

D E L P H I X

Delphix Engine Release Notes

February 2019

Delphix Engine Release Notes

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Release Notes 5.3.x

Welcome to the 5.3 release of the Delphix Engine database virtualization system.

- [New Features \(5.3.x\)](#)
- [Deprecated and Removed Features \(5.3.x\)](#)
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New Features (5.3.x)

Release 5.3.2

This release has the following two new features:

- **Selective Data Distribution (SDD) and Oracle Multi-tenancy:** With this release, Delphix supports SDD for masking data in production and replicating the masked data to non-production with Oracle Multi-tenancy databases. Selective Data Distribution is the Delphix preferred model for customer deployment.
- **SQL Server and Commvault:** With this release, Delphix supports ingesting SQL Server backups from Commvault, one of the top market vendors.
- **Kerberos:** Kerberos support for Oracle, ASE databases, DB2, and SQL Server (for specific configurations) is available. Note: NFS support for Kerberos is not provided.
- **Expanded Masking APIs:** With this release, we've expanded the API with support for VSAM file masking, application log access, audit log access, and the ability to rotate the global masking key.
- **Increased Masking Audit Log Granularity:** In response to customer requests, the types of Masking Engine user actions that will be recorded in the audit log is being expanded. Actions such as adding/deleting/editing a user, updating/deleting a connector, login failures and many other events will now be reflected in the audit log.
- **Expanded Masking Job Synchronization:** Building upon the job synchronization work done in 5.3 and the algorithm synchronization work done in 5.2, we're adding the ability to synchronize Free Text Redaction Jobs, Profile Expressions, Profile Sets, and Profile Jobs.
- **Selective Data Distribution and Oracle 12c Multi-tenancy:** With Oracle multi-tenancy (introduced in 12c) there can be multiple pluggable databases (PDBs) in a shared Container Database (CDB). As part of using masking and SDD with multitenant databases, users will select which PDBs will be masked and delivered via SDD. This supports multi-tenant architectures for both Oracle 12c and 18c.
- **SQL Server and Commvault:** We introduced support for restoring SQL Server backups directly from NetBackup in 5.2.5. With this release, we're expanding our support to the second most popular SQL Server Backup vendor, Commvault. This version will support SQL Server versions 2008 through 2016 with Commvault version 11, SP11 and SP12
- **ASE Backup Server Improvements:** We have significantly improved our ability to sync with ASE data sources. With these improvements, we are now able to detect and ingest customers' backup files with greater speed and reliability.
- **Expanded Masking Support:** Delphix has dramatically increased the number of supported masking sources - including Oracle 18c and a broad selection of AWS RDS sources (SQL Server, MySQL, MariaDB, PostgreSQL).

Toolkit Updates

- **EBS:** Since the introduction of WebLogic into the appsTier of EBS12.2 and higher, it will become necessary to manage the WebLogic admin password similar to how we have been managing the Oracle EBS APPS password. With this release, Delphix can now manage that password.
- **PostgreSQL:** There is a new version of the PostgreSQL plugin available which improves quality and stability.
- **DB2:** Improved compatibility with AIX environments.

Certifications

- **Oracle DB/OS combinations**
 - Oracle 11.2 on SLES 12SP3
 - Oracle 12.1 on SLES 12SP3
 - Oracle 12.2 on SLES 15
 - Oracle 12.2 on SLES 12SP3
 - Oracle 12.2 on Solaris 11.4 (x86)
 - Oracle 18c on Solaris 11.2 (x86)
 - Oracle 18c on Solaris 10.11 (x86)
- **Masking**
 - Oracle 18c
 - AWS RDS MariaDB
 - AWS RDS MySQL

- AWS RDS SQL Server
- AWS PostgreSQL

Release 5.3.1

This release has these significant new features for the Dynamic Data Platform in the 5.3.1 release.

- **delphix_admin:** The default domain user created on Delphix Engines is now **admin** instead of `delphix_admin`. When engines created before 5.3.1 are upgraded to 5.3.1 or later they will retain their old username 'delphix_admin'. To avoid complications Delphix recommends creating users with an admin role and then [Disabling delphix_admin](#).
- **PostgreSQL:** PostgreSQL as a Native Data Source Integration by the end of November. This will include support for the most popular open source and enterprise version of PostgreSQL .
- **Expanded Selective Data Distribution (SDD):** Using Selective Data Distribution to replicate only masked data from production networks to non-production networks is becoming the default configuration for Delphix. With this release, we're expanding Selective Data Distribution to our Custom Data Source Integrations. This will allow customers to take advantage of the benefits of SDD for data sources that Delphix does not have Native Data Source Integrations for, like MongoDB. Expect an expansion of SDD to the final remaining Native data sources in the near future.
- **SQL Server Copy-only Backups from Secondary Nodes:** Microsoft provides a high availability and disaster recovery (HADR) feature for SQL Server instances known as Availability Groups. In this configuration, there is one primary instance used for most operations, with secondary nodes available on standby should an HADR event occur. This feature will allow customers to take Delphix backups on the secondary nodes to minimize resource utilization on the primary instance.

Updates

- **EBS 2.0 SUDO Privilege:** We have now separated the authentication access from the authorization for privileged operations for EBS, resulting in a more secure approach especially for privileged actions.
- **SDD certified on DB2:** We have certified SDD on all DB2 Toolkit 2.4.1 running on supported versions of RHEL.
- **Masking Algorithm Synchronization:** We have expanded the algorithm synchronization to include the Data Cleansing and Min-Max algorithms when syncing algorithms across engines.

Certifications

- **Virtualization:**
 - Oracle 18c on Red Hat 6.4 - 6.10 and 7.0 - 7.5
 - Oracle 18c on SLES 12 SP1, SP2, SP3
 - Oracle 12.2 on Red Hat 6.10, 7.5
 - Oracle 11.2 on Red Hat 6.10, 7.5
 - PostgreSQL 9.5.13, 9.6.10 and 10.5 on CentOS 7.3, 7.4
 - EnterpriseDB PostgreSQL versions 9.5.0.5, 9.6.2.7, 10.1.5 on CentOS 7.3, 7.4
- **Masking:**
 - PostgreSQL 9.6.X and 10.X

Release 5.3.0

This release has several significant new features that will change the way our customers use our products.

Core Virtualization Capabilities

Delphix Management UI updates: A completely revamped GUI simplifies the user experience. Highlights include:

- wizards
- icons
- container lists
- grids
- User terminology for Delphix Admin has been changed to Engine Admin.

MSSQL Single Instance Manual Discovery: Delphix now allows customers to add an MSSQL instance in an environment manually. This is useful when some of the instances are not auto discovered either due to corrupt registries or due to unavailability of the instance at that time or any other unknown reason. An instance can be added in any environment, be it source or target. Users need to input all the instance details manually. Once correct details have been entered, all databases of that instance will be auto-discovered. And such databases and instance will be created successfully.

Data Virtualization Connectors

- **DB2 2.4.0**
 - Toolkit defined hook.
 - Capturing the timestamp of backup for linking operation.

- Allow provisioning operations irrespective of snapshot's Toolkit version
- **Oracle EBS**
 - EBS - AIX Certification

Delphix Masking Capabilities

- **Masking Job Monitoring:** One of our major customer requests has been to improve the progress and outcome reporting of masking and profiling jobs. In 5.3, we've redesigned job monitoring to be much more accurate.
- **Masking V4 APIs:** As previously announced, the prior generation APIs (Version 4.0) will reach End of Life with the 5.3 release. As such, these V4 APIs will no longer be available once a customer upgrades to 5.3.
- **Default Masking Usernames & Passwords:** Starting in 5.3, all net new Masking Engines deployments will come with renamed default admin users. The default admin (delphix_admin & axis_tech) usernames for masking will be changed to "admin." SysAdmin will not be changing. Please note, customers upgrading from previous versions of the Delphix Engine will *not* be forced to change their usernames. This is to simplify our software when deployed by an OEM vendor.

New Certifications

With each release, we evaluate certifying new operating systems, database versions, hypervisor versions and cloud instance types. In 5.3, we are certifying the following:

- VMware ESX 6.7
- Azure Instances D8v3, D16v3, D32v3
- ASE 15.0.3 on Red Hat Enterprise Linux 6.9

Deprecated and Removed Features (5.3.x)

Deprecated Features

In this release the following features were deprecated:

Data Sources

Data Source	Deprecated Release
SQL Server 2005	5.3
Oracle EBS 11i	5.3

Operating Systems

Data Source/Operating System	Deprecated Release
Oracle/RHEL 4	5.3
Oracle/RHEL 5.0 - 5.4	5.3
Oracle/SLES 10	5.3
Oracle/AIX 5.3	5.3
Oracle/Solaris 10 U8 and below	5.3
ASE/RHEL 5.0 - 5.4	5.3
ASE/Solaris 10 U8 and below	5.3

Browsers

N/A

Removed Features

N/A

Migration and Compatibility (5.3.x)

- Upgrade Matrix (5.3.x)
- Supported DB2 Versions and Operating Systems (5.3.x)
- Supported Oracle DBMS Versions and Operating Systems for Source and Target environments (5.3.x)
- Supported SAP ASE Versions and Operating Systems (5.3.x)
- Supported SQL Server Versions, Operating Systems, and Backup Software (5.3.x)

Upgrade Matrix (5.3.x)

5.3 Upgrade Matrix

Upgrades to Delphix Engine 5.3 are supported from 5.1.x and above.

	5.3.0.0	5.3.0.1	5.3.0.2	5.3.0.3	5.3.1.0	5.3.1.1	5.3.1.2	5.3.2.0
5.0 and prior								
5.1 - 5.2								
5.3.0.0								
5.3.0.1								
5.3.0.2								
5.3.0.3								
5.3.1.0								
5.3.1.1								
5.3.1.2								

Key:

Color	Supported?	VDB Downtime Required? ¹
	No	N/A
	Yes	Required
	Yes	Not Required
	Yes	Optional ²

1. VDB Downtime is caused by a reboot of the Delphix Engine when DelphixOS is modified by an upgrade.

2. VDB Downtime may be optional for an upgrade when a release contains DelphixOS changes that are also optional. In such a scenario, the DelphixOS changes may be deferred (see documentation on [Deferred OS Upgrade](#)).

Tested Browser Configuration Matrix

OS Supported	Browsers Supported	Minimum Memory
Windows 10	Internet Explorer 11.x, Firefox, Chrome	4GB
Windows 8.1	Internet Explorer 11.x, Firefox, Chrome	4GB
Windows 7	Internet Explorer 11.x, Firefox, Chrome	4GB
Mac OS X	Firefox, Chrome	4GB

ESXi Support

The Delphix Engine 5.3, for VMware, ships with a minimum requirement of VMware Hardware Version 10. VMware Hardware Version 10 is only supported on ESXi 5.5 and above.

Supported DB2 Versions and Operating Systems (5.3.x)

Supported DBMS Versions

- DB2 Enterprise Server Edition 10.5
- DB2 Advanced Enterprise Server Edition 10.5
- DB2 Enterprise Server Edition 11.1
- DB2 Advanced Enterprise Server Edition 11.1
- DB2 Developer Edition 11.1 (on RHEL 6.7)

Supported Oracle DBMS Versions and Operating Systems for Source and Target environments (5.3.x)

Source and Target OS and DBMS Compatibility

The source and target must be running the same DBMS/Operating System combination (for example, Oracle 10.2.0.4 on RHEL 5.2) in order to successfully provision a VDB to the target. If the DBMS versions are compatible, the OS version on a target host can be different from the OS version on the source host.

Supported DBMS Versions

- Oracle 10.2
- Oracle 11.1
- Oracle 11.2
- Oracle 12.1
- Oracle 12.2
- Oracle 18

Oracle 10.2.0.4

The Delphix Engine does not support Oracle 10.2.0.4 databases using Automatic Storage Management (ASM) that do not have the patch set for Oracle Bug 7207932. This bug is fixed in patch set 10.2.0.4.2 onward.

Supported Operating Systems

Support applies to corresponding versions of Community Enterprise Operating System (CentOS) / Oracle Linux (OL).

64-bit OS support only.

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	Supported OS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
	RHEL 5.5	Supported	Supported	Supported	N/A	N/A	N/A
	RHEL 5.6	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.7	Supported	Supported	Supported	Supported	N/A	N/A

RHEL 5.8	Supported	Supported	Supported	Supported	N/A	N/A
RHEL 5.9	Supported	Supported	Supported	Supported	N/A	N/A
RHEL 5.10	Supported	Supported	Supported	Supported	N/A	N/A
RHEL 5.11	Supported	Supported	Supported	Supported	N/A	N/A
RHEL 6.0	N/A	N/A	Supported	Supported	N/A	N/A
RHEL 6.1	N/A	N/A	Supported	Supported	N/A	N/A
RHEL 6.2	N/A	N/A	Supported	Supported	N/A	N/A
RHEL 6.3	N/A	N/A	Supported	Supported	N/A	N/A
RHEL 6.4	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.5	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.6	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.7	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.8	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.9	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 6.10	N/A	N/A	Supported in 5.3.1	Supported in 5.3.1	Supported in 5.3.1	Supported in 5.3.1
RHEL 7.0	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 7.1	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 7.2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 7.3	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 7.4	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
RHEL 7.5	N/A	N/A	Supported in 5.3.1	Supported	Supported in 5.3.1	Supported in 5.3.1

SUSE Linux Enterprise Server (SLES)

Supported DBMS Version		Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
	Supported OS Version						
	SLES 11	Supported	Supported	Supported	N/A	N/A	N/A
	SLES 11 SP1	Supported	Supported	Supported	N/A	N/A	N/A
	SLES 11 SP2	Supported	Supported	Supported	Supported	N/A	N/A
	SLES 11 SP3	Supported	Supported	Supported	Supported	N/A	N/A
	SLES 11 SP4	Not Supported	Not Supported	Supported	Supported	N/A	N/A
	SLES 12	N/A	N/A	Supported	Supported	N/A	N/A
	SLES 12 SP1	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1

	SLES 12 SP2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	SLES 12 SP3	N/A	N/A	Supported in 5.3.2	Supported in 5.3.2	Supported in 5.3.2	Supported in 5.3.1
	SLES 15	N/A	N/A	Not Supported	Not Supported	Supported in 5.3.2	Not Supported

Solaris SPARC

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
Supported OS Version						
Solaris 10 U9	Supported	Supported	Supported	N/A	N/A	N/A
Solaris 10 U10	Supported	Supported	Supported	Supported	N/A	N/A
Solaris 10 U11	Supported	Supported	Supported	Supported	Not supported	Not supported
Solaris 11	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U1	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U2	N/A	N/A	Supported	Supported	Supported	Not Supported
Solaris 11 U3	N/A	N/A	Not Supported	Supported	Supported	Not Supported
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported	Not Supported	Not Supported

Solaris x86

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
Supported OS Version						
Solaris 10 U9	Supported	Supported	Supported	N/A	N/A	N/A
Solaris 10 U10	Supported	Supported	Supported	Supported	N/A	N/A
Solaris 10 U11	Supported	Supported	Supported	Supported	N/A	Supported in 5.3.2
Solaris 11	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U1	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.2
Solaris 11 U3	N/A	N/A	Not Supported	Supported	Supported	Supported in 5.3.2
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported	Supported in 5.3.2	Supported in 5.3.2

Hewlett Packard Unix (HP-UX)

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1
Supported OS Version				
HP-UX 11.31	Supported	Supported	Supported	Supported

Advanced Interactive eXecutive (AIX)

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
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Supported OS Version						
AIX 6.1	Supported	Supported	Supported	Supported	Not Supported	Not Supported
AIX 7.1	N/A	N/A	Supported	Supported	Supported	Not Supported
AIX 7.2	N/A	N/A	Supported	Supported	Supported	Not Supported

Delphix supports all 64-bit OS environments for source and target.

Required HP-UX patch for Target Servers

PHNE_37851 - resolves a known bug in HP-UX NFS client prior to HP-UX 11.31.

Supported SAP ASE Versions and Operating Systems (5.3.x)

This topic describes supported operating systems and database versions for SAP ASE.

Supported Operating Systems and Database Versions for SAP ASE

Source and Target OS and DBMS Compatibility

The source and target must be running the same DBMS/Operating System combination, (*although users can run different patch/sp levels*) in order to successfully provision a VDB to the target. For example, if the source is running SAP ASE 16, the target can be running ASE 16SP1. However, for ASE 15.7 the versions of the source and target should both be in the 15.7 SP100 to 15.7 SP140 or 15.7 ESD#1 to 15.7 SP64 ranges. There can be no mixing of versions between these two ranges. If the target is used as a staging server, the same rule applies (prior to Delphix 5.2.5.0, the staging server had to match the source server's version down to the SP level). The Operating System platform must be the same between the source and target, even when the operating system version may differ. For example, if the source is running Red Hat Enterprise Linux 6.2 x86_64 then the target could be running Red Hat Enterprise Linux 6.4 x86_64, but not Solaris 10 SPARC.

Delphix 5.2.5.0 and higher relaxes Delphix's version checking of the staging instance. ASE itself may or may not allow the **MOUNT** command to work between versions. Be sure to check that the **UNMOUNT** and **MOUNT** commands work between your desired ASE versions.

So for example, if we upgraded the ASE staging instance to ASE 15.7 SP140 but we keep the ASE instance hosting the VDBs at ASE 15.7 SP135, we would want to make sure that we can **UNMOUNT** a database from ASE 15.7 SP140 and then **MOUNT** it on ASE 15.7 SP135:

```
isql -Usa -Psybase -SASE157SP140
1> UNMOUNT DATABASE testdb to "/tmp/manifest"
2> GO

isql -Usa -Psybase -S ASE157SP135
1> MOUNT DATABASE testdb from "/tmp/manifest"
2> go
Msg 14580, Level 16, State 1:
Server 'ASE157SP135', Line 1:
You cannot mount the database(s) because at least one database
contains functionality that is available only on the server on which
it originated.
```

In the above example, ASE would not allow the database "testdb" to be mounted on the older release of ASE.

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported OS Version				
RHEL 5.5	Supported	Supported	Supported	N/A
RHEL 5.6	Supported	Supported	Supported	N/A
RHEL 5.7	Supported	Supported	Supported	N/A
RHEL 5.8	Supported	Supported	Supported	N/A
RHEL 5.9	Supported	Supported	Supported	N/A
RHEL 5.10	Supported	Supported	Supported	N/A
RHEL 5.11	Supported	Supported	Supported	N/A
RHEL 6.0	Not Supported	Not Supported	Not Supported	N/A
RHEL 6.1	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.2	Supported	Supported	Supported	Not Supported
RHEL 6.3	Supported	Supported	Supported	Not Supported
RHEL 6.4	Supported	Supported	Supported	Not Supported
RHEL 6.5	Supported	Supported	Supported	Supported
RHEL 6.6	Supported	Supported	Supported	Supported
RHEL 6.7	Supported	Supported	Supported	Supported
RHEL 6.8	Supported	Supported	Supported	Supported
RHEL 6.9	Supported	Supported	Supported	Supported
RHEL 6.10	Supported	Supported	Supported	Supported
RHEL 7.0	N/A	N/A	Supported	Supported
RHEL 7.1	N/A	N/A	Supported	Supported
RHEL 7.2	N/A	N/A	Supported	Supported
RHEL 7.3	N/A	N/A	Supported	Supported
RHEL 7.4	N/A	N/A	Supported	Supported
RHEL 7.5	N/A	N/A	Supported	Supported

SUSE Linux Enterprise Server (SLES)

Supported DBMS Version	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported OS Version				
SLES 11	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP1	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP2	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP3	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP4	Supported	Not Supported	Not Supported	Not Supported
SLES 12	Not Supported	Not Supported	Not Supported	Not Supported
SLES 12 SP1	Not Supported	Not Supported	Not Supported	Not Supported
SLES 12 SP2	Not Supported	Not Supported	Not Supported	Not Supported

SLES 12 SP3	Not Supported	Not Supported	Not Supported	Not Supported
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Solaris Sparc

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
Solaris 10 U9	Supported	Supported	Supported	Not Supported
Solaris 10 U10	Supported	Supported	Supported	Not Supported
Solaris 10 U11	Supported	Supported	Supported	Not Supported
Solaris 11	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U1	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U2	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U3	Not Supported	Not Supported	Supported	Not Supported
Solaris 11 U4	Not Supported	Not Supported	Not Supported	Not Supported

Solaris x86

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
Solaris 10 U9	Supported	Supported	Supported	Not Supported
Solaris 10 U10	Supported	Supported	Supported	Not Supported
Solaris 10 U11	N/A	N/A	Not Supported	Not Supported
Solaris 11	N/A	N/A	Supported	Supported
Solaris 11 U1	N/A	N/A	Supported	Supported
Solaris 11 U2	N/A	N/A	Supported	Supported
Solaris 11 U3	N/A	N/A	Supported	Supported
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported

Hewlett Packard Unix (HP-UX)

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
HP-UX 11.31	Not Supported	Not Supported	Not Supported	Not Supported

Advanced Interactive eXecutive (AIX)

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
AIX 6.1	Supported	Not Supported	Supported	Not Supported
AIX 7.1	Not Supported	Not Supported	Supported	Not Supported
AIX 7.2	Not Supported	Not Supported	Supported	Supported

Related Links

- [SAP ASE Support and Requirements](#)
- [Network and Connectivity Requirements for SAP ASE Environments](#)

Supported SQL Server Versions, Operating Systems, and Backup Software (5.3.x)

Delphix only supports 64-bit operating systems.

Windows Server

Supported DBMS Version	SQL Server 2008	SQL Server 2008 R2	SQL Server 2012	SQL Server 2014	SQL Server 2016	SQL Server 2017
Supported OS Version						
Win 2008	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 SP2	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 R2	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 R2 SP1	Supported	Supported	Supported	Supported	N/A	N/A
Win 2012	Supported	Supported	Supported	Supported	Supported	Supported
Win 2012 R2	Supported	Supported	Supported	Supported	Supported	Supported
Win 2016	N/A	N/A	Supported	Supported	Supported	Supported

Support Matrices (5.3.x)

- [Oracle Matrix](#)
- [MS SQL Matrix](#)
- [SAP ASE Matrix](#)
- [DB2 Matrix](#)
- [EBS Matrix](#)
- [HANA Matrix](#)
- [Virtualization Platform Matrix](#)
- [Data Source Certifications](#)
- [Postgres Support Matrix](#)
- [Kerberos Support Matrix](#)

For Masking Data Source support matrices, visit the [Masking Documentation site](#).

Oracle Matrix

Support applies to corresponding versions of Community Enterprise Operating System (CentOS) / Oracle Linux (OL).
64-bit OS support only.

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version		Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
	Supported OS Version						
	RHEL 5.5	Supported	Supported	Supported	N/A	N/A	N/A
	RHEL 5.6	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.7	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.8	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.9	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.10	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.11	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 6.0	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.1	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.2	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.3	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.4	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.5	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.6	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.7	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.8	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.9	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 6.10	N/A	N/A	Supported in 5.3.1	Supported in 5.3.1	Supported in 5.3.1	Supported in 5.3.1
	RHEL 7.0	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 7.1	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 7.2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 7.3	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 7.4	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
	RHEL 7.5	N/A	N/A	Supported in 5.3.1	Supported	Supported in 5.3.1	Supported in 5.3.1

SUSE Linux Enterprise Server (SLES)

Supported DBMS Version		Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
	Supported OS Version						
	SLES 11	Supported	Supported	Supported	N/A	N/A	N/A

SLES 11 SP1	Supported	Supported	Supported	N/A	N/A	N/A
SLES 11 SP2	Supported	Supported	Supported	Supported	N/A	N/A
SLES 11 SP3	Supported	Supported	Supported	Supported	N/A	N/A
SLES 11 SP4	Not Supported	Not Supported	Supported	Supported	N/A	N/A
SLES 12	N/A	N/A	Supported	Supported	N/A	N/A
SLES 12 SP1	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
SLES 12 SP2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.1
SLES 12 SP3	N/A	N/A	Supported in 5.3.2	Supported in 5.3.2	Supported in 5.3.2	Supported in 5.3.1
SLES 15	N/A	N/A	Not Supported	Not Supported	Supported in 5.3.2	Not Supported

Solaris SPARC

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
Supported OS Version						
Solaris 10 U9	Supported	Supported	Supported	N/A	N/A	N/A
Solaris 10 U10	Supported	Supported	Supported	Supported	N/A	N/A
Solaris 10 U11	Supported	Supported	Supported	Supported	Not supported	Not supported
Solaris 11	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U1	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U2	N/A	N/A	Supported	Supported	Supported	Not Supported
Solaris 11 U3	N/A	N/A	Not Supported	Supported	Supported	Not Supported
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported	Not Supported	Not Supported

Solaris x86

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
Supported OS Version						
Solaris 10 U9	Supported	Supported	Supported	N/A	N/A	N/A
Solaris 10 U10	Supported	Supported	Supported	Supported	N/A	N/A
Solaris 10 U11	Supported	Supported	Supported	Supported	N/A	Supported in 5.3.2
Solaris 11	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U1	N/A	N/A	Supported	Supported	N/A	N/A
Solaris 11 U2	N/A	N/A	Supported	Supported	Supported	Supported in 5.3.2
Solaris 11 U3	N/A	N/A	Not Supported	Supported	Supported	Supported in 5.3.2
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported	Supported in 5.3.2	Supported in 5.3.2

Hewlett Packard Unix (HP-UX)

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1
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Supported OS Version				
HP-UX 11.31	Supported	Supported	Supported	Supported

Advanced Interactive eXecutive (AIX)

Supported DBMS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
Supported OS Version						
AIX 6.1	Supported	Supported	Supported	Supported	Not Supported	Not Supported
AIX 7.1	N/A	N/A	Supported	Supported	Supported	Not Supported
AIX 7.2	N/A	N/A	Supported	Supported	Supported	Not Supported

MS SQL Matrix

Delphix only supports 64-bit operating systems.

Windows Server

Supported DBMS Version	SQL Server 2008	SQL Server 2008 R2	SQL Server 2012	SQL Server 2014	SQL Server 2016	SQL Server 2017
Supported OS Version						
Win 2008	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 SP2	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 R2	Supported	Supported	Supported	Supported	N/A	N/A
Win 2008 R2 SP1	Supported	Supported	Supported	Supported	N/A	N/A
Win 2012	Supported	Supported	Supported	Supported	Supported	Supported
Win 2012 R2	Supported	Supported	Supported	Supported	Supported	Supported
Win 2016	N/A	N/A	Supported	Supported	Supported	Supported

SAP ASE Matrix

64-bit OS support only

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported OS Version				
RHEL 5.5	Supported	Supported	Supported	N/A
RHEL 5.6	Supported	Supported	Supported	N/A
RHEL 5.7	Supported	Supported	Supported	N/A

RHEL 5.8	Supported	Supported	Supported	N/A
RHEL 5.9	Supported	Supported	Supported	N/A
RHEL 5.10	Supported	Supported	Supported	N/A
RHEL 5.11	Supported	Supported	Supported	N/A
RHEL 6.0	Not Supported	Not Supported	Not Supported	N/A
RHEL 6.1	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.2	Supported	Supported	Supported	Not Supported
RHEL 6.3	Supported	Supported	Supported	Not Supported
RHEL 6.4	Supported	Supported	Supported	Not Supported
RHEL 6.5	Supported	Supported	Supported	Supported
RHEL 6.6	Supported	Supported	Supported	Supported
RHEL 6.7	Supported	Supported	Supported	Supported
RHEL 6.8	Supported	Supported	Supported	Supported
RHEL 6.9	Supported	Supported	Supported	Supported
RHEL 6.10	Supported	Supported	Supported	Supported
RHEL 7.0	N/A	N/A	Supported	Supported
RHEL 7.1	N/A	N/A	Supported	Supported
RHEL 7.2	N/A	N/A	Supported	Supported
RHEL 7.3	N/A	N/A	Supported	Supported
RHEL 7.4	N/A	N/A	Supported	Supported
RHEL 7.5	N/A	N/A	Supported	Supported

SUSE Linux Enterprise Server (SLES)

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
SLES 11	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP1	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP2	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP3	Supported	Not Supported	Not Supported	Not Supported
SLES 11 SP4	Supported	Not Supported	Not Supported	Not Supported
SLES 12	Not Supported	Not Supported	Not Supported	Not Supported
SLES 12 SP1	Not Supported	Not Supported	Not Supported	Not Supported
SLES 12 SP2	Not Supported	Not Supported	Not Supported	Not Supported
SLES 12 SP3	Not Supported	Not Supported	Not Supported	Not Supported

Solaris Sparc

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
Solaris 10 U9	Supported	Supported	Supported	Not Supported

Solaris 10 U10	Supported	Supported	Supported	Not Supported
Solaris 10 U11	Supported	Supported	Supported	Not Supported
Solaris 11	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U1	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U2	Not Supported	Not Supported	Not Supported	Not Supported
Solaris 11 U3	Not Supported	Not Supported	Supported	Not Supported
Solaris 11 U4	Not Supported	Not Supported	Not Supported	Not Supported

Solaris x86

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
Solaris 10 U9	Supported	Supported	Supported	Not Supported
Solaris 10 U10	Supported	Supported	Supported	Not Supported
Solaris 10 U11	N/A	N/A	Not Supported	Not Supported
Solaris 11	N/A	N/A	Supported	Supported
Solaris 11 U1	N/A	N/A	Supported	Supported
Solaris 11 U2	N/A	N/A	Supported	Supported
Solaris 11 U3	N/A	N/A	Supported	Supported
Solaris 11 U4	N/A	N/A	Not Supported	Not Supported

Hewlett Packard Unix (HP-UX)

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
HP-UX 11.31	Not Supported	Not Supported	Not Supported	Not Supported

Advanced Interactive eXecutive (AIX)

	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported DBMS Version				
Supported OS Version				
AIX 6.1	Supported	Not Supported	Supported	Not Supported
AIX 7.1	Not Supported	Not Supported	Supported	Not Supported
AIX 7.2	Not Supported	Not Supported	Supported	Supported

DB2 Matrix

- Red Hat Enterprise Linux (RHEL)
- Supported DB2 Fixpack with Delphix Engine
 - DB2 11.1 Fix Packs
 - DB2 11. Fix Packs Non-HADR Linking
 - DB2 11. Fix Packs HADR Linking
 - DB2 11. Fix Packs Provisioning
 - DB2 10.5 Fix Packs
 - DB2 10.5 Fix Packs - NON HADR linking
 - DB2 10.5 Fix Packs - HADR Linking
 - DB2 10.5 Fick Packs HADR-NON HADR Provision
- Advanced Interactive eXecutive (AIX)
- Toolkit/Delphix Engine Compatibility

1. ESE: Enterprise Server Edition
2. AESE: Advanced Enterprise Server Edition
3. As of Delphix Engine 5.1.6 - For the supported DB2 versions, Delphix supports the corresponding DB2 Developer edition where the vendor, IBM, supports it
4. 64-bit OS support only

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	ESE 10.5	AESE 10.5	ESE 11.1	AESE 11.1
Supported OS Version				
RHEL 6.0	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.1	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.2	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.3	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.4	Supported	Supported	Not Supported	Not Supported
RHEL 6.5	Supported	Supported	Not Supported	Not Supported
RHEL 6.6	Supported	Supported	Not Supported	Not Supported
RHEL 6.7	Supported	Supported	Supported	Supported
RHEL 6.8	Supported	Supported	Supported	Supported
RHEL 6.9	Supported	Supported	Supported	Supported
RHEL 7.0	Supported	Supported	Supported	Supported
RHEL 7.1	Supported	Supported	Supported	Supported
RHEL 7.2	Supported	Supported	Supported	Supported
RHEL 7.3	Supported	Supported	Supported	Supported
RHEL 7.4	Supported	Supported	Supported	Supported

DB2 11.1 Developer Edition has been certified on RHEL 6.7.

Supported DB2 Fixpack with Delphix Engine

DB2 11.1 Fix Packs

DB2 11. Fix Packs Non-HADR Linking

Source	Staging		
	11.1.1.1	11.1.2.2	11.1.3.3
11.1.1.1	Supported	Supported	Supported
11.1.2.2	Not Supported	Supported	Supported

11.1.3.3	Not Supported	Supported	Supported
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DB2 11. Fix Packs HADR Linking

Source	Staging		
	11.1.1.1	11.1.2.2	11.1.3.3
11.1.1.1	Supported	Supported	Supported
11.1.2.2	Not Supported	Supported	Supported
11.1.3.3	Not Supported	Supported	Supported

DB2 11. Fix Packs Provisioning

Staging	Target		
	11.1.1.1	11.1.2.2	11.1.3.3
11.1.1.1	Supported	Supported	Supported
11.1.2.2	Not Supported	Supported	Supported
11.1.3.3	Not Supported	Supported	Supported

DB2 10.5 Fix Packs

DB2 10.5 Fix Packs - NON HADR linking

Source	Staging								
	10.5.0.1	10.5.0.2	10.5.0.3	10.5.0.4	10.5.0.5	10.5.0.6	10.5.0.7	10.5.0.8	10.5.0.9
10.5.0.1	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.2	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.3	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.4	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.5	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.6	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.7	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.8	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.9	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported

DB2 10.5 Fix Packs - HADR Linking

Source	Staging								
	10.5.0.1	10.5.0.2	10.5.0.3	10.5.0.4	10.5.0.5	10.5.0.6	10.5.0.7	10.5.0.8	10.5.0.9
10.5.0.1	Supported	Not Supported	Not Supported	Not Supported	Not Supported	Supported	Supported	Supported	Supported
10.5.0.2	Not Supported	Supported	Not Supported	Not Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.3	Not Supported	Not Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.4	Not Supported	Not Supported	Not Supported	Supported	Not Supported	Supported	Supported	Supported	Supported
10.5.0.5	Not Supported	Not Supported	Not Supported	Not Supported	Supported	Not Supported	Supported	Supported	Supported
10.5.0.6	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Supported	Supported	Supported	Supported
10.5.0.7	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Supported	Supported	Supported
10.5.0.8	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Supported	Supported
10.5.0.9	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	Supported

DB2 10.5 Fick Packs HADR-NON HADR Provision

Staging	Target

	10.5.0.1	10.5.0.2	10.5.0.3	10.5.0.4	10.5.0.5	10.5.0.6	10.5.0.7	10.5.0.8	10.5.0.9
10.5.0.1	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.2	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.3	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.4	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.5	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.6	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.7	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.8	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
10.5.0.9	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported

Advanced Interactive eXecutive (AIX)

Supported DBMS Version		ESE 10.5	AESE 10.5	ESE 11.1	AESE 11.1
Supported OS Version					
AIX 6.1		Not Supported	Not Supported	N/A	N/A
AIX 7.1		Supported	Supported	Supported	Supported
AIX 7.2		Supported	Supported	Supported	Supported

Toolkit/Delphix Engine Compatibility

Toolkits should be installed on compatible Delphix Engines per the table below:

Delphix Engine	DB2_2.0.1	DB2_2.1.0	DB2_2.2.1	DB2_2.3.0	DB2_2.4.0	DB2_2.4.1	DB2_2.4.2
5.1.x	No	No	No	No	No	No	No
5.2.2.x	Yes	No	No	No	No	No	No
5.2.3.x	No	Yes	Yes	Yes	No	No	No
5.2.4.x	No	Yes	Yes	Yes	No	No	No
5.2.5.x	No	Yes	Yes	Yes	No	No	No
5.2.6.x	No	Yes	Yes	Yes	No	No	No
5.3.0.x	No	Yes	Yes	Yes	Yes	Yes	Yes
5.3.1.x	No	Yes	Yes	Yes	Yes	Yes	Yes
5.3.2.x	No	Yes	Yes	Yes	Yes	Yes	Yes

Unsupported DB2 Features

- DB2 9.7 and below
- DB2 Database Partitioning Feature (DPF)
- DB2 pureScale
- Ingestion to DMS Raw Devices
- V2P

EBS Matrix

- Support applies to corresponding versions of Community Enterprise Operating System (CentOS) / Oracle Linux (OL)
- 64-bit OS support only

Red Hat Enterprise Linux (RHEL)

Supported EBS Apps version		Oracle EBS 12.1	Oracle EBS 12.2
	Supported OS Version		
	RHEL 5.5	Supported	N/A
	RHEL 5.6	Supported	N/A
	RHEL 5.7	Supported	N/A
	RHEL 5.8	Supported	N/A
	RHEL 5.9	Supported	N/A
	RHEL 5.10	Supported	N/A
	RHEL 5.11	Supported	N/A
	RHEL 6.0	Supported	N/A
	RHEL 6.1	Supported	N/A
	RHEL 6.2	Supported	N/A
	RHEL 6.3	Supported	N/A
	RHEL 6.4	Supported	N/A
	RHEL 6.5	Supported	N/A
	RHEL 6.6	Supported	N/A
	RHEL 6.7	Supported	N/A
	RHEL 6.8	Supported	N/A
	RHEL 6.9	Supported	N/A
	RHEL 7.0	Supported	N/A
	RHEL 7.1	Supported	N/A
	RHEL 7.2	Supported	N/A
	RHEL 7.3	Not Supported	Not Supported

Reference

Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.1.1) for Linux x86-64 (Doc ID 761566.1)

Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.2) for Linux x86-64 (Doc ID 1330701.1)

SUSE Linux Enterprise Server (SLES)

Supported EBS Apps version		Oracle EBS 12.1	Oracle EBS 12.2
	Supported OS Version		
	SLES 11	N/A	N/A
	SLES 11 SP1	N/A	N/A
	SLES 11 SP2	Supported	Supported
	SLES 11 SP3	Supported	Supported
	SLES 11 SP4	Supported	Supported

SLES 12	N/A	Not Supported
SLES 12 SP1	N/A	Not Supported
SLES 12 SP2	N/A	Not Supported

Reference

Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.1.1) for Linux x86-64 (Doc ID 761566.1)

Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.2) for Linux x86-64 (Doc ID 1330701.1)

Solaris SPARC (x86 and SPARC)

Supported DBMS Version		Oracle EBS 12.1	Oracle EBS 12.2
Supported OS Version			
Solaris 10 U9		Supported	Supported
Solaris 10 U10		Supported	Supported
Solaris10 U11		Supported	Supported
Solaris 10 U12		Supported	Supported
Solaris 10 U13		Not Supported	Not Supported
Solaris 11		Supported	Supported
Solaris 11 U1		Supported	Supported
Solaris 11 U2		Supported	Supported
Solaris 11 U3		Not Supported	Not Supported

Reference

R12.1.1: Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.1.1) for Oracle Solaris on SPARC (64-bit) (Doc ID 761568.1)

Oracle E-Business Suite Installation and Upgrade Notes Release 12 (12.2) for Oracle Solaris on SPARC (64-bit) (Doc ID 1330702.1)

Advanced Interactive eXecutive (AIX)

Supported EBS Apps version	Oracle EBS 12.1	Oracle EBS 12.2
Supported OS Version		
AIX 7.1	Supported (single-node only)	Not Supported
AIX 7.2	Supported in 5.3.x.x (single-node only)	Not Supported

Toolkit/Delphix Engine Compatibility

Toolkits should be installed on compatible Delphix Engines per the table below:

Delphix Engine	EBS_1.2.0	EBS_1.3.0	EBS_1.3.0	EBS_1.3.1
5.1.x	No	No	No	No
5.2.2.x	No	No	No	No

5.2.3.x	Yes	Yes	No	No
5.2.4.x	Yes	Yes	No	No
5.2.5.x	Yes	Yes	No	No
5.2.6.x	Yes	Yes	No	No
5.3.0.0	Yes	Yes	Yes	Yes

Unsupported EBS Versions and Features

- Sudo Privilege
- Weblogic Password Change
- Support SSL enabled Environment
- V2P

HANA Matrix

Supported Operating Systems

- 64-bit OS support only
- Support for x86-based systems only

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version		HANA 1.0 SPS12	HANA 2.0 SP02
Supported OS Version			
RHEL 7.0		Supported	Not Supported
RHEL 7.1		Supported	Not Supported
RHEL 7.2		Supported	Supported
RHEL 7.3		Supported	Supported
RHEL 7.4		Supported	Supported

SUSE Linux Enterprise Server (SLES)

Supported DBMS Version		HANA 1.0 SPS12	HANA 2.0 SP02
Supported OS Version			
SLES 12 SP3		Supported	Supported

Delphix Engine Toolkit Compatibility

Delphix Engine Version	HANA_1.0 SPS 12	HANA 2.0 SP02
5.1.x	No	No
5.2.2.x	No	No
5.2.3.x	No	No
5.2.4.x	Yes	No

5.2.5.x	Yes	No
5.2.6.x	Yes	Yes

Unsupported HANA Versions and Features

- V2P is not supported with this release.
- If the logs creation process has been disabled explicitly then the replication will not work.
- XSEngine should not be installed on the HANA DB.
- HANA License should be installed on source.
- Delphix Self-Service is not supported with 1.1.2 toolkit release.

Virtualization Platform Matrix

Legend

Color	Meaning
	Supported
	Not Supported
	Not Applicable

Delphix Features with Data Platforms

This section describes the Delphix features we support for each data platform.

Delphix Feature		Oracle				SQL Server					SAP ASE			
		10g	11g	12c	PDB	2005	2008	2012	2016	2017	15.0.3	15.5	15.7	16
Environment Management	Manual environment discovery													
	Automated environment discovery													
	Hostchecker													
	Environment monitor													
Linking/Syncing	Load from existing backup													
	Incremental snapshots													
	Resumable syncs for initial load													
	dSource LogSync													
	Linking clustered source databases													
	Validated Sync on snapshot													
	Validated Sync, continuous													
	Load from alternate sources													
	VDB LogSync													
	Source Continuity													
	Handling of source DB upgrades													
Handling of non-logged changes														
Provisioning	VDB on VDB													
	VDB refresh and rewind													
	Provisioning clustered VDBs													
	VDB migration													
	VDB upgrades outside of Delphix													
	Automated VDB upgrades with Delphix													
	Database config parameters for VDBs													
	Path-mapping													
	Cross-platform provisioning													
V2P	Basic V2P data export													

V2P over DSP																				
Multi filesystem V2P																				
Resumable V2P																				

Data Platform Features

This section describes the data platform-specific features we support for each use case within Delphix.

Oracle

Platform Feature		Oracle		
		10g	11g	12c
dSource Linking	Single Instance			
	CDB with PDB Multi-Tenant			
dSource SnapSync	Level based backups			
	SCN based backups			
	Physical Standby			
	Active Dataguard			
	ASM			
	RAC			
	TDE (non-multitenant)*			
	HCC			
	Exadata			
	dSource LogSync	RAC		
ASM FS				
RAW FS				
Native FS				
Physical Standby				
VDB	Single Instance			
	RAC			

*This support does not apply to vPDBs.

SQL Server

Delphix Feature		SQL Server				
		2005	2008	2012	2016	2017
Linking and Syncing	Linking from clustered sources					
	Full and bulk-logged mode support					
	Simple mode support					
	Filestreams					
	Full textcatalogs					
	Availability groups					
Backup Software	Native backups					
	Litespeed SQL Server backups					

	Red Gate SQL Backup Pro						
	NetBackup						
	Commvault						
Provisioning	Clustered VDBs						
	Availability Groups						

SAP ASE

Delphix Feature		SAP ASE			
		15.0.3	15.5	15.7	16
Linking and Syncing	Linking from clustered sources				
	Linking from ASE replication server				
	Full mode support				
	Truncate log on checkpoint support				
	Native backups				
	NetBackup				
	Provisioning	Clustered VDBs			
	VDB LogSync				

Data Source Certifications

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- [Goals](#)
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Legal Notice

IMPORTANT: The policies outlined in this document are subject to change. The policies and timelines are provided as rough estimates when certifications of interoperability/connectivity with third-party products may be completed and are subject to whether such interoperability/connectivity is part of the Delphix product roadmap and support policy and should not be regarded as a commitment.

Speak with Delphix Product Management if you need more specific information or are unsure of these policies.

Goals

The goal of this certifications cadence is to maintain a cadence for certifications of new software releases.

The objectives are:

1. To set reasonable expectations for our organization and customers regarding how and when we will address certifications
2. To define an intended timeframe for certification of new data sources versions and operating systems versions to maintain an up-to-date support matrix

Certification Expectations:

Please note that certification only covers previously supported functionality of the Delphix Engine. Any new features and functionality introduced in the database or operating system (DB/OS) will be tracked through the regular release planning and roadmap process and considered as

features/functionality/fixes.

Specifically, the following paths exist with varying delivery timeline commitments, in the following priority order:

1. [Security Response Policy](#): In case security issues are discovered in a certain DB and/or OS version, we will follow our security response policy, which supersedes the goals described in this document.
2. **Certifications**: As described in the document.
3. **Roadmap Features**: No policies outlined. This follows the regular roadmap planning process.

Data Sources

This documentation currently applies only to the following data source integrations:

- Oracle
- SQL Server
- SAP ASE

Cadence for Data Source Database Version Changes

Release Type	Certification Details	Goal
A new version of a database with all currently supported operating systems	Certification with all supported operating systems	8 months from new version GA date

Cadence for Operating System Version Changes

Release Type	Certification Details	Goal
A new major operating system version with all currently supported databases	Certification with all supported versions of the database	6 months from new version GA date
A new update* operating system version with all currently supported databases	Certification with all supported versions of the database	4 months from new version GA date

*Terminology for an 'update' version varies across operating systems. See the Appendix for more information.

Appendix

Product Lifecycle of Oracle Related DB/OS Vendors:

Software	Product Lifecycle	Notes
Oracle Database	Link	12.1 is Oracle Enterprise Edition (EE)
Red Hat Enterprise Linux	Link	
Solaris (x86 and SPARC)	Link	
SuSE Linux (SLES)	Link	
IBM AIX	Link	
HP-UX	Link	

Product Lifecycle of SQL Server related DB/OS vendors:

Software	Product Lifecycle	Notes
Microsoft SQL Server	Link	
Microsoft Windows	Link	

Product Lifecycle of SAP ASE related DB/OS vendors:

Software	Product Lifecycle	Notes
SAP ASE	Link	
Red Hat Enterprise Linux	Link	
Solaris (x86 and SPARC)	Link	
SuSE Linux (SLES)	Link	
IBM AIX	Link	

Footnote 1: Update Version Terminology

Operating System releases typically include updated versions, the terminology for which varies depending on the vendor. Below are the various operating systems which we support, as well as the terminology for updates to use with the document above.

Vendor	Update Version Terminology	Definition
Red Hat Enterprise Linux	Update version	Installed on top of major releases to provide larger-scale point-release updates via Red Hat Network, after initial installation via traditional methods (PXE, DVD, etc.).
Solaris (x86 and SPARC)	Update release	Update release number. The update release number for this Oracle Solaris release. The update value is 0 for the first customer shipment of an Oracle Solaris release, 1 for the first update of that release, 2 for the second update of that release, and so forth.
SuSE Linux (SLES)	Service Pack (SP) release	Service Packs are minor updates and enhancements, usually with security fixes, that are applied to the major version of the OS.
IBM AIX	Service Pack (SP) release	A Technology Level (TL) gives new features, while an SP contains fixes for problems that are critical and can't wait until the next TL. Service Packs are limited to minimal corrections that don't change the way things work or add any new functionality.
HP-UX	Patch release	Patch sets are groups of patches that should be installed to support common HPE products and sub-systems.
Windows	New Release (R) version or Service Pack (SP) release	A service pack (SP) is a collection of updates and fixes, called patches, for an operating system or a software program. Many of these patches are often released before a larger service pack, but the service pack allows for an easy, single installation.

Postgres Support Matrix**CentOS**

	PostgreSQL	PostgreSQL	PostgreSQL
Supported DBMS Version	9.5	9.6	10
Supported OS Version			
CentOS 7.3	Supported	Supported	Supported
CentOS 7.4	Supported	Supported	Supported

Unsupported PostgreSQL Versions and Features

PostgreSQL versions below 9.5 i.e (9.2, 9.3 and 9.4 .. including the minor versions) are NOT supported by the plugin.

Broadly there are two features which are not supported by the plugin:

- Unlogged Tables: All the tables which are not logged (unlogged) will not be supported by the toolkit.
- Point In Time recovery: Currently, the toolkit doesn't support Point in Time recovery of PostgreSQL database.

Kerberos Support Matrix

- Oracle - Red Hat Enterprise Linux (RHEL)
- SAP ASE - Red Hat Enterprise Linux (RHEL)
- DB2 Support Matrix
 - Red Hat Enterprise Linux (RHEL)
 - Advanced Interactive eXecutive (AIX)

Kerberos is only supported from 5.3.2 onward.

Oracle - Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	Supported OS Version	Oracle 10g	Oracle 11gR1	Oracle 11gR2	Oracle 12cR1	Oracle 12cR2	Oracle 18c
	RHEL 5.5	Supported	Supported	Supported	N/A	N/A	N/A
	RHEL 5.6	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.7	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.8	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.9	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.10	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 5.11	Supported	Supported	Supported	Supported	N/A	N/A
	RHEL 6.0	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.1	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.2	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.3	N/A	N/A	Supported	Supported	N/A	N/A
	RHEL 6.4	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.5	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.6	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.7	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.8	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.9	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 6.10	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.0	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.1	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.2	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.3	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.4	N/A	N/A	Supported	Supported	Supported	Supported
	RHEL 7.5	N/A	N/A	Supported	Supported	Supported	Supported

SAP ASE - Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	ASE 15.0.3	ASE 15.5	ASE 15.7	ASE 16
Supported OS Version				

RHEL 5.5	Supported	Supported	Supported	N/A
RHEL 5.6	Supported	Supported	Supported	N/A
RHEL 5.7	Supported	Supported	Supported	N/A
RHEL 5.8	Supported	Supported	Supported	N/A
RHEL 5.9	Supported	Supported	Supported	N/A
RHEL 5.10	Supported	Supported	Supported	N/A
RHEL 5.11	Supported	Supported	Supported	N/A
RHEL 6.0	Not Supported	Not Supported	Not Supported	N/A
RHEL 6.1	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.2	Supported	Supported	Supported	Not Supported
RHEL 6.3	Supported	Supported	Supported	Not Supported
RHEL 6.4	Supported	Supported	Supported	Not Supported
RHEL 6.5	Supported	Supported	Supported	Supported
RHEL 6.6	Supported	Supported	Supported	Supported
RHEL 6.7	Supported	Supported	Supported	Supported
RHEL 6.8	Supported	Supported	Supported	Supported
RHEL 6.9	Supported	Supported	Supported	Supported
RHEL 6.10	Supported	Supported	Supported	Supported
RHEL 7.0	N/A	N/A	Supported	Supported
RHEL 7.1	N/A	N/A	Supported	Supported
RHEL 7.2	N/A	N/A	Supported	Supported
RHEL 7.3	N/A	N/A	Supported	Supported
RHEL 7.4	N/A	N/A	Supported	Supported
RHEL 7.5	N/A	N/A	Supported	Supported

DB2 Support Matrix

1. ESE: Enterprise Server Edition
2. AESE: Advanced Enterprise Server Edition
3. As of Delphix Engine 5.1.6 - For the supported DB2 versions, Delphix supports the corresponding DB2 Developer edition where the vendor, IBM, supports it
4. 64-bit OS support only

Red Hat Enterprise Linux (RHEL)

Supported DBMS Version	ESE 10.5	AESE 10.5	ESE 11.1	AESE 11.1
Supported OS Version				
RHEL 6.0	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.1	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.2	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.3	Not Supported	Not Supported	Not Supported	Not Supported
RHEL 6.4	Supported	Supported	Not Supported	Not Supported
RHEL 6.5	Supported	Supported	Not Supported	Not Supported
RHEL 6.6	Supported	Supported	Not Supported	Not Supported
RHEL 6.7	Supported	Supported	Supported	Supported

RHEL 6.8	Supported	Supported	Supported	Supported
RHEL 6.9	Supported	Supported	Supported	Supported
RHEL 7.0	Supported	Supported	Supported	Supported
RHEL 7.1	Supported	Supported	Supported	Supported
RHEL 7.2	Supported	Supported	Supported	Supported
RHEL 7.3	Supported	Supported	Supported	Supported
RHEL 7.4	Supported	Supported	Supported	Supported

DB2 11.1 Developer Edition has been certified on RHEL 6.7.

Advanced Interactive eXecutive (AIX)

Supported DBMS Version		ESE 10.5	AESE 10.5	ESE 11.1	AESE 11.1
Supported OS Version					
AIX 6.1		Not Supported	Not Supported	N/A	N/A
AIX 7.1		Supported	Supported	Supported	Supported
AIX 7.2		Supported	Supported	Supported	Supported

Fixed Issues (5.3.x)

Release 5.3.2.0 Changes

Management Server Fixes

Bug Number	Description
DLPX-60470	Provided for selective data distribution (SDD) support for Oracle 12c multi-tenant data sources.
DLPX-60561	Added the capability to use HSTS headers when operating with HTTPS.
DLPX-60562	Removed the default SNMP Community String.
DLPX-61085	Network throughput test should not establish connections to remote hosts.
DLPX-61089	Fixed an issue where error messages revealed usernames.
DLPX-61108	DB Unique Name was checked when the user introduced a value in the provision wizard.
DLPX-61125	When editing an environment user, the appropriate editing option will be shown depending on the Public key authentication setup or Username / password setup.
DLPX-61290	The Apache Commons FileUpload library was updated to avoid a known security issue.
DLPX-61391	Virtualization accounts can be configured with multiple SSH keys via the CLI.
DLPX-61537	If the toolkit directory for a staging environment was greater than ~43 characters, VDBs were not able to be provisioned from any snapshots created for the dSource.
DLPX-61567	Fixed issue where LDAP users were not editable.
DLPX-61568	Updated moment lib.
DLPX-61569	Fixed issue where not all elements were visible if the installations list was too long on dSource upgrade dialog.

DLPX-61651	Resolved an issue that prevented Jet Stream recovery from successfully automatically recovering a data container after an error.
DLPX-61661	Fixed an error where an attempt to remove an internal database file fails during link or provision due to the file being non-empty.
DLPX-61833	Fixed an issue that caused the VMware tools to become inaccessible.
DLPX-61925	Disabled Java Attach API on remote hosts.
DLPX-62002	Reduced the amount of sshj log statements.
DLPX-62050	Fixed 'Validate' button in the Edit Environment User screen to be enabled only if the password field has been changed.
DLPX-62242	Resolved an issue where replication jobs can fail after an upgrade to 5.3.x.

Delphix OS Fixes

Bug Number	Description
DLPX-61083	Reduced latency bubbles in the synchronous write data path.
DLPX-61972	The system ran out of memory leading to unresponsiveness.
DLPX-61973	Improved write performance on highly fragmented storage.

Masking Fixes

Bug Number	Description
DLPX-60673	Fixed a premature "Session Expired, please log in again." error when login in using the old dmsuite URL.
DLPX-60776	Fixed a SQL syntax error in the MySQL drop index feature.
DLPX-60822	Prevent the space character from being silently dropped from the list of "Ignore Chars" when creating/editing a Segment Mapping algorithm.
DLPX-60984	Fixed the job monitor's row count total for Mainframe (VSAM) EBCIDIC files.
DLPX-61019	Force termination of a previously cancelled Masking job that is not responding.
DLPX-61123	Removed cleartext passwords from the application debug logs for Excel file masking jobs using SFTP and FTP file connectors.
DLPX-61411	Removed cleartext passwords from the application log files for Excel file masking jobs using SFTP and FTP file connectors when the spreadsheet cannot be processed.
DLPX-61412	Removed cleartext passwords from the application log files for Excel file masking jobs using SFTP and FTP file connectors when the path does not exist.
DLPX-61414	Removed cleartext passwords from the application log files for XML file masking jobs using an FTP file connector when the path does not exist.
DLPX-61442	Create temporary files in a file system dedicated to temporary files.
DLPX-61460	Added the ability to synchronize Free Text Redaction algorithms.
DLPX-61461	Added the ability to synchronize Profile Expressions.
DLPX-61462	Added the ability to synchronize Profile Sets.
DLPX-61463	Added the ability to synchronize Profile Jobs.
DLPX-61472	Fixed an issue where the upload of a large lookup file via the GUI could timeout and not report an error.
DLPX-61486	Added support for standard API operations with Mainframe (VSAM) file fields.
DLPX-61487	Added support for standard API operations with Mainframe (VSAM) formats (copy books).

DLPX-61488	Expanded the set of actions that are recorded in the audit log. Actions such as adding/deleting/editing a user, updating/deleting a connector, login failures and many other events will now be reflected in the audit log.
DLPX-61494	Added support for standard API operations with Mainframe (VSAM) connectors, rulesets, and metadata.
DLPX-61497	Introduced the ability to acquire application log information through the API.
DLPX-61500	Introduced the ability to acquire audit log information through the API.
DLPX-61501	Introduced the ability to generate a new global encryption key through the API.
DLPX-61557	Qualify an Oracle table name with its schema name as part of the drop index masking job feature.
DLPX-61724	Updated customer algorithm support policy link.

Release 5.3.1.2 Changes

Delphix OS Fixes

Bug Number	Description
DLPX-61902	Revert fixes for DLPX-61719 and DLPX-61720 introduced in 5.3.1.1. These fixes caused systemic unresponsiveness.

Release 5.3.1.1 Changes

Delphix OS Fixes

Bug Number	Description
DLPX-61720	Improved write performance on highly fragmented storage.
DLPX-61721	Improved I/O latency for synchronous write workloads.

Masking Fixes

Bug Number	Description
DLPX-61589	Fixed a problem where not all masked rows were counted, this lead to a misleading progress reporting for completed jobs.
DLPX-61590	Fixed a problem where masking jobs and other operations could appear to hang due to an internal deadlock condition. Performance should also be improved at scale for these operations.
DLPX-61591	Masking job report had negative rows per min count.
DLPX-61635	Fixed a problem in the UI where the monitor page's total table/file number count for a job was inaccurate.
DLPX-61689	Fixed a problem in job generation that caused Masking Jobs using n streams to mask tables/files n times.

Release 5.3.1.0 Changes

Management Server Fixes

Bug Number	Description
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DLPX-59831	Fixed an issue where failed masked provisioning can result in downstream SDD failures.
DLPX-59984	In some cases, toolkits could leave behind unusable snapshots after being deleted.
DLPX-60008	Environment discover does not update the version string for manually added ASE instances, which can cause sync failures due to a version mismatch with staging during a sync. This can be worked around by manually updating the version using the CLI.
DLPX-60224	Ensures that session IDs are unique and not reused.
DLPX-60441	Provided an indication that a rollback has occurred after a failure to upgrade.
DLPX-60447	Provided a CLI option to view installed hotfixes.
DLPX-60501	Fixed an issue where deleting a Self-Service container but keeping the underlying VDBs causes all timeflows other than the current TimeFlow to be deleted.
DLPX-60540	Addresses the issue where environment creation was failing when username starts with 'u' (lowercase). E.g. AD\user.
DLPX-60611	Delphix now automatically remounts NFS when a sync is executed after staging host reboot for toolkits. There's no need to manually disable and enable dSources anymore.
DLPX-60751	SQL Server dSource sync using Netbackup might fail with: "DB_CryptAcquireContext: ERR - Error in CryptAcquireContext : 2" if the Delphix environment user is not logged in.
DLPX-60799	Resolves an issue where application startup or replication takes longer than it should.
DLPX-60864	Upon startup, Delphix Engine now fetches a list of masking jobs even for remote Masking Engines.
DLPX-60899	List of groups and datasets no longer being truncated on Datasets page.
DLPX-61042	Set browser autocomplete feature to off for password fields.
DLPX-61073	Addressed an issue when PowerShell hook operations do not have the correct environment variables set, which caused a hook to silently fail.

Delphix OS Fixes

Bug Number	Description
DLPX-61016	Fixed a system crash caused by a deadlock in ZFS.

Masking Fixes

Bug Number	Description
DLPX-60285	Fixed an issue that caused a DB2 mainframe OTF masking job to fail when a batch update was disabled.
DLPX-60286	Fixed an issue where a DB2 mainframe masking job failed if the job included a date column being masked with the min/max algorithm and batch update disabled.
DLPX-60657	Added the ability to synchronize Data Cleansing algorithms.
DLPX-60658	Added the ability to synchronize Min/Max algorithms.
DLPX-60856	Fixed an issue where certain characters could not be included in Kerberos service principal names.
DLPX-61408	Fixed an issue where a file system mount failure prevented the Masking service from starting.

Release 5.3.0.3 Changes

Delphix OS Fixes

Bug Number	Description
DLPX-61171	Fixed a system crash caused by a deadlock in ZFS.

Release 5.3.0.2 Changes

Masking Fixes

Bug Number	Description
DLPX-60712	Fixed two issues: <ul style="list-style-type: none"> 5.1 upgrade to 5.3: the Masking Engine would not start if a user created a secure lookup, data cleansing, or free text redaction algorithm with a lookup list containing one or more empty string values. 5.2 upgrade to 5.3: a user created secure lookup, data cleansing, or free text redaction algorithm would no longer output an empty string value as it did on previous releases.

Release 5.3.0.1 Changes

Delphix OS Fixes

Bug Number	Description
DLPX-60702	Addressed an intermittent issue where the Delphix Engine restarted unexpectedly after the application of ESXi patches.
DLPX-60683	ZFS Readact should not double up on records for files on delete queue.

Release 5.3.0.0 Changes

Management Server Fixes

Bug Number	Description
DLPX-32855	Initial SnapSync should be more efficient in writing data blocks to Disk.
DLPX-41768	Allow flexibility in the location of database files for MS SQL databases.
DLPX-44605	Provisioning a SQL 2014 In-Memory database to a Standard version of SQL produces an incorrect error.
DLPX-45731	Excessive output from hook operation can cause OOM errors.
DLPX-46049	MSSql discovery should exclude staging databases which failed to drop during last cleanups.
DLPX-46063	Database with autoclose enabled may cause the engine to fail when adding a database.
DLPX-50633	Hooks and other customer supplied scripts should avoid writing excessive amounts of output, as that output can cause later queries for job information to run out of memory.
DLPX-51280	Creating an Oracle Cluster environment with more than one node crashes the management stack.
DLPX-52004	move-to-asm.sh fails with a Failed to update spfile error.
DLPX-53463	Upgrade does not remove cluster resource dependencies for SQL Server Clustered VDBs and can result in the cluster service going down post-upgrade. This can be worked around by disabling clustered VDBs before the upgrade and enabling them after.
DLPX-53688	Refreshing "All Environments" can remove nodes of a Windows failover cluster if individual nodes cannot be refreshed.

DLPX-54051	Tomcat HTTP error response HTML exposes the server name
DLPX-54901	Redaction should preserve non-sensitive parts of appdata_repository: parameters.
DLPX-55154	Memory Leaks on Jet Stream timeline page
DLPX-55677	Datafiles backups created by RMAN due to a SnapSync are marked as Unavailable, however, the backup of the controlfile is not marked unavailable. Avoid using the Delphix controlfile backups.
DLPX-55814	Replication fails for Timeflows with no snapshots.
DLPX-55864	sqlnet settings prevent oracle discovery of sysdba and sysback privileges.
DLPX-55871	Admin App GUI responsiveness tends to degrade over time with multiple concurrent jobs.
DLPX-56028	Appdata(Vfiles) does not stop a running database before disabling it and does not use start hooks after enable.
DLPX-56128	Switching containers in Self-Service can be confusing.
DLPX-56134	Improve handling of dSources with offline datafiles.
DLPX-56271	Provisioning to environments with no discovered or manually added listeners will fail.
DLPX-56272	Cannot replica provision with AppData from UI.
DLPX-56326	Internal error on dSource snapshot after the failure of temporary LUN unexport.
DLPX-56339	Linking fails for Staged AppData Sources with multiple interfaces.
DLPX-56350	When using IE the 'Download Support Bundle' link attempts to open the file.
DLPX-56407	Initial server setup failures on missing or invalid DNS configuration.
DLPX-56452	Performance analytics in GUI is misleading.
DLPX-56474	Unable to discover Failover Cluster Instances if some cluster nodes do not have instances.
DLPX-56550	Timeflow Bookmark creation does not validate Timeflow.
DLPX-56558	Snapshot jobs fail with "internal error" when unable to parse backup headers.
DLPX-56598	The User screen UI does not have a scrollbar.
DLPX-56599	Backend always thinks stagingMountBase is being updated on source updates.
DLPX-56615	When Challenge Response enabled, LDAP users cannot login to CLI.
DLPX-56695	Server Setup does not allow to add sysadmin users from LDAP.
DLPX-56699	Updating NTP source information reboots the engine.
DLPX-56746	Incorrect end_scn value in orcl_log_info for Oracle Standby source in Real Time Apply Mode.
DLPX-56856	Management stack crash when retrieving performance analytics.
DLPX-56857	UI allows performance history queries for much longer periods than the available data.
DLPX-56873	Unable to upgrade/change Oracle home repository when the version is the same.
DLPX-56883	HADR status for DB2 is wrongly shown on UI.
DLPX-56890	Setting 'Data Operator' and 'Reader' privileges via GUI fails after upgrade to 5.2.2.0.
DLPX-56980	Disk expand checkboxes disabled despite expandable space.
DLPX-56999	GUI may hang when changing properties of LDAP users.
DLPX-57010	ASE tries forever to locate missing backups.
DLPX-57051	UI crashed with HTTP Error: 0 and "Failed to load response data".
DLPX-57059	Environment Discovery May Appear to Hang.
DLPX-57105	Oracle service entries in MDS append "." to servicename/SID if db_domain is blank in configParams or VDB config template.

DLPX-57120	After an upgrade, dSources show as inactive and new snapshots fail with incorrect JDBC string.
DLPX-57121	Policy timeouts incorrectly interpreted as seconds instead of minutes.
DLPX-57122	Security requires a change in Oracle permissions.
DLPX-57132	Cannot populate all User fields when AuthenticationType is LDAP via GUI.
DLPX-57137	Audit events only display for an active user.
DLPX-57154	Support diagnostic data may be corrupted.
DLPX-57212	"Force compression" option should be checked by default if the Delphix-managed compressed backup is enabled for a dSource.
DLPX-57222	Privileges are not checked per environment user on 5.2.
DLPX-57262	Support bundle generation causes native memory exhaustion.
DLPX-57303	Environment refresh clears the repository appliedPatches field.
DLPX-57304	Recurring mgmt crashes due to run-away thread creation.
DLPX-57365	Encryption Key is not obscured in UI for SQL Server backups.
DLPX-57366	Passwords are printed in clear text on target env debug.log.
DLPX-57464	Alerts and faults raised by ASE ValidatedSync should include ASE error message.
DLPX-57538	Windows 2008R2 sets dirty bit on zvol.
DLPX-57551	Mission Control breaks in some Kerberos Configurations.
DLPX-57662	Unable to refresh RAC cluster if hosts of a cluster are also shared by other single instance UNIX host environment.
DLPX-57697	Unable to provision vPDB when the target CDB containers Application Container.
DLPX-57777	The GUI Link dSource wizard does not work with windows cluster.
DLPX-57798	ASE snapshot created despite staging database load failing.
DLPX-57818	Connector installer uses English group names to assign ACLs that do not exist in some locales.
DLPX-57837	Environment Discovery or refresh reports "The length needed to provide all the addresses for the local_listener parameter exceeds 255 characters".
DLPX-57884	Oracle DB Validated Transformation fails with - "An unmasked child with a masked parent found!".
DLPX-57906	CLI user unable to unset properties whose names contain dashes.
DLPX-57919	Passwordless authentication not working for LDAP users.
DLPX-57970	Upgrade to Jackson JSON library to 2.9.5 to fix bug converting doubles/floats to longs.
DLPX-58002	Support for a contained database in MSSQL Server.
DLPX-58018	NPE in StorageContainerDAOImpl.lookupByOwner upon DB2 dSource delete after link fails on pre-sync hook.
DLPX-58036	"Internal Error" during replication of masked database.
DLPX-58065	Ignore "ASE 605" errors to allow retrying failed loads.
DLPX-58085	VDB provision/refresh failure after upgrading from releases prior to 5.2.3.0.
DLPX-58181	Login failures may be incorrectly triggered by faulty lockout processing.
DLPX-58196	Query to obtain the last SCN of a PDB snapshot fails when there are MSSQL snapshots with change_db_ids larger than 63 bits.
DLPX-58235	Upgrade validation fails due to faulty hotfix metadata.
DLPX-58346	Detaching a PDB from primary and attaching to Standby (or vice-versa) results in new snapshots as not provisionable.
DLPX-58349	mount-vdb-instance fails provisioning dNFS.
DLPX-58428	Customizable HTTP and HTTPS ports for Delphix Engine Web UI.

DLPX-58442	Should not assign Snapshot Policy to vCDB.
DLPX-58606	SQL transaction logs from older recovery fork not ingested when recovery fork change is detected.
DLPX-58653	Provisioning hangs while enumerating files.
DLPX-58654	Remove reliance on SCSI UNMAP for SQL Server versions that don't support it.
DLPX-58731	Strikethrough difficult to see in Capacity UI on Firefox.
DLPX-58741	Disable or do not display the Open LogSync button on ineligible snapshots.
DLPX-58759	Remove force disable for clustered VDBs.
DLPX-58786	Datasets dropdown does not show a scrollbar when namespaces do not fit in the list.
DLPX-58952	Increase maximum size of strings in mount path.
DLPX-58984	replication always sending all CDB/PDB objects even if not in replication spec.
DLPX-59011	Provisioning a database with FILESTREAMs fails for SQL Server 2008 and R2.
DLPX-59027	Remove insecure 3DES ciphers from Tomcat.
DLPX-59087	Environment refresh fails after upgrade due to PowerShell 2.0 "PathTooLongException".
DLPX-59120	ASE Upgrade JDBC Driver to ASE 16 SP03 PL04 (Build 27412).
DLPX-59139	Windows Discovery fails for timezone '(UTC+00:00) Dublin, Edinburgh, Lisbon, London'.
DLPX-59170	Poor performance on TEMP filesystems for MSSQL dSource after upgrade to 5.2.
DLPX-59191	Only show the authorized_keys that are used by SSHd.
DLPX-59213	Unable to refresh windows environment without Powershell 2.0 installed.

Masking Fixes

Bug Number	Description
DLPX-42811	A completed masking job is reported as running.
DLPX-47872	A failed job that gets stuck in progress may report Negative count for Rows remaining and Estimated Run Time.
DLPX-55851	CLONE - Unable to mask tables when schema contains special characters.
DLPX-56033	Upgrade batik in the masking product to 1.9 or later.
DLPX-56103	Excel OTF acts as in place.
DLPX-56214	Secure shuffle does not work for big numbers data types.
DLPX-56359	Secure shuffle does not work for some NUMBER data types.
DLPX-56483	Ruleset Edit GUI cannot escape single quote properly.
DLPX-56588	Entries in table mapping_algorithm_staging_tbl not removed on algorithm deletion.
DLPX-56633	Data level profiling will fail if a column name happens to be a Javascript keyword.
DLPX-56644	Masking email notification that is set to send emails by default even without smtp server configured.
DLPX-56958	Masking service failing after "factory reset".
DLPX-57198	Masking engine profiler fails when COUNT_QUERY_FOR_DATA_LEVEL_PROFILING=Y and object owner is not same as schema in the connector.
DLPX-57270	On The Fly masking job with custom mapplet returns the wrong number of rows.
DLPX-57281	NoSuchFileException occurred during masking profiling.

DLPX-57283	Null Pointer Exception causes job failure after bulk updates of rulesets.
DLPX-57284	Masking V4 job copy API should correctly copy pre/post scripts.
DLPX-57367	Data level profiling is unusably slow at scale.
DLPX-57587	Composite Logical key not getting saved.
DLPX-57902	Masking Engine crash leaves Masking threads running causing the restart to fail.
DLPX-57965	Segmented mapping does not report when skipping rows.
DLPX-58291	Support bundles will not contain masking information if the masking service is not run after an upgrade.
DLPX-58334	Table Name with Multi-byte Character not Returned by Inventory.
DLPX-58665	Security vulnerabilities caused by open TCP port 9011.
DLPX-58701	Security vulnerabilities caused by open TCP port 43479.
DLPX-59023	MA and SM masking algorithm create text files which are large and with many jobs fill up the disk.

Delphix OS Fixes

Bug Number	Description
DLPX-35632	rpool/crashdump quota should be variable dependent on customer installation.
DLPX-55614	SQL Server VDB on failover cluster may go into a suspect mode during periods of high load.
DLPX-56319	Unable to validate some ESX versions during an upgrade.
DLPX-56613	System hangs during write-intensive workloads.
DLPX-56684	Operating system panic when reading corrupted filesystem block.
DLPX-56864	Unsynchronized use of /mnt mountpoint may lead to upgrade failure.
DLPX-57414	Dataset Performance does not show iSCSI/SQL Server data.
DLPX-57559	Network jumbo frames configuration lost after upgrade to 5.2.3.0.
DLPX-57561	DelphixOS doesn't boot in EC2 r4.8xlarge instances.
DLPX-57566	Installation of the open-vm-tools package fails after upgrade to 5.2.
DLPX-57791	Race condition in mountd sharetab logic.
DLPX-57967	SNMP use may lead to memory shortfall or hang.
DLPX-58438	open-vm-tools missing after upgrade to 5.2.4.0.

Known Issues (5.3.x)

Release 5.3.2.0

Key	Summary	Workaround
DLPX-58122	Masked Provisioning is not supported on Oracle RAC.	N/A

Release 5.3.1.0

Masking Server

Key	Summary	Workaround
DLPX-60397	If a mapping algorithm is included in multiple jobs, only one job should be run at a time. If multiple jobs are run at the same time, then the mapping algorithm might contain multiple mappings to the same value or the jobs might deadlock.	Only run one job at a time

Release 5.3.0.1

Masking Server

Key	Summary	Workaround
DLPX-60712	<ul style="list-style-type: none"> 5.1 upgrade to 5.3: the Masking Engine would not start if a user created a secure lookup, data cleansing, or free text redaction algorithm's lookup list containing an empty string value. 5.2 upgrade to 5.3: user-created secure lookup, data cleansing, or free text redaction algorithm did not output an empty string value as it had for previous releases. 	N/A

Release 5.3.0.0

Management Server

Key	Summary	Workaround
DLPX-59837	Due to the addition of a new operation type that did not exist earlier, it is not possible to query for Self-Service operations on 5.3.0.0+ with a delphixpy script specifying an API version before v1.10.0.	Update the delphixpy script to use at least API version 1.10.0.
DLPX-60455	Provision to physical CDB with Kerberos enabled may not mount all instances.	Use virtualized CDB.
DLPX-60381	Provision from CDB dSource with PDBs in inactive states will fail with Oracle error ORA-65106.	Ensure all PDBs on the dSource are open read/write. Unplug any PDBs which cannot be opened.
DLPX-55863	Environment discover does not update the version string for manually added ASE instances. This can cause sync failures due to a version mismatch with staging during a sync.	Manually update the version using the CLI.
DLPX-56078	Environment Refresh will not update discovered JDBC strings for linked dSources.	Manually add the correct JDBC string.
DLPX-56083	Invalid characters (such as double quotes) are not stripped from user-supplied SCAN.	Remove invalid characters (e.g. quotes) from SCAN.
DLPX-56192	Delphix currently does not support provisioning from VDB snapshots that have offline datafiles.	N/A

DLPX-56824	If a virtual PDB encounters failures during provisioning, enabling the virtual PDB later may result in a bad state where the virtual PDB cannot be deleted. Delete may error with - 'The object OracleTimeflow does not exist on the system'.	Check with the Support team.
DLPX-56977	Applying Oracle LiveSource Resync may fail if LiveSource is linking from an Oracle Standby database. You may see the error ' exception.oracle.snl.standby.nothing.to.backup ' during the Apply Resync operation.	Wait a bit until the dsource has archived another log, then try to apply resync again.
DLPX-56978	Certain usernames are not available for use as they are reserved system words (e.g. "root", "postgres", "delphix").	<p>ssh -l <user>@DOMAIN <enginename> is successful when testing this with the reported problem user 'sys' as the description indicated.→† The issue is, when logging in with a username that exists in OS (/etc/passwd), it's defaulting to the OS user rather than the domain user.→† Adding the @DOMAIN clarifies which login is intended, andloginfrom CLI works without issue. Tested sys@DOMAIN and webservd@SYSTEM to sanity check.</p> <pre data-bbox="716 638 1484 932"> \$ ssh -l sys@DOMAIN sean5220.dcenter.delphix.com Password: sean5220.dcenter> ls Children . . </pre> <pre data-bbox="716 953 1166 1255"> \$ ssh -l webservd@SYSTEM sean5220 Password: sean5220.dcenter> ls Children about . . </pre>
DLPX-56979	LDAP server test fails if authentication is set to DIGEST-MD5, but setup still works correctly.	N/A
DLPX-57079	Environment Monitor tasks do not use dlp_x_ps.	N/A
DLPX-57142	The Job dashboard does not display the user that invoked Job.	N/A
DLPX-57312	Storage utilization does not include certain Delphix system storage (e.g. metadata store).	N/A
DLPX-57319	vPDB with vCDB refresh uses dSource parameters rather than custom vCDB parameters.	Use repository templates to specify config params for VCDB refresh.
DLPX-57412	CLI parameters must be used exactly as described in the documentation, including spelling and capitalization, or they are ignored.	N/A
DLPX-57673	Support bundle generation can be time-consuming if the engine has a large number of core files to process.	N/A

DLPX-57790	Job cancel requests for long-running operations like VDB provision or refresh may require user operations on the target to cancel the job.	Manually kill any hanging Oracle processes corresponding to the hanging operation.
DLPX-58105	CLI adds extra backquote character to VDB template when it is entered as part of a provision payload. The VDB template name is correctly sent to the Delphix server even though the backquote is displayed when listing the payload content in the CLI.	<p>The workaround was to use the template reference as the name:</p> <pre> > database template database template> ls Objects NAME DESCRIPTION test - Copy of test - Operations create config database template> select test database template 'test'> ls Properties type: DatabaseTemplate name: test description: (unset) parameters: compatible: 12.1.0.2.0 reference: DATABASE_TEMPLATE-1 sourceType: OracleVirtualSource </pre> <pre> database provision *> set source.configTemplate=DATABASE_TEMPLATE-1 database provision *> unset source.configParams database provision *> edit source.configParams database provision source.configParams *> back database provision *> commit </pre>
DLPX-58185	Changing a Custom Policy while it is running on an object can cause the Policy execution to fail.	N/A
DLPX-58226	Completed Cleanup Job, After Upgrade, Still Shows as Running.	N/A
DLPX-58290	Support bundle generation can be time-consuming if the engine has a large number of snapshots to process.	N/A
DLPX-58373	Erroneous warning on hosts with multiple grid homes due to incorrect grid home used during discovery.	Examine warning to see if it applies to the grid home in-use. If not, this warning can be safely ignored.

DLPX-58519	Enable Oracle LiveSource when LiveSource is in a RESYNC_NEEDED state currently re-start Oracle Redo Apply. Oracle Redo Apply should not be restarted in this state.	N/A
DLPX-58561	Default VDB Provisioning Does Not Inherit Online Redo Logs Size From Parent Snapshot.	N/A
DLPX-58912	Self-Service auto-recovery will fail if it runs on a data source that is disabled; please be sure that Self-Service data sources are active when performing operations.	N/A
DLPX-59110	If a Self-Service container is deleted, but the underlying VDBs are kept, all Timeflows other than the current Timeflow are deleted.	N/A
DLPX-59262	Customer with AIX target host may see Delphix suggesting increase the NFS read-write size on the host environment using the nfsd command. This suggestion is not correct. These AIX NFS options are only effective on the NFS server, not on the NFS client.	N/A
DLPX-59299	Discovery and monitoring rely on "Connected" in sqlplus output, which may not be the case if NLS_LANG is set to another language (e.g. Japanese). Downstream operations, like linking or provisioning, may then fail due to missing user privileges.	Set NLS_LANG to an English value. If "Connected" is in the sqlplus output, this should be sufficient for discovery and monitoring to work correctly.
DLPX-59473	It is not possible to set a password policy that prevents an Administrator from re-using a previous password, though this can be set for other users.	N/A
DLPX-59689	Environment discovery can hang indefinitely when userland commands hang (e.g. Isnrctl status, ps, etc.).	N/A
DLPX-59772	The API to list all snapshots consumes a significant amount of memory when there are more than 100,000 snapshots on the engine.	N/A
DLPX-59895	Unable to Expand Storage from the Delphix Setup UI.	N/A
DLPX-59910	Comps.xml associated with Oracle Homes are marked as unparseable if they are longer than 65535 characters.	N/A
DLPX-59951	VDB provision can fail for snapshots from older versions of a Toolkit if the older versions of the Toolkit have been deleted.	Do not delete older Toolkit versions that still have associated snapshots until this issue is resolved.
DLPX-60167	Applying Oracle patch to dSource Oracle CDB may result in failing refreshing child virtual PDBs from this dSource CDB after the same Oracle patch is applied to the target virtual CDB.	N/A
DLPX-60207	List of Installations is Clipped From View in VDB Upgrade Dialog.	N/A

DLPX-60271	<p>If the Delphix environment user is not logged in SQL Server dSource sync using Netbackup might fail with: "DB_CryptAcquireContext: ERR - Error in CryptAcquireContext : 2".</p>	<p>Run the Netbackup client service as the Delphix Windows OS user, which would cause a login.</p> <p>Do not run the DelphixConnectorService as the Delphix Windows OS user.</p>
N/A	<p>Deploying the Delphix 5.3 OVA onto ESXi 6.5 and using the vSphere web client UI, you may see a virtual machine warning on the VM stating:</p> <div data-bbox="321 411 652 1136" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>The configured guest OS (Oracle Solaris 10 (64-bit)) for this virtual machine does not match the guest that is currently running (Oracle Solaris 11 (64-bit)). You should specify the correct guest OS to allow for guest-specific optimizations.</p> </div>	<p>The Guest OS is auto-detected by VMTools and ESXi, but the vSphere web client UI does not reflect this. The vSphere CLI can be used to confirm this:</p> <div data-bbox="756 359 1443 774" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre>PowerCLI C:\Program Files (x86)\VMware\Infrastructure\vsphere PowerCLI> Get-VMGuest -VM dlpX-5300 State IPAddress OSFullName ----- ----- Running {xxx.xx.xx.xxx} Oracle Solaris 11 (64-bit)</pre> </div>

Masking Server

Key	Summary	Workaround
DLPX-57641	<p>Creating or appending a mapping with a large number of values may cause the Masking application to exhaust main memory.</p>	<p>Customer Support can add additional memory to the Masking application through a support process.</p>
DLPX-58461	<p>If the startMasking CLI command is run before the appliance setup wizard, the appliance's file system configuration will be incomplete and the Masking application's internal state will be constrained to a small amount of storage space.</p>	<p>Customers should use the appliance's setup wizard to complete the file system configuration which will provide the Masking application with the normal amount of storage space.</p>
DLPX-58888	<p>When upgrading from 5.1 to 5.3, the DB2 Connector package needs to be re-applied.</p>	<p>Re-apply the IBM DB2 Connector package to the Delphix Masking Engine.</p>

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