process a low volume of large JMS messages, reduce the pre-fetch limit to help ensure that each message processing is completed correctly.

To limit the pre-fetch size, open the PowerCenter JNDI Connection Factory configuration page and locate the JNDI Provider URL property.

The property appears with the following syntax:

```
failover:tcp://<hostName>:<port>
```

The property value may include multiple URLs. Add the following syntax to the property value after the last URL:

```
?jms.prefetchPolicy.queuePrefetch=<numberOfMessages>
```

The final property appears similar to the following example:

```
failover:tcp://localhost:18616?jms.prefetchPolicy.queuePrefetch=3
```

Configuring Multicast JMS Discovery

Modify properties in different cluster components to enable multicast JMS discovery in the high availability cluster.

Make sure you configure the same JMS discovery mode in every file. You cannot configure some properties for unicast mode and other properties for multicast mode.

1. In all copies of the B2B Data Exchange server configuration files, add comment indicators to the `dx.console.jms.unicastAddress` property. This property is relevant only for unicast mode.
2. In all copies of the `activemq.xml` file, remove the comment indicator from the multicast `networkConnector` name property.
3. If you want to process documents by reference, modify the value of the `dataDirectory` property and the value of the `kahaDB` directory property to point to a shared storage directory.
4. In the PowerCenter Workflow Manager, select **Connections > Application** and modify the JNDI provider URL of the JMS connection factory, for example:

```
discovery:(multicast://224.252.253.254:18162?group=<DX.cluster.name>)
```

Configuring Unicast JMS Discovery

Modify properties in different cluster components to enable unicast JMS discovery in the high availability cluster.

Make sure you configure the same JMS discovery mode in every file. You cannot configure some properties for unicast mode and other properties for multicast mode.

1. In all copies of the B2B Data Exchange server configuration files, add the following properties and replace the syntax example with the actual values:
 - `dx.AMQ.discovery=b2bDxAMQBrokerStatic`
 - `dx.AMQ.static.discovery.address=static:(tcp://<host1Name>:<OperationConsoleJMSPort>,tcp://<host1Name>:<DXServerJMSPort>, tcp://<host2Name>:<OperationConsoleJMSPort>,<host2Name>:<DXServerJMSPort>)`

For example: `dx.AMQ.static.discovery.address=static:(tcp://host1:18100,tcp://host1:18050,tcp://host2:18100,tcp://host2:18050)`

2. Add comment indicators to the following properties that are relevant only for multicast mode:
 - `dx.cluster.name`
 - `dx.jms.multicastAddress`

3. In all copies of the `activemq.xml` file, remove the comment indicator from the static `networkConnector` name property, and update the host names and ports.

Note: There is one `activemq.xml` file at each B2B Data Exchange node. The file is located at the following path: `<DXInstallationDir>\DataExchange\message-broker\conf\`

4. Modify the value of the `dataDirectory` property and the value of the `kahaDB` directory property to point to a shared storage directory.

5. In the B2B Data Exchange system property list, modify the value of the `dx.endpoint.jms.provider.url` property to use failover transport with the following syntax:
`failover://(nio://host1:18616,nio://host2:18616)?jms.prefetchPolicy.queuePrefetch=1`
6. In the PowerCenter Workflow Manager, select **Connections > Application** and modify the JNDI provider URL of the JMS connection factory, for example:
`failover:(nio://10.36.8.26:18616,tcp://10.36.8.38:18616)
?jms.prefetchPolicy.queuePrefetch=1`

Configuring Redelivery Plugins

Configure properties for redelivery plugins to enable JMS discovery in the high availability cluster.

1. In the `activemq.xml` configuration file, locate the `<broker ...>` element. Inside the `<broker ...>` element, add the attribute `schedulerSupport="true"`.
2. Nest the following syntax lines underneath the `<broker>` element:

```
<plugins>
  <redeliveryPlugin fallbackToDeadLetter="true"
    sendToDlqIfMaxRetriesExceeded="true">
    <redeliveryPolicyMap>
      <redeliveryPolicyMap>
        <redeliveryPolicyEntries>
          <!-- a destination specific policy -->
          <redeliveryPolicy queue="SpecialQueue" maximumRedeliveries="4"
redeliveryDelay="10000"/>
        </redeliveryPolicyEntries>
        <!-- the fallback policy for all other destinations -->
        <defaultEntry>
          <redeliveryPolicy maximumRedeliveries="10"
initialRedeliveryDelay="1000" redeliveryDelay="1000"/>
        </defaultEntry>
      </redeliveryPolicyMap>
    </redeliveryPolicyMap>
  </redeliveryPlugin>
</plugins>
```

Configure Database Connections for Oracle

If you use an Oracle database, define the maximum number of database connections for all of the B2B Data Exchange server nodes in the cluster.

In all copies of the `dx-configuration.properties` files, set the maximum number of database connections in the `dx.jdbc.maxPoolSize` property. For example, to define a maximum of 50 database connections, use the following syntax: `dx.jdbc.maxPoolSize=50`

For general information about configuring the JDBC URL, see the *Progress DataDirect Connect for JDBC User's Guide*.

Note: B2B Data Exchange does not support Oracle TNS files.

Define System Properties for PowerCenter Workflows

You modify system properties in B2B Data Exchange to enable running workflows from multiple nodes in the cluster to PowerCenter.

For more information about B2B Data Exchange system properties, see the *B2B Data Exchange Administrator Guide*.

Modify the values of the following properties:

- `pwc.domain.gateway`. If you use multiple Informatica gateway nodes, add all of the nodes to the property.
- `pwc.webservices.url`. If you use batch workflows, enter a clustered or load-balanced URL instead of a single hub. For example, instead of the URL `http://pwc1:7366/wsh/services/BatchServices/DataIntegration`, the link may point to the load balancer `pwc` that forwards the messages to the nodes `pwc1` and `pwc2`.

Operation Console

The Operation Console is a Web-based application to manage the document processing operation and to manage users and resources.

Configuring a Proxy Server for the Operation Console

You configure a proxy server for the B2B Data Exchange Operation Console to enable load balancing and failover handling.

Load-balancing hardware or software for the Operation Console acts as a proxy server for the browsers connecting to the Operation Console. The browsers see a single virtual IP for the load balancer and are not aware to which physical server they are connected. Configure the load balancer for sticky sessions.

Configuring Tomcat for Single-Machine Clusters

For single-machine clusters, you modify ports in the Tomcat configuration file for each subsequent B2B Data Exchange instance in the cluster. You do not need to modify ports for the first instance.

You edit the HTTP or HTTPS ports to prevent the B2B Data Exchange server or the Operation Console from creating an incorrect URL for viewing the contents of event blobs and for advanced exception handling.

The `server.xml` file is typically located in the following directory: `<DXInstallationDir>/DataExchange/tomcat/conf/`

1. In the `server.xml` file, modify the values of the following properties:

Property	Description
Shutdown port	Port to use when you shut down Tomcat with an external process. This property contains the attribute <code>port</code> and listens only to the local loopback address <code>127.0.0.1</code> . Default is: 18005
HTTP connector port	Port to use when Tomcat connects to the Operation Console. This property contains the attribute <code>port</code> . Default is: 18080
HTTPS connector port	Port to use when Tomcat connects to the Operation Console with a secure protocol. This property contains the attribute <code>port</code> . Default is: 18443

2. In the Operation Console, modify the `dx.console.url` system properties according to the HTTP or HTTPS port that you defined.
3. For Windows operating systems, modify the following shortcuts and bookmarks:
 - Remove the Start menu entry: **Start > All Programs > Informatica > Data Exchange**.
 - Configure the B2B Data Exchange Windows services for manual startup.
 - Create a shortcut to the folder `<DXInstallationDir>\bin\startup.bat` for each node in the cluster. This shortcut starts the node.
 - Create a shortcut to the folder `<DXInstallationDir>\bin\shutdown.bat` for each node in the cluster. This shortcut shuts the node down.

APPENDIX A

Troubleshooting High Availability

This appendix includes the following topics:

- [Troubleshooting High Availability, 76](#)
- [Load Balancer Troubleshooting, 77](#)

Troubleshooting High Availability

This section contains solutions to common problems that you might encounter when you configure a high availability cluster.

After installing and configuring the B2B Data Exchange server, the service does not start.

In the `startup.bat` or `startup.sh` file, change the value of the shutdown port to 28095. The file is located in the following directory: `<DXInstallationDir>\DataExchange\bin`. If the cluster is installed on multiple hosts, change the value of the shutdown port on all the cluster hosts.

If the B2B Data Exchange JMS Broker service fails, pending messages are not released until the service starts again.

Restart the B2B Data Exchange JMS Broker service in all of the nodes in the cluster.

One of the services in the cluster failed.

Restart all of the B2B Data Exchange services on the node where the service failed.

After installing and configuring Managed File Transfer, the service does not start.

In the `local_listener.xml` file, change the HTTP or HTTPS listener port. For HTTP, change the default port from 5080 to the value 25080. For HTTPS, change the default port from 5081 to the value 25081. The file is located in the following directory: `<MFTInstallationDir>\hosts\local`

The Dashboard displays the error message "Content was blocked because it was not signed by a valid security certificate."

Check that the URL defined for the Dashboard matches the URL used in the browser.

The Dashboard displays the error message "There was an error while processing your request."

In the **System Properties** page of the B2B Data Exchange Operation Console, ensure that the `dx.dashboard.url` property has the same URL as the B2B Data Exchange Operation Console web address.

Load Balancer Troubleshooting

Load balancer configuration issues might impact the Dashboard display. If you receive an error that the Dashboard is not available, perform the following troubleshooting steps to determine the correct load balancer IP addresses.

1. For B2B Data Exchange 9.6.1 or 9.6.2, in the directory `<DXInstallationDir>\apache-tomcat-7.0.55\shared\classes\`, find the log file named `log4j-debug.xml` and rename it to `log4j.xml`.
For B2B Data Exchange 10.0, in the directory `<DXInstallationDir>\tomcat\shared\classes\`, find the log file named `log4j-debug.xml` and rename it to `log4j.xml`.
2. Restart the B2B Data Exchange services.
3. For B2B Data Exchange 9.6.1 or 9.6.2, to determine the virtual Dashboard IP stack, in the directory `<DXInstallationDir>\apache-tomcat-7.0.55\logs\`, examine the log file named `localhost_access_log.<date>.txt`. Find the entry for the Dashboard authentication IPs, such as the following:

```
192.108.177.219 - - [27/Feb/2015:11:24:12 -0500] "POST /dx-dashboard/rdTemplate/rdGetSecureKey.aspx HTTP/1.1" 302 189
```


For B2B Data Exchange 10.0, to determine the virtual Dashboard IP stack, in the directory `<DXInstallationDir>\tomcat\logs\`, examine the log file named `localhost_access_log.<date>.txt`. Find the entry for the Dashboard authentication IPs, such as the following:

```
192.108.177.219 - - [27/Feb/2015:11:24:12 -0500] "POST /dx-dashboard/rdTemplate/rdGetSecureKey.aspx HTTP/1.1" 302 189
```
4. For B2B Data Exchange 9.6.1 or 9.6.2, open the configuration file `<DXInstallationDir>\apache-tomcat-7.0.55\shared\classes\dx_dashboard_configuration.xml`.
For B2B Data Exchange 10.0, open the configuration file `<DXInstallationDir>\tomcat\shared\classes\dx_dashboard_configuration.xml`
5. Locate the `AuthenticationClientAddresses` property in the configuration file. Add the Dashboard IPs separated by commas to the `AuthenticationClientAddresses` property.

APPENDIX B

High Availability Log Messages

This appendix includes the following topic:

- [High Availability Log Messages, 78](#)

High Availability Log Messages

The `dxserver.log` file of each node in the network contains certain messages indicating that `dx-configuration.properties` file is configured properly. The `message-broker/data/activemq.log` file on each node contains certain messages indicating that `activemq.xml` is configured properly.

If `dx-configuration.properties` under B2B Data Exchange server is configured properly the following messages (order may vary a bit) should be seen in `dxserver.log` of each node. In this example there are two hosts called `host1` and `host2` and the ports are B2B Data Exchange default ports.

```
INFO [org.apache.activemq.network.DiscoveryNetworkConnector]
{Notifier-MulticastDiscoveryAgent-listener:
DiscoveryNetworkConnector:localhost:BrokerService
[b2bDxInternalCommandBroker]}
Establishing network connection from vm://b2bDxInternalCommandBroker
to tcp://host1:18100
```

```
INFO [org.apache.activemq.network.DiscoveryNetworkConnector]
{Notifier-MulticastDiscoveryAgent-listener:
DiscoveryNetworkConnector:localhost:
BrokerService[b2bDxInternalCommandBroker]} Establishing network
connection from vm://b2bDxInternalCommandBroker
to tcp://host2:18050
```

```
INFO [org.apache.activemq.network.DemandForwardingBridge]
{StartLocalBridge: localBroker=vm://b2bDxInternalCommandBroker:0#0}
Network connection between vm://b2bDxInternalCommandBroker:0#0 and
tcp://localhost/127.0.0.1:18100 (b2bDxInternalCommandBrokerGUI) has
been established.
```

```
INFO [org.apache.activemq.network.DiscoveryNetworkConnector]
{Notifier-MulticastDiscoveryAgent-listener:DiscoveryNetworkConnector:
localhost:BrokerService[b2bDxInternalCommandBroker]}
Establishing network connection from vm://b2bDxInternalCommandBroker
to tcp://host2:18100
```

```
INFO [org.apache.activemq.network.DemandForwardingBridge]
{StartLocalBridge: localBroker=vm://b2bDxInternalCommandBroker:0#2}
Network connection between vm://b2bDxInternalCommandBroker:0#2 and
tcp://host2/host2IP:18050 (b2bDxInternalCommandBroker) has been
established.
```

```
INFO [org.apache.activemq.network.DemandForwardingBridge]
```

```
{StartLocalBridge: localBroker=vm://b2bDxInternalCommandBroker:0#4}
Network connection between vm://b2bDxInternalCommandBroker:0#4 and
tcp://host2/host2IP:18100(b2bDxInternalCommandBrokerGUI) has been
established.
```

If activemq.xml is configured properly then these messages should be seen on each node in the file message-broker/data/activemq.log:

```
INFO DiscoveryNetworkConnector -Establishing network connection
from vm://localhost to tcp://host2:18616

INFO DemandForwardingBridge -Network connection between
vm://localhost#0 and tcp://host2:host2IP:18616(localhost) has been
established.
```

APPENDIX C

Port Number Reference

This appendix includes the following topic:

- [Port Number Reference, 80](#)

Port Number Reference

The B2B Data Exchange server and the Operation Console use default port numbers. You can modify the port numbers to prevent conflicts in single-machine clusters.

Note: The 0.0.0.0 IP address indicates that all addresses assigned to the server should be used.

The following table lists the default Operation Console port numbers:

Listening IP	Port	Cluster Type	Description
127.0.0.1	18005	- Multi-machine - Single-machine	Tomcat shutdown port. This port cannot be disabled.
0.0.0.0	18009	- Multi-machine	Tomcat AJP/1.3 port. This port is disabled by default.
0.0.0.0	18080	- Multi-machine - Single-machine	HTTP listener port.
0.0.0.0	18443	- Multi-machine - Single-machine	HTTPS listener port. This port is disabled by default.
0.0.0.0	18100	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker Network Connection. This is an internal port.
224.252.253.254	18000	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker discovery port. This is an internal port.

The following table lists the default B2B Data Exchange server port numbers:

Listening IP	Port	Cluster Type	Description
0.0.0.0	18095	- Multi-machine - Single-machine	(Bootstrap) RMI Registry port.
0.0.0.0	18050	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker Network Connection. This port is internal.
224.252.253.254	18000	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker discovery port.
0.0.0.0	18098	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker process port (JMX).
0.0.0.0	18616	- Multi-machine - Single-machine	B2B Data Exchange JMS Broker process port. This port is used for communication with PowerCenter.
224.252.253.254	18162	- Multi-machine	B2B Data Exchange JMS Broker process port. This port is used for cluster communication.

APPENDIX D

Glossary

active/active

A configuration where all nodes are active. In the event of a failure, the remaining active nodes assume responsibility for all processing tasks.

active/passive

A configuration with an active node and one or more passive nodes. The passive nodes are used only if the active node fails. Only one node is active at a time.

active node

The server in a B2B Data Exchange cluster that is currently processing user transactions. If the active node fails unexpectedly, a passive node takes over.

AJP

Apache Jservlet Protocol is a binary packet-oriented communication protocol used to reduce the communications overhead between a web server (Apache HTTP Server) and a servlet container (Apache Tomcat).

browser

The Web interface that the Operation Console user uses to log on to the Operation Console. The HTTP load balancer forwards the actions that the Operation Console users perform to the available Tomcat instance in the Operation Console cluster.

client

See **browser**.

failover

The migration of a service, process, or task to another node when the original node becomes unavailable, for example, if the original node shuts down unexpectedly.

grid

An alias assigned to a group of nodes that run sessions and workflows. When you run a workflow on a grid, you improve scalability and performance by distributing session and command tasks to service processes running on nodes on the grid.

load balancer

Hardware or software that balances the incoming requests to different back-end machines or nodes.

recovery

The automatic or manual completion of tasks after an application service is interrupted.

resilience

The ability of services to tolerate transient failures, such as loss of connectivity to the database or network failures.

sticky session

A session that uses a single server to handle all user traffic for a specific browser.

Tomcat instance

The node that runs Tomcat with the B2B Data Exchange Operation Console.

INDEX

A

archive service
configuration [20](#)

B

browser
minimum system requirements [16](#)

C

cluster components
operation console [10](#)
overview [9](#)
server [9](#)
cluster configuration
multi-machine [67](#)
single-machine [67](#)
types [8](#)
clustered file system
configuration [13](#)
configuring
clustered file system [13](#)
file endpoints [20](#)
JMS Broker [71](#)
Oracle database connections [73](#)
shared file system [19](#)

D

Data Exchange server
configuration [70](#)
document store
configuration [20](#)
moving [20](#)

F

file endpoints
configuration [20](#)
firewall
Partners Portal [19](#)

I

installer requirements
minimum system requirements [16](#)

J

JMS Broker
configuration [71](#)
data directory configuration [20](#)
JMS discovery
Data Exchange server configuration [70](#)
JMS properties in PowerCenter
configuration [71](#)

L

Load balancer
browser request processing [68](#)
sticky sessions [69](#)

M

minimum system requirements
installer [16](#)
multi-machine cluster
installing B2B Data Exchange on [67](#)
multicast capability
testing [70](#)
multicast JMS discovery
configuration [72](#)

O

opening ports
Partners Portal [19](#)
operating system
minimum system requirements [16](#)
operation console cluster
overview [10](#)
Operation Console cluster
proxy server [74](#)
Oracle database connections
configuration [73](#)

P

Partners Portal
firewall [19](#)
opening ports [19](#)
port numbers
default [15](#)
Port numbers
reference [80](#)
PowerCenter workflow
configuration [74](#)

prerequisite

Data Transformation service [18](#)

Microsoft SQL Database [19](#)

software [18](#)

Proxy server

configuration [74](#)

R

redelivery plugins

configuration [73](#)

requirements

database [17](#)

S

server cluster

overview [9](#)

shared file system

configuration [19](#)

single-machine cluster

installing B2B Data Exchange on [67](#)

Tomcat properties [74](#)

Sticky sessions

configuration [69](#)

system requirements

user accounts [15](#)

T

testing

multicast capability [70](#)

Tomcat

configuration properties [74](#)

troubleshooting

log messages [78](#)

Troubleshooting

common problems [76](#)

U

unicast JMS discovery

configuration [72](#)

user accounts

installation [15](#)