



Delphix Engine 4.1

Quick Start Guide

July, 2014

Delphix Engine 4.1 Quick Start Guide

You can find the most up-to-date technical documentation at:

docs.delphix.com The Delphix Web site also provides the latest product updates.

If you have comments about this documentation, submit your feedback to: infodev@delphix.com

© 2014 Delphix Corp. All rights reserved.

Delphix and the Delphix logo and design are registered trademarks or trademarks of Delphix Corp. in the United States and/or other jurisdictions.

All other marks and names mentioned herein may be trademarks of their respective companies.

Delphix Corp.

275 Middlefield Road, Suite 50

Menlo Park, CA 94025

1. Quick Start Guide for the Delphix Engine	4
1.1 Create a Group	5
1.2 SQL Server Quick Start Topics	6
1.2.1 Set Up a SQL Server Target Environment	7
1.2.2 Set Up a SQL Server Source Environment	9
1.2.3 Link a SQL Server Data Source	11
1.2.4 Provision a SQL Server VDB	13
1.3 Oracle Quick Start Topics	15
1.3.1 Set Up an Oracle Single Instance or RAC Environment	16
1.3.2 Link an Oracle Data Source	18
1.3.3 Provision an Oracle VDB	20
1.4 PostgreSQL Quick Start Topics	23
1.4.1 Add a PostgreSQL Environment	24
1.4.2 Link a PostgreSQL Data Source	26
1.4.3 Provision a PostgreSQL VDB	28
1.5 Delete a VDB	30
1.6 Delete a dSource	31
1.7 Disable a dSource	32

Quick Start Guide for the Delphix Engine

These topics describe the basic processes for setting up environments, setting up dSources, provisioning VDBs, and then deleting dSources and VDBs.

These topics are excerpted from the larger user guide, and are intended to provide you with a quick overview of basic procedures for working with database objects in the Delphix Engine. This guide does not cover setting up and configuring the Delphix Engine, and the requirements of your installation and database platform may require more detailed instructions. We highly recommend that you read the topics linked from the topics in this guide, as well as the conceptual overview topics included at the beginning of each chapter of the user guide, before undertaking complex operations with the Delphix Engine.

- [Create a Group](#)
- [SQL Server Quick Start Topics](#)
 - [Set Up a SQL Server Target Environment](#)
 - [Set Up a SQL Server Source Environment](#)
 - [Link a SQL Server Data Source](#)
 - [Provision a SQL Server VDB](#)
- [Oracle Quick Start Topics](#)
 - [Set Up an Oracle Single Instance or RAC Environment](#)
 - [Link an Oracle Data Source](#)
 - [Provision an Oracle VDB](#)
- [PostgreSQL Quick Start Topics](#)
 - [Add a PostgreSQL Environment](#)
 - [Link a PostgreSQL Data Source](#)
 - [Provision a PostgreSQL VDB](#)
- [Delete a VDB](#)
- [Delete a dSource](#)
- [Disable a dSource](#)

Create a Group

Before you can link to a dSource or provision a VDB, you will need to create a group that will contain your database objects. Permissions and policies for database objects are also determined within the group, as described in [Users, Groups, and Permissions: An Overview](#).

When you first start up the Delphix Engine, a default group, <New Group>, is already defined. You can edit the name of this group, as well as the policies and permissions associated with it, to use as your first group, or you can create a group as described in the following steps.

Groups for dSources and VDBs

Since policies and permissions for database objects are set by the group they belong too, you may want to create two groups, one for dSources, one for VDBs, so you can set policies and permissions by object types.

Adding a Group

1. Log into the **Delphix Admin** application as a user with **Delphix Admin** privileges.
2. In the **Databases** menu, select **Add New Group**.
3. Enter a **Group Name** and an optional description.
4. Click **OK**.

Deleting a Group

1. Log into the **Delphix Admin** application as a user with **Delphix Admin** privileges or group **OWNER** privileges for the target group.
2. Open the group card in the **Databases** panel by selecting the target group
3. Click the **Trash Can** icon.
4. Click **OK**.

Deleting Groups Containing Objects

A group cannot be deleted if it contains VDBs or dSources. All databases within a group must be deleted prior to deleting the group.

At Least One Group Must Exist

At least one group must always exist on the Delphix Engine in order to link a dSource. If you delete the last group, you will need to create a new group in order to create a dSource.

SQL Server Quick Start Topics

These topics, which are excerpted from the larger User Guide, are intended to provide you with quick overview of how to work with SQL Server database objects in the Delphix Engine. Before undertaking any of these procedures we strongly recommend that you read the topics in the [SQL Server Support and Requirements](#) section.

- [Set Up a SQL Server Target Environment](#)
- [Set Up a SQL Server Source Environment](#)
- [Link a SQL Server Data Source](#)
- [Provision a SQL Server VDB](#)

Set Up a SQL Server Target Environment

As explained in [Setting Up SQL Server Environments: An Overview](#) SQL Server targets can be used for three purposes in a Delphix Engine deployment:

- They can host a target environment for the provisioning of Virtual Databases (VDBs)
- They can host a staging database for a linked dSource and run the validated sync process
- They can serve as a proxy host for database discovery on source hosts


Regardless of the specific purpose, all Windows targets must have the Delphix Connector installed to enable communication between the host and the Delphix Engine. The instructions in this topic cover initiating the Add Target process in the Delphix Engine interface, running the Delphix Connector installer on the target machine, and then verifying that the target has been added in the Delphix Engine interface.

Prerequisites

- Make sure your target environment meets the requirements described in [Requirements for SQL Server Target Hosts and Databases](#).
- On the Windows machine that you want to use as a target, you will need to download the Delphix Connector software through the Delphix Engine interface, install it and then register that machine with the Delphix Engine.

Procedure

1. From the machine that you want to use as a target, log into the **Delphix Admin** application.
2. Select **Manage > Environments**.
3. Next to **Environments**, click the green **Plus** icon.
4. In the **Add Environment** dialog, select **Windows** in the operating system menu.
5. Select **Target**.
6. Click the download link for the **Delphix Connector Installer**.
The Delphix Connector will download to your local machine.
7. On the Windows machine that you want to use as a target, run the Delphix Connector installer. Click **Next** to advance through each of the installation wizard screens.

 The installer will only run on 64-bit Windows systems. 32-bit systems are not supported.

- a. For **Connector Configuration**, make sure there is no firewall in your environment blocking traffic to the port on the target environment that the Delphix Connector service will listen to.
 - b. For **Select Installation Folder**, either accept the default folder, or click **Browse** to select another.
 - c. Click **Close** to complete the installation process.
 - d. Run this batch script as Administrator: **<Delphix Connector installation folder>\Delphix\DelphixConnector\connector\addhostgui.cmd**.
When the **Add Windows Target Environment Wizard** launches, provide the **Target Host IP Address**, **Delphix Engine IP Address**, your login credentials, and the environment user on the Windows target host.
 - e. After providing this information, click **Submit**, and then click **Yes** to confirm the target environment addition request.
8. In the Delphix Engine interface, you will see a new icon for the Target environment, and two jobs running in the **Delphix Admin Job History**, one to **Create and Discover** an environment, and another to **Create** an environment. When the jobs are complete, click on the icon for the new environment, and you will see the

details for the environment.

Post-Requisites

- On the target machine, in the **Windows Start Menu**, go to **Services > Extended Services**, and make sure that the **Delphix Connector** service has a **Status** of **Started**, and that the **Startup Type** is **Automatic**.

Video



Related Links

- [Setting Up SQL Server Environments: An Overview](#)
- [Requirements for SQL Server Target Hosts and Databases](#)

Set Up a SQL Server Source Environment

As explained in [Setting Up SQL Server Environments: An Overview](#) SQL Server targets can be used for three purposes in a Delphix Engine deployment:

- They can host a target environment for the provisioning of Virtual Databases (VDBs)
- They can host a staging database for a linked dSource and run the validated sync process
- They can serve as a proxy host for database discovery on source hosts


Regardless of the specific purpose, all Windows targets must have the Delphix Connector installed to enable communication between the host and the Delphix Engine. The instructions in this topic cover initiating the Add Target process in the Delphix Engine interface, running the Delphix Connector installer on the target machine, and then verifying that the target has been added in the Delphix Engine interface.

Prerequisites

- Make sure your target environment meets the requirements described in [Requirements for SQL Server Target Hosts and Databases](#).
- On the Windows machine that you want to use as a target, you will need to download the Delphix Connector software through the Delphix Engine interface, install it and then register that machine with the Delphix Engine.

Procedure

1. From the machine that you want to use as a target, log into the **Delphix Admin** application.
2. Select **Manage > Environments**.
3. Next to **Environments**, click the green **Plus** icon.
4. In the **Add Environment** dialog, select **Windows** in the operating system menu.
5. Select **Target**.
6. Click the download link for the **Delphix Connector Installer**.
The Delphix Connector will download to your local machine.
7. On the Windows machine that you want to use as a target, run the Delphix Connector installer. Click **Next** to advance through each of the installation wizard screens.

 The installer will only run on 64-bit Windows systems. 32-bit systems are not supported.

- a. For **Connector Configuration**, make sure there is no firewall in your environment blocking traffic to the port on the target environment that the Delphix Connector service will listen to.
 - b. For **Select Installation Folder**, either accept the default folder, or click **Browse** to select another.
 - c. Click **Close** to complete the installation process.
 - d. Run this batch script as Administrator: **<Delphix Connector installation folder>\Delphix\DelphixConnector\connector\addhostgui.cmd**.
When the **Add Windows Target Environment Wizard** launches, provide the **Target Host IP Address**, **Delphix Engine IP Address**, your login credentials, and the environment user on the Windows target host.
 - e. After providing this information, click **Submit**, and then click **Yes** to confirm the target environment addition request.
8. In the Delphix Engine interface, you will see a new icon for the Target environment, and two jobs running in the **Delphix Admin Job History**, one to **Create and Discover** an environment, and another to **Create** an environment. When the jobs are complete, click on the icon for the new environment, and you will see the

details for the environment.

Post-Requisites

- On the target machine, in the **Windows Start Menu**, go to **Services > Extended Services**, and make sure that the **Delphix Connector** service has a **Status** of **Started**, and that the **Startup Type** is **Automatic**.

Video



Related Links

- [Setting Up SQL Server Environments: An Overview](#)
- [Requirements for SQL Server Target Hosts and Databases](#)

Link a SQL Server Data Source

- [Prerequisites](#)
- [Procedure](#)
- [Related Links](#)

Prerequisites

- Be sure that the source database meets the requirements described in [Requirements for SQL Server Target Hosts and Databases](#)
- You should already have set up a staging target environment as described in [Setting Up SQL Server Environments: An Overview](#) and [Adding a Windows Target Environment](#)

Maximum Size of a Database that can be Linked

- If the staging environment uses the Windows 2003 operating system, the largest size of a database that can be linked to the Delphix Engine is 2TB. This is also the largest size that a virtual database (VDB) can grow to.
- For all other Windows versions, the maximum size for databases and VDBs is 32TB

In both cases, the maximum size of the database and resulting VDBs is determined by the operating system on the staging target host.


Procedure

1. Log into the **Delphix Admin** application using **Delphix Admin** credentials or as the owner of the owner of the database from which you want to provision the dSource.
2. Select **Manage > Databases > Add dSource** .
Alternatively, on the **Environment Management** screen, you can click **Link** next to a database name to start the dSource creation process.
3. In the **Add dSource** wizard, select the source database.

Changing the Environment User

If you need to change or add an environment user for the source database, see [Managing SQL Server Environment Users](#).

4. Enter your login credentials for the source database and click **Verify Credentials**, and then click **Next** .
5. Select a **Database Group** for the dSource, and then click **Next**.
Adding a dSource to a database group lets you set Delphix Domain user permissions for that database and its objects, such as snapshots. See the topics under [Users, Permissions, and Policies](#) for more information.

 If your data source name contains non-ASCII characters, you will need to change the default dSource name to something that uses only ASCII characters.

6. Select the method for the **Initial Load**.
See [Linking a dSource from a SQL Server Database: An Overview](#) for details on initial load options.
7. Specify a backup path where the source database backups will be available for Delphix Engine to restore

from.

8. Select the target environment for creating the staging database for validated sync.
9. Select a SQL Server instance on the target environment for hosting the staging database.
10. Select whether the data in the database is **Masked** .
11. Select whether you want **LogSync** enabled for the dSource. See [Advanced Data Management Settings for SQL Server dSources](#) for more information.

LogSync Disabled by Default

LogSync is disabled by default for SQL Server data sources. For more information about how LogSync functions with SQL Server data sources, see [Managing SQL Server Data Sources](#) for more information.

12. Click **Advanced** to edit Retention policies and specify pre/post scripts. Refer to [Using Pre- and Post-Scripts with SQL Server dSources](#) for details on pre/post scripts.
13. Click **Next**.
14. Review the **dSource Configuration** and **Data Management** information, and then click **Finish** .

The Delphix Engine will initiate two jobs, **DB_Link** and **DB_Sync**, to create the dSource. You can monitor these jobs by clicking **Active Jobs** in the top menu bar, or by selecting **System > Event Viewer**. When the jobs have successfully completed, the database icon will change to a dSource icon on the **Environments > Databases** screen , and the dSource will be added to the list of **My Databases** under its assigned group.

You can view the current state of **Validated Sync** for the dSource on the dSource card itself.

The dSource Card

After you have created a dSource, you can view information about it on the dSource card, and also make modifications to its policies and permissions. In the **Databases** panel, click on the **Open** icon to view the front of the dSource card. The card will then flip, showing you information such as the **Source Database** and **Data Management** configuration. See the topic [Advanced Data Management Settings for SQL Server dSources](#) for more information.

Related Links

- [Users, Permissions, and Policies](#)
- [Setting Up SQL Server Environments: An Overview](#)
- [Linking a dSource from a SQL Server Database: An Overview](#)
- [Advanced Data Management Settings for SQL Server dSources](#)
- [Adding a SQL Server Target Environment](#)
- [Requirements for SQL Server Target Hosts and Databases](#)
- [Using Pre- and Post-Scripts with SQL Server dSources](#)

Provision a SQL Server VDB

Prerequisites

- You will need to have linked a dSource from a source database, as described in [Linking a SQL Server dSource](#), or have already created a VDB from which you want to provision another VDB
- You should already have set up Windows target environments and installed the Delphix Connector on them, as described in [Adding a SQL Server Target Environment](#)
- Make sure you have the required privileges on the target environment as described in [Requirements for SQL Server Target Hosts and Databases](#)
- If you are provisioning to a different target environment than the one where the staging database has been set up, you need to make sure that the two environments have compatible operating systems, as described in [Requirements for SQL Server Target Hosts and Databases](#). For more information on the staging database and the validated sync process, see [Setting Up SQL Server Environments: An Overview](#).

Procedure

1. Log into the **Delphix Admin** application.
2. Select **Manage > Databases > My Databases**.
3. Select a dSource.
4. Select a means of provisioning.
See [Provisioning by Snapshot and LogSync](#) in this topic for more information.
5. Click **Provision**.
The **Provision VDB** panel will open, and the **Instance**, **Database Name**, and **Recovery Model** will auto-populate with information from the dSource.
6. Specify any **Pre** or **Post Scripts** that should be used during the provisioning process.
See [Using Pre- and Post-Scripts with dSources and SQL Server VDBs](#) for more information.
7. Click **Next**.
8. Select a **Target Group** for the VDB.
Click the green **Plus** icon to add a new group, if necessary.
9. Select a **Snapshot Policy** for the VDB.
Click the green **Plus** icon to create a new policy, if necessary.
10. Click **Next**.
11. If your Delphix Engine system administrator has configured the Delphix Engine to communicate with an SMTP server, you will be able to specify one or more people to notify when the provisioning is done. You can choose other Delphix Engine users, or enter email addresses .
12. Click **Finish**.
When provisioning starts, you can review progress of the job in the **Databases** panel, or in the **Job History** panel of the **Dashboard**. When provisioning is complete, the VDB will be included in the group you designated, and listed in the **Databases** panel. If you select the VDB in the Databases panel and click the **Open** icon, you can view its card, which contains information about the database and its Data Management settings.

- ✓ You can select a SQL Server instance that has a higher version than the source database, if the source database version is higher than SQL Server 2005. The VDB will be automatically upgraded.

Provisioning by Snapshot or LogSync

When provisioning by snapshot, you can provision to the start of any particular snapshot, either by time or LSN.

- ✓ You can take a new snapshot of the dSource and provision from it by clicking the **Camera** icon on the dSource card.

Provisioning By Snapshot	Description
Provision by Time	You can provision to the start of any snapshot by selecting that snapshot card from the TimeFlow view, or by entering a value in the time entry fields below the snapshot cards. The values you enter will snap to the beginning of the nearest snapshot.
Provision by LSN	You can use the Slide to Provision by LSN control to open the LSN entry field. Here, you can type or paste in the LSN you want to provision to. After entering a value, it will "snap" to the start of the closest appropriate snapshot.

If LogSync is enabled on the dSource, you can provision by LogSync information. When provisioning by LogSync information, you can provision to any point in time, or to any LSN, within a particular snapshot. The TimeFlow view for a dSource shows multiple snapshots by default. To view the LogSync data for an individual snapshot, use the **Slide to Open LogSync** control at the top of an individual snapshot card.

Provisioning By LogSync	Description
Provision by Time	Use the Slide to Open LogSync control to view the time range within that snapshot. Drag the red triangle to the point in time that you want to provision from. You can also enter a date and time directly.
Provision by LSN	Use the Slide to Open LogSync and Slide to Provision by LSN controls to view the range of LSNs within that snapshot. You must type or paste in the specific LSN you want to provision to. Note that if the LSN doesn't exist, you will see an error when you provision.

Related Links

- [Linking a SQL Server dSource](#)
- [Adding a SQL Server Target Environment](#)
- [Requirements for SQL Server Target Hosts and Databases](#)
- [Setting Up SQL Server Environments: An Overview](#)
- [Using Pre- and Post-Scripts with dSources and SQL Server VDBs](#)

Oracle Quick Start Topics

These topics, which are excerpted from the larger User Guide, are intended to provide you with a quick overview of working with Oracle database objects in the Delphix Engine. Before undertaking any of these procedures we strongly recommend that you read the topics in the [Oracle Support and Requirements](#) section.

- [Set Up an Oracle Single Instance or RAC Environment](#)
- [Link an Oracle Data Source](#)
- [Provision an Oracle VDB](#)

Set Up an Oracle Single Instance or RAC Environment

Prerequisites

- See the topics [Requirements for Oracle Target Hosts and Databases](#) and [Supported Operating Systems and DBMS Versions for Oracle Environments](#)

Procedure

1. Log into the **Delphix Admin** application using **Delphix Admin** credentials.
2. Select **Manage > Environments**.
3. Click the **Plus** icon next to **Environments**.
4. In the **Add Environment** dialog, select **Unix/Linux**.
5. Select **Standalone Host** or **Oracle Cluster**, depending on the type of environment you are adding.
6. For standalone Oracle environments enter the **Host IP** address.
7. For Oracle RAC environments, enter the **Node Address** and **Cluster Home**.
8. Enter an optional **Name** for the environment.
9. Enter the **SSH** port.
The default value is **22**.
10. Enter a **Username** for the environment.
See [Requirements for Oracle Target Hosts and Databases](#) for more information on the required privileges for the environment user.
11. Select a **Login Type**.
For **Password**, enter the password associated with the user in Step 10.

Using Public Key Authentication

- a. If you want to use public key encryption for logging into your environment, select **Public Key** for the **Login Type**, and then click **View Public Key**.
- b. Copy the public key that is displayed, and append it to the end of your `~/ .ssh/authorized_keys` file. If this file does not exist, you will need to create it.
 - i. Run `chmod 600 authorized_keys` to enable read and write privileges for your user.
 - ii. Run `chmod 755 ~` to make your home directory writable only by your user.
- c. The public key needs to be added only once per user and per environment.

You can also add public key authentication to an environment user's profile by using the command line interface, as explained in the topic [CLI Cookbook: Setting Up SSH Key Authentication for UNIX Environment Users](#)

12. For **Password Login**, click **Verify Credentials** to test the username and password.
13. Enter a **Toolkit Path**.
The toolkit directory stores scripts used for Delphix Engine operations, and should have a persistent working directory rather than a temporary one. The toolkit directory will have a separate sub-directory for each database instance. The toolkit path must have 0770 permissions and at least 64MB of free space.
14. Click **OK**.

Post-Requisites

After you create the environment, you can view information about it by selecting **Manage > Environments**, and then select the environment name.

Related Links

- [Requirements for Oracle Target Hosts and Databases](#)

Link an Oracle Data Source

Prerequisites

- Make sure you have the correct user credentials for the source environment, as described in [Requirements for Oracle Target Hosts and Databases](#).
- If you are linking a dSource to an Oracle or Oracle RAC physical standby database, you should read the topic [Linking Oracle Physical Standby Databases](#).
- If you are using Oracle Enterprise Edition, you must have Block Change Tracking (BCT) enabled as described in [Requirements for Oracle Source Hosts and Databases](#).
- The source database should be in ARCHIVELOG mode and the NOLOGGING option should be disabled as described in [Requirements for Oracle Source Hosts and Databases](#)
- You may also want to read the topic [Advanced Data Management Settings for Oracle dSources](#).

Procedure

1. Log into the **Delphix Admin** application using **Delphix Admin** credentials.
2. Select **Manage > Databases > Add dSource**.
Alternatively, on the **Environment Management** screen, you can click **Link** next to a database name to start the dSource creation process.
3. In the **Add dSource** wizard, select the source database.

Changing the Environment User

If you need to change or add an environment user for the source database, see [Managing Oracle Environment Users](#).

4. Enter your login credentials for the source database and click **Verify Credentials**. If you are linking a mounted standby, click **Advanced** and enter non-SYS login credentials as well. Click **Next**.
See the topics under [Linking Oracle Physical Standby Databases](#) for more information about how the Delphix Engine uses non-SYS login credentials.
5. Select a **Database Group** for the dSource, and then click **Next**.
Adding a dSource to a database group lets you set Delphix Domain user permissions for that database and its objects, such as snapshots. See the topics under [Users, Permissions, and Policies](#) for more information.
6. Select an **Initial Load** option.
By default, the initial load takes place upon completion of the linking process. Alternatively, you can set the initial load to take place according to the SnapSync policy, for example if you want the initial load to take place when the source database is not in use, or after a set of operations have taken place.
7. Select whether the data in the database is **Masked**.
This setting is a flag to the Delphix Engine that the database data is in a masked state. Selecting this option will not mask the data.
8. Select a **SnapSync** policy.
See [Advanced Data Management Settings for Oracle dSources](#) for more information.
9. Click **Advanced** to edit LogSync, Validated Sync, and Retention policies.
See [Advanced Data Management Settings for Oracle dSources](#) for more information.
10. Click **Next**.
11. Review the **dSource Configuration** and **Data Management** information, and then click **Finish**.
The Delphix Engine will initiate two jobs, **DB_Link** and **DB_Sync**, to create the dSource. You can monitor

these jobs by clicking **Active Jobs** in the top menu bar, or by selecting **System > Event Viewer**. When the jobs have successfully completed, the database icon will change to a dSource icon on the **Environments > Databases** screen, and the dSource will be added to the list of **My Databases** under its assigned group.

The dSource Card

After you have created a dSource, you can view information about it on the dSource card, and also make modifications to its policies and permissions. In the **Databases** panel, click on the **Open** icon to view the front of the dSource card. The card will then flip, showing you information such as the **Source Database** and **Data Management** configuration. See the topic [Advanced Data Management Settings for Oracle dSources](#) for more information.

Related Links

- [Advanced Data Management Settings for Oracle dSources](#)
- [Requirements for Oracle Target Hosts and Databases](#)
- [Linking dSources from an Encrypted Oracle Database](#)
- [Linking Oracle Physical Standby Databases](#)
- [Users, Permissions, and Policies](#)

Provision an Oracle VDB

Prerequisites

- You will need to have linked a dSource from a source database, as described in [Linking an Oracle Data Source](#), or have already created a VDB from which you want to provision another VDB
- You will need to have the correct OS User privileges on the target environment, as described in [Requirements for Oracle Target Hosts and Databases](#)
- If you want to use customized database configuration settings, first create a **VDB Config Template** as described in [Customizing Oracle VDB Configuration Settings](#)
- If you are creating a VDB from a dSource linked to an encrypted database, make sure you have copied the wallet file to the target environment as described in [Provisioning a VDB from an Encrypted Oracle Database](#)

Procedure


1. Log into the **Delphix Admin** application.
2. Select **Manage > Databases > My Databases**.
3. Select a dSource.
4. Select a dSource snapshot.
See [Provisioning by Snapshot and LogSync](#) in this topic for more information on provisioning options.

You can take a snapshot of the dSource to provision from by clicking the **Camera** icon on the dSource card.

5. **Optional:** Slide the **LogSync** slider to the open the snapshot timeline, and then move the arrow along the timeline to provision from a point of time within a snapshot.

You can provision from the most recent log entry by opening the snapshot timeline, and then click the red **Arrow** icon next to the LogSync Slider.

6. Click **Provision**.
The **Provision VDB** panel will open, and the fields **Installation Home**, **Database Unique Name**, **SID**, **Database Name**, **Mount Base**, and **Environment User** will auto-populate with information from the dSource.
7. If you need to add a new target environment for the VDB, click the green **Plus** icon next to the **Filter Target** field, and follow the instructions in [Adding an Oracle Single Instance or RAC Environment](#).
8. Review the information for **Installation Home**, **Database Unique Name**, **SID**, and **Database Name** and edit as necessary.
9. Review the **Mount Base** and **Environment User** and edit as necessary.
The Environment User must have permissions to write to the specified Mount Base, as described in [Requirements for Oracle Target Hosts and Databases](#). You may also want to create a new writeable directory in the target environment with the correct permissions, and use that as the Mount Base for the VDB.
10. Select **Provide Privileged Credentials** if you want to use login credentials on the target environment other than those associated with the **Environment User**.
11. Click **Advanced** to select Oracle Node Listeners or enter any VDB configuration settings or file mappings.
See [Customizing Oracle VDB Configuration Settings](#) and [Customizing VDB File Mappings](#) for more information.

 If you are provisioning to a target environment that is running a Linux OS, you will need to compare the `SGA_TARGET` configuration parameter with the shared memory size in `/dev/shm`. The shared memory configured on the target host should match the SGA memory target. You can check this by opening the **Advanced** settings, and then finding the value for `SGA_TARGET` under **DB Configuration**.

12. Click **Next**.
13. Select a **Target Group** for the VDB.
Click the green **Plus** icon to add a new group, if necessary.
14. Select a **Snapshot Policy** for the VDB.
Click the green **Plus** icon to create a new policy, if necessary.
15. Click **Next**.
16. Enter any operations that should be run at **Hooks** during the provisioning process.
See [Customizing Oracle VDB Management with Hook Operations](#) for more information.
17. Click **Next**.
18. Click **Finish**.
When provisioning starts, you can review progress of the job in the Databases panel, or in the **Job History** panel of the **Dashboard**. When provisioning is complete, the VDB will be included in the group you designated, and listed in the **Databases** panel. If you select the VDB in the Databases panel and click the **Open** icon, you can view its card, which contains information about the database and its Data Management settings.

Provisioning by Snapshot or LogSync

When provisioning by snapshot, you can provision to the start of any particular snapshot, either by time or SCN.

Provisioning By Snapshot	Description
Provision by Time	You can provision to the start of any snapshot by selecting that snapshot card from the Timeflow view, or by entering a value in the time entry fields below the snapshot cards. The values you enter will snap to the beginning of the nearest snapshot.
Provision by SCN	You can use the Slide to Provision by SCN control to open the SCN entry field. Here, you can type or paste in the SCN you want to provision to. After entering a value, it will "snap" to the start of the closest appropriate snapshot.

When provisioning by LogSync information, you can provision to any point in time, or to any SCN, within a particular snapshot. The TimeFlow view for a dSource shows multiple snapshots by default. To view the LogSync data for an individual snapshot, use the **Slide to Open LogSync** control at the top of an individual snapshot card.

Provisioning By LogSync	Description
-------------------------	-------------

Provision by SCN	Use the Slide to Open LogSync and Slide to Provision by SCN controls to view the range of SCNs within that snapshot. Drag the red triangle to the LSN that you want to provision from. You can also type or paste in the specific SCN you want to provision to. Note that if the SCN doesn't exist, you will see an error when you provision.
Provision by Time	Use the Slide to Open LogSync control to view the time range within that snapshot. Drag the red triangle to the point in time that you want to provision from. You can also enter a date and time directly.

Video



Related Links

- [Linking an Oracle Data Source](#)
- [Requirements for Oracle Target Hosts and Databases](#)
- [Customizing Oracle VDB Configuration Settings](#)
- [Customizing VDB File Mappings](#)
- [Customizing Oracle VDB Management with Hook Operations](#)

PostgreSQL Quick Start Topics

These topics, which are excerpted from the larger User Guide, are intended to provide you with a quick overview of working with PostgreSQL data sources in the Delphix Engine. Before undertaking any of these procedures we strongly recommend that you read the topics in the [PostgreSQL Support and Requirements](#) section.

- [Add a PostgreSQL Environment](#)
- [Link a PostgreSQL Data Source](#)
- [Provision a PostgreSQL VDB](#)

Add a PostgreSQL Environment

This topic describes how to add a PostgreSQL source environment to the Delphix Engine.

Prerequisites

Make sure your environment meets the requirements described in the following topics:

- [Requirements for PostgreSQL Source Hosts and Databases](#)
- [Requirements for PostgreSQL Target Hosts and Databases](#)
- [Supported Operating Systems and Database Versions for PostgreSQL Environments](#)

Procedure

1. Log into the **Delphix Admin** application.
2. Select **Manage > Environments**.
3. Next to **Environments**, click the green **Plus** icon.
4. In the **Add Environment** dialog, select **Unix/Linux** in the operating system menu.
5. Select **Standalone Host**.
6. Enter the **Host IP** address.
7. Enter an optional **Name** for the environment.
8. Enter the **SSH** port.
The default value is **22**.
9. Enter a **Username** for the environment.
See [Requirements for PostgreSQL Target Hosts and Databases](#) and [Requirements for PostgreSQL Source Hosts and Databases](#) for more information about the environment user requirements.
10. Select a **Login Type**.
For **Password**, enter the password associated with the user in Step 9.

Using Public Key Authentication

- a. If you want to use public key encryption for logging into your environment, select **Public Key** for the **Login Type**, and then click **View Public Key**.
- b. Copy the public key that is displayed, and append it to the end of your `~/.ssh/authorized_keys` file. If this file does not exist, you will need to create it.
 - i. Run `chmod 600 authorized_keys` to enable read and write privileges for your user.
 - ii. Run `chmod 755 ~` to make your home directory writable only by your user.
- c. The public key needs to be added only once per user and per environment.

You can also add public key authentication to an environment user's profile by using the command line interface, as explained in the topic [CLI Cookbook: Setting Up SSH Key Authentication for UNIX Environment Users](#)

11. For **Password Login**, click **Verify Credentials** to test the username and password.
12. Enter a **Toolkit Path**.
See [Requirements for PostgreSQL Target Hosts and Databases](#) and [Requirements for PostgreSQL Source Hosts and Databases](#) for more information about the toolkit directory requirements.

13. Click **OK**.

As the new environment is added, you will see two jobs running in the Delphix Admin Job History, one to **Create and Discover** an environment, and another to **Create** an environment. When the jobs are complete, you will see the new environment added to the list in the **Environments** panel. If you don't see it, click the **Refresh** icon in your browser.

Post-Requisites

- After you create the environment, you can view information about it by selecting **Manage > Environments**, and then select the environment name.

Related Links

- [Setting Up PostgreSQL Environments: An Overview](#)
- [Requirements for PostgreSQL Source Hosts and Databases](#)
- [Requirements for PostgreSQL Target Hosts and Databases](#)
- [Supported Operating Systems and Database Versions for PostgreSQL Environments](#)
- [Adding an Installation to a PostgreSQL Environment](#)

Link a PostgreSQL Data Source

This topic describes the basic procedure for linking a dSource from a PostgreSQL database to the Delphix Engine.

Prerequisites

- Make sure you have the correct user credentials for the source environment, as described in [Requirements for PostgreSQL Source Hosts and Databases](#)
- You may also want to read the topic [Advanced Data Management Settings for PostgreSQL Data Sources](#)

Procedure

1. Log into the **Delphix Admin** application using **Delphix Admin** credentials.
2. Select **Manage > Databases > Add dSource**.
Alternatively, on the **Environment Management** screen, you can click **Link** next to a database name to start the dSource creation process.
3. In the **Add dSource** wizard, select the source database.

Changing the Environment User

If you need to change or add an environment user for the source database, see [Managing PostgreSQL Environment Users](#).

4. Enter your login credentials for **DB Cluster User** and **DB Cluster Password**.
5. Click **Advanced** to enter a **Connection Database**.
The **Connection Database** will be used when issuing SQL queries from the Delphix Engine to the linked database. It can be any existing database that the **DB Cluster User** has permission to access.
6. Click **Next**.
7. Select a **Database Group** for the dSource, and then click **Next**.
Adding a dSource to a database group lets you set Delphix Domain user permissions for that database and its objects, such as snapshots. See the topics under [Users, Permissions, and Policies](#) for more information.
8. Select a **SnapSync Policy**, and, if necessary, a **Staging Installation** for the dSource.
The **Staging installation** represents the PostgreSQL binaries that will be used on the staging target to backup and restore the linked database to a warm standby.
9. Click **Advanced** to select whether the data in the data sources is **Masked**, to select a **Retention Policy**, and to indicate whether any pre or post scripts should be executed during the dSource creation.
See [Advanced Data Management Settings for PostgreSQL Data Sources](#) and [Using Pre- and Post-Scripts with PostgreSQL dSources](#) for more information.
10. Click **Next**.
11. Review the **dSource Configuration** and **Data Management** information, and then click **Finish**.
The Delphix Engine will initiate two jobs, **DB_Link** and **DB_Sync**, to create the dSource. You can monitor these jobs by clicking **Active Jobs** in the top menu bar, or by selecting **System > Event Viewer**. When the jobs have successfully completed, the database icon will change to a dSource icon on the **Environments > Databases** screen, and the dSource will be added to the list of **My Databases** under its assigned group.

The dSource Card

After you have created a dSource, you can view information about it on the dSource card, and also make modifications to its policies and permissions. In the **Databases** panel, click on the **Open** icon to view the front of the dSource card. The card will then flip, showing you information such as the **Source Database** and **Data Management** configuration. See the topic [Advanced Data Management Settings for PostgreSQL Data Sources](#) for more information.

Related Links

- [Advanced Data Management Settings for PostgreSQL Data Sources](#)
- [Requirements for PostgreSQL Target Hosts and Databases](#)
- [Using Pre- and Post-Scripts with PostgreSQL dSources](#)
- [Users, Permissions, and Policies](#)

Provision a PostgreSQL VDB

This topic describes how to provision a virtual database (VDB) from a PostgreSQL dSource.

Prerequisites

- You will need to have linked a dSource from a source database, as described in [Linking a PostgreSQL dSource](#), or have already created a VDB from which you want to provision another VDB

Procedure

- Log into the **Delphix Admin** application.
- Select **Manage > Databases > My Databases**.
- Select a dSource.
- Select a dSource snapshot.
See [Provisioning by Snapshot and LogSync](#) in this topic for more information on provisioning options.

You can take a snapshot of the dSource to provision from by clicking the **Camera** icon on the dSource card.

- Optional:** Slide the **LogSync** slider to the open the snapshot timeline, and then move the arrow along the timeline to provision from a point in time within a snapshot.
- Click **Provision**.
The **VDB Provisioning Wizard** will open, and the fields **Installation**, **Mount Base**, and **Environment User** will auto-populate with information from the environment configuration.
- Enter a **Port Number**.
The TCP port upon which the VDB will listen.
- Click **Advanced** to enter any VDB configuration settings.
See [Customizing PostgreSQL VDB Configuration Settings](#) for more information.
- Click **Next** to continue to the **VDB Configuration** tab.
- Modify the **VDB Name** if necessary.
- Select a **Target Group** for the VDB.
- Click the green **Plus** icon to add a new group, if necessary.
- Select a **Snapshot Policy** for the VDB.
- Click the green **Plus** icon to create a new policy, if necessary.
- Click **Next** to continue to the **Hooks** tab.
- Specify any **Hooks** to be used during the provisioning process.
See [Customizing PostgreSQL VDB Management with Hook Operations](#) for more information.
- Click **Next** to continue to the **Summary** tab.
- Click **Finish**.
When provisioning starts, you can review progress of the job in the Databases panel, or in the **Job History** panel of the **Dashboard**. When provisioning is complete, the VDB will be included in the group you designated, and listed in the **Databases** panel. If you select the VDB in the Databases panel and click the **Open** icon, you can view its card, which contains information about the database and its Data Management settings.

Provisioning by Snapshot or LogSync

When provisioning by snapshot, you can provision to the start of any snapshot by selecting that snapshot card from the Timeflow view, or by entering a value in the time entry fields below the snapshot cards. The values you enter will snap to the beginning of the nearest snapshot.

When provisioning by LogSync information, you can provision to any point in time within a particular snapshot. The TimeFlow view for a dSource shows multiple snapshots by default. To view the LogSync data for an individual snapshot, use the **Slide to Open LogSync** control at the top of an individual snapshot card to view the time range within that snapshot. Drag the red triangle to the point in time that you want to provision from. You can also enter a date and time directly.

Related Links

- [Linking a PostgreSQL dSource](#)
- [Requirements for PostgreSQL Target Hosts and Databases](#)
- [Using Pre- and Post-Scripts with dSources and VDBs](#)
- [Customizing PostgreSQL VDB Configuration Settings](#)

Delete a VDB

Excerpt Page not found

The page: **Deleting a VDB** was not found. Please check/update the page name used in the 'multiexcerpt-include' macro.

Delete a dSource

Excerpt Page not found

The page: **Deleting a dSource** was not found. Please check/update the page name used in the 'multiexcerpt-include macro.

Disable a dSource

Excerpt Page not found

The page: **Enabling and Disabling dSources** was not found. Please check/update the page name used in the 'multiexcerpt-include macro.