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Welcome to Delphix Mission Control

Mission Control is a centralized reporting and auditing tool for overseeing multiple Delphix Engine deployments. Mission Control allows administrators to combine, sort, and audit data from multiple Delphix Engines. A centralized view of data from many Delphix Engines allows administrators to identify promptly any issues with the deployment, determine where resources are allocated, quickly locate deployed databases, and properly size future additions.

User Roles and Permissions

Mission Control has two types of users:

Admin User
Admin users have full access to all report data and can configure the Mission Control appliance. For example, they can add/delete Delphix Engines, add/delete reports, add/delete users, change tunable settings, and add/delete tags.

Auditor User
Auditor users can only view report data. Admin users can also assign auditor users a set of tags (arbitrary text strings) to restrict which report data they can view. There is no default auditor account. The first Delphix Administrator will need to create the auditor users and will be responsible for creating their User IDs and Passwords.

System Requirements

The VM guest where you install Mission Control has the following requirements:

- VMware ESX: 4.x or greater
- Two Virtual CPUs
- 4 GB of Memory
- 50 GB of Storage

Mission Control supports Delphix Engine 4.0 or later.

Supported Browsers

Accessing the Mission Control console is supported on the following browser versions:

- Chrome 37
- Safari 7
- Firefox 32
- Internet Explorer 9
Activity One: Install Mission Control

1. Using the vSphere client, log into the vSphere server where you want to install Mission Control.
2. Select File > Deploy OVA Template.

By default, Mission Control is configured to use DHCP to acquire an IP address.

Logging In

1. Access Mission Control by opening a web browser using the IP address or DNS qualified host name. Mission Control does not currently support SSL connections, so you should use http, not https.
2. Mission Control ships with one generic Delphix Admin User. The User ID is “delphix_admin” and the password is “delphix.”

Once logged in as the Delphix Admin User, change your password. You can find instructions to do this in the “Change a User Password” section found below.

Navigating the Mission Control Toolbar and User Interface

The Mission Control Toolbar appears after logging into Mission Control. The navigation bar enables you to analyze, manage, and configure data reporting for a Delphix deployment. The View Report functionality appears on the left-hand side of the toolbar. The configuration, help, and login buttons appear on the right-hand side of the toolbar. Below is a screenshot of the toolbar key functionality as well as a brief summary of the functionality available.
Viewing Reports

The View Report tab provides aggregated data across all connected Delphix Engines and presents it as a set of different reports. You can select these reports from the drop-down menu. Mission Control has automated features that check for updates across all Delphix Engines and sync these updates into reports every 10 minutes. To refresh the currently displayed report manually, click Refresh.

Interactive reports such as Storage Breakdown and History display interactive graphical representations of historical and current storage usage across all Delphix Engines you are monitoring. These visualizations of storage and disk capacity enable you to analyze and mediate storage across Delphix Engines from multiple perspectives.

Configure Mission Control

Clicking on the configuration icon in the upper right-hand corner of the screen navigates you to four configuration tabs, including Reports, Engines, Users, and System. Read below for more details.
Delphix Engine Configuration

Configure Reports

The **Reports** tab is the central place to configure settings, create scripts, and email reports in Mission Control. There are three sections that include Report scripts, Script configuration (tunables) and Email reports. To learn more about how to navigate and work in each of these sections, please continue reading.

To navigate to the Report configuration tab:
1. Click the configuration icon on the right-hand side of the toolbar.
2. Click **Reports**.

**Report Scripts**
- Enable/disable individual reports to determine which ones are available in the **reports drop-down menu**
- Delete reports
  - Deleted reports are no longer generated in Mission Control
- Upload new reports
  - This is an experimental feature. Please contact Delphix if you are interested in customizing existing reports or creating new ones.
**Script Configuration:**

- Configure tunable parameters for specific reports
  - Click the field in the **value** column to make it editable

**Email Reports:**

- Configure email reports which automatically send tabular data to any number of email addresses
- Send emails on daily, weekly, or monthly schedules
- Customize the way the data is presented in emails by choosing the sort column and limiting the number of rows.

To access the **Email Reports** section, follow the instructions below:

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click **Reports**.
3. Scroll down to Email Reports.
**Activity Two: Configure, Automate and Email Mission Control Reports**

This activity will walk you through the system and report configuration and automation features that facilitate emailing Mission Control reports in the Email Reports Configuration section. To begin, you will need to configure SMTP settings.

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click **System**.
3. Scroll down to **Email** and click **Edit Settings**.
4. Populate all the fields in the **Edit Email Settings** as seen below and click **Save changes**.
6. Now that SMTP has been configured, navigate to the Reports Configuration page and scroll down to Email reports. Follow and complete the three-step process as illustrated below to begin automating and emailing Mission Control reports.

**Required:** Click Add Email Report. A series of fields will appear to help guide the configuration and automation of emailing selected Mission Control reports. The following is a description of each of these fields.

a. The **Report** field provides a selection of the specific Mission Control report you would like to use for the Email Report function. **Note:** Only tabular reports are available for email.

b. **Sort by Selection** provides a drop down of the column you wish to **sort by**, which varies based on the report you have selected above, and whether the results should be ascending or descending.
c. In the **Limit Report To** fields, a selection choice appears allowing you to run and email a report with all data rows or to enter the number of data rows you would like included in the report.

d. In the **Schedule** field, select the scheduled day and time with the report to be sent.

e. In the **Send to** field, enter the email addresses to which you want to send the report. **Note:** Use a comma to separate email addresses.

Once you have configured all of the fields above, save the information by clicking **Add Email Report**. The newly added report will appear. You will then have access to additional features to edit, send a report now, or click the X button to delete the report.

2. **Optional:** Click the **Edit** button when you need to change or enter new information into any of the configuration fields found in the **Add Email Report** functionality.

3. **Optional:** Click the **Send Now** button to either:
   a. Send a test email report during the process of configuring an email report in order to verify the report settings, or design.

Or:

   b. Send a one-off email outside of an automated and scheduled email report
Configure Engines

To navigate to the Engines screen, as seen below:

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click Engines.

The Engines tab lists all Delphix Engines that you have added to Mission Control. The Status column shows whether Mission Control is connected to each Engine; it will prompt a specific error message if it is unable to connect. To remove an engine from Mission Control:

1. Click the X icon next to the engine you wish to delete.
2. In the confirmation dialog, click OK.

Configure Users

To navigate to the Users screen, as seen below:

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click Users.
The Users tab displays the set of user accounts that have permission to access Mission Control. You can assign tags to auditor users to restrict which Delphix Engines and containers they can see. For more information, refer to the “How to Assign Tags” activity in a later section.

Managing the Operating System

Mission Control runs as an open virtual appliance. The underlying operating system, CentOS, can be modified or patched as needed. For best practices, please refer to the official documentation: [https://www.centos.org/docs/](https://www.centos.org/docs/)

**Note:** Any changes to files related to Delphix may result in an unusable system. These files are stored in the following locations:

- `/opt/delphix`
- `/var/delphix`
- `/var/log/delphix`

To manage the appliance or the Operating System or to upgrade, you must have root access. The default root password is “delphix.” You should change this as soon as possible.

To navigate to the System screen, as seen below:

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click System.

### Activity Three: Add Delphix Engines to Mission Control

1. Access Mission Control with a supported web browser using its IP address or DNS qualified host name. Supported web browsers include Chrome 37, IE 11, Safari 7, and Firefox 32.
2. Click the Engines tab in the Mission Control Toolbar.
3. Click **Add Engine**.
4. In the **Hostname** field, enter the Delphix Engine’s **IP address** or **hostname**.
5. Enter a **username** and **password**. The user must have at least an auditor role on the target Delphix Engine.

**Activity Four: Adding Users**

1. Click the configuration icon ![icon](image) on the right-hand side of the toolbar.
2. Click **Users**.
3. Click **add user**.
4. Enter a **username** and **password**.
5. Select **auditor** or **admin**.
6. Inform the newly-created user of their user ID and password login credentials

**Activity Five: Change a User Password**

1. Click the configuration icon ![icon](image) on the right-hand side of the toolbar.
2. Click **Users**.
3. Click the **name** in the upper right-hand corner.
4. Click **change password**.
Search and Run Reports

Reports are the heart of Mission Control. Reports gather data that spans all connected Delphix Engines and presents the data in a single location.

Activity Six: Search and View a Report

1. Click View Report.

2. Click the report drop-down menu to reveal a selection of report options, as seen below.

Five new category sections appear to help you quickly locate the report of your choice. These include Engine Activity, Health, Source, Storage, and VDB.

Reports of interest may include the Storage Summary report found under Storage, allowing you to view, compare, and analyze storage usage across Delphix Engines. Other useful reports include Active Faults, SnapSync, and Replication Summary. Below is a summary list of all reporting categories found under View Reports and a description of the reports found under each category.

Engine Activity Reports

Audit Log: Provides a view of all actions that have been performed on all Delphix Engines. This includes both user- and system-executed actions.
Recent Jobs: Covers all jobs across all engines, such as provisioning or refreshing a VDB.

Replication Status: Allows you to validate that replication is running successfully across all Delphix Engines where it has been configured. If replication is not running successfully, it allows you to determine the cause.

Health Reports

Active Faults: Presents a consolidated view of faults across all Delphix Engines, along with suggested actions (in the “Action” column) to resolve the fault. When you have identified and fixed a fault, an administrator can go to the affected engine and mark the fault as resolved through the GUI or CLI.

Engine Summary: A high-level overview report of all Delphix Engines. It contains version and platform information, the number of faults and recent jobs, and critical alerts for each engine.

Recent Alerts: Alerts are events that have occurred, their severity, and the point in time at which they occurred. The Recent Alerts report combines the alerts and their associated information across engines.

Source Reports

dSource Usage: Shows a list of dSources with the following information for each:

- Actual disk capacity the dSource uses
- Unvirtualized capacity – that is, the disk space that would be required if not using Delphix Engines
- Percentage storage saved
- Number of VDBs that are currently provisioned from the dSource
SnapSync Summary: Allows you to validate that SnapSync is occurring as expected and to compare the current and average duration of SnapSync operations. The duration of SnapSync operations may vary based on the size of the database, available network bandwidth, and database configuration – for example, whether change block tracking (CBT) is enabled. You can use this report to easily find the dSources for which SnapSyncs take the longest.

Storage Reports

Storage Breakdown

Using the information displayed with the Total button, you can:

- Determine which engines have the most free space and identify good candidates for new dSources/VDBs
- Determine which engines have the least free space, identify which engines need additional storage or require storage to be freed, and identify which engines may require different retention policies
- Determine which engines have the most space used by VDBs and take actions such as refreshing VDBs or removing unneeded VDBs and/or VDB snapshots
- Determine which engines have the most space used by dSources and identify source breakdown to see how capacity is used for dSource data. If needed, you can make appropriate changes to free up space.

Using the information displayed with the Source button, you can determine which engines have the most space used for logs and snapshots and modify retention policies or refresh VDBs to release old snapshots.

Storage History: Clicking the Historical tab summarizes total storage usage of all monitored engines for the past 30 days.
**Storage Summary:** Shows the total, used, and available storage for each engine, which allows you to identify when you are approaching a low-storage availability state.

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**VDB Reports**

**VDB Inventory:** Shows a consolidated list of all virtual datasets (VDBs and vFiles) that have been provisioned from a data source using the Delphix Engine. This report contains the same data as the top-level **Containers** tab. You can use this report to easily identify where each virtual database is located.

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**VDB Refresh Summary:** Allows you to verify that refreshes are happening as expected and to compare the current and average duration of refresh operations.

**VDB Usage:** Shows a list of VDBs with the following information for each:
- Actual disk capacity the VDB uses
- Unvirtualized capacity
- Percentage of storage saved
- Date of most recent refresh operation or, if never refreshed, date when VDB was provisioned

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**Filter, Organize, and Extract Reports**

**Tagging**

You can tag Delphix Engines in Mission Control with a set of arbitrary text strings. You can then filter reports to show only data from Delphix Engines with a certain tag. You can also use tags to restrict auditor users so that they can only view data from Delphix Engines with that tag.
Activity Seven: Apply Tags

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click Users.
3. Click the space under the Tag headline.
4. Enter any text string.
5. Click OK.

The screenshot below illustrates how to use a tag to filter the kinds of data and reports an Auditor User can access.

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click Users.
3. Click in space under the Tag headline.
4. Enter the tag category configured for the Auditor User.
5. Click OK.

Once you apply the tag filter, the Auditor User will only have access to reports and data associated with that tag.
Filtering

Each report contains a free text filter field. Using this filter allows you to search all displayed columns and returns all rows that have at least one match. Examples of report filtering include:

- Identifying certain types of faults
- Identifying all assets related to an engine
- Locating a virtual database by name

Activity Eight: Extracting Data from Reports

Once you have selected the report you are interested in viewing, you will be able to extract the report data with a variety of options. Extract and save the report data by clicking Copy, CSV, PDF, or Print on the right-hand side. Click the option of your choice to extract and save the report. The screenshot below highlights the sequence of steps to extract reports.

![Extracting Data from Reports - Version 1.3.](image-url)
Understanding Interactive Storage Graphs

The View Report drop-down menu on the Mission Control Toolbar includes interactive graphical representations of historical and current storage usage across all Delphix Engines you are monitoring. These include visualizations of Storage Breakdown and Storage History. Storage Breakdown provides different ways of viewing data, including Total to interact with graphs containing the current total storage on all engines and Source to view the breakdown of disk capacity currently used for dSource data. Storage History provides a graphical interface to analyze all historical storage data collected by monitored engines in the past 30 days.

The following activities provide more detail for how to interact with the graphs.

**Activity Nine: Viewing Storage Breakdown Reports**

Selecting Storage Breakdown allows you to analyze current storage usage by Total and Source.

**Working with Total Storage Graphs**

Clicking the Total button presents an interactive data visualization of total storage on each Delphix Engine. The bar graphs show the breakdown of all disk capacity between:

- **Source** – The capacity used for dSource data
- **Virtual** – The capacity used for VDBs
- **Free space** – The amount of available free space on the engine

The Category Legend Key on the right-hand side, shown in the screenshot below, helps you see how your current storage is distributed.
To display engines according to a particular category:

1. Click a category in the **Category Legend Key**.

The engines will appear in order according to the category you chose to prioritize. In the screenshot above, **Total** has been prioritized.

Using the information displayed with the **Total** button, you can:

- Determine which engines have the most free space and identify good candidates for new dSources/VDBs
- Determine which engines have the least free space, identify which engines need additional storage or require storage to be freed, and identify which engines may require different retention policies
- Determine which engines have the most space used by VDBs and take actions such as refreshing VDBs or removing unneeded VDBs and/or VDB snapshots
- Determine which engines have the most space used by dSources and identify source breakdown to see how capacity is used for dSource data. If needed, you can make appropriate changes to free up space.

**Working with Source Usage Graphs**

Selecting the **Source** button presents an interactive data visualization from a source perspective. The bar graphs show how much of each engine’s storage space is used by:

- **Active Source Data** – The capacity used for current active copy of dSources
- **Manually Retained Snapshots** – The capacity held exclusively due to manually retained snapshots
- **Snapshot Retention** – The capacity held due to snapshot retention policy, either exclusively or in combination with manual settings
- **Snapshots for Dependent VDBs** – The capacity of snapshots held due to VDBs that have been provisioned from them, either exclusively or in combination with policy or manual settings
- **Log Retention** – The capacity held due to LogSync retention policy.

The **Category Legend Key** on the right-hand side helps you see how your current storage is distributed.
To display engines according to a particular category:

1. Click a category in the Category Legend Key.

The engines will appear in order according to the category you chose to prioritize. In the screenshot above, Active Source Data has been prioritized.

Using the information displayed with the Source button, you can determine which engines have the most space used for logs and snapshots and modify retention policies or refresh VDBs to release old snapshots.

**Activity Ten: Viewing Storage History Reports**

Clicking the Storage History Report visually summarizes total storage usage of all monitored engines for the past 30 days. In this tab, a line graph appears with the historical storage data for the selected Delphix Engine(s) and a drop-down list of Delphix Engines from which to choose, as seen in the screenshot below.
By default, the above graph shows historical details of the top five engines, based on the most recent data point. However, you can choose which engines’ details to display by selecting it from the drop-down menu.

The screenshot below illustrates using the scroll bar at the bottom to hone in on a particular time and date of capacity use. Use your mouse and hover over interesting points on the graph for specific storage information. A rollover box will appear with specific information.

**Specific Historical Storage Capacity Details, Mission Control Version 1.3.**
Mission Control Maintenance
Activity Eleven: Self-Service Upgrade of Mission Control

When a new version of Mission Control is available, download the upgrade script from Delphix.

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click System.
3. Scroll down to the Upgrade section.
4. Click Choose file.
5. Select the upgrade script.
6. Click Upload & Install.

Activity Twelve: Generate and Upload MC Support Bundles

You only need to do this when Delphix support requests that you send a Mission Control support bundle.

1. Click the configuration icon on the right-hand side of the toolbar.
2. Click System.
3. Scroll down to the Support section.
4. Enter the case number if provided by Delphix support.
5. Click Submit.
Support
To file support requests from the support portal please go to https://support.delphix.com. Additional support is available with the Delphix community at https://community.delphix.com/delphix under the “Mission Control” category.