Teradata® DSA - DSU

Installation, Configuration, and Upgrade Guide

Release 17.20

November 2022

B035-3153-101K
DOCS.TERADATA.COM

Copyright and Trademarks

Copyright © 2013 - 2023 by Teradata. All Rights Reserved.

All copyrights and trademarks used in Teradata documentation are the property of their respective owners. For more information, see Trademark Information.

Product Safety

Safety type	Description
NOTICE	Indicates a situation which, if not avoided, could result in damage to property, such as to equipment or data, but not related to personal injury.
CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

Third-Party Materials

Non-Teradata (i.e., third-party) sites, documents or communications (“Third-party Materials”) may be accessed or accessible (e.g., linked or posted) in or in connection with a Teradata site, document or communication. Such Third-party Materials are provided for your convenience only and do not imply any endorsement of any third party by Teradata or any endorsement of Teradata by such third party. Teradata is not responsible for the accuracy of any content contained within such Third-party Materials, which are provided on an “AS IS” basis by Teradata. Such third party is solely and directly responsible for its sites, documents and communications and any harm they may cause you or others.

Warranty Disclaimer

Except as may be provided in a separate written agreement with Teradata or required by applicable laws, all designs, specifications, statements, information, recommendations and content (collectively, "content") available from the Teradata Documentation website or contained in Teradata information products is presented "as is" and without any express or implied warranties, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or noninfringement, which are hereby disclaimed. In no event shall Teradata corporation, its suppliers or partners be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of content, even if advised of the possibility of such damage.

The Content available from the Teradata Documentation website or contained in Teradata information products may contain references or cross-references to features, functions, products, or services that are not announced or available in your country. Such references do not imply that Teradata Corporation intends to announce such features, functions, products, or services in your country. Please consult your local Teradata Corporation representative for those features, functions, products, or services available in your country.

The Content available from the Teradata Documentation website or contained in Teradata information products may be changed or updated by Teradata at any time without notice. Teradata may also make changes in the products or services described in the Content at any time without notice.

The Content is subject to change without notice. Users are solely responsible for their application of the Content. The Content does not constitute the technical or other professional advice of Teradata, its suppliers or partners. Users should consult their own technical advisors before implementing any Content. Results may vary depending on factors not tested by Teradata.

Machine-Assisted Translation

Certain materials on this website have been translated using machine-assisted translation software/tools. Machine-assisted translations of any materials into languages other than English are intended solely as a convenience to the non-English-reading users and are not legally binding. Anybody relying on such information does so at his or her own risk. No automated translation is perfect nor is it intended to replace human translators. Teradata does not make any promises, assurances, or guarantees as to the accuracy of the machine-assisted translations provided. Teradata accepts no responsibility and shall not be liable for any damage or issues that may result from using such translations. Users are reminded to use the English contents.

Feedback

To maintain the quality of our products and services, e-mail your comments on the accuracy, clarity, organization, and value of this document to: docs@teradata.com.

Any comments or materials (collectively referred to as "Feedback") sent to Teradata Corporation will be deemed nonconfidential. Without any payment or other obligation of any kind and without any restriction of any kind, Teradata and its affiliates are hereby free to (1) reproduce, distribute, provide access to, publish, transmit, publicly display, publicly perform, and create derivative works of, the Feedback, (2) use any ideas, concepts, know-how, and techniques contained in such Feedback for any purpose whatsoever, including developing, manufacturing, and marketing products and services incorporating the Feedback, and (3) authorize others to do any or all of the above.

Confidential Information

Confidential Information means any and all confidential knowledge, data or information of Teradata, including, but not limited to, copyrights, patent rights, trade secret rights, trademark rights and all other intellectual property rights of any sort.

The Content available from the Teradata Documentation website or contained in Teradata information products may include Confidential Information and as such, the use of such Content is subject to the non-use and confidentiality obligations and protections of a non-disclosure agreement or other such agreements to protect Confidential Information that you have executed with Teradata.

Contents

Chapter 1: Overview 8
Welcome to Teradata DSA - DSU Installation, Configuration, and Upgrade Guide 8
Introduction to Data Stream Architecture 8
Determining the Installation Environment 10
Storage Options 11
DSU Typical Implementation 11
DSU Implementation of a Storage Device, DSC Server, and Media Server on a Managed Storage Server 12
Data Domain Boost Implementation 1 13
Data Domain Boost Implementation 2 14
Dependencies 15

Chapter 2: Configuring the Environment Before Installing 18
Synchronizing Time on the Servers 18
Adding the TDPID to the /etc/hosts File on each TPA Node 18
Optimize the Network Settings 19
Update the FSG Cache 19

Chapter 3: Migrate the DSC from Analytics Database to Postgres 20
Preparing to Migrate the DSC 20
Migrating Repository Data from Analytics Database to Postgres on a Single System 20
Migrating Repository Data from Analytics Database to Postgres on Another System 22
Migrating Repository Data from Analytics Database to Postgres in the Cloud 24
Migrating Repository Data from Postgres to Postgres 26
Properties.xml File 27
dsainputs File 30

Chapter 4: Repo Migration from Postgres to Postgres Using PG_DUMP Utility 34
Generate dsa_inputs.yml on Old DSC 34
Postgres to Postgres Migration on New DSC 34
Sample dsa_inputs.yml 35

Chapter 5: Installing Software 37
Deploying on VMware 37
Dependencies 37
DSA Package Names 38
DSU Software Installation Workflow 40
Installing Software with Scripts 40
Verifying Installation 54

Verifying Teradata Connection to the ActiveMQ Server 54

Chapter 6: Configuring DSU after Installation 56
Setting Up SSL or TCP for JMS Workflow 56
Restarting DSA Services 60

Chapter 7: Configuring Storage Devices and Ports 62
Setting Up an NFS Environment for NFS Mounted Storage 62
Configuring the NFS Client Service 63
Setting Up Data Domain with Boost 63
Setting Up Data Domain for NFS Storage 63
Setting Up an NFS Environment for Managed Server Storage 64
DSA Ports 65

Chapter 8: Configuring Portlet Software 68
Configuring Viewpoint and BAR Setup 68
Enabling BAR Portlets 68
Adding Teradata System and Dictionary Collector to BAR Portlets 69
Enabling or Adding a DSC Server 70
Adding or Editing a Teradata System 71
Verifying the Media Server 73
Configuring Network Fabric: Portlets 74
Configuring a Backup Solution 75
Adding or Copying a Target Group 79

Chapter 9: Upgrading Software 82
Backing Up DSC Repository and Configuration Before Upgrading 82
Upgrading DSA Software Using Scripts or rpm 83
Upgrading the Database to 16.0 or Later 84
Resolving Failed Upgrades 84

Chapter 10: Teradata Vantage on VMware on DSU 85
Downloading Teradata DSC for VMware for DSU 86
Deploying Teradata Vantage on VMware for DSU 86
Using a TPA Node as a Media Server with VMware 87
Set Up a Backup Location 88
Resolving Connection Warning: Adding Source Teradata System 88
Default Usernames and Passwords 90
Extracting the DNS Servers, DNS Search Domains, NTP Servers, and OS TimeZone from Viewpoint/TPA Nodes 90

Appendix A: DSA Properties 93

Appendix B: Administrative Tasks 100

:

Appendix C: Troubleshooting 103

Contents

Appendix D: Ports for DSA Solutions **105**

Appendix E: Using PUT for Install and Upgrade **108**

Appendix F: Additional Information **118**

Overview

Welcome to Teradata DSA - DSU Installation, Configuration, and Upgrade Guide

Using the Teradata DSA - DSU Installation, Configuration, and Upgrade Guide

Teradata® Data Stream Utility (DSU) is one of the components of Data Stream Architecture (DSA). DSU is used for public cloud solutions.

Why Would I Use this Content?

This content explains how to work with DSU to manage sites without a need for the extended footprint offered by Teradata Data Stream Extensions (DSE).

How Would I Use this Content?

Use this content to learn how to manage sites without an intervention with Teradata DSE. DSU offers these backup targets:

- Disk file systems
- Dell EMC Data Domain
- Amazon S3
- Azure Blob
- Google Cloud

How Do I Get Started?

Start with DSU Typical Implementation to know how to install these components:

- Analytics Database / Teradata Database node(s) DSA
- DSC server, VM, AWS, Azure, GCP
- Viewpoint server

References to Other Relevant Content

Refer to Related Documentation for more information on various DSA components' systems and configurations.

Introduction to Data Stream Architecture

Teradata® Data Stream Architecture (DSA) enables you to back up and restore Teradata system data. DSA is optimized for Teradata MPP Architecture. It integrates with the Teradata® Viewpoint portlets: BAR Setup

and BAR Operations. The portlets provide user interfaces to Teradata DSA that are similar to other Teradata ecosystem components. This integration uses Viewpoint account management features and enhances usability. Teradata DSA also provides a command-line utility that you can use to configure, initiate, and monitor backup and restore jobs.

Data Stream Extensions and Data Stream Utility

Beginning with DSA 15.10, the product has been bundled into two components: Data Stream Extensions (DSE) and Data Stream Utility (DSU). Both components offer BAR portlet and command line functionality.

- DSE adds support for third-party backup applications. DSE offers advanced enterprise backup tools, such as scheduling, retention policies, archiving and allows customers to backup up directly to tape. DSE offers these backup targets:
  - Disk file systems
  - Veritas NetBackup
  - IBM Spectrum Protect
- DSU does not offer third-party backup application support. DSU is a solution offered for sites without a need for the extended footprint offered by Teradata DSE. DSU is also used for public cloud solutions. DSU offers these backup targets:
  - Disk file systems
  - Dell EMC Data Domain
  - Amazon S3
  - Azure Blob
  - Google Cloud

  In a typical DSU use case, the DSA Network Client (ClientHandler) is installed on the Teradata nodes, the DSC server is provided in a VM format, and a simple NFS environment is set up for use as a storage location for the backup files. A managed storage server can also act as a host server to the NFS environment if needed. When a Data Domain unit is used, EMC Data Domain Boost for DSU (DD Boost) allows a direct connection to the unit without using a third-party backup application.

  Note that DSA consumes a certain amount of memory on the Teradata nodes. The amount of consumption depends on factors such as the following:

  - Number of objects in the job plan
  - Configuration, including how many nodes and many streams
  - Throughput

  For an estimate you can use the following:

Fixed consumption	`2MiB + (Number of streams per node x 4MiB)` `Number of AMPs per node x 15MiB`
Variable consumption	With 80K objects, consumes around 1-2GiB per node (not constant consumption): `20MiB + (Number of objects x 400) + ((Total number of streams x 400) x 3)`

	For example, with 80K objects, 4000 total streams ~60MiB

Server Functionality

Server functionality includes the following servers:

- DSC server, which controls all BAR operations and is a part of all configurations. A DSC server must have the Data Stream Controller (DSC) installed.

  Teradata DSC can be installed on a physical server, AWS, Azure, Google Cloud, or a VM (Teradata DSC on VMware) and back up and restore data from and to the database on-premises, in AWS, Azure, Google Cloud, or VMware.
- Media server (physical or logical), which writes to the target storage device. A media server must have the DSA Network Client (ClientHandler) installed.

A machine in a DSA configuration can include different types of server functionality. For example, the managed storage server in a DSU configuration functions as disk storage, the DSC server, and a media server. In another configuration, the DSC server could be a standalone server.

Backup Solutions

DSA backup solutions can include any of the following:

- Dell EMC Data Domain
- Quantum Tape
- Disk file system
- Third-party backup application software, such as NetBackup or IBM Spectrum Protect
- Amazon S3
- Azure Blob
- Google Cloud Platform

Determining the Installation Environment

The hardware and software components in a DSU system can be installed and used in different configurations, depending on your environment requirements. For example, the DSC repository and software can be installed on a VM, a managed storage server, or in the public cloud. DSA Network Client (ClientHandler) software can be installed on an Analytics Database/Teradata Database node, on a managed storage server, or in the public cloud. Node performance and storage location are two factors in determining your installation environment.

How important is node performance?

If node performance is critical, install DSC and DSA Network Client (ClientHandler) software on a managed storage server so that the database nodes do not have to perform BAR processing functions.

If node performance is not as critical as hardware availability and cost, consider installing and running DSC on a VM, and DSA Network Client (ClientHandler) on the database nodes. A typical DSU implementation has ClientHandler on the database node, and DSC on a DSC server or VM.

Determine storage configuration

The first question to answer in configuring storage is the storage location for backup data. For example, will the managed server be used as the storage location? If so, does the environment also include an NFS? If not, will DD Boost be installed? For environments using NFS, you need to set the NFS mount points. For environments using DD Boost, Amazon S3, Azure Blob, or Google Cloud you need to install the access module.

Storage Options

The following table describes the storage option configurations available for DSU.

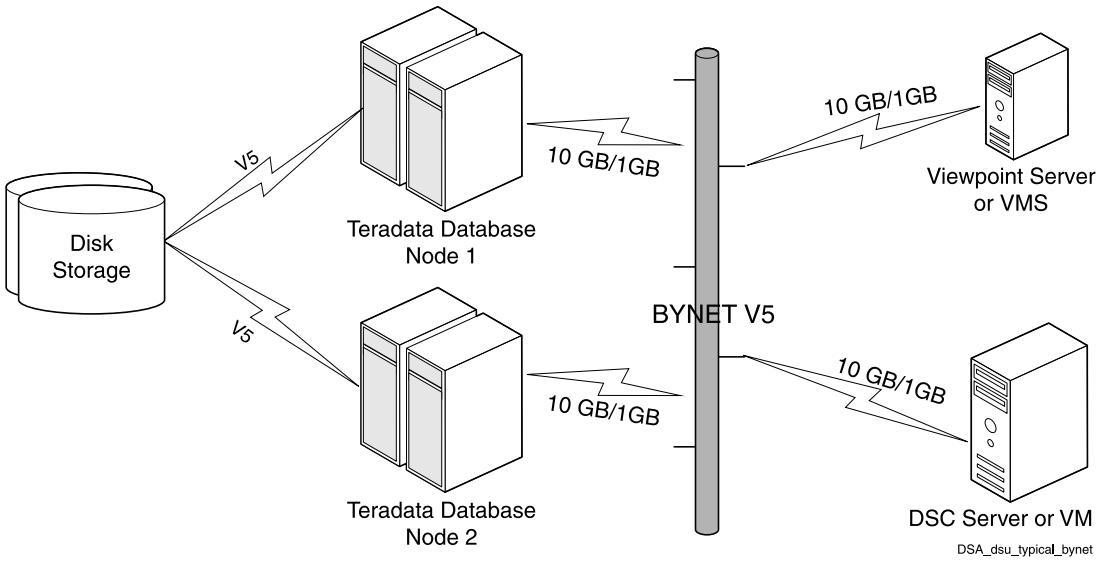
Storage Option	Description
NFS environment for NFS mounted storage	You can provide and manage a server that can serve an NFS environment, then create NFS mount points that are the target folders for backup files created by DSU backup jobs.
Data Domain with Boost	In a DSU Data Domain for Boost configuration, DSA Network Client (ClientHandler) can connect directly to the Data Domain unit.
Data Domain for NFS storage	You can mount Data Domain storage units to NFS mount points, which allows the system to function as an NFS environment.
NFS environment for managed storage server	The managed storage server has drives that you can use as your storage solution if you set up an NFS environment. The NFS mount points are the target folders for backup files created by DSU backup jobs.
Amazon S3 Account	You can back up from on-premises to Amazon S3 storage.
Azure Blob Storage	You can back up from on-premises to Azure Blob storage.
Google Cloud Storage See *Teradata® DSA User Guide* for command line instructions.	You can back up from on-premises to Google Cloud storage.

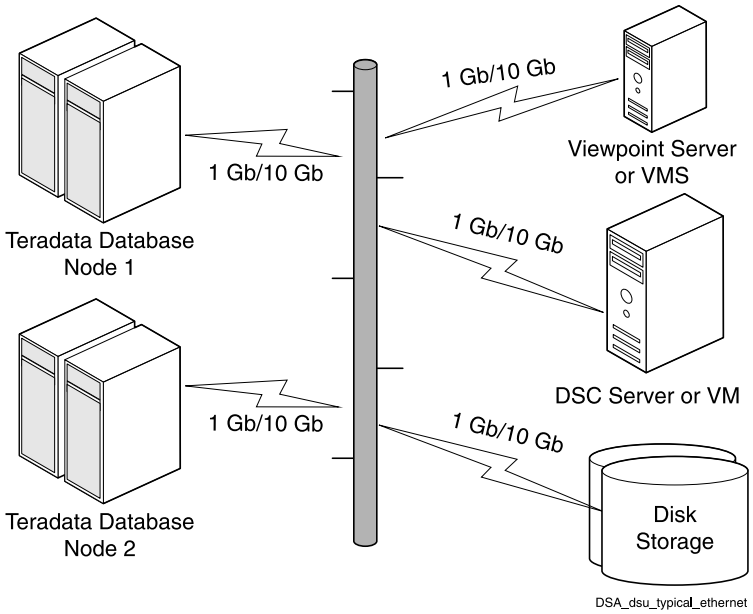
DSU Typical Implementation

In a typical DSU implementation, there are one or more storage disks, each of which are mounted to an Analytics Database/Teradata Database node. The following components are installed.

Server	Components Installed on Server
DSC server, VM, AWS, Azure, GCP	• DSC component

Server	Components Installed on Server
	• DSC repository
Analytics Database / Teradata Database node(s)	DSA Network Client (ClientHandler)
Viewpoint server	BAR portlets

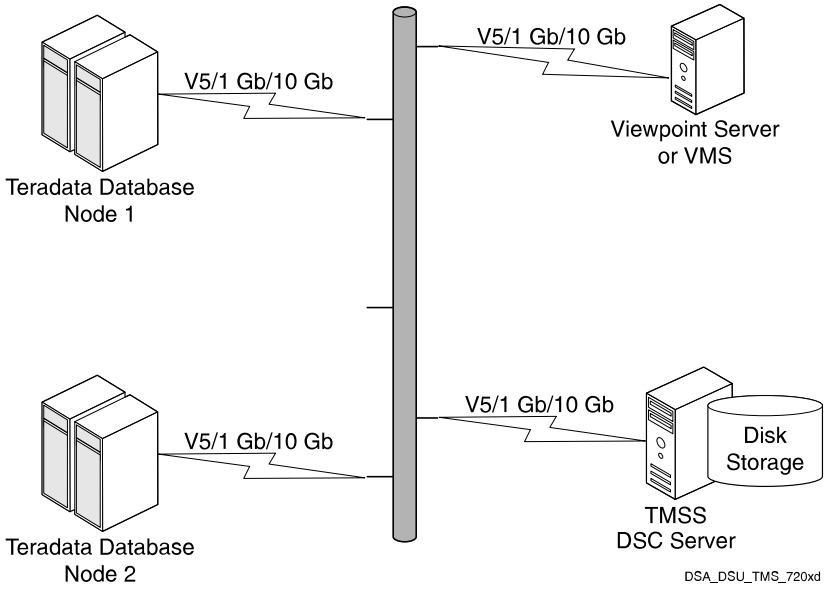




DSU Implementation of a Storage Device, DSC Server, and Media Server on a Managed Storage Server

This DSU solution establishes the managed storage server as a DSC server which also functions as disk storage and a media server. The following components are installed:

Server	Components Installed on Server
Managed Storage Server	• DSC component • DSC repository • DSA Network Client (ClientHandler) • BARCmdline
Viewpoint Server	BAR portlets



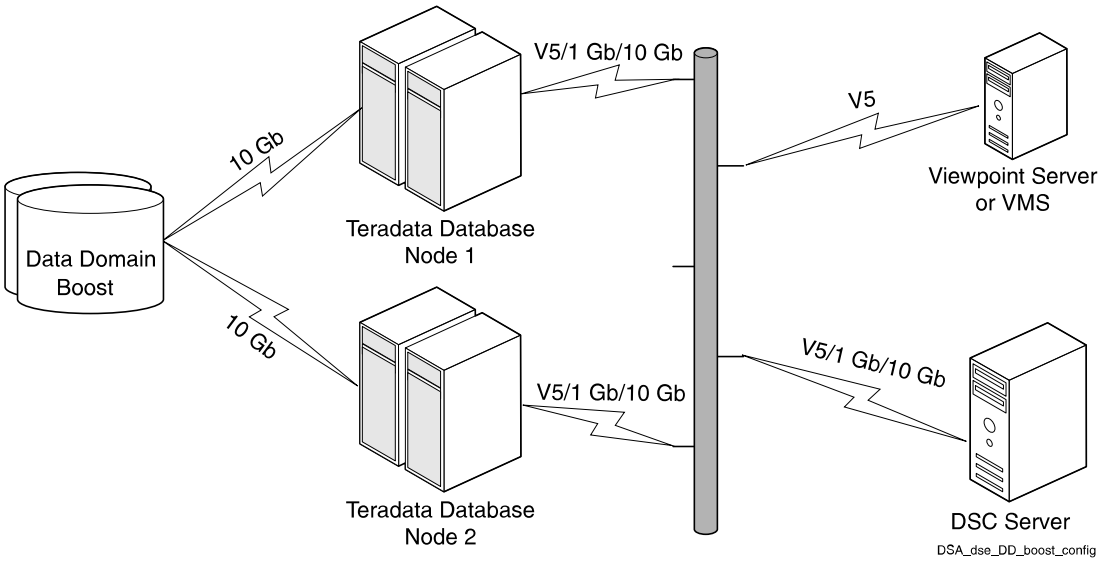
Data Domain Boost Implementation 1

This Data Domain Boost implementation has Data Domain units directly connected to the Analytics Database / Teradata Database nodes and has the following components installed:

Server	Components Installed on Server
DSC server	• DSC component • DSC repository
Analytics Database / Teradata Database node	• DSA Network Client • DSA Data Domain Boost Access Module

Distributed Segment Processing, or DSP, performs many of the data deduplication functions on the backup server, eliminating the need to transmit duplicate data across the network. The DSP flag can be set to ON or OFF on database nodes.

Data Domain Boost Configuration 1



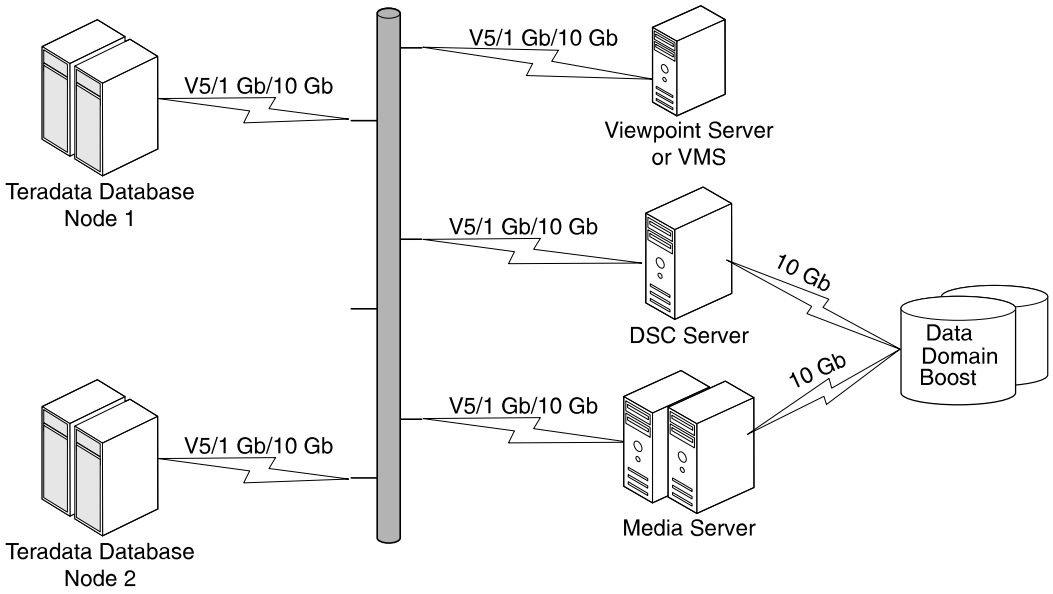
Data Domain Boost Implementation 2

In this Data Domain Boost implementation, the Data Domain is connected to the DSC server and BAR media servers. The following components are installed.

NOTICE

BAR media server software can also be installed on the BAR DSC Server.

Server	Components Installed on the Server
DSC server	• DSC component • DSC repository • DSA Data Domain Boost Access Module • DSA Network Client
BAR media server	• DSA Network Client • DSA Data Domain Boost Access Module



Distributed Segment Processing, or DSP, performs many of the data deduplication functions on the backup server, eliminating the need to transmit duplicate data across the network. The following flags are set to accomplish this task:

- The DSP flag should be set to ON for media servers.
- The DSP flag can be set to ON or OFF on database nodes.

Dependencies

DSC Server Software Specifications

Software	Level
Operating system	• Teradata SUSE Linux Enterprise Server 12 SP3 • Teradata SUSE Linux Enterprise Server 11 SP3 **Note:** This version is based on the original installation media and customized by Teradata OS Engineering for installation on Teradata Enterprise Data Warehouse systems.
Postgres and Postgres Server rpm for the DSC repository (DSA 17.02.00.00 to <DSA 17.10.01)	SLES 11 SP3: 10.10-0.2.14 SLES 12 SP3: 10.10-1.15.1
Postgres and Postgres Server rpm for the DSC repository (DSA 17.10.01.00 to <DSA 17.20.00.00)	SLES 11 SP3: 10.15-4.9.1 SLES 12 SP3: 10.15-4.9.1
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.00.00 and later)	SLES 11 SP3 : 10.17-0.2.30 SLES 12 SP3 : 10.17-4.16.4

Software	Level
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.00.03 and later)	SLES 11 SP3 : 10.17-0.2.30 SLES 12 SP3 : 10.17-4.16.4 SLES 15 SP2 : 10.17-4.16.4
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.03.00 and later)	SLES 11 SP3 : 10.22-0.2.46 SLES 12 SP3 : 10.22-4.31.1 SLES 15 SP2 : 10.22-150100.8.50
Teradata JDK package	Install JDK on any server where BARCmdline is installed. Version11 (teradata-jdk11)
Teradata ActiveMQ	Version 5.17.2 (requires Teradata JDK Version 11)
DSAPostAMQ	Required to configure Teradata ActiveMQ

Note:

- The Teradata Managed Server for DSC Server functionality can reside on a virtual machine (VM) or a managed storage server.
- The Relay Services Gateway (RSG) virtual processor is required for DSA installation for both the TPA nodes and the DSC Server. Configure the RSG virtual processor for your installation, but do not install the RSG package.

Media Server Software Specifications

Software	Level
Operating system	• SUSE Linux Enterprise Server 11 SP3 • SUSE Linux Enterprise Server 12 SP3
Teradata JDK	Teradata JDK is required only if the DSA command line (BARCmdline) is installed on this server.

Related Software Specifications

Software	Description
Teradata Viewpoint	Minimum version: • 16.50.01.00 • 16.20.23.05

Teradata Managed Storage Server (TMSS) - Software Specifications

Software for the R720xd, R730xd, and R740xd servers

Software	Description
nfsserver	Manages an NFS environment

Note:

A CMIC upgrade to Version 11.06 or later is required.

Configuring the Environment Before Installing

If you plan to deploy on VMware, see Teradata Vantage on VMware on DSU.

Synchronizing Time on the Servers

The time must be synchronized between all servers in the DSA environment so that messages expired from the ActiveMQ server are not lost. The servers include:

- DSC server
- DSA media server
- Viewpoint server
- DBS node(s)

The servers should be set in the same time zone with teradata-ntp to achieve synchronization of timestamps.

Use this procedure for each server in the DSA environment.

1. Log on as `root` to the server.
2. Open and edit `/etc/ntp.conf`.
3. Add the following to the end of the file where *host* is the hostname of the time server:
   `server` *host*
   For example:

   ```
   server time00.teradata.com
   ```

4. To verify that the NTP service runs when the server starts up, type:
   `chkconfig ntp on`
5. To restart the NTP service manually, type:
   `/etc/init.d/ntp restart`

Adding the TDPID to the /etc/hosts File on each TPA Node

Add the Teradata system name to the `/etc/hosts` file on each TPA node. It must be added to the TPA node that hosts the master DSmain process (usually the highest numbered node, excluding hot standby nodes) plus all the other nodes to make sure that DSA still works when the highest numbered node is out of the configuration.

- On each TPA node, edit the `/etc/hosts` file:
  `vi /etc/hosts`
  Change `127.0.0.1 localhost` to
  `127.0.0.1 localhost` *TDPID*
  or

```
127.0.0.1 localhost TDPIDcop1
```

Optimize the Network Settings

For the BAR data network adapters on both the BAR server and the Analytics Database / Teradata Database nodes, configure the MTU size to be 9000. The BAR DSC data network adapter MTU size can be left as the default and does not have to be changed.

Important:

All equipment on the same network must support the same frame size. If you increase the MTU size, your switch must be able to pass these larger frames and all end devices need to handle the larger frames.

Update the FSG Cache

On the managed storage server, make sure the FSG cache is 45%.

Migrate the DSC from Analytics Database to Postgres

Starting with DSA 17.02.00, the DSC repository runs on a Postgres database instead of Analytics Database.

- If you are doing a fresh install of DSA, see Installing Software.
- If you are migrating an existing DSC, see Preparing to Migrate the DSC.

Postgres is installed on the same machine as the DSC.

Preparing to Migrate the DSC

Before you migrate to DSA 17.02 or later (with Postgres) you must back up your current repository then upgrade your current DSA system to 16.20.54 or later. Back up the repository after each upgrade.

Back Up the Existing Repository

1. Run a repository backup on the current DSC. See Backing Up DSC Repository and Configuration Before Upgrading.
2. If the DSC is not on 16.20.54 or later, upgrade the DSC. See Installing Software with Scripts.
3. If you upgrade the DSC, run the repository backup again.

Locate this Information

4. See Gather Information before You Begin and collect this information.

Migrating Repository Data from Analytics Database to Postgres on a Single System

Follow these instructions to migrate the DSC to a Postgres repository on the same system.

Important:

- This process installs Teradata Parallel Transporter (TPT) and Postgres if they are not already installed.

  If the TPT install fails, you must manually install it and if necessary, CLIv2.

  - If the DSC is currently on Teradata Database 15.10, both TPT and CLIv2 must be version 15.10.
  - If the DSC is currently on Analytics Database 16.20, both TPT and CLIv2 must be version 16.20.
- A folder, `pgdata`, is created during this process. Do not delete it or its content until the migration is successfully completed.

---

1. ssh to the DSC system and navigate to a folder where you have enough free space to export the BAR repository.
2. Download `DSAMetaDataMigrator__sles11-12_x8664.17.xx.xx.xx-xxx.tar.gz` from the Teradata Software server (https://support.teradata.com) and transfer to the DSC system.
3. Extract the content.
   `tar -xvzf DSAMetaDataMigrator__sles11-12_x8664.17.xx.xx.xx-xxx.tar.gz`
4. Go to the extracted folder and run the following steps from there.
5. Install python3 and its dependency module.
   `installpython3.sh`
6. Generate a property file using these commands:
   - On SLES15 run `python3 runAutoMigration.py - g`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
   - On SLES11.3 run `./runAutoMigration.py - g`

   This generates a `properties.xml` file prepopulated with values available from the DSC installation. Use this file as input for rest of the options.
7. Edit `properties.xml` to update it with credentials of DSC box, systems and and media servers. More information about `properties.xml` (and a commented sample) can be found in Properties.xml File.
8. Export the metadata:
   - On SLES15 run `python3 runAutoMigration.py - e`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - e`
   - On SLES11.3 run `./runAutoMigration.py - e`

   The metadata from from the Teradata repository is exported to a flat file in .csv format in a folder called pgdata.
9. Run `./dscinstall.sh -r DSC.17.xx.xx.xx-xxxxxx.rpm` to upgrade the currently installed DSC version to new DSC version DSC 17.xx.00.00 having Postgres as the repository.
   Be sure to use the same credentials as are put in the properties file.
10. Verify DSC with REST API is running.
    `/etc/init.d/dsc status`

    Note:

    If DSA >=17.20.04.00 then, run `$DSA_DSC_ROOT/postgres_access.sh -t disable`

    ---

11. Import the metadata from the flat files to the new repository.
    - On SLES15 run `python3 runAutoMigration.py - i`
    - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - i`
    - On SLES11.3 run `./runAutoMigration.py - i`

    This imports the exported data from flat file to Postgres database. If not in silent mode, and any user data is present in the Postgres repo, user is asked if clean up can proceed.

12. [Optional] Validate the import process.
    - On SLES15 run `python3 runAutomigration.py - v`
    - On SLES12.3-TDC/STND run `python3.6 runAutomigration.py - v`
    - On SLES11.3 run `./runAutoMigration.py - v`

    This validates the export and import process by comparing the number of rows for each table in the Teradata repo and Postgres.
13. Reconfigure the new DSC.
    - On SLES15 run `python3 runAutoMigration.py - r`
    - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - r`
    - On SLES11.3 run `./runAutoMigration.py - r`
14. Download and upgrade the ClientHandler, Access Modules, and the BAR command line components (See Installing Software with Scripts). In case you have ClientHandler locally installed to new DSC, then make sure it's up and running.

Note:

If DSA >=17.20.04.00 then run, `$DSA_DSC_ROOT/postgres_access.sh -t disable`

Migrating Repository Data from Analytics Database to Postgres on Another System

In a multiple DSC environment, target groups must have different names on each DSC. For example, use target_group_a and target_group_a1.

Important:

- This process installs Teradata Parallel Transporter (TPT) and Postgres on the new system if they are not already installed.

  If the TPT install fails, you must manually install it and if necessary, CLIv2.
  - If the DSC is currently on Teradata Database 15.10, both TPT and CLIv2 must be version 15.10.
  - If the DSC is currently on Teradata Database 16.20, both TPT and CLIv2 must be version 16.20.
- A folder, `pgdata`, is created during this process. Do not delete it or its content until the migration is successfully completed.

---

1. ssh to the new DSC system and navigate to a folder where you have enough free space to export the BAR repository.
2. Download `DSAMetaDataMigrator__sles11-12_x8664.17.xx.xx.xx-xxx.tar.gz` from Teradata Software server and transfer to the DSC system.

3. Extract the content.
   `tar -xvzf DSAMetaDataMigrator__sles11-12_x8664.17.xx.xx.xx-xxx.tar.gz`
4. Go to the extracted folder and run the subsequent steps from there.
5. Install python3 and its dependency module.
   `installpython3.sh`
6. Generate a property file using these commands:
   - On SLES15 run `python3 runAutoMigration.py - g`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
   - On SLES11.3 run `./runAutoMigration.py - g`

   This generates a `properties.xml` file prepopulated with values available from the DSC installation. This step assumes it's being created on the source system so it can update the DSC server details. Use this file as input for rest of the options.
7. Edit `properties.xml` to update it with credentials of DSC boxes.
   More information about `properties.xml` (and a commented sample) can be found in Properties.xml File.
8. Export the metadata:
   - On SLES15 run `python3 runAutoMigration.py - e`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - e`
   - On SLES11.3 run `./runAutoMigration.py - e`

   The metadata from from the Teradata repository is exported to a flat file in .csv format in a folder called pgdata.
9. Run `./dscinstall.sh -r DSC.17.xx.xx.xx-xxxxxx.rpm` to install DSC 17.xx.00.00 on the new system with Postgres as the repository.
   Be sure to use the same credentials as are put in the properties file.
   Make sure DSC and REST service is up and running after installation. In case you have client handler locally installed to new DSC, then make sure it's up and running.
10. Verify DSC with REST API is running.
    `/etc/init.d/dsc status`

    Note:

    If DSA >=17.20.04.00 then, run `$DSA_DSC_ROOT/postgres_access.sh -t disable`

    ---

11. Import the metadata from the flat files to the new repository.
    - On SLES15 run `python3 runAutoMigration.py - i`
    - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - i`
    - On SLES11.3 run `./runAutoMigration.py - i`

    This imports the exported data from flat file to Postgres database. If not in silent mode, and any user data is present in the Postgres repo, user is asked if clean up can proceed.
12. [Optional] Validate the import process.

- On SLES15 run `python3 runAutoMigration.py - v`
- On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - v`
- On SLES11.3 run `./runAutoMigration.py - v`

This validates the export and import process by comparing the number of rows for each table in the Teradata repo and Postgres.

13. [Optional] Reconfigure the new DSC.
    a. Update the properties file with media servers and systems details.
       - On SLES15 run `python3 runAutoMigration.py - g`
       - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
       - On SLES11.3 run `./runAutoMigration.py - g`
    b. Edit `properties.xml` with the credentials of the systems and media servers.
    c. Run configuration.
       - On SLES15 run `python3 runAutoMigration.py - r`
       - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - r`
       - On SLES11.3 run `./runAutoMigration.py - r`
14. Download and upgrade the ClientHandler, Access Modules, and the BAR command line components (See Installing Software with Scripts.

Note:

If DSA >=17.20.04.00 then, run `$DSA_DSC_ROOT/postgres_access.sh -t disable`

Migrating Repository Data from Analytics Database to Postgres in the Cloud

1. Using its public IP, ssh to the cloud VMs having DSC 17.xx. For example:
   `ssh -i acess_key.pem` *ec2-user@34.221.73.10*
2. Change to super user using command `sudo su -`.
3. Go to `/var/opt/teradata/dsu-migration/DSAMetaDataMigrator.17.xx.xx.xx/pkgs/`
4. Generate a property file using this command:
   - On SLES15 run `python3 runAutoMigration.py - g`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
   - On SLES11.3 run `./runAutoMigration.py - g`

   This generates a `properties.xml` file prepopulated with values available from the DSC installation. This step assumes it's being created on the source system so it can update the DSC server detail. This generated file can be used as input for rest of the other options.
5. Edit `properties.xml` to update it with credentials of DSC.

More information about `properties.xml` (and a commented sample) can be found in Properties.xml File.

6. Export the metadata:
   - On SLES15 run `python3 runAutoMigration.py - e`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - e`
   - On SLES11.3 run `./runAutoMigration.py - e`

   The metadata from from the Teradata repository is exported to a flat file in .csv format in a folder called pgdata.
7. Verify DSC with REST API is running.
   `/etc/init.d/dsc status`

   Note:

   If DSA >=17.20.04.00 then, run `$DSA_DSC_ROOT/postgres_access.sh -t enable`

   ---

8. Import the metadata from the flat files to the new repository.
   - On SLES15 run `python3 runAutoMigration.py - i`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - i`
   - On SLES11.3 run `./runAutoMigration.py - i`

   This imports the exported data from flat file to Postgres database. If not in silent mode, and any user data is present in the Postgres repo, user is asked if clean up can proceed.
9. Validate the import process.
   - On SLES15 run `python3 runAutoMigration.py - v`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - v`
   - On SLES11.3 run `./runAutoMigration.py - v`

   This validates the export and import process by comparing the number of rows for each table in the Teradata repo and Postgres.
10. Reconfigure the new DSC.
    a. Generate another property file using these commands:
       - On SLES15 run `python3 runAutoMigration.py - g`
       - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
       - On SLES11.3 run `./runAutoMigration.py - g`

       This generates a property file containing details for media servers and systems.
    b. Edit `properties.xml` with credentials of media servers and systems.
    c. Run the reconfiguration:
       - On SLES15 run `python3 runAutoMigration.py - r`
       - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - r`
       - On SLES11.3 run `./runAutoMigration.py - r`

Migrating Repository Data from Postgres to Postgres

1. Run a repository backup on DSC old source.
2. Restore repository on target or new DSC source.

Note:

When latest bootstrap file is available and can be copied to new DSC source, follow these steps.

---

a. Create DFS/AWS/Azure/etc, Media Server and Replication target group on new DSC machine.
b. Copy the bootstrap_<backupID>.out in the landing zone from old DSC machine to the new DSC machine.
   default is: /var/opt/teradata/dsa/postgres
c. Go to
   `/opt/teradata/client/17.20/dsa/dsc`
d. User:
   `su dscuser`
e. Restore the repository:
   `sh recover.sh -m recovery`
f. Get <backupID> from replication target group.
   `h recover.sh -m replicate_from -v 1602081495349 -r file_replicating_tg`
   For example, h recover.sh -m replicate_from -v 1602081495349 -r file_replicating_tg
g. Check the replication status:
   `sh recover.sh -m save_sets_replication_status`
h. Restore the backup:
   `sh recover.sh -m restore -v <backupID>`
   For example, sh recover.sh -m restore -v 1602081495349
i. Restart DSC after successful restore.

Note:

When latest bootstrap file is not available, follow these steps.

---

a. Update Media Server on old DSC to communicate with New DSC as well.
   Append new DSC ActiveMQ IP to `broker.list` in `clienthandler.properties` to point to new DSC.
b. To configure with new DSC, restart media:
   `/etc/init.d/clienthandler restart-hwupgrade`
c. Configure backup solution (DFS/AWS/Azure/etc), Media and Target Group similar to old DSC for replication.
d. Go to
   `/opt/teradata/client/17.20/dsa/dsc`

e. User:
`su dscuser`

f. To check the list of backup IDs available on replication target group:
`sh recover.sh -m list_backupids -r replicating_target_group`

g. Get <backupID> from replication target group.
`sh recover.sh -m replicate_from -v <backupID> -r <replicationTargetGroupName>`
For example, sh recover.sh -m replicate_from -v 1603437512425 -r gcp_tg

h. Restore the backup.
`sh recover.sh -m restore -v <backupID>`
For example, sh recover.sh -m restore -v 1603437512425

i. Restart DSC after successful restore.

3. Modify DSC name on new DSC.
   a. Go to
   `/opt/teradata/client/17.xx/dsa/dsc`
   b. To modify the DSC name, run the command:
   `./modify_dsc_name.sh`
4. Reconfigure systems and media on new DSC.
   a. Download
   DSAMetaDataMigrator__sles11-12-15_x8664.17.20.xx.xx-xxx.tar.gz
   b. To extract the content:
   `tar -xvzf DSAMetaDataMigrator__sles11-12-15_x8664.17.20.xx.xx-xxx.tar.gz`
   c. Go to the extracted folder.

Important:

Perform the following steps in this extracted folder.

---

   d. To install python3 and its dependency module:
   `./installpython3.sh`
   e. To generate `properties.xml`run the command:
   `./runPostgres2PostgresMigration.py -g`
   f. Modify `properties.xml` (generated in the previous step) with new DSC Systems and Media Server login credentials.
   g. Run the command to reconfigure DSC. This script re-configures the connected Systems and Media Servers with new DSC.
   `./runPostgres2PostgresMigration.py -r`
   h. The `properties.xml` file will be removed on successful reconfigure.

Properties.xml File

The `properties.xml` file contains input parameters for the `DSAMetaDataMigrator` application. It includes credentials and associated information for DSC, systems and media servers in XML format. A template file is generated using the application.

- Generate the template properties.xml file using the following commands. The file is created in the current directory.
  - On SLES15 run `python3 runAutoMigration.py - g`
  - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - g`
  - On SLES11.3 run `./runAutoMigration.py - g`
- The generated file includes all the information available in system as part of DSC installation.
- You must fill in the missing information before using the input file.
- If passwords are not in the file, the system prompts for the credentials while running the app.
- To avoid prompts during execution, you can set `<silentmode>` to `yes` and you must record passwords in the file.
- Media server and system detail can be updated for this file after export operation on the target or new DSC system.
- Cloud platform:
  - To ssh to the DSC VM using a `.pem` file, you must provide the path of the `.pem` file in the `<private_key_file>` tag and the user name in the `<private_username>` tag.
  - Without a `.pem` file, you can ssh and enter user name and password.
  - When using `.pem` file for cloud, do not enter values for `<systemusername>` and `<systemuserpass>` in the `properties.xml` file, they will override the values in the `.pem` file.

Sample properties.xml File

```
<data>
<!-- This properties.xml is the input file having parameters required
during migration
     Credential provided in this file is not encrypted
     Migrator application delete this file after successful migration
     In case of failure or partial migration, file remain present so user
should delete
     when not in use -->

<!-- provide path of the pem file along with user name for authentication on
cloud platform-->

<!--
<private_key_file>/var/opt/teradata/scripts/access_key.pem</private_key_file>
<private_username>ec2-user</private_username>
```

```
-->

<!-- set silent mode YES in case don't want to get prompt during migration
process -->
<silentmode></silentmode>

<!-- provide old DSC detail -->
<olddscserver>
  <systemname></systemname> <!-- system name -->
  <tdrepohost></tdrepohost> <!-- host of the Teradata repo, default is DSC
system -->
  <tdrepodbname></tdrepodbname> <!-- name of the Teradata repo DB, default is
bar (please do not edit) -->
  <tdrepodbpass></tdrepodbpass> <!-- Teradata repo (bar) DB password (should not
include space, single or double quotes) -->
  <brokerurl></brokerurl> <!-- broker URL of the old DSC -->
  <systemusername></systemusername> <!-- user name of the old DSC system -->
  <systemuserpass></systemuserpass> <!-- password of the old DSC system (should
not include space, single or double quotes) -->
</olddscserver>

<!-- provide new DSC detail -->
<dscserver>
  <dsaresthost></dsaresthost> <!-- system name hosting dsarest, defualt is DSC
server -->
  <dsarestport></dsarestport> <!-- port of the dsa rest server -->
  <dsarestwebservice></dsarestwebservice> <!-- dsa rest web service, it can be
https or http -->
  <brokerurl></brokerurl> <!-- broker URL of the new DSC -->
  <brokerport></brokerport><!-- broker port of the new DSC -->
  <pgrepohost></pgrepohost> <!-- host of the Postges repo, default is DSC
system -->
  <pgrepodbname></pgrepodbname> <!-- name of the Postgres repo DB, default is
bar (please do not edit) -->
  <pgrepodbpass></pgrepodbpass> <!-- Postgres repo (bar) DB password (should not
include space, single or double quotes) -->
</dscserver>

<!-- provide list of media servers to be reconfigured -->
<mediaservers>
  <mediaserver>
    <mediaservername></mediaservername> <!-- name of the media server  -->
    <username></username> <!-- user name for the media server  -->
    <password></password> <!-- password of the media server (should not include
```

```
space, single or double quotes) -->
  </mediaserver>
</mediaservers>

<!-- provide list of systems to be reconfigured -->
<systems>
  <system>
    <systemname></systemname> <!-- system name -->
    <db_username></db_username> <!-- database user name -->
    <db_password></db_password> <!-- database password (should not include
space, single or double quotes) -->
    <system_username></system_username> <!-- user name of the system (master
node) -->
    <system_password></system_password> <!-- password of the system (master
node) -->
  </system>
</systems>
</data>
```

dsainputs File

Use the existing `dsainputs` file in the `/tmp` location to edit the new `dsainputs_template` file that you just downloaded. Save the new file as dsainputs in the `/tmp` location.

Parameter	Component	Description
BROKERLIST	ClientHandler	List of broker:port pairs separated by a comma. For example: dsasrv1:61616
BURL	DSC, ClientHandler, BAR Command Line	Hostname or IP address of the machine running the JMS broker (ActiveMQ). Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.
BPORT	DSC, ClientHandler, BAR Command Line	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616
LANDINGZONE	DSC	`/var/opt/teradata/dsa/postgres` Default location for DSC repository backup files. Temporary location before replication to the target group.
CONNECTION	DSC, ClientHandler, BAR Command Line, BARPortlets	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp
DSCNAME	DSC, BAR Command Line	Unique name for the DSC server. Maximum of 128 characters: alphanumeric, "-", and ".".

Parameter	Component	Description
		The first character of the name can be alphanumeric (a-z, A-Z, and 0-9) only. **Important:** DSCNAME must be specified for an upgrade or the repository restore from the previous version will fail. Analyze_read jobs may also fail.
CBBFILEPATH	ClientHandler	The path needed for Change Block Backup temporary file storage: `/var/opt/teradata/dsa/cbb`
POSTGRESSPASSWORD	DSC	Password for Postgres user. No space, ', or " allowed.
ISMASTER	ClientHandler	Specify yes or no on whether this server is the Web Service master server used in incremental job communication.
MASTERHOSTNAME	ClientHandler	Specify the host name of the Web Service master server used in incremental job communication.
VIEWPOINTURL	DSC	Hostname or IP address of the Viewpoint server.
VIEWPOINTPORT	DSC	Port number of the Viewpoint server.
CAMPRIMARYURL	DSC	Hostname or IP address of primary CAM system, which enables alert messaging
CAMPRIMARYPORT	DSC	CAM port number of primary CAM system. Default: 61616. [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.
CAMCLUSTERENABLED	DSC	Flag for enabling CAM clustering
CAMCLUSTERURL	DSC	Hostname or IP address of primary and failover CAM systems, which enable alert messaging
CAMCLUSTERPORT	DSC	CAM port number for clustered environment. This has the same value as CAMPRIMARYPORT. Default: 61616. [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.
DSARESTPORT	DSC	Port number for DSARest Web Service running on DSC server. Default: 9090.
DSARESTSCHEME	DSC	DSARest Web Service scheme, http or https. Default: https.
KEYSTOREPASS	DSC	Required if DSARESTSCHEME is https. Password for keystore. Minimum of 6 characters. No space, ', or " allowed. If JMS SSL is enabled, this password must match SSLKEYSTOREPASSWORD.
BARPASSWORD	DSC	Password for the BAR user. Used for Create, Read, Update and Delete (CRUD) operations on BAR. No space, ', or " allowed.
SERVERID	ClientHandler	The server ID is the name of a DSA media server, and is a unique logical name across a single DSA domain. It is defined using SQL 92 syntax and used as the selector

Parameter	Component	Description
		for JMS message headers. If the ClientHandler package is installed on a TPA node, the server ID cannot be equal to the name of that system. It is not the ID for NetBackup or other third party servers. **Note:** When upgrading a media server for multiple DSA Network Client (ClientHandler) instances, specify the server IDs in a comma-separated list, for example, `server1,server2`.
SERVERPORT	ClientHandler	Port number for datapath traffic, corresponds to the server.port property in clienthandler.properties. Default: 15401.
SSLTRUSTSTOREFILE	ClientHandler	Full file path for truststore file.
SSLKEYSTOREFILE	ClientHandler	Full file path for keystore file.
SSLKEYSTOREPASSWORD	ClientHandler	The value for the JMS SSL keystore password, in clear text. If DSARESTSCHEME is set to https, this value must match KEYSTOREPASS.
SSLENCKEYSTOREPASSWORD	ClientHandler	The value for the JMS SSL keystore password, in clear text. If DSARESTSCHEME is set to https, this value must match KEYSTOREPASS.
WSPORT	ClientHandler	Port number for ClientHandler Web Service traffic, corresponds to the WebService.port property in clienthandler.properties. Default: 15402.

The following is an example of a DSC server dsainputs file:

Important:

DSCNAME must be specified for an upgrade or the repository restore from the previous version will fail. Analyze_read jobs may also fail.

```
# DSC, Clienthandler, and BARCmdline AMQ Broker connection type ssl or tcp
CONNECTION=tcp

# DSC and BARCmdline shared fields
DSCNAME=
BURL=
BPORT=61616

# DSC dsainputs fields
POSTGRESPASSWORD=
BARPASSWORD=
KEYSTOREPASS=
DSARESTPORT=9090
DSARESTSCHEME=https
```

```
LANDINGZONE=/var/opt/teradata/dsa/postgres
VIEWPOINTURL=viewpointurl
VIEWPOINTPORT=80
VIEWPOINTTYPE=http
CAMCLUSTERENABLED=no
CAMPRIMARYURL=viewpointurl
CAMPRIMARYPORT=61616
CAMCLUSTERURL=camurl
CAMCLUSTERPORT=61616

#BARCmdline only dsainputs
BARCMDLINE_JAVA_HOME=

# Clienthandler dsainputs fields
BROKERLIST=
SERVERID=
SSLTRUSTSTOREFILE=/etc/opt/teradata/dsa/client.pem
SSLKEYSTOREFILE=/etc/opt/teradata/dsa/client-keystore.pem
SSLKEYSTOREPASSWORD=
SSLENCKEYSTOREPASSWORD=
ISMASTER=
MASTERHOSTNAME=
CBBFILEPATH=/var/opt/teradata/dsa/cbb
SERVERPORT=15401

# AXMNetbackup dsainputs fields
BACKUPAPPCLIENTNAME=
```

Repo Migration from Postgres to Postgres Using PG_DUMP Utility

DSA 17.20.01.00 supports DSC repository migration from postgres to postgres using PG_DUMP utility. You can perform the these tasks:

1. Generate dsa_inputs.yml on old DSC, see Generate dsa_inputs.yml on Old DSC
2. Run postgres repo migration on new DSC, see Postgres to Postgres Migration on New DSC

Generate dsa_inputs.yml on Old DSC

1. SSH logon to old DSC machine (if needed, switch to admin user using `sudo -su`).
2. Download and extract **DSAMetadataMigrator** 17.20.01.00 or later.
3. Run `./installPython3.sh to install PyYAML`.
4. If new DSC is 17.20.03.00 or later then set `$DSA_DSC_JSK_HOME` using export `$DSA_DSC_JDK_HOME in /etc/bash.bashrc`
5. If SLES15, use `python3 generateYml.py -all/-online`.
6. If SLES11 and SLES12, use `./generateYml.py –all/-online`.

Postgres to Postgres Migration on New DSC

1. Download and extract **DSAMetadataMigrator**-17.20.01.00 or later.
2. Prepare or use previous `dsa_inputs.yaml` generated using `./generateYml.py`.
3. Only one Media_Server per Teradata MPP system is allowed when `isMPP : true`. It internally uses PCL tool to communicate with all other media_servers on Teradata MPP system.
4. Run the following:
   - On SLES15 run `python3 runAutoMigration.py - f`
   - On SLES12.3-TDC/STND run `python3.6 runAutoMigration.py - f`
   - On SLES11.3 run `./runAutoMigration.py - f`

   This script performs the following tasks:
   - SSH logon to old DSC and read the POSTGRES password from `jdbc.properties`.
   - Use `PG_DUMP` to read old DSC repo data and store it in *LandingZone* at new DSC.
   - Run restore with *recover.sh* utility into local new DSC Repo.
   - Validate with ROW count between old and new DSC.
   - Run upgrade scripts (change log) based on old DSC version.
   - If needed, update or modify DSC name.
   - Reconfigure only components given *dsa_inputs.yml*.
   - Compare *list_consumers* and *list_components* on old and new DSC.

- Provide appropriate message or action or exit code.
  - **EXIT 0** (Migration completed successfully).
  - **EXIT 1** (Migration completed with warnings. Needs changes or executions).
  - **EXIT 2** (Migration failed).

Sample dsa_inputs.yml

```
olddsc:
   -name:
    system_username:
    system_password:
    private_key_file:

silent_mode : yes/no

tdsystems:
      - name: tdprod1
        db_user_name:
        db_password:
        system_username:
        system_password:
        private_key_file:

      - name: tdprod2
        db_user_name:
        db_password:
        system_username:
        system_password:
        private_key_file:   /* password will be ignored if key is provided */

mediaservers:
      - name: database001_media
        public_ips :    /* Optional only when configured IPs not reachable */
        isMPP : true    /* true if media servers are on TD MPP nodes */
        system_username:
        system_password:
        private_key_file:   /* password will be ignored if key is provided */

      - name: proddatabase001_media
        public_ip :     /* Optional only when configured IPs not reachable */
        isMPP : false   /* true if media servers are on TD MPP nodes */
        system_username:
        system_password:
```

```
        private_key_file:  /* password will be ignored if key is provided */

    - name: qadatabase001_media
       system_username:
       private_key_file: /*  password will be ignored if key is provided */
```

Installing Software

Deploying on VMware

If you plan to deploy on VMware, see Teradata Vantage on VMware on DSU.

Dependencies

DSC Server Software Specifications

Software	Level
Operating system	• Teradata SUSE Linux Enterprise Server 12 SP3 • Teradata SUSE Linux Enterprise Server 11 SP3 **Note:** This version is based on the original installation media and customized by Teradata OS Engineering for installation on Teradata Enterprise Data Warehouse systems.
Postgres and Postgres Server rpm for the DSC repository (DSA 17.02.00.00 to <DSA 17.10.01)	SLES 11 SP3: 10.10-0.2.14 SLES 12 SP3: 10.10-1.15.1
Postgres and Postgres Server rpm for the DSC repository (DSA 17.10.01.00 to <DSA 17.20.00.00)	SLES 11 SP3: 10.15-4.9.1 SLES 12 SP3: 10.15-4.9.1
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.00.00 and later)	SLES 11 SP3 : 10.17-0.2.30 SLES 12 SP3 : 10.17-4.16.4
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.00.03 and later)	SLES 11 SP3 : 10.17-0.2.30 SLES 12 SP3 : 10.17-4.16.4 SLES 15 SP2 : 10.17-4.16.4
Postgres and Postgres Server rpm for the DSC repository (DSA 17.20.03.00 and later)	SLES 11 SP3 : 10.22-0.2.46 SLES 12 SP3 : 10.22-4.31.1 SLES 15 SP2 : 10.22-150100.8.50
Teradata JDK package	Install JDK on any server where BARCmdline is installed. Version11 (teradata-jdk11)
Teradata ActiveMQ	Version 5.17.2 (requires Teradata JDK Version 11)
DSAPostAMQ	Required to configure Teradata ActiveMQ

Note:

- The Teradata Managed Server for DSC Server functionality can reside on a virtual machine (VM) or a managed storage server.
- The Relay Services Gateway (RSG) virtual processor is required for DSA installation for both the TPA nodes and the DSC Server. Configure the RSG virtual processor for your installation, but do not install the RSG package.

Media Server Software Specifications

Software	Level
Operating system	• SUSE Linux Enterprise Server 11 SP3 • SUSE Linux Enterprise Server 12 SP3
Teradata JDK	Teradata JDK is required only if the DSA command line (BARCmdline) is installed on this server.

Related Software Specifications

Software	Description
Teradata Viewpoint	Minimum version: • 16.50.01.00 • 16.20.23.05

Teradata Managed Storage Server (TMSS) - Software Specifications

Software for the R720xd, R730xd, and R740xd servers

Software	Description
nfsserver	Manages an NFS environment

Note:

A CMIC upgrade to Version 11.06 or later is required.

DSA Package Names

The following table lists the software packages and dependencies for each DSA component, plus a summary of component functionality.

NOTICE

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Software Package Name	Dependencies	Description
DSC-*version*	[DSA 17.20.03.xx and later] Teradata-Jdk11 [DSA 17.20.02.xx and earlier till DSA 16.20.24.xx] Teradata-Jdk8 [DSA 16.20.23.xx and earlier] TeradataJdk7	The Data Stream Controller (DSC) controls BAR operations and allows communication between DSMain, the BAR portlets, and the DSA Network Client (ClientHandler). All installations require Version 7. From DSA 16.20.24 till DSA 17.20.02.XX versions require Version 8. DSA 17.20.03.00 and later versions require Version 11.
ClientHandler-*version*	None	ClientHandler is the base package for both DSU and DSE, and handles communication to the targets of backup and restore jobs that are remote from the Analytics Database / Teradata Database nodes. ClientHandler is also known as DSA Network Client or DSA NC.
BARCmdline-*version*	None	The DSA command-line interface provides an alternative to the BAR portlets, allowing job creation, launch, monitoring, and scheduling and providing commands to configure DSA.
BARPortlets-*version*	Viewpoint software	The **BAR Setup** portlet allows you to designate the hardware and software to use when backing up your Teradata system. The **BAR Operations** portlet allows you to create, manage, and submit jobs.
AXMDDBoost-*version*	ClientHandler	AXMDDBoost is an access module you can install for EMC Data Domain targets.
AXMS3-*version*	ClientHandler	AXMS3 is an access module you can install for Amazon S3 targets.
AXMAzure-*version*	ClientHandler	AXMAzure is an access module you can install for Microsoft Azure targets.
AXMGCP-*version*	ClientHandler	AXMGCP is an access module you can install for Google Cloud Platform targets.
DSAPostDeployer-*version*	None	Contains a script, `modify_dsc_name.sh`, and a jar file, `dsa-post-deployer.jar`. These are used to update the DSC name in the repository.
DSAPostAMQ-*version*	tdactivemq 5.17.2.0-1	Contains one script, `tdactivemq_wrapper.py`. This required script configures tdactivemq for use. **Important:** DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Version numbers for DSA software packages are displayed in a *xx.xx.xx.xx-xxxxxx* format, for example, DSC-17.00.00.00-431571.x8664.rpm.

DSU Software Installation Workflow

Typical Implementation: VM as DSC Server

In a typical DSU system implementation in which the database nodes are running DSA Network Client (ClientHandler) and the VM is used as the DSC server, the following describes the implementation workflow:

1. Deploy the VM. The Teradata Instance for DSC repository has been pre-installed. See Teradata Vantage on VMware on DSU.
2. Install ClientHandler on all Analytics Database / Teradata Database nodes. See Installing the ClientHandler Package.
3. If your target is EMC Data Domain, install AXMDDBoost on all Analytics Database / Teradata Database nodes. See Installing the AXMDDBoost Package or use PUT for multiple nodes.
4. If your target is AWS, install AXMS3 on all Analytics Database / Teradata Database nodes. See Installing the AXMS3 Package.
5. If your target is Azure, install AXMAzure on all Analytics Database / Teradata Database nodes. See Installing the AXMAzure Package.
6. If your target is Google Cloud, install AXMGCP on all Analytics Database / Teradata Database nodes. See Installing the AXMGCP Package.
7. Install the BAR portlets on the Viewpoint server. See Installing the BARPortlets Package.

Managed Storage Server as Storage, DSC Server, and Media Server

The following describes the implementation workflow for a managed storage server as DSC server solution:

1. Install DSC software component on the managed storage server. See Installing the DSC Package.
2. Install ClientHandler on the managed storage server. See Installing the ClientHandler Package.
3. Install BARCmdline on the managed storage server. See Installing the BARCmdline Package.
4. Install the BAR portlets on the Viewpoint server. See Installing the BARPortlets Package.

Installing Software with Scripts

NOTICE

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

You must install the software packages in the following order:

1. Check if Data Mover is installed.
2. Teradata ActiveMQ
3. DSC
4. ClientHandler - this package includes DSU support, but also is required by AXMDDBoost

5. AXMDDBoost, if applicable
6. AXMS3 - use when Amazon S3 is the backup target from an on-premises system
7. AXMAzure - use when Azure Blob is the backup target from an on-premises system
8. AXMGCP - use when Google Cloud is the backup target from an on-premises system
9. BARCmdline
10. barportlets

Check If Data Mover Is Installed

NOTICE

If Data Mover is installed you must be careful when installing or upgrading DSA or you can break the Data Mover installation.

Data Mover 16.20 and higher comes with DSA pre-installed and only supports the version of DSA that is bundled with that specific release of Data Mover. You must understand if the DSA configuration will be sharing any components with Data Mover (for example, the DSC or DSA Network Client (ClientHandler)).

If you install or upgrade a version of DSA different than the current Data Mover installation, you must arrange to upgrade Data Mover to match.

Logical netmask: If DSA Network Client (ClientHandler) is shared with Data Mover, the logical netmask must be configured to allow communication between the Data Mover source and target systems.

See *Teradata® Data Mover Installation, Configuration, and Upgrade Guide for Customers* for more information.

Gather Information before You Begin

Locate and record this information before beginning the installation.

Type of Information	Description	Record the Value for Your Environment
DSC server	Nickname for server. If you use the hostname, it must follow these guidelines: Maximum of 128 characters: alphanumeric, "-" and "." First character must be alphanumeric (a-z, A-Z, and 0-9) only.	
Using SSL or TCP? This is the type of ActiveMQ connection.	SSL connections encrypt passwords. TCP connections are open. Default: tcp.	
Is DSA REST https or http?	Default: https	

Type of Information	Description	Record the Value for Your Environment
DSC repository DBS Superuser to create the DSC repository	Username: postgres Password	
BAR database	Username: bar Password	
Landing Zone	Filepath to temporary location for DSC backup before replication to storage. Default: `/var/opt/teradata/dsa/postgres`	

Downloading Software

Use these steps to download the latest versions of the packages, access modules, and the deployment scripts.

1. Go to https://support.teradata.com.
2. Log in.
3. Under **Downloads** select **Update Your Software**.
4. Select **Backup Archive Restore**.

   Important:

   If you do not see Backup Archive Restore, you need to log in.

5. Select **Data Stream Utility**.
6. Select the release information and click **Submit**.
7. Check the **Select All On This Page** box.
8. If you are not installing on a VM, deselect the TDVM package.
9. Select **Download All**.
10. Close the window about the download.
11. Select **Database and Applications**.
12. Select **Certification List**.
13. Select the following:

Option	Description
List Type	Current Certification
Node Type	TMS DSA DSC
Target OS	SLES11SP3 64bit SLES12SP3 64bit

	SLES15SP2 64bit
Application Version	17.00
Teradata Release	As shown
Bus Type	As shown
Certification Date	As shown

14. Select **Submit**.
15. Locate and download `tdactivemq` and `teradata-jdk11`.

Installing Teradata ActiveMQ

Install Teradata ActiveMQ on the DSC server. If Teradata JDK is not installed on the DSC server, install it first.

1. Verify Teradata JDK 11.
   a. Check if Teradata JDK 11 is installed:
      `rpm -q teradata-jdk11`
   b. If necessary, install Teradata JDK 11 by extracting then running the script:
      `tar -zxvf teradata-jdk11__`*slesxx_arch.xx.xx.xx.xx-######*`.tar.gz`
      `rpm -ivh teradata-jdk11__`*xx.xx.xx.xx-######-arch*`.rpm`
2. Install Teradata ActiveMQ.
   `rpm -ivh tdactivemq`*slesxx_arch.xx.xx.xx.xx*`.rpm`
3. [Required] Configure Teradata ActiveMQ with the DSAPostAMQ script to optimize memory utilization:
   a. Extract the script:
      tar zxvf DSAPostAMQ_*slesxx_arch.xx.xx.xx.xx-######*.tar.gz
   b. Run the script:
      - If SLES 15 run `python3 tdactivemq_wrapper.py`
      - For others run `./tdactivemq_wrapper.py`

Installing the DSC Package

Prerequisite:

- DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.
- If this is an upgrade you must follow the procedure in Backing Up DSC Repository and Configuration Before Upgrading before preceding.

Install the `DSC` package on the server you want to be the DSC server.

You cannot change the installation directory. The software is installed here:

`/opt/teradata/client/`*version*`/dsa`

1. If this is an upgrade, follow these steps first:
   a. Back up the DSC repository.
   b. Verify the existing DSC server is accessible in the BAR Setup portlet. See Enabling or Adding a DSC Server.
2. On the DSC server, extract the script rpm file:
   `tar zxvf DSC_`*slesxx_arch.xx.xx.xx.xx-######*`.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `DSC.`*xx.xx.xx.xx* is extracted in the current working directory.
3. Change to the `DSC.`*xx.xx.xx.xx* directory.
4. Run the installation script.
   `./dscinstall.sh -r DSC-`*xx.xx.xx.xx-######.arch*`.rpm`
5. Enter values for the DSC component. If you are doing an upgrade, the previous settings are displayed and can be changed.

DSC Prompts	Description and Default Values
Landing Zone	Filepath to temporary location for DSC backup before replication to storage. Default: `/var/opt/teradata/dsa/postgres`
Port for the DSARest web service	Port number for the DSAREST web service. Default: 9090
Scheme for the DSARest web service	Scheme for the DSAREST web service, http or https. Default: https
Keystore password for the DSARest web service	Prompt appears if REST is set to https. Keystore password for DSARest web service. Must be at least 6 characters. If using SSL for ActiveMQ Connection, this password must match the JMS SSL keystore password.
Username for account to run DSC	Applicable to an install only, not an upgrade. Username to set up a Linux account for running the DSC services. Default: dscuser
Userid (dscuser)	Userid of the dscuser. The userid must be the same across all DSA components and servers in the environment. For DSU when using NFS mounted storage targets, this ID must match the anonuid configured in the NFS server. Default: 600
Viewpoint URL	Hostname of the Viewpoint server. Used only for Viewpoint authentication.
Viewpoint port	Port number on the Viewpoint server. Default: 80 Used only for Viewpoint authentication.

DSC Prompts	Description and Default Values
Is CAM environment clustered	Specifies whether the CAM environment is clustered (two Viewpoint servers, primary or failover). Default: no
Primary URL CAM communication	Primary hostname or IP address for CAM communication, which enables alert messaging.
Failover CAM URL	If CAM environment is clustered, failover hostname or IP address for CAM communication.
CAM Communication port	Port number for CAM communication, which enables alert messaging. (61616 for tcp, 61617 for ssl). Default: 61616 [DSA 16.20.51 and later] CAM currently does not support SSL so the port must be 61616.
Password for DSC repository DBS Superuser	Password for the repository DBS superuser.
Password for BAR DBS User	Password for the BAR database user. Used for create, read, update, and delete operations on the BAR database, which contains information for operational jobs. Default: bar
Unique DSC Name	Nickname for this DSC. Used to differentiate this DSC from other DSCs in the portlets. Maximum of 128 characters: alphanumeric, "-" and "." First character must be alphanumeric (a-z, A-Z, and 0-9) only. **Note:** You cannot change the name of a DSC during an upgrade.
ActiveMQ Broker URL	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.
ActiveMQ Broker Port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616
Type of ActiveMQ Connection	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp

6. Log off and log back in to the DSC to set the Linux environment variables.
7. If you have problems, run the configure script:
   `dscConfigure.sh`

Postrequisite:

Go to Installing the ClientHandler Package.

Installing the ClientHandler Package

Prerequisite:

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Important:

Make sure the DSC is up and running before installing DSA Network Client (ClientHandler).

The BARNC [DSA Network Client (ClientHandler)] process queries the broker (ActiveMQ) for the existing DSC instances pointing to the broker. If the DSC is not running, autodiscovery fails.

Install the `ClientHandler` package on each database node. They serve as the media servers.

You can specify the base directory (*base_dir*) for the ClientHandler installation. It is installed here:

base_dir`/teradata/client/`*version*`/dsa`

Note:

Do not use `/` or `/usr` as the installation directory. The permissions for the specified directory are modified so that the service user can access the directory.

1. If you are upgrading from DSA 16.20.00.02 or earlier to DSA 16.20.00.03 or later, you must remove the installed AXM packages before reinstalling ClientHandler.
   a. Get a list of the installed packages: `rpm -qa | grep AXM`
   b. Remove each package: `rpm -e` *nameofpackage*
2. On the DSC server, verify that the DSC is up and running.
   `/etc/init.d/dsc status`
3. On the ClientHandler server, extract the script rpm file:
   `tar zxvf ClientHandler_`*slesxx_arch.xx.xx.xx.xx*`-######.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `ClientHandler.`*xx.xx.xx.xx* is extracted in the current working directory.
4. Change to the `ClientHandler.`*xx.xx.xx.xx* directory.
5. Run the installation script.
   `./clienthandler_install.sh -r ClientHandler-`*xx.xx.xx.xx*`-######.rpm`
6. Enter values for ClientHandler.
   For an upgrade, the previous settings are displayed and can be changed.

ClientHandler Prompts	Description and Default Values
Enter the base directory	*base_dir*/teradata/client/*version*/dsa
ActiveMQ Broker Host Name and Port	Hostname or IP address of the machine running the ActiveMQ broker and port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616 Usually the DSC server, the format is: hostname:port, for example dsc1:61616 You can enter multiple hostnames and ports. Press **Enter** when done to continue.
ActiveMQ Connection	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp
Filepath of SSL truststore	If you are using SSL, enter filepath of the SSL truststore file. Default: none
Filepath of SSL keystore	If you are using SSL, enter filepath of the SSL keystore file. Default: none
SSL Keystore Password	If you are using SSL, enter the value for the client's keystore password in clear text. Default: none If you set DSARest web services to https, the SSL Keystore password must match the DSARest keystore password.
Server ID	Unique Server ID for this ClientHandler. The hostname of the server is recommended. Default: hostname
Is Master Server?	Indicates whether this server is the CBB web service master server used in incremental job communication. **Note:** All media servers defined in the target group for a Changed Block Backup (CBB) restore job must have the same web service master server, or the restore job will fail.
CBB File Path	The web service master uses this path, which is a shared directory required for Change Block Backup (CBB) temporary file storage during restore operations. Default: /var/opt/teradata/dsa/cbb
Master Server's Hostname	The hostname of the CBB web service master server used in incremental job communication. This prompt appears only if you respond No to the "Is Master Server?" prompt.

7. Log off and log back in to the DSC to set the Linux environment variables.
8. Verify ClientHandler is running:
   ```
   /etc/init.d/clienthandler status
   ```
9. If necessary, repeat these steps for each ClientHandler server.
10. If you have problems, run the configure script:

```
clienthandlerConfigure.sh
```

Postrequisite:

Install the access module for the backup solutions or targets you plan to use:

Backup Solution	Go to
DD Boost	Installing the AXMDDBoost Package
Amazon S3	Installing the AXMS3 Package
Azure Blob	Installing the AXMAzure Package
Google Cloud Platform	Installing the AXMGCP Package

Installing the AXMDDBoost Package

Prerequisite:

The DSC and ClientHandler packages must already be installed.

- Installing the DSC Package
- Installing the ClientHandler Package

This access module is not applicable when using a disk file system as a target device.

DSA Package	Installation Directory	Notes
AXMDDBoost	*base_dir*`/teradata/client/`*version*`/dsa`	You can specify the directory as *base_dir*.

Note:

Do not use `/` or `/usr` as the installation directory. The permissions for the specified directory will be modified so that the service user can access the directory.

1. On the server, unzip and extract the script rpm file:
   `tar zxvf AXMDDBoost_`*slesxx_arch.xx.xx.xx.xx*`-######.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `AXMDDBoost.xx.xx.xx.xx` is extracted in the current working directory.
2. Run the installation script from the extracted directory.
   `./axm_install.sh -r AXMDDBoost-`*xx.xx.xx.xx*`-######`

3. Log off and log back in to the server to set the Linux environment variables.

Postrequisite:

Install any other needed access module. If the access modules are all installed, go to Installing the BARCmdline Package.

Installing the AXMS3 Package

Prerequisite:

The DSC and ClientHandler packages must already be installed.

- Installing the DSC Package
- Installing the ClientHandler Package

This access module is not applicable when using a disk file system as a target device.

DSA Package	Installation Directory	Notes
AXMS3	*base_dir*/teradata/client/*version*/dsa	You can specify the directory as *base_dir*.

Note:

Do not use / or /usr as the installation directory. The permissions for the specified directory will be modified so that the service user can access the directory.

1. On the server, unzip and extract the rpm file:
   `tar zxvf AXMS3_slesxx_arch.xx.xx.xx.xx-######.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `AXMS3.xx` is extracted in the current working directory.
2. Run the installation script from the extracted directory.
   `./axm_install.sh -r AXMS3-xx.xx.xx.xx-######`
3. Log off and log back in to the server to set the Linux environment variables.

Postrequisite:

Install any other needed access module. If the access modules are all installed, go to Installing the BARCmdline Package.

Installing the AXMAzure Package

Prerequisite:

The DSC and ClientHandler packages must already be installed.

- Installing the DSC Package
- Installing the ClientHandler Package

This access module is not applicable when using a disk file system as a target device.

DSA Package	Installation Directory	Notes
AXMAzure	*base_dir*/teradata/client/*version*/dsa	You can specify the directory as *base_dir*.

Note:

Do not use / or /usr as the installation directory. The permissions for the specified directory will be modified so that the service user can access the directory.

1. On the server, unzip and extract the rpm file:
   `tar zxvf AXMAzure_slesxx_arch.xx.xx.xx.xx-######.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `AXMAzure.xx` is extracted in the current working directory.
2. Run the installation script from the extracted directory, where *arch* is the architecture, *xx* is the version number, and ###### is a unique number.
   `./axm_install.sh -r AXMAzure-xx.xx.xx.xx-######`
3. Log off and log back in to the server to set the Linux environment variables.

Postrequisite:

Install any other needed access module. If the access modules are all installed, go to Installing the BARCmdline Package.

Installing the AXMGCP Package

Prerequisite:

The DSC and ClientHandler packages must already be installed.

- Installing the DSC Package
- Installing the ClientHandler Package

This access module is not applicable when using a disk file system as a target device.

DSA Package	Installation Directory	Notes
AXMGCP	*base_dir*/teradata/client/*version*/dsa	You can specify the directory as *base_dir*.

Note:

Do not use / or /usr as the installation directory. The permissions for the specified directory will be modified so that the service user can access the directory.

1. On the server, unzip and extract the rpm file:
   `tar zxvf AXMGCP_slesxx_arch.xx.xx.xx.xx-######.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `AXMGCP.xx` is extracted in the current working directory.
2. Run the installation script from the extracted directory, where *arch* is the architecture, *xx* is the version number, and ###### is a unique number.
   `./axm_install.sh -r AXMGCP-xx.xx.xx.xx.xx-######`
3. Log off and log back in to the server to set the Linux environment variables.

Postrequisite:

Install any other needed access module. If the access modules are all installed, go to Installing the BARCmdline Package.

Installing the BARCmdline Package

Prerequisite:

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

The DSC, ClientHandler, and any required Access Modules must already be installed.

Teradata JDK must be installed on the command line server.

Install the `BARCmdline` package (DSA command line interface) onto any server where you want to enter dsc commands.

You can specify the base directory (*base_dir*) for the BAR command line installation. It is installed here:

base_dir`/teradata/client/`*version*`/dsa`

Note:

Do not use `/` or `/usr` as the installation directory. The permissions for the specified directory are modified so that the service user can access the directory.

1. Check if Teradata JDK 11 is installed:
   `rpm -q teradata-jdk11`
2. If necessary, install Teradata JDK 11.
   a. Extract the script:
      `tar -zxvf teradata-jdk11__`*slesxx_arch.xx.xx.xx.xx-######*`.tar.gz`
   b. Run the script:
      `rpm -ivh teradata-jdk11__`*xx.xx.xx.xx-######-arch*`.rpm`
3. On the DSC server, extract the script rpm file:
   `tar zxvf BARCmdline_`*slesxx_arch.xx.xx.xx.xx-######*`.tar.gz`

   where *slesxx* is the OS, *arch* is the architecture, *xx.xx.xx.xx* is the version number, and ###### is a unique number

   A directory with the format `BARCmdline.`*xx.xx.xx.xx* is extracted in the current working directory.
4. Run the installation script from the extracted directory.
   `./barcmdline_install.sh -r BARCmdline-`*xx.xx.xx.xx-######.arch*`.rpm`
5. Enter values for the BAR command-line interface.
   If you are upgrading, the previous settings are displayed and can be changed.

BAR Command-Line Prompts	Description and Default Values
Enter the base directory	*base_dir*`/teradata/client/`*version*`/dsa`

BAR Command-Line Prompts	Description and Default Values
ActiveMQ Broker URL	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.
ActiveMQ Broker Port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616
ActiveMQ Connection	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp
Java path	If this is a generic SLES installation, enter the path to Java. Default: none
DSC Name	The DSC name that the BAR command-line interface connects to.

6. Log off and log back in to the DSC to set the Linux environment variables.
7. If you have problems, run the configure script:
   `commandlineConfigure.sh`

Postrequisite:

Go to Installing the BARPortlets Package.

Installing the BARPortlets Package

Prerequisite:

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Install the DSC, ClientHandler, and BAR Command Line packages before installing this package.

You must install the BAR portlets (`barportlets`) on the Viewpoint server.

The package is installed here:

`/opt/teradata/viewpoint/portlets/barportlets`

1. Extract the script rpm file:
   `tar -xvf barportlets_xx.xx.xx.xx-1.noarch.tar.gz`

   where *xx.xx.xx.xx* is the version number

   A directory with the format `barportlets.xx.xx.xx.xx` is extracted in the current working directory.
2. Change to the `barportlets.xx.xx.xx.xx` directory.
3. Run the installation script.
   `rpm -i barportlets.xx.xx.xx.xx-1.noarch.rpm`

4. [Optional] Verify the BAR portlets:
   `rpm -qa |grep barportlets`
5. Start Viewpoint.
   `/etc/init.d/viewpoint restart`
6. If this is a fresh install, Add the DSC Server in the BAR Setup portlet.
7. If this is an upgrade and the DSC server is not available, go to Enabling or Adding a DSC Server and add the DSC manually.

Postrequisite:

If you want to use SSL, see Setting Up SSL or TCP for JMS Workflow.

Verifying Installation

Prerequisite:

If you had any failures during installation, you must run the configuration scripts at the end of the procedure before continuing.

During DSA component installation, user accounts, initialization scripts, and environmental variables are created. You can verify proper installation by checking for these items.

1. Verify that the ClientHandler web service is running on all media servers:
   `/etc/init.d/clienthandler status`
2. Verify installation:
   rpm -q DSC ClientHandler BARCmdline
   This command returns a list of installed packages.
3. Verify that the DSCUSER was created with the proper uid.
   `id -u dscuser`

   The response is positive and returns the uid configured during install.
4. Log off and log back in to the DSC to set the Linux environment variables.
5. Run list_jobs to verify components.
   `dsc list_jobs`
   This command returns the following on a new installation:

   ```
   no job is found
   ```
6. On the Viewpoint server, verify the BAR portlets:
   `rpm -qa |grep barportlets`

Verifying Teradata Connection to the ActiveMQ Server

All Teradata nodes require a network connection to the Teradata ActiveMQ (TDAMQ) server. The startup listener DSMAIN process runs on the node with the lowest online vproc number and does not start if the TDAMQ server cannot be reached.

If a Teradata system is not on the same network domain as the TDAMQ server, you must update the hosts file with the TDAMQ server IP address.

1. [Teradata Database 16.0 and later] If you have multiple DSCs, get the list of ActiveMQ servers:
   a. Log on to the database system using bteq.
   b. Issue this command to get a list of the DSCs and their associated ActiveMQ server:
      ```
      select cast(activemqserver as char(30)), cast(dscname as char(30))
      from sysbar.dsaconnectionstbl;
      ```
2. On every node, run `ping` *TDAMQservername* to check the connection to the TDAMQ server. Every node must be able to ping the TDAMQ server.
3. If DSMAIN did not start, go to the node with the lowest online RSG vproc number, and look at the startup listener log in `/var/opt/teradata/tdtemp/bar` for a message to troubleshoot the problem.
   The startup listener log uses the format BARLog_*rsgno*_40.txt where *rsgno* is the lowest RSG vproc number, such as `BARLog_26621_40.txt`.

Note:

As of Analytics Database 16.20 and Teradata Database 15.0.6.1, 15.10.04.04 and 16.0, the startup listener log has changed from `BARLog_rsgno_15.txt` to `BARLog_rsgno_40.txt`.

Configuring DSU after Installation

Setting Up SSL or TCP for JMS Workflow

Prerequisite:

Important:

To prevent a connection failure, install all DSA software including all the steps in Installing Teradata ActiveMQ before enabling SSL.

Important:

All DSA components must have JMS SSL enabled if using SSL, or disabled if not using SSL.

These tasks must be completed in this order to set up SSL for JMS on all client components.

1. Configure ActiveMQ for SSL or TCP
2. Manage the keys and certificates:
   - For SSL, Set up self-signed keys and certificates
   - For TCP, Remove SSL keys and certificates

Configuring ActiveMQ for SSL or TCP

The ActiveMQ script prepares your environment for SSL or TCP.

Note:

The SSL feature is optional and is turned off, by default.

1. Run the `activemq_ssl_setup.sh` script that is located on the DSC server in the `$DSA_DSC_ROOT` directory to configure ActiveMQ for SSL or TCP.
2. At the ActiveMQ directory prompt, enter the full path to the ActiveMQ directory, for example `/opt/teradata/tdactivemq/apache-activemq-5.xx.xx`.
3. At the ActiveMQ connection prompt, choose one of the following:
   - SSL
   - TCP
4. If SSL was selected, enter the password used to create the keystore at the Keystore password prompt. The password must be at least 6 characters in length.

If DSARest is set to https, the SSL keystore password must match the DSARest keystore password.

Enabling SSL - Setting Up Self-Signed Keys and Certificates

Prerequisite:

To prevent connection failure, you must follow the steps in Installing Teradata ActiveMQ and Configuring ActiveMQ for SSL or TCP before setting up the self-signed keys and certificates.

You must create self-signed keys and set up certificates for your SSL environment.

1. Use the `ssl_setup_cert_wrapper.sh` script to create self-signed keys and certificates in the ActiveMQ directory.
   The script is located on the DSC server in the `$DSA_DSC_ROOT` directory.

   Script usage is `ssl_setup_cert_wrapper.sh [-h] [-C] [-a` *activemq_dir*`]`, where:

Option	Description
-h	Displays help information.
-C	Cleans up the configuration files in the specified ActiveMQ directory.
-a	Specifies the directory where ActiveMQ is installed.

2. Copy files `client.pem` and `client-keystore.pem` and preserve file permissions as follows:
   a. Go to: `/opt/teradata/tdactivemq/apache-activemq-5.`*xx.xx*`/conf`
   b. For all Teradata systems and TPA nodes in the DSA environment, type:
      ```
      #cp -p <file_name> /etc/opt/teradata/tdconfig
      #chown teradata /etc/opt/teradata/tdconfig/<file_name>
      #chmod 600 /etc/opt/teradata/tdconfig/<file_name>
      ```
   c. For DSA media servers (anywhere ClientHandler is installed), type:
      ```
      #cp -p <file_name> /etc/opt/teradata/dsa/
      #chown dscuser /etc/opt/teradata/dsa/<file_name>
      #chmod 600 /etc/opt/teradata/dsa/<file_name>
      ```
3. Copy `client.ts` to the systems where DSC or BARCmdline are installed and preserve file permissions by typing:
   ```
   #cp -p <file_name> /etc/opt/teradata/dsa
   ```

   Note:

   Certificates are valid for 20 years.

4. Enable JMS SSL on the BAR portlets by installing the `client.pem` certificate on the **Viewpoint** portal:
   a. From the Teradata **Viewpoint** portal, click ⚙.

b. Open the **Certificates** portlet.
c. From the **Setup** list, click **Certificate Authority**.
d. Click **Install Certificate**.
e. Enter an alias for the Certificate Authority, up to 30 characters.
f. Click **Browse** and select the `client.pem` certificate.

Important:

Copy `client.pem` from `/etc/opt/teradata/dsa`.

---

g. Click **Install**.
h. Restart Viewpoint.
`/etc/init.d/viewpoint restart`

5. When you add the DSC using the **BAR Setup** portlet (see Enabling or Adding a DSC Server), select SSL as the Broker Connectivity and add the Broker Port.

Changing to TCP by Removing SSL Keys and Certificates

You must remove SSL keys and certificates to switch from an SSL to a TCP configuration. The manual steps taken in setting up self-signed keys and certificates for SSL must be reverted to TCP manually.

1. Use the `ssl_setup_cert_wrapper.sh` script with the -C option to clean up configuration files in the ActiveMQ directory. The script is located in the `$DSA_DSC_ROOT` directory. Script usage is `ssl_setup_cert_wrapper.sh [-h] [-C] [-a activemq_dir]`, where:

Option	Description
-h	Displays help information.
-C	Cleans up the configuration files in the specified ActiveMQ directory.
-a	Specifies the directory where ActiveMQ is installed.

2. At the Directory prompt, type the full path to the ActiveMQ directory: `/opt/teradata/tdactivemq/apache-activemq-5.`*xx.xx*.
ActiveMQ restarts after certificates are removed.

Toggling SSL or TCP after Installation

If you have SSL set up and you want to switch to TCP, you can use these steps with the toggle script. You also must remove and re-add the DSC Server in the **BAR Setup** portlet.

If you want to switch from TCP to SSL, you need to follow the steps in *Enabling SSL - Setting Up Self-Signed Keys and Certificates* in your installation guide. See *Teradata® DSA - DSU Installation, Configuration, and Upgrade Guide*, *Teradata® DSA - DSE for Veritas NetBackup Installation,*

Configuration, and Upgrade Guide, or *Teradata® DSA - DSE for IBM Spectrum Protect Installation, Configuration, and Upgrade Guide*.

1. Remove the DSC Server using the **BAR Setup** portlet.
2. To toggle SSL for each client component (DSC, DSARest, BARCmdline, and ClientHandler), run the toggle script on each client.
   `./ssl_jms_toggle.sh` is located in each client's installed directory:
   - `$DSA_DSC_ROOT`
   - `$BARCMDLINE_ROOT`
   - `$CLIENTHANDLER_ROOT`

   Syntax: ssl_jms_toggle.sh [**DSC** | **DSARest** | **BARCmdline** | **ClientHandler**] [**tcp** | **ssl**] [**61616** | **61617**]
   For example: `ssl_jms_toggle.sh DSC ssl 61617`
   For ClientHandler the following is true:
   - The script prompts you for the SSL keystore password. This is the client's keystore password.

     Important:

     If DSARest web service is https, the SSL keystore password must match the DSARest web service keystore password.

     If you want to switch from TCP to SSL, you need to follow the steps in *Enabling SSL - Setting Up Self-Signed Keys and Certificates* in your installation guide. See *Teradata® DSA - DSU Installation, Configuration, and Upgrade Guide*, *Teradata® DSA - DSE for Veritas NetBackup Installation, Configuration, and Upgrade Guide*, or *Teradata® DSA - DSE for IBM Spectrum Protect Installation, Configuration, and Upgrade Guide*.

   - If `clienthandler.properties` contains multiple brokers, the script asks if you want to use the same port number for all brokers.
     - y - All port numbers are changed to the number listed in the command
     - n - Port numbers are left as is. To change any broker port numbers, you must change them in `broker.list` in `clienthandler.properties`.
3. Add the DSC server using the **BAR Setup** portlet (see Enabling or Adding a DSC Server), select SSL or TCP as the Broker Connectivity and Broker Port.
4. From the **BAR Setup** portlet, select your DSC Server, and click **Systems and Nodes** under **Categories**.
5. Select the system name under **Systems**, then **System Details** under **Setup**.
6. To enable SSL, under **SSL Communication**:
   a. Check the **Enable SSL over JMS Communication** box.
   b. Enter the keystore password in the **Truststore Password** box.
   c. Click **Apply**, then follow on-screen instructions.

7. To configure TCP, under **SSL Communication**:
   a. Clear the **Enable SSL over JMS Communication** box.
   b. Remove the keystore password from the **Truststore Password** box.
   c. Click **Apply**, then follow on-screen instructions.
8. Restart the DSMain process on DSC server for the repository database cnsterm 6:
   a. Stop bardsmain:
      ```
      cnsterm 6
      start bardsmain -s
      ```
   b. Start bardsmain:
      ```
      cnsterm 6
      start bardsmain
      ```

Restarting DSA Services

To have a fully functional Teradata DSA environment, you must have the Teradata ActiveMQ service, DSC, DSA Network Client (ClientHandler), and Viewpoint running. Follow these steps if you need to restart DSA Services.

Note:

The Teradata ActiveMQ service must be running before the DSC and DSA Network Client (ClientHandler) process are started, although, after installation, the DSC and ClientHandler should already be running.

---

1. If the Teradata ActiveMQ, DSC, and DSA Network Client (ClientHandler) are not running, at the command line, type the following and press **Enter** after each component string to start the service:

   ```
   /etc/init.d/tdactivemq start
   ```

   ```
   /etc/init.d/dsc start
   ```

   ```
   /etc/init.d/clienthandler start client_handler_name (optional)
   ```

   If the *client_handler_name* parameter is not provided, the command will start all instances if you have multiple DSA Network Client (ClientHandler) instances configured. To specify an instance of DSA Network Client, type `/etc/init.d/clienthandler start` *client_handler_name*, where *client_handler_name* specifies the DSA Network Client instance and refers to the Server ID parameter (usually the hostname).

   Note:

   Analytics Database must be active in order to start the DSC service.

   ---

2. Verify that the services are running:

   ```
   /etc/init.d/tdactivemq status
   ```

   ```
   /etc/init.d/dsc status
   ```

`/etc/init.d/clienthandler status` *client_handler_name* `(optional)`

If the *client_handler_name* parameter is not provided, the command will start all instances if you have multiple DSA Network Client (ClientHandler) instances configured. To specify an instance of DSA Network Client, type `/etc/init.d/clienthandler status` *client_handler_name*, where *client_handler_name* specifies the DSA Network Client instance and refers to the Server ID (usually the hostname).

Configuring Storage Devices and Ports

A variety of storage device configuration options are available for different environments. Select the procedure that is specific to your environment.

Setting Up an NFS Environment for NFS Mounted Storage

Prerequisite:

The nfs-kernel-server version on the server must be compatible with the nfs-client 1.2.1-2.xx.x version installed on the Analytics Database / Teradata Database node.

You can provide and manage a server that can serve an NFS environment. This procedure creates NFS mount points that are the target folders for backup files created by DSU backup jobs.

Note:

If the NFS server connection is interrupted or not running, ClientHandler daemon services can hang. If this occurs, verify that the NFS server connection is valid. If you restart the NFS server or delete or alter the mount directory on the server, restart the NFS service.

1. Verify that the nfs-kernel-server rpm package is installed on the NFS server:
   `# rpm -qi nfs-kernel-server`
2. Verify that the NFS server is running:
   `/etc/init.d/nfsserver status`
3. Edit `/etc/idmapd.conf` to change the domain to the domain name of the system.
   The server domain must match the client domain.
4. Type `rcnfsserver restart` to apply your changes to `/etc/idmapd.conf`.
5. Edit `/etc/exports` to set up NFS client permissions:

   `/path/to/shared/directory` `hostname(rw,root_squash,no_subtree_check,anonuid=###)`

   where ### is the userid of the Linux user running ClientHandler. The userid is provided during installation.

   ```
   /dsu/test/path1 bsrvxx(rw,root_squash,no_subtree_check,anonuid=600)
   ```

   Note:

   Include an entry to set up permissions for all DSA media server systems. If the DSC server is not the NFS server, it should also be included as a client server entry in `/etc/exports`.

6. Run `exportfs -avr` to apply your changes in `/etc/exports`.
7. Edit `/etc/idmapd.conf` to change the domain to the domain name of the system.
   NFS client auto-mounts to the NFS server during ClientHandler start up, with a prompt to enter the dscuser userid. The userid should match the anonuid field configured in the NFS server.

   The client domain must match the server domain.
8. Type `rcnfs restart` to apply your changes to `/etc/idmapd.conf`.

Configuring the NFS Client Service

The NFS client service checks the FSTAB file for NFS file systems and mounts them. As long as the NFS client service is configured to start on boot, NFS file systems are automatically mounted on startup.

The FSTAB option make the mounted file system read and write, are not dumped, and are not checked at reboot.

1. Create a mount point directory; for example, `/export/backup`.
   ```
   # mkdir -p /export/backup
   ```
2. Create the entry in the FSTAB file (`/etc/fstab`).
   This example uses these parameters:

   NFS server: `nfsserver`
   NFS share on the server: `/data/col1/backup/tdbackup`
   Mount point on client: `/export/backup`

   The resulting FSTAB file looks as follows:

   ```
   # device                                mountpoint      fs-type options
   dump fsckorder
   ...
   nfsserver:/data/col1/backup/tdbackup  /export/backup  nfs    rw      0     0
   ...
   ```
3. To mount the system, manually start the NFS service:
   ```
   # service nfs start
   ```
4. If necessary, start the rpcbind service:
   ```
   service rpcbind start
   ```
5. Configure the NFS service to start on boot:
   ```
   # chkconfig nfs on
   ```

Setting Up Data Domain with Boost

In a DSU Data Domain for Boost configuration, the DSA Network Client can connect directly to the Data Domain unit. Deduplication should not run on the server running DSA Network Client.

1. Refer to the Data Domain user interface to set up Boost.

Setting Up Data Domain for NFS Storage

You can mount Data Domain storage units to NFS mount points, which allows the system to function as an NFS environment.

1. Refer to the Data Domain user interface to configure the NFS option.

Setting Up an NFS Environment for Managed Server Storage

Prerequisite:

The nfs-server version on the server must be compatible with the nfs-client 1.2.1-2.xx.x version installed on the Analytics Database / Teradata Database node.

The managed storage server has drives that you can use as your storage solution if you set up an NFS environment. The NFS mount points are the target folders for backup files created by DSU backup jobs. This procedure is required only if the DSA Network Client is running on the Analytics Database / Teradata Database nodes. If the DSA Network Client is only running on the managed storage server, this procedure is not required.

Note:

If the NFS server connection is interrupted or not running, ClientHandler daemon services can hang. If this occurs, verify that the NFS server connection is valid. If you restart the NFS server or delete or alter the mount directory on the server, restart the NFS service.

Specify the managed storage server as the NFS server.

1. Verify that the nfs-kernel-server rpm package is installed on the NFS server:
   `# rpm -qi nfs-kernel-server`
2. Verify that the NFS server is running:
   `/etc/init.d/nfsserver status`
3. Edit `/etc/idmapd.conf` to change the domain to the domain name of the system.
   The server domain must match the client domain.
4. Type `rcnfsserver restart` to apply your changes to `/etc/idmapd.conf`.
5. Edit `/etc/exports` to set up NFS client permissions:

   `/path/to/shared/directory` `hostname(rw,root_squash,no_subtree_check,anonuid=###)`

   where ### is the userid of the Linux user running ClientHandler. The userid is provided during installation.

   ```
   /dsu/test/path1 bsrvxx(rw,root_squash,no_subtree_check,anonuid=600)
   ```

Note:

Include an entry to set up permissions for all DSA media server systems. If the DSC server is not the NFS server, it should also be included as a client server entry in `/etc/exports`.

6. Run `exportfs -avr` to apply your changes in `/etc/exports`.
7. Edit `/etc/idmapd.conf` to change the domain to the domain name of the system.
   NFS client auto-mounts to the NFS server during ClientHandler start up, with a prompt to enter the dscuser userid. The userid should match the anonuid field configured in the NFS server.

   The client domain must match the server domain.
8. Type `rcnfs restart` to apply your changes to `/etc/idmapd.conf`.

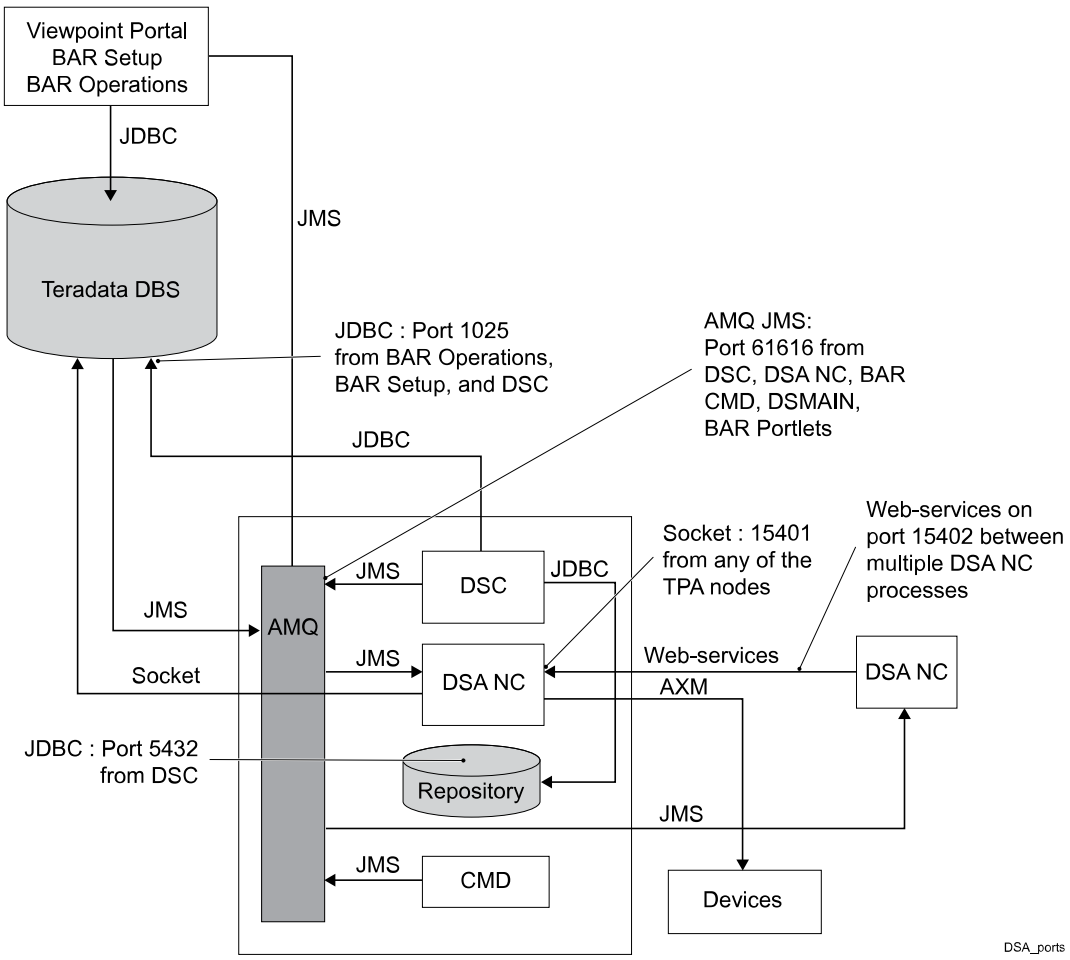
DSA Ports

When deployed on the same physical DSC server, the AMQ Broker and DSA Network Client (ClientHandler) (NC) listen for requests from DSA components on the following ports.

Note:

The DSA NC contains the ClientHandler package.

DSA Ports



AMQ Broker

In open wire configuration, the AMQ Broker listens, by default, on port 61616 for requests originating from the following:

- The BAR command-line component (BAR CLI) during the configuration, job definition, execution, and job status processes
- BAR Setup portlet during the configuration process
- BAR Operations portlet during the job definition, execution, and status processes
- DSmain for incoming status regarding job execution (Backup, Restore, and Analyze Validate processes)
- DSA NC for incoming status regarding job execution (Analyze Read process)

If ActiveMQ is configured for SSL, the default port is 61617.

DSA Network Client (ClientHandler)

DSA NC listens on port 15402, by default, for socket requests from any TPA node involved in a DSA job plan.

During a restore job from incremental backups, multiple DSA NC processes share temporary files using a web service on the default port 15402.

Analytics Database / Teradata Database Nodes

Database nodes (used as source or target) listen, by default, for any JDBC request over port 1025 for requests originating from:

- BAR Setup portlet during the configuration of the systems selector
- BAR Operations portlet during job creation and DSC during the backup job plan execution if a database object expansion is required. This is the case when a backup job contains objects with the keyword <*database_name*> `include ALL`.

Database nodes listen on port 1025 over CLIv2 for any job plan request originating from the TPA master node. The TPA master node receives the job plan from DSC over JMS.

Configuring Portlet Software

Configuring Viewpoint and BAR Setup

You must enable and add BAR portlets to Teradata Viewpoint before you can configure the BAR portlets for running jobs.

1. Enable BAR portlets for the role and for Viewpoint access.
   You can set BAR administrator privileges for any Viewpoint role in **Roles Manager**. You can set access to the portlet in **Portlet Library**.
2. Add a Teradata system to Viewpoint portlets.
   You must add and enable a Teradata system in **Monitored Systems** to make it available in the **BAR Setup**, **BAR Operations**, and **Viewpoint Monitoring** portlets.
3. Set up the systems and nodes from the **BAR Setup** portlet.
   Nodes are configured through autodiscovery. You can view the information but not edit it.
4. Media servers are autopopulated with default BAR NC [DSA Network Client (ClientHandler)] port 15401 and IP address. Edit if needed.
5. Configure a backup solution:
   - Disk File System
   - DDBoost Server
   - Amazon S3 Storage
   - Azure Blob Storage
6. Configure target groups for backup.
   The target groups must be mapped to the correct backup solutions.

Enabling BAR Portlets

If the BAR administrator does not have Viewpoint administrative privileges, the BAR portlets must be enabled from the **Roles Manager** and **Portlet Library** administrative portlets before accessing **BAR Setup** or adding **BAR Operations** to the Viewpoint portal page.

1. Enable **BAR Setup** and **BAR Operations** portlet access for the BAR Administrator role from **Roles Manager**.
   The BAR administrator role can edit, run, or abort any BAR job, even if they do not own the job or are specifically granted permission in the job permissions. It is easier to grant permissions to roles than to each user separately.
   a. From the Teradata Viewpoint portal page, click .
   b. Select **Roles Manager**.
   c. Next to **Role** select **Administrator**.
   d. Select the **Portlets** tab.

e. Under **Applications**, select for the **BAR Operations** portlet to access the **Permissions** view. The is on the right side of the screen. Widen your browser window if it does not appear.
f. Select the permissions you want for this role.

Option	Description
Enable portlet settings	Allows role members to select default object types to display in the object browser of the **BAR Operations** portlet.
Share portlet	Allows users to share customized versions of the portlet with other users.
BAR Admin	Enables the **BAR Setup** portlet.

g. Click **Apply**.
h. Click **Close**.

2. Enable role access to the portlets from **Portlet Library**.
   a. From the Teradata Viewpoint portal page, click .
   b. Select **Portlet Library**.
   c. Select the **Portlets** tab.
   d. Under **Applications** select the **BAR Operations** checkbox.
   e. Click **Apply**.
   f. Click **Close**.
3. Add the **BAR Operations** portlet in Viewpoint portal page.
   a. From your **Teradata Viewpoint** page, click next to **Add Content**.
   If **Add Content** does not appear, make sure you are on your page and not the Dashboard.
   b. Under **Applications** select **BAR Operations**, and then click **Add.**

Adding Teradata System and Dictionary Collector to BAR Portlets

You must add and enable a Teradata system in the **Monitored Systems** portlet to make it available in the **BAR Setup** portlet.

You must configure the systems, backup solutions, and target groups in the **BAR Setup** portlet to make them available in the **BAR Operations** portlet.

1. From the Teradata Viewpoint portal page, click .
2. Open the **Monitored Systems** portlet.
3. Click next to **Systems**, and select **Add Teradata System**.
   a. Enter the **System Nickname** of the Teradata system.
   b. Enter the **TDPID**, formal name of the Teradata system.
   c. Set the **Time Zone**.
   d. Select the **Enable system** checkbox.

e. Enter **Login** credentials for a user that will log in from Viewpoint into the Teradata system to collect data.
Teradata recommends that you do not use dbcuser. During a full system restore, the system must be quiescent and dbcuser will automatically log in.
f. Click **Apply**.

4. Under **Systems**, select the newly enabled system.
5. Under **Setup**, select **Data Collectors**.
6. Under **Data Collectors**, select **Dictionary**.
7. Select the **Enable Dictionary Collector** checkbox.
8. Click **Apply**.

Enabling or Adding a DSC Server

Use these instructions to enable or add an additional DSC. If you have a DSC and are upgrading or adding another DSC, use this procedure before upgrading.

1. Open the **BAR Setup** portlet.
2. Click + next to **DSC Servers**.
3. Under **General System Details**, enter the broker information:

Option	Description
Broker IP/Host	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.
Broker Port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616
Broker Connectivity	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp

4. Select **Enable DSC server**.
5. Select the DSC Server.
   a. Click **Discover Servers**.
   b. Select the **DSC Server Name** from the drop-down.

Troubleshooting:

If the DSC names are not populated in the menu, check the following:

- Verify that the Broker IP/Host is correct.
- Make sure ActiveMQ is running:

```
/etc/init.d/tdactivemq status
```

---

6. Enter the **Server Settings** and **BAR Logging** settings:

Option	Description
Security Management	Require Teradata Viewpoint authentication on the DSA command-line interface. If checked, a user submitting certain commands from the command-line interface must enter a valid Teradata Viewpoint user name and password.
BAR Logging	Level of BAR log information to display for the **Data Stream Controller** and the **BAR Network Client**. Extensive logging information is typically only useful for support personnel when gathering information about a reported problem. **Error** Default. Enables minimal logging. Provides only error messages. **Warning** Adds warning messages to error message logging. **Info** Adds informational messages to warning and error message logging. **Debug** Full logging. All messages, including debug, are sent to the job log. **NOTICE** This setting can affect performance.
Delete Retired Jobs	**Delete Retired Jobs** determines the time period before retired jobs are deleted. **After** Number of days from the date a job is retired to wait before deleting the job. **Never** Prevents deletion of retired jobs.

7. Click **Apply**.

Adding or Editing a Teradata System

Prerequisite:

Before you can work with the DSC in the BAR Setup portlet, you must add and enable the Teradata System and the Dictionary collector in the **Monitored Systems** portlet. Under **Setup** select **Data Collectors** and enable the **Dictionary** collector.

If you are upgrading to Analytics Database 16.20 or later or Teradata Database 16.0 or later, run DIPBAR on the Teradata system before this procedure.

Follow these steps to configure and enable the target database system.

Note:

- Nodes are configured through autodiscovery. You can view but not edit them.
- [DSA 17.02 and later] There is no longer a preconfigured backup system, you just need to enable the Teradata system.

1. Open the **BAR Setup** portlet.
2. Under **DSC Servers**, select your DSC server.
3. From the **Categories** list, select **Systems and Nodes**.
4. Do one of the following:

Add a new target system	a. Click + next to **Systems**. b. Select **Add Teradata System**.
Edit an existing system	Select the name under **Systems**.

5. Under **Setup**, select **System Details** and enter the following:

Option	Description
System Name	[Adding a new system] Choose the system from the drop-down list. **Note:** Make a system available from the **Monitored Systems** portlet.
System Selector	[Optional] When editing a system, to change the system selector, click **Update**. The credentials to the system are verified before the update can occur. **Note:** You must stop and start DSMain in the database after changing the system selector.
SSL Communication	[Optional] Select the **Enable SSL over JMS Communication** checkbox to enable SSL communication. **Note:** You must add the TrustStore password created during SSL setup. You must stop and start DSMain in the database after enabling SSL communication.
Default Stream Limits For Nodes	Set the default limits for each node configured with the system. • **For each node:** maximum number of concurrent streams allowed per node. For example, 5 times the number of AMPs on the node. • **For each job on a node:** maximum number of concurrent streams allowed for each job on the node. Cannot exceed the number of AMPs on the node. If you enter a higher number, it is reduced to the number of AMPs on the node.

6. Click **Apply** and enter the database credentials.
7. Under **Setup** select **Nodes** to view the details for the nodes on this system.

8. Restart DSMain on the destination system:
   a. From the primary distribution node (usually Node 1), run `cnsterm 6`.
   b. Enter `start bardsmain –s -d` *dsc_name* (this stops DSMain on the destination system).

   Note:

   The `-d` *dsc_name* parameter applies to Analytics Database 16.20 or later / Teradata Database 16.10 or later. The -d parameter only starts and stops the ActiveMQ connection. It will not affect any feature that requires DSMain to be completed restarted; for example GDO flag 553 (EnableBackupsforIncrementalRestore).

   c. Enter `start bardsmain` (this starts DSMain).
   d. [Analytics Database 16.20 or later / Teradata Database 16.10 or later] Enter `start bardsmain -j` (this shows the status of the connections).

Note:

The system is automatically enabled.

Verifying the Media Server

Media server data is autopopulated. You can view and edit if necessary using the **BAR Setup** portlet.

1. Open the **BAR Setup** portlet.
2. Under **DSC Servers**, select your DSC server.
3. From the **Categories** list, select **Media Servers**.
4. For each media server, verify the following:

Option	Description
BAR NC Port	Verify that the number of the BAR network server matches the server port setting in the DSA client handler property file. Default port: 15401 **Note:** If you change the port number in the `clienthandler.properties` file, you must restart the DSA Network Client using `/etc/init.d/clienthandler restart-hwupgrade`.
IP Address	This is the address of the media server. Do not use a link-local IPv6 address (begins with `fe80`). Additional addresses can be entered for network cards that are attached to the server. If there are multiple instances of DSA Network Client (ClientHandler), specify separate IP addresses. For example, configure the first media server configuration with the first IP address and the second media server configuration with the second IP address. **Note:** IP addresses are not validated. Teradata recommends verifying that you can ping from the media server to the database and from the database to the media server.

Option	Description
Network Mask	Refer to Network Masks for more information.

Network Masks

The subnet mask used by DSA is a logical mask, that is, it is treated as a mask to determine what connection paths are allowed between Teradata nodes and media servers. You can use a DSA network mask to create a data path between a Teradata node and a media server if the Teradata node and media server are physically connected. The DSA network mask setting does not override any physical subnet mask.

Use the default network mask, populated by DSA, that is based on the data path between Teradata nodes and media servers.

Note:

Remove network interfaces not used in the data path from the media server definition in the **BAR Setup** portlet.

Guidelines for DSA Network Masks

- Teradata nodes and media servers should be on the same logical subnet.
- If Teradata nodes and media servers are on different logical subnets, but can communicate with each other, open up the network mask as relevant.

Configuring Network Fabric: Portlets

Beginning with DSA 17.06, you can configure multiple fabrics.

Update `dsc.properties` for the number of fabrics allowed per Teradata system: `maxlimit.fabric=`*number-fabrics*. Default is 64.

1. Restart ClientHandler to discover all changed IP addresses.
   `/etc/init.d/clienthandler restart-hwupgrade`
2. Open the **BAR Setup** portlet.
3. Under **DSC Servers**, select your DSC server.
4. From the **Categories** list, click **Fabrics**.
5. Click + next to **Fabrics**.
6. Under **Fabric Details**, enter the following:

Option	Description
Fabric Name	Alphanumeric characters plus "-" and "_".

System Name	Choose the system from the drop-down list.

7. Under **Nodes**, associate the media servers with the nodes:

Node	Choose the node from the drop-down list. Click + to add another.
Media server	Select a media server. Click + to add another.
IP Address	Select an IP address. Click + to add another.

Note:

For standby nodes, you can reduce maintenance by setting `dsc.properties` to `validate.fabric=off`. Restart the DSC after changing the properties file. The undefined paths use bynet to move the data. This solution degrades performance.

8. Select the **Enable fabric** checkbox.
9. Click **Apply**.

Configuring a Backup Solution

Configure the backup solution suited to your configuration.

Adding or Editing a Disk File System, Including Spectrum Protect

When using a disk file system to back up and restore data, you must add and configure the disk file system using the **BAR Setup** portlet.

Note:

System names and open file limits are tied to media servers during the target group configuration.

1. Open the **BAR Setup** portlet.
2. Under **DSC Servers**, select your DSC server.
3. Under **Categories**, select **Backup Solutions**.
4. Under **Solutions**, select **Disk File System**.
5. Verify or add a disk file system:
   a. [Optional] To add a disk file system, from the **Disk File System Details** screen, click +.
   b. Enter a **File system name** and path that meets the following criteria:
      - Entire file system path has necessary data write permissions by the DSCuser

- Unique, fully qualified path name that begin with a forward slash, for example, `/storage/mnt1/`
- Does not differ by case alone. For example, both `/storage/mnt1/` and `/storage/Mnt1/` cannot be configured.
- Contains no spaces.
- [Spectrum Protect] **File system name** must start with /Spectrum followed by the node name and management class for the node name; for example, `/Spectrum/`*NodeName*`/`*ManagementClass*

Note:

The disk file system filepath used by the replication target group cannot be used by the operational target group, and vice versa.

c. Enter the maximum number of open files allowed.

6. To edit an existing system, change the number of **Max open files** next to its name.

Adding a DD Boost Server

When using a DD Boost server to back up and restore data, you must add and configure the DD Boost server using the **BAR Setup** portlet.

Note:

DD Boost storage units are tied to media servers during the target group configuration. It is important that the storage units entered for your configuration coincide with the storage units intended for the media server and device configuration mapped as a target.

1. Under **DSC Servers**, select your DSC server.
2. Under **Categories**, select **Backup Solutions**.
3. From the **Solutions** list, click **DD Boost**.
4. Click + next to **Servers**.
5. Under **DD Boost Details**, enter the following:

Option	Description
Nickname	Alphanumeric characters and underscores, but no spaces
Server Name (IP/DNS)	Server IP address or DNS
User / Password	Data domain DD Boost credentials

Option	Description
Storage unit name	Name must match a data domain storage unit intended for the media server and device configuration mapped as a target. **Note:** DSC does not support the same storage unit name across different DD Boost servers.
Max number of open files	Maximum number of open files allowed

6. Click + after **Max number of open files** to add more storage units.
7. Click **Apply**.

Adding an Amazon S3 Account

When using Amazon S3 storage to back up and restore data, you must add and configure the S3 account using the **BAR Setup** portlet.

1. Under **DSC Servers**, select your DSC server.
2. Under **Categories**, select **Backup Solutions**.
3. From the **Solutions** list, click **Amazon S3**.
4. Click + next to **Accounts**.
5. Under **Amazon S3 Storage Details**, enter the **Account Name**.
   Account name is alphanumeric, maximum of 32 characters.
6. Select an access type and enter its values:

Access Type	Values
Key authentication	Enter these items as they are configured on AWS. **Account Id** AWS account ID **Account Key** IAM user access key **Region** Region associated with this bucket; for example: us-east-1 Regions are validated but you can override if a new region becomes available. **Bucket** S3 bucket name **Prefix** Alphanumeric, followed by / to be used as a folder **Storage Units** Maximum of 3 characters, numeric range between 1-999 You can enter multiple regions and/or buckets by selecting +.

Access Type	Values
IAM Role	Enter these items as they are configured on AWS. **Role Name** As established on AWS When roles are used, all components must be in the cloud and assigned to this role. **Region** Region associated with this bucket; for example: us-east-1 Regions are validated but you can override if a new region becomes available. **Bucket** S3 bucket name **Prefix** Alphanumeric, followed by / to be used as a folder **Storage Units** Maximum of 3 characters, numeric range between 1-999 You can enter multiple regions and/or buckets by selecting +.
Snowball	Enter these items as they are configured on AWS. **Account Id** AWS account ID **Account Key** IAM user access key **Network IP** Local IP address for the Snowball device **Region** Data target region, assigned with the Snowball **Note:** Snowball cannot be associated with multiple regions. **Bucket** S3 bucket name **Prefix** Alphanumeric, followed by / to be used as a folder **Storage Units** Maximum of 3 characters, numeric range between 1-999 You can enter multiple buckets by selecting +.

7. Click **Apply**.

Adding Azure Blob Storage

When using Azure Blob storage to back up and restore data, you must add and configure the Azure Blob account using the **BAR Setup** portlet.

For optimal performance, configure 4 Blob containers per media server with 6 storage units each.

1. Under **DSC Servers**, select your DSC server.
2. Under **Categories**, select **Backup Solutions**.
3. From the **Solutions** list, click **Azure Blob Storage**.
4. Click next to **Accounts**.
5. From the **Azure Blob Storage Details** screen, configure the following:

Option	Description
Storage Account	Storage account name from Azure
Account Key	Account Key from Azure
Blob Type	Cool or Hot. Default: Cool
Specialized Endpoint	Leave blank. This field is only for National Clouds, which have sovereign endpoints. If you are in one of these national clouds, set the specialized endpoint entry as shown (the leading '.' is required). **Azure API Endpoint** / **Region Entry** Azure US Government: `.blob.core.usgovcloudapi.net` Azure Germany: `.blob.core.cloudapi.de` Azure China: `.blob.core.chinacloudapi.cn` For additional sovereign endpoints, check the Blob storage documentation for your national cloud.
Blob Container	Container name from Azure. The first 3 characters must be unique for each container.
Prefix	Alphanumeric, followed by / to be used as a folder
Storage Units	Maximum number of files you can write. Maximum of 3 numbers, range between 1-999

6. Click **Apply**.

Adding or Copying a Target Group

The data from Teradata systems is sent through media servers for backup by backup solutions. These relationships are defined in target groups, which you can create and copy.

When DSC is deployed in the Public Cloud, a default disk file system target group is created (`defaultDFTG`*system_name*). This target group scales out/in with the database.

1. Open the **BAR Setup** portlet.
2. Under **DSC Servers**, select your DSC server.
3. From the **Categories** list, select **Target Groups**.
4. From the **Target Groups** list, select **Remote Groups** or **Replication Groups**.
5. Do one of the following:

Option	Description
Add	Click + next to **Remote Groups**/**Replication Groups** to add a remote group.
Copy	Click ⧉ next to the name of the group you want to copy. If you copy the target group, some items cannot be changed.

Remote Target Group

6. Enter a **Target Group Name** for the new target group.
   You can use alphanumeric characters, dashes, dots, and underscores, but no spaces.
7. Select the **Enable target group** checkbox.
8. Select a **Solution Type**.
9. In the **Targets** and the **Remote Group Details** section, make selections for the Solution Type:
   - DD Boost: Select the **Target Entity**, the **BAR Media Server**, the **Storage Unit** and set the **Open Files** limit.

     You also can select **Reject backup job if any media servers are offline**.
   - Disk File System: Select the **Bar Media Server**, the **Disk File System** and the **Open Files** limit.
   - Amazon S3: Select the **Account Name**, **Region**, **BAR Media Server**, **Bucket**, **Prefix**, and enter the number of **Storage Units**.
   - Azure Blob Storage: Select the **Storage Account**, **BAR Media Server**, **Prefix**, and set the number of **Storage Units**.

     To use multiple storage accounts, select + next to **Targets** and enter the information for another account.
   - Google Cloud: Select the **Service Account**, **BAR Media Server**, **Bucket**, **Folder**, and set the number of **Devices**.

Option	Description
Add	Click + to add; policies and devices, storage units and open files limit, or disk file systems and open files limit.
Remove	Click − to remove; policies and devices, storage units and open files limit, or disk file systems and open files limit.

10. Click **Apply**.

Replication Target Group

11. In the **Targets** and the **Replication Target Group Details** section, make selections for the Solution Type:
    - DD Boost: Select the **Target Entity**, the **BAR Media Server**, the **Storage Unit** and set the **Open Files** limit.
    - Disk File System: Select the **BAR Media Server**, the **Disk File System** and the **Open Files** limit.
    - Amazon S3: Select the **Account Name**, **Region**, **BAR Media Server**, **Bucket**, **Prefix**, and enter the number of **Storage Units**.
    - Azure Blob Storage: Select the **Storage Account**, **BAR Media Server**, **Prefix**, and set the number of **Storage Units**.
12. Click **Apply**.

Upgrading Software

Backing Up DSC Repository and Configuration Before Upgrading

The DSC repository stores all DSA data, including configuration definitions and settings, job definitions, job status, and job history. Protecting the data in the DSC repository is critical. Without the DSC repository, database backup data sets cannot be restored.

Important:

- If you are upgrading DSC to version 17.10.01.00 then make sure to upgrade Postgres to version 10.15 (SLES 11 SP3 : 10.15-0.2.24 and SLES 12 SP3 : 10.15-4.9.1) before upgrading the DSC.
- If you are upgrading DSC to version 17.20.00.00 then make sure to upgrade Postgres to version 10.17 (SLES 11 SP3 : 10.17-0.2.30 and SLES 12 SP3 : 10.17-4.16.4) before upgrading the DSC.
- If you are upgrading DSC to version 17.20.00.03 then make sure to upgrade Postgres to version 10.17 (SLES 11 SP3 : 10.17-0.2.30, SLES 12 SP3 : 10.17-4.16.4 and SLES 15 SP2: 10.17-4.16.4) before upgrading the DSC.
- If you are upgrading DSC to version 17.20.03.00 then make sure to upgrade Postgres to version 10.22 (SLES 11 SP3 : 10.22-0.2.46, SLES 12 SP3 : 10.22-4.31.1 and SLES 15 SP2: 10.22-150100.8.50) before upgrading the DSC.

It is critical to save copies of the following configuration information before you upgrade.

- The backup repository configuration
- The information required by the `/tmp/dsainputs` template if you are using PUT

Most of this information is in the properties files saved in `/etc/opt/teradata/dsa`.

Important:

If you change the DSC name during the upgrade you must repeat the repository backup when you are done.

Use the following procedure to back up the DSC repository.

1. Run the `config_repository_backup` command followed by the parameters to configure a target group for the DSC repository backup and schedule a DSC repository backup.

Parameter	Description
f|file *filename*	The full path and name of the file containing the necessary configuration parameters.

Parameter	Description
u|user_authentication *User*	Required when security management is enabled. Supplies the command with the Viewpoint user, and triggers a password prompt for authentication.

Sample XML file:

```
<dscRepositoryBackup dscVersion="dscVersion1" xmlns="http://
schemas.teradata.com/v2012/DSC">
   <!-- 'target_name' - Required, max 32 characters -->
   <target_name>SampleBackupRepoTargetGroup</target_name>

   <!-- 'frequency_value' - Required, Value between 1-4, Defaults to 1 -->
   <frequency_value>1</frequency_value>

   <!-- 'day_selection' - Required, accepted values: Su, Mo, Tu, We, Th, Fr,
Sa -->
   <day_selection>Sa,Su</day_selection>

   <!-- 'start_time' - Required, Max characters 5, Values 1:00-12:00 -->
   <start_time>12:00</start_time>

   <!-- 'start_am_pm' - Required, accepted values: AM/PM -->
   <start_am_pm>AM</start_am_pm>

</dscRepositoryBackup>
```

2. Type `dsc export_repository_backup_config -f` *export_repository_backup_config.xml*.

Note:

You need to run `export_repository_backup_config` every time the configuration for repository backup is changed.

NOTICE

Keep *export_repository_backup_config.xml* in a safe, known location to be imported back into DSC in case of a disaster.

3. Type `dsc run_repository_job -t backup`, and press **Enter** to run a DSC repository backup.

Note:

The `run_repository_job` command can only be initiated if no operational jobs are running.

Upgrading DSA Software Using Scripts or rpm

The process for upgrading using scripts or rpm is the same as that for the initial installation. The values entered at the time of the initial installation are displayed and can be changed if necessary.

1. If you are upgrading from DSA 16.20.00.02 or earlier to DSA 16.20.00.03 or later, you must remove the installed AXM packages before reinstalling ClientHandler.
   a. Get a list of the installed packages: `rpm -qa | grep AXM`
   b. Remove each package: `rpm -e` *nameofpackage*
2. Follow the instructions at Installing Software with Scripts.

Upgrading the Database to 16.0 or Later

If you upgrade to Teradata Database 16.0 or later, you must reconfigure the database in the **BAR Setup** portlet and restart DSmain on the database.

1. Run DIPBAR on the target system.
2. Follow the instructions in Adding or Editing a Teradata System.

Resolving Failed Upgrades

To resolve a failed upgrade, you must determine whether the failure is of the DSC or some other component and the point where the failure occurred.

Note:

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Resolving Failed Upgrade of DSA Component other than the DSC

If the upgrade fails for DSA components other than the DSC, the environment may be corrupt.

1. Uninstall both the previous and the new version of the component.
2. After determining the cause of the failure, do a fresh install of either the new or the previous version using the information you exported before attempting the upgrade (see Backing Up DSC Repository and Configuration Before Upgrading).

Teradata Vantage on VMware on DSU

The DSU on VMware template is Teradata Vantage on VMware and hosts the DSC component and the DSC repository. Teradata Vantage on VMware is a SUSE Linux Enterprise Server (SLES) operating system and Analytics Database packaged into a virtual machine that runs in a virtualized environment on third-party hardware.

This guide shows how to set up a DSU instance and integrate it into an existing Teradata system.

Audience

This guide is intended for those experienced in vSphere, vCenter, and ESXi terminology and who have an understanding of the following:

- Standard switches, datastores, VM templates, ova, ovf, etc.
- Teradata configurations, including TPA, CMIC, Viewpoint and DSU.
- Basic network setups for these node types on a bare metal install and how that relates to a vSphere installation

Software Requirements

VMware vCenter 5.5 or higher

Hardware Requirements

pNode/Server: For example, Dell PowerEdge R720xd, Dell PowerEdge R730xd, Dell PowerEdge R740xd, HP Gen9 or similar with the following minimum resources:

Item	Resource
CPU	4
Memory	16 GB
Storage	Datastore must be able to fit a 500 GB VMware image. The OS drive uses approximately 200 GB of space and the DSU repository uses approximately 300 GB of space
Separate Physical Networks	1 – public 1 – DSU (10 GB network, optional)

Special Switch Requirements

vCenter allows for distributed and local virtual switches. This version of vCenter only supports local virtual switches, so each ESXi host must have local virtual switches for the public network, and any optional CMIC or DSU networks.

The DSU virtual switches must have MTU values of 9000 for optimum performance.

- For best performance, all virtual switches must be on their own physical network.
- For low performance systems (for example, development or test), the virtual adapters can be placed on the same physical network, recognizing that performance is reduced with the shared bandwidth.

  With the exceptions of the public and CMIC subnets, using an MTU value of 9000 may cause problems on subnets that are using an MTU of a different size.

All virtual instances require static IPs.

Downloading Teradata DSC for VMware for DSU

Use these steps to download Teradata DSC for VMware and the deployment scripts needed for installation.

1. Go to https://support.teradata.com.
2. Log in.
3. Under **Downloads** select **Update Your Software**.
4. Select **Backup Archive Restore**.
5. Select **Data Stream Utility**.
6. Fill out the information and click **Submit**.
7. Download **Teradata_DSC** (TDVM-DSC*xx.xx*).
   The `.ova` file, which contains the templates, is large and will take some time to download.

Deploying Teradata Vantage on VMware for DSU

Prerequisite:

Download the `Teradata_DSC` ova file. See Downloading Teradata DSC for VMware for DSU.

The vSphere environment must already be set up.

---

1. Connect to the vSphere Client through a vCenter server.
2. On the **Home** tab, under **Inventories**, select **Hosts and Clusters**.
3. In the **Navigator** pane, right-click a host and select **Deploy OVF Template**.
4. At the **Source**, **Select source** step, click **Local file**, browse to the `.ova` file, and click **Next**.
5. At the **Destination**, **Select name and folder** step, select the name and location for the deployed template and click **Next**.
6. At the **Setup Networks** step, make sure the destination is a public network and click **Finish**.
   Wait for the deployment to complete.
7. [Optional] To use a private DSU network, follow these steps:
   a. In the **Navigator** pane, right-click the VM and select **Edit Settings**.
   b. On the **Virtual Hardware** tab, select **New Network**.

c. For **New device** select **Network**.
d. From the **VM Network** menu, select the switch corresponding to your DSU private network.
e. Verify that the network adapter has an MTU setting of 9000.
f. Click **OK**.

8. In the **Navigator** pane, right-click the VM and select **Power > Power On**.
9. On the **Summary** tab, click **Launch Remote Console**.
   If VRMC is not installed, click the small window labelled **Powered On**, and the console opens in a new tab of the web browser.
10. On the console screen, log in.
    ```
    linux login: root
    Password: iumb123
    ```
11. After login, configure the network:
    a. Run this command:
       ```
       # config-network-dsu
       ```
    b. Enter the required information following the onscreen instructions.

    After the fields have been entered, the VM restarts. If a setting needs to be corrected, the command can be re-run.
    After the VM has restarted, you can SSH into it using its public IP address.
12. SSH to the server (root/iumb123) and note your timezone value from `/root/tvme/LinuxTimeZoneStrings.txt`.
    ```
    cat /root/tvme/LinuxTimeZoneStrings.txt
    ```
13. On the VM console, configure the system:
    a. Run this command:
       ```
       # config-system-dsu
       ```
    b. Enter the required information following the onscreen instructions.
    c. When the fields are filled out, type `END` and press **Enter**.
    d. If this is an upgrade, run `modify_dsc_name.sh` and enter a different hostname from the previous version when asked for the new DSC name.

    DSC and the other DSU packages start running automatically.
    If a setting needs to be corrected, the command can be re-run.
14. [Optional] Configure a TPA node as a media server.

Using a TPA Node as a Media Server with VMware

Prerequisite:
Each TPA node must already have ClientHandler installed.

DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

By default the DSU VM is configured as a media server. Teradata recommends using the TPA nodes as media servers.

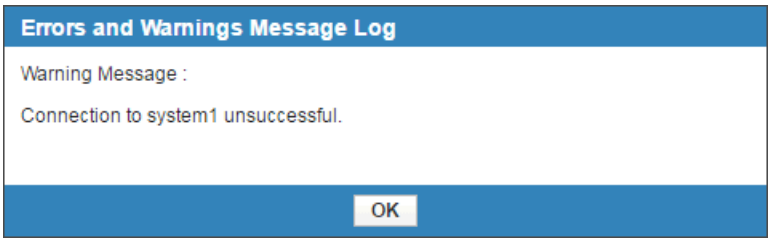
1. On the DSU VM locate the script, `config-media-server-dsu`, in `/root/tvme/standalone`.
2. Copy the script to each TPA node.
3. Run this command, following the onscreen instructions.
   `config-media-server-dsu`
4. Repeat the command on each TPA node.

Set Up a Backup Location

Verify that a backup location is established. See Storage Options.

Resolving Connection Warning: Adding Source Teradata System

When adding a source system in the **BAR Setup** portlet, you might receive this warning message when you click **Apply** in the **System and Nodes** page:



This is caused by the DSU vNode not being able to resolve the Analytics Database / Teradata Database COP entries.

To resolve the connection warning, follow these steps to verify that the servers and domains configured in Viewpoint are also configured in the DSU vNode.

1. SSH into Viewpoint and extract the DNS servers and search domains.
   a. Extract the DNS servers:
      `# grep "NETCONFIG_DNS_STATIC_SERVERS" /etc/sysconfig/network/config`

      Sample output:

      ```
      NETCONFIG_DNS_STATIC_SERVERS="153.64.251.200 153.65.8.10"
      ```

   b. Extract the DNS search domains:
      `# grep "NETCONFIG_DNS_STATIC_SEARCHLIST" /etc/sysconfig/network/config`

      Sample output:

```
NETCONFIG_DNS_STATIC_SEARCHLIST="td.teradata.com teradata.com"
```

2. SSH into the DSU vNode, check the DNS servers and search domains in `/etc/sysconfig/network/config`, and if necessary, add those that are in Viewpoint.
   a. Extract the DNS servers:
      ```
      # grep "NETCONFIG_DNS_STATIC_SERVERS" /etc/sysconfig/network/config
      ```
      Sample output:
      ```
      NETCONFIG_DNS_STATIC_SERVERS="153.64.251.200"
      ```
      Notice that `153.65.8.10` from Viewpoint is missing.
   b. If necessary, add any missing servers.
      ```
      # sed -i "s/^NETCONFIG_DNS_STATIC_SERVERS=.*$/
      NETCONFIG_DNS_STATIC_SERVERS=\"153.64.251.200 153.65.8.10\"/" /etc/sysconfig/
      network/config
      ```
   c. If you added a server, verify it is now there.
      ```
      # grep "NETCONFIG_DNS_STATIC_SERVERS" /etc/sysconfig/network/config
      ```
      Sample output:
      ```
      NETCONFIG_DNS_STATIC_SERVERS="153.64.251.200 153.65.8.10"
      ```
   d. Extract the DNS search domains:
      ```
      # grep "NETCONFIG_DNS_STATIC_SEARCHLIST" /etc/sysconfig/network/config
      ```
      Sample output:
      ```
      NETCONFIG_DNS_STATIC_SEARCHLIST="labs.teradata.com
      ```
      Note that `td.teradata.com` and `teradata.com` from Viewpoint are missing.
   e. If necessary, add any missing search domains:
      ```
      # sed -i "s/^NETCONFIG_DNS_STATIC_SEARCHLIST=.*$/
      NETCONFIG_DNS_STATIC_SEARCHLIST=\"labs.teradata.com td.teradata.com
      teradata.com\"/" /etc/sysconfig/network/config
      ```
   f. If you added a search domain, verify it is now there.
      ```
      # grep "NETCONFIG_DNS_STATIC_SEARCHLIST" /etc/sysconfig/network/config
      ```
      Sample output:
      ```
      NETCONFIG_DNS_STATIC_SEARCHLIST="labs.teradata.com
      td.teradata.com teradata.com"
      ```
   g. Execute `/sbin/netconfig update -f` to apply the change at the end.

3. If the warning message continues, it is because the DNS server doesn't contain any DNS record for the database COP entries. Extract the Analytics Database / Teradata Database COP entries from the hosts file in Viewpoint and append them to the hosts file in the DSU vNode.
   The basic syntax is as follows:

   ```
   # grep TeradataSystemNamecop* /etc/hosts | ssh root@DSU_public_ip 'cat
   >> /etc/hosts'
   ```

   For example, if the *TeradataSystemName* is `system1` and the public IP for the DSU vNode is `10.25.23.170`, use the following syntax:

   ```
   # grep system1cop* /etc/hosts | ssh root@10.25.23.170 'cat >> /etc/hosts'
   ```

Default Usernames and Passwords

These are the default usernames/passwords associated with the DSU Repository for metadata. Refer to Customizing Values Used in PUT Installation for descriptions, and see Updating Passwords for how to change them:

- DBSUSERNAME=DSUADMIN
- DBSPASSWORD=dsu#Bar!
- SUPERUSERNAME=DSUADMIN
- SUPERUSERPASSWORD=dsu#Bar!
- OPPASSWORD=dsu#Bar!
- REPPASSWORD=barbackup
- DSCUSER=dsu#Bar!
- DBCUSER=dbc#Bar!

Extracting the DNS Servers, DNS Search Domains, NTP Servers, and OS TimeZone from Viewpoint/TPA Nodes

Extracting the DNS Servers

- Execute the following command in Viewpoint:
  `# grep "NETCONFIG_DNS_STATIC_SERVERS" /etc/sysconfig/network/config`

  Sample output if `153.64.251.200` and `153.65.8.10` are the two DNS servers configured in Viewpoint:

  ```
  NETCONFIG_DNS_STATIC_SERVERS="153.64.251.200 153.65.8.10"
  ```

Extracting the DNS Search Domains

- Execute the following command in Viewpoint:
  `# grep "NETCONFIG_DNS_STATIC_SEARCHLIST" /etc/sysconfig/network/config`

  Sample output if `td.teradata.com` and `teradata.com` are the two DNS search domains configured in Viewpoint:

```
NETCONFIG_DNS_STATIC_SERVERS="td.teradata.com teradata.com"
```

Extracting the NTP Servers

- Execute one of these commands on any Teradata TPA node:

MPP System	
Command	`# /usr/pde/bin/pcl -s grep "^server" /etc/ntp.conf`

Output	`All 8 node(s) have connected`
	`<----------   byn001-04  ----------`
	`>`
	` server time00.teradata.com iburst prefer server time01.teradata.com iburst`
	
	`<----------   byn001-07  ----------`
	`>`
	` server time00.teradata.com iburst prefer server time01.teradata.com iburst`
	
	`<----------   byn001-02  ----------`
	`>`
	` server time00.teradata.com iburst prefer server time01.teradata.com iburst`

SMP System	
Command	`# grep "^server" /etc/ntp.conf`
Output	`server time00.teradata.com iburst prefer server time01.teradata.com iburst`

  where `time00.teradata.com` and `time01.teradata.com` are the two NTP servers configured in the Teradata TPA node.

Extracting the OS TimeZone

- Execute the following command at any Teradata TPA node:
  `# grep "TIMEZONE" /etc/sysconfig/clock TIMEZONE="US/Eastern"`

Sample output where "US/Eastern" is the OS TimeZone configured in the Teradata TPA nodes:

```
DEFAULT_TIMEZONE="US/Eastern"
```

DSA Properties

DSA Property Files

DSA property files are created during installation with environment-specific configurations. These files do not require modification after installation unless there are changes in your environment, such as the ActiveMQ server, SSL, or TVI settings. Other changes in your environment, such as the IP address of the host server running the ActiveMQ broker or the logging levels, can be updated using the **BAR Setup** portlet.

The Teradata DSA property files are located in `/etc/opt/teradata/dsa`:

- `barportlet.properties`
- `commandline.properties`
- `clienthandler.properties`
- `dsarest.properties`
- `dsc.properties`

Note:

These files should not be altered. However, if any of the settings in `barportlet.properties`, `commandline.properties`, `clienthandler.properties`, `dsarest.properties`, or `dsc.properties` are changed because of environment updates, the changes do not take effect until DSC and the ClientHandler are restarted.

Data Stream Controller (DSC) Properties

Note:

Do not edit any property setting after installation. If any change is made, the change does not take effect until DSC and the ClientHandler are restarted.

Property	Description	Default Setting
broker.url	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.	
broker.port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616	61616
broker.type	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password	tcp

Property	Description	Default Setting
	should match the DSA REST API https password. Default: tcp	
dataset.retention.days	Number of days used for checkretention (previously listed) to determine if a save set (or data set) is at risk of being expired on the backup application. This value is used both for the checkretention task and the `sync_save_sets` user command to compile a list of save sets to send to DSA Network Client (ClientHandler).	30 days
dsarest.webservice.host	DSARest web service host, which is where the web service runs. The host is usually the DSC server.	
dsc.name	Name of the DSC.	
executormanager.maxConcurrentJobs	Maximum number of jobs allowed to run on DSC at the same time	100
executormanager.maxQueuedJobs	Maximum number of jobs placed on the queue and executed when slots become available	20
fullExport.landingZone	Directory on the DSC server where the job status log is output when you use the `-E|-full_export` parameter with the `job_status_log` command.	`/var/opt/teradata/dsa/export`
log4j.rootLogger	Logging level of the DSC component	INFO Other values: ERROR WARN DEBUG
log4j.appender.logfile.file	Location of the log file	
log4j.appender.logfile	Internal setting for logging infrastructure	
log4j.appender.logfile.maxFileSize	Maximum size of the logging file before being rolled over to backup file	10 MB
log4j.appender.logfile.maxBackupIndex	Number of backup logging files that are created. The oldest file is erased if the maximum number of files has been created.	20
log4j.appender.logfile.layout	Internal setting for logging infrastructure	
log4j.appender.logfile.layout.ConversionPattern	Pattern of the log file layout	
logger.useTviLogger	TVI logger on or off setting. When set to true, fatal error messages can be sent to TVI.	true
maxlimit.fabric	The number of fabrics allowed per Teradata system.	64
startup.retry.interval	Time interval measured in seconds for retrying the connection to ActiveMQ during DSC startup	300

Property	Description	Default Setting
tvi.retry	Number of times DSC will retry to connect to ActiveMQ during DSC startup before error messages are reported to TVI	10
validate.fabric	DSC validates the fabric configuration when a job is executed	on
viewpoint.url	Hostname or IP address of the system running Viewpoint	
viewpoint.port	Port number of the machine where viewpoint is listening	80
cam.activemq.host	Hostname or IP address of primary CAM system, which enables alert messaging	
cam.activemq.port	CAM port number of primary CAM system [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.	61616
cam.cluster.enabled	Flag for enabling CAM clustering	false
cam.clustered. activemq.host	Hostname or IP address of primary and failover CAM systems, which enable alert messaging	
cam.clustered. activemq.port	CAM port number [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.	61616
autodeletejob.cronstring	Time when retired jobs scheduled for deletion are deleted. The string must be in the form of a valid cron expression. Cron expressions are comprised of 6 required fields and one optional field, each of which is separated by one white space. The fields are: *Seconds Minutes Hours Day-of-month Month Day-of-week Year* `(optional)`	autodeletejob. cronstring=0 0 0 * * ? The default runs the delete job every night at 0 seconds, 0 minutes, and 0 hour, which is equivalent to midnight.
message.timeToLive	JMS message time-to-live configuration	1200000

DSA REST Properties

The DSA REST property file is located at: `/etc/opt/Teradata/dsa/dsarest.properties`.

Property	Description	Default Setting
dsarest.certificate. keystorepass	Stores the keystore password used for the DSARest web service via https	
dsarest. webservice.port	Port for the DSARest web service running on DSC server	9090

Property	Description	Default Setting
dsarest.webservice.scheme	Scheme for the DSARest web service running on DSC server	https
dsc.name	Name of the DSC.	
broker.url	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.	
broker.port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616	61616
transport	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp	tcp
log.LandingZone	Location of the consolidated logs on the DSC server	`/var/opt/teradata/dsa/landing_zone`

ClientHandler Properties

Note:

Do not edit any property setting after installation.

Property	Description	Default Setting
broker.list	Hostname or IP address of the machine running the ActiveMQ broker and port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616	61616
broker.type	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp	tcp
log4j.rootLogger	Logging level of the DSC component. **Note:** Changing the logging level requires a manual restart of the ClientHandler.	INFO Other values: ERROR WARN DEBUG
log4j.appender.logfile.file	Location of the log file	
log4j.appender.logfile	Internal setting for logging infrastructure	
log4j.appender.logfile.maxFileSize	Maximum size of the logging file before being rolled over to backup file	10 MB

Property	Description	Default Setting
log4j.appender.logfile.maxBackupIndex	Number of backup logging files that are created. The oldest file is erased if the maximum number of files have been created.	3
log4j.appender.logfile.layout	Internal setting for logging infrastructure	
log4j.appender.logfile.layout.ConversionPattern	Pattern of the log file layout	
memory.numbuffers	Number of buffers per stream that are allocated. This parameter is useful for limiting memory.	
memory.sizebuffers	The initial size of buffers. Even if the initial buffer size is low, a buffer may grow to approximately 1MB during a backup or restore job. This is the size of a single, full record from the database. If the default value causes a problem, such as when buffers are frequently reallocated and memory fragmentation occurs, you can use this parameter to allocate buffers of the appropriate size.	
perf.buffersperstream	The number of buffers that DSA Network Client allocates per network stream or socket. The minimum value is 1. The maximum value is 64.	16
perf.sizebuffers	The starting size of the buffers. The minimum value is 1. The maximum value is 2097152.	1572864
server.port	Socket number on which the BAR server is listening	15401
server.id	Name of the BAR server	Hostname of the BAR master server.
server.protocol	Protocol used for communication between the database and the BAR server. Values: SSL or TCP.	TCP
ssl.truststore.file	Used for setting up SSL truststore information. Only required if protocol is SSL.	
ssl.keystore.file	Used for setting up SSL keystore information. Only required if protocol is SSL.	
ssl.keystore.passwordencoded	Used by SSL communication and is the encrypted password for the keystore.	
CBBTempFile.path	Path to the temporary file repository for CBB. The path is found only on the Web Service master server, which is used for incremental job communication.	`/var/opt/teradata/dsa/cbb`

Property	Description	Default Setting
Master.hostname	Host name of the Web Service master server, which is used for incremental job communication. The CBBTempFile.path is mounted on the Web Service master server.	
logger.useTviLogger	TVI logger on or off setting. When set to true, fatal error messages can be sent to TVI .	true
startup.retry.interval	Time interval measured in seconds for retrying the connection to ActiveMQ during ClientHandler startup.	300
tvi.retry	Number of times the ClientHandler tries to connect to ActiveMQ during DSC startup before error messages are reported to TVI	10
Webservice.port	Port number that the ClientHandler Web Service uses for incremental job media server communication.	15402

Command Line Properties

Note:

Do not edit any property setting after installation.

Property	Description	Default Setting
broker.url	Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.	
broker.port	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616	61616
broker.type	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp	tcp
dsc.name	DSC name the BAR command-line interface connects to.	none
log4j.rootLogger	Logging level of the DSC component. Values are: INFO ERROR WARN DEBUG	INFO
log4j.appender.logfile.file	Location of the log file	
log4j.appender.logfile	Internal setting for logging infrastructure	

Property	Description	Default Setting
log4j.appender. logfile.maxFileSize	Maximum size of the logging file before rolling over to backup file	10 MB
log4j.appender. logfile.maxBackupIndex	Number of backup logging files created. The oldest file is erased if the maximum number of files have been created.	3
log4j.appender.logfile.layout	Internal setting for logging infrastructure	
log4j.appender.logfile. layout.ConversionPattern	Pattern of the log file layout	
BARCMDLINE_ JAVA_HOME	Path where Java is installed. This is just for a generic SLES Linux environment; it is not used by Java.	

BAR Portlets Properties

Note:

Do not edit any property setting after installation.

Property	Description	Default Setting
file.uploadsizelimit	Maximum size of file that can be uploaded	1048576
file.uploaddirectory	Directory where files are uploaded.	/tmp/

Administrative Tasks

Creating an Incident

You must obtain an Incident number from Teradata customer portal prior to performing any software upgrades.

1. Go to https://support.teradata.com.
2. Log in.
3. Click **Incidents** and follow the instructions.

Creating a Diagnostic Bundle for Support

Teradata DSA provides a command-line, interactive script to collect:

- Current time on the server
- Component versions, for Analytics Database/Teradata Database, DSC, DSA Network Client, Viewpoint, BAR Command Line, ActiveMQ
- General system configurations, such as the number of media servers, DSC server status
- Property files and logs for the DSC component and the DSA Network Client (ClientHandler)

This information is useful for troubleshooting by Teradata Services.

The `dsa_support_info.sh` script is installed in the root directory associated with a DSA installation package:

- `$DSA_DSC_ROOT` on the DSC server
- `$CLIENTHANDLER_ROOT` on a media server
- `$BARCMDLINE_ROOT` on the command line server

1. [Optional] To set up an SSH trust relationship between the DSC server and BAR servers or remote servers, run `dsatrust.sh` with the following syntax:
   `dsatrust.sh [-a] [-l <hosts>] [-u user] [-v] [-h]`

Parameter	Description
-a	Sets trusted relations between the DSC server and other BAR servers.
-l *hosts*	Sets trusted relations to the listed hosts. Host names must be separated by commas.
-u *user*	Specify login user name. You must use this parameter with the -a or -l parameter.
-v	Displays the script version.

Parameter	Description
-h	Displays help.

2. Run `dsa_support_info.sh` on a server to collect local information, using the following syntax:
   `dsa_support_info.sh [-c][-d <path>][g][-h][-i][-j <job>][-s <timestamp>][-t][-v][-x]`

Parameter	Description
-c	Collects core dumps for the DSA Network Client (ClientHandler).
-d *path*	Specifies the dump directory path. Default: `/var/opt/teradata/dsa/support/`*hostname_current timestamp*
-g	Collects general support information.
-h	Displays help.
-i	Collects installation logs.
-j *job*	Collect job information. Enter the job name as *job*.
-s *timestamp*	Collects logs for the date and time specified in the timestamp. Specify the timestamp in the following format, for example, `2015-05-15 09:50`.
-t	Triggers a TVI event. If the -t parameter has been used to trigger a TVI event, the data is zipped. If the 50 MB limit per TVI event is exceeded, the support bundle is split into multiple zip files, and a separate TVI event is triggered for each zip file. The zip files are copied to `/var/opt/teradata/SupportBundle/`. You can access the unzipped files in the dump directory specified by the -d parameter.
-v	Displays the script version.
-x	Bypasses all user prompts.

After the script runs, files specific to the local server are output and can include:

- Component information in `.out` files
- Job output xml and `.out` files
- Log files
- Property files
- DSA Network Client (ClientHandler) core dumps

The output directory is `/var/opt/teradata/dsa/support/`*hostname_current timestamp* or a user-specified directory.

Updating Passwords

The `configureDBSPassword.sh` script allows system password information to update the dbc, admin, BAR, and BARBACKUP passwords that DSA uses so that they match the database passwords. The script does not change the passwords in the database. It is included in the DSC install directory at `$DSA_DSC_ROOT`.

Note:

If there is a password mismatch, DSC services cannot be started.

- Run `configureDBSPassword.sh` as shown:

```
configureDBSPassword.sh
 -h Display help
 -d Directory where DSC is installed. Defaults to current directory if
not specified.
```

Troubleshooting

Logs

Logs Created During DSA Installation

Logs in the following table contain messages produced during package installation.

Log File	Location
`dscinstall.log`	Resides on the DSC server in `/tmp`.
`clienthandlerinstall.log`	Resides on media servers in `/tmp`.
`axmddboostinstall.log`	On media servers that are configured for DD Boost, resides in `/tmp`.
`axms3install.log`	On media servers that are configured for S3, resides in `/tmp`.
`axmazureinstall.log`	On media servers that are configured for Azure, resides in `/tmp`.
`axmgcpinstall.log`	On media servers that are configured for GCP, resides in `/tmp`.
`barcmdlineinstall.log`	Resides in one of the following servers in `/tmp`: • DSC server • Media server
`barportletsinstall.log`	Resides on the Viewpoint server in `/tmp`.

DSA REST Log

The DSA REST log is the log from the DSARest web service.

Log File	Location
`dsarest.log`	Resides at `/var/opt/teradata/dsa/logs/`. • To check status of DSARest `/etc/init.d/dsc wsstatus` • Start DSARest - `/etc/init.d/dsc wsstart` • Stop DSARest - `/etc/init.d/dsc wsstop` • Restart DSARest - `/etc/init.d/dsc wsrestart`

NFS Environment Order of Shutdown

When shutting down a NFS environment and NFS server, you must shut down the NFS clients before the NFS server. If you shut down the NFS server before the NFS clients, the NFS clients to that mount point will hang during the unmounts because the server is offline.

For example, if you have an NFS mount in an environment where there are 4 media servers, and the NFS server is running from mediaServer1:

1. On mediaServer2-4, shut down all ClientHandler processes. This unmounts the NFS mount points that mediaServer2-4 use.
2. Shut down the NFS server.

Ports for DSA Solutions

Data Domain Ports

These tables show port requirements for accessing a Data Domain system through a firewall. For more information see: https://community.emc.com/docs/DOC-33258.

Important:

Shaded rows are non-advocated ports. Do not activate those ports. They are shown to provide the defaults.

Ports: Inbound Traffic (Source is Client)

Protocol	Service	Port	Description
TCP	FTP	21	Port is used for control only if FTP is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Disabled
TCP	SSH/SCP	22	Port is used only if SSH is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Enabled
TCP	Telnet	23	Port is used only if Telnet is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Disabled
TCP	HTTP	80	Port is used only if HTTP is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Enabled
TCP	HTTPS	8080	Port is used only if HTTPS is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Enabled
TCP	DDBOOST/ NFS (portmapper)	111	Used to assign a random port for the mountd service used by NFS and DDBOOST.Mountd service port can be statically assigned.
UDP	DDBOOST /NFS (Portmapper)	111	Used to assign a random port for the mountd service used by NFS and DDBOOST.Mountd service port can be statically assigned.
UDP	NTP	123	Port is used only if NTP is enabled on the Data Domain system. Run 'ntp status' to determine if this is the case.
UDP	CIFS (NetBIOS Name Service)	137	Port used by CIFS for NetBIOS name resolution.
UDP	CIFS (NetBIOS Datagram Service)	138	Port used by CIFS for NetBIOS Datagram Service.
TCP	CIFS (NetBIOS Session Service)	139	Port used by CIFS for session information.
UDP	SNMP (Query)	161	Port is used only if SNMP is enabled. Run 'snmp status' to determine if this is the case.

Protocol	Service	Port	Description
TCP	LDAP	389	LDAP server listens on this port for any LDAP client request. Default: TCP
TCP	HTTPS	443	Port is used only if HTTPS is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case).
TCP	CIFS (Microsoft-DS)	445	Main port used by CIFS for data transfer.
TCP	OST / NFS	2049	Main port used by NFS. Can be modified with the 'nfs set server-port' command. Command requires SE mode.
TCP	Replication / OST / Optimized Duplication	2051	Port is used only if replication is configured on the Data Domain system. Run 'replication show config' to determine if this is the case. This port can be modified with the 'replication modify' command.
TCP	NFS Mountd / OST / Optimized Duplication	2052	Main port used by NFS MOUNTD. Can be modified with the 'nfs set mountd-port' command in SE mode.
TCP	SMS (System Management)	3009	Port used for managing a system remotely using Web Based GUI DDEM (Data Domain Enterprise Manager). Cannot be modified. Only used on Data Domain systems running DDOS 4.7.x or later. Also needs to be opened if you plan to configure replication from within the Data Domain GUI interface, as the replication partner needs to be added to the DD Enterprise Manager.
TCP	iPerf	5001	Default port used by iperf. To change the port, use the -p option from se iperf or port option from the net iperf command. Remote side must listen on the new port.
TCP	Congestion-checker	5002	Default port used by congestion-checker when running iperf. To change the port, specify the new port in the port option of the net congestion-check command. Remote side must also listen on the new port. Available only for DDOS 5.2 and later.
*NFS (mountd) Can be hardcoded using the command 'nfs set mountd-port'. Command requires SE mode			

Ports: Outbound Traffic (Source is Client)

Protocol	Service	Port	Description
TCP	FTP	20	Used for data only if FTP is enabled (run 'adminaccess show' on the Data Domain system to determine if this is the case). Default: Disabled
TCP	SMTP	25	Used by the Data Domain system to send email autosupports and alerts.
UDP/TCP	DNS	53	Used by Data Domain system to perform DNS lookups when DNS is configured. Run 'net show dns' to review DNS configuration.
TCP	HTTP	80	Used by Data Domain system for uploading log files to Data Domain Support using the 'support upload' command. Default: Enabled
TCP	HTTPS	8080	Used by Data Domain system for uploading log files to Data Domain Support using the 'support upload' command. Default: Enabled
UDP	NTP	123	Used by the Data Domain system to synchronize to a time server.
UDP	SNMP (Trap)	162	Used by the Data Domain system to send SNMP traps to SNMP host. Use 'snmp show trap-hosts' to see destination hosts and 'snmp status' to display service status.

Protocol	Service	Port	Description
UDP	Syslog	514	Used by the Data Domain system to send syslog messages, if enabled. Use ‘log host show’ to display destination hosts and service status.
TCP	Replication / OST / Optimized Duplication	2051	Used by Data Domain system only if replication is configured. Use ‘replication show config’ to determine if this is the case.
TCP	SMS (System Management)	3009	Used for managing a system remotely using Web Based GUI DDEM (Data Domain Enterprise Manager). Cannot be modified. Only used on Data Domain systems running DDOS 4.7.x or later. Needs to be opened if you plan to configure replication from within the Data Domain GUI interface, as the replication partner needs to be added to the DD Enterprise Manager.
TCP	iPerf	5001	Default port used by iperf. To change the port, use the -p option from se iperf or port option from the net iperf command. Remote side must listen on the new port.
TCP	Congestion-checker	5002	Default port used by congestion-checker when running iperf. To change the port specify the new port in the port option of the net congestion-check command. Remote side must listen on the new port. Available only for DDOS 5.2 and later.

Using PUT for Install and Upgrade

Before using PUT, you must have already installed Postgres and have the DSC installed and running.

Setting Up PUT

Before You Begin

Before installing, upgrading, migrating, or major system restores, make sure you have the latest version of PUT installed. PUTTools, which are also used by processes other than PUT are also available.

PUT Package	Description
TDput	TDput is the PUT application. If installed, it must be installed first.
PUTSRC [optional]	System Readiness Check (SRC). Must be separately installed after PUT is installed using PUT's Install/Upgrade Software operation.
PUTTools	A package of tools designed to assist with system changes. This package contains the Upgrade and Migration Scripts necessary to prepare a system for these activities. The files and scripts in the PUTTools package are installed in the following location: `/opt/teradata/PUTTools/` This package must be installed using PUT's Install/Upgrade Software operation after PUT is installed.

Software Installation Preparation

Prior to downloading and installing software packages, you must make sure you have the following items completed:

- Find the version of PUT currently running on the system.
- Determine the latest available version of PUT and compare that version to the one running on the system.
- If the version on the system is not the latest:
  - Download the newest PUT version.
  - Install or upgrade the PUT version on the system.
- Check that there is enough space on the server for the new software.

Creating a Target Directory

- Set up a target directory on the server to hold the downloaded packages with the following command:
  `mkdir -p /var/opt/teradata/`*`ccnumber`*`/pkgs`

where the *ccnumber* is the Teradata Change Control Number, as shown in the following example:

```
/var/opt/teradata/VECD2RQ9B/pkgs
```

Downloading Software Packages

1. Log in to https://support.teradata.com.
2. Select **Software Downloads**, then click **All Downloads**.
3. Under **Tools**, click **Software Downloads**.
4. Click **Backup Archive Restore**.
5. Select the product and release information and click **Submit**.
6. Select all packages.
7. Download the packages and follow the instructions.

Installing PUT

- To install PUT, follow the instructions in the *Parallel Upgrade Tool (PUT) Reference*.

Note:

Make sure the version of PUT is the same on all nodes, including managed servers. Always use the latest version of PUT.

Creating the DSC User

You must create the DSC User before installing ClientHandler and DSC with PUT. This applies only to new installations, not upgrades.

- At the command-line prompt, type `#/usr/sbin/useradd -m <DSCUSER> -u <USERID>`. *DSCUSER* and *USERID* correspond to the values in the `dsainputs` file.

Installing DSA Using PUT

Customizing Values Used in PUT Installation

A `dsainputs` file, which includes the input values for all the DSA components being installed on that server, is required to install DSA components with PUT. Each DSA server needs its own `dsainputs` file, customized for that server. The values will vary from server to server.

1. Create a `dsainputs` file under the `/tmp` directory on the system where the DSA packages will be installed.
   A dsainputs template is available in all DSA packages. The template for the DSC is a compilation of all inputs required for all the packages: `dsacomp_tdput_template`.

Note:

Keep the `dsainputs` file in a secure location. The `dsainputs` file that is placed in `/tmp` cannot be used by subsequent installation or upgrade processes.

2. Insert the parameters and values for the component you are installing. Values are specific for that server.
   For example: `BURL=dsasrv1`

Important:

You must add DSARESTSCHEME to the dsainputs file.

Parameter	Component	Description
BROKERLIST	ClientHandler	List of broker:port pairs separated by a comma. For example: dsasrv1:61616
BURL	DSC, ClientHandler, BAR Command Line	Hostname or IP address of the machine running the JMS broker (ActiveMQ). Hostname or IP address of the machine running the ActiveMQ broker (where tdactivemq is installed), usually the DSC server.
BPORT	DSC, ClientHandler, BAR Command Line	Port number on the server where the ActiveMQ broker is listening (61616 for tcp, 61617 for ssl). Default: 61616
LANDINGZONE	DSC	`/var/opt/teradata/dsa/postgres` Default location for DSC repository backup files. Temporary location before replication to the target group.
CONNECTION	DSC, ClientHandler, BAR Command Line, BARPortlets	Type of ActiveMQ connection (tcp or ssl). If tcp is chosen, the ActiveMQ connection is validated during install. If ssl is chosen, the ActiveMQ (jms ssl) password should match the DSA REST API https password. Default: tcp
DSCNAME	DSC, BAR Command Line	Unique name for the DSC server. Maximum of 128 characters: alphanumeric, "-", and ".". The first character of the name can be alphanumeric (a-z, A-Z, and 0-9) only. **Important:** DSCNAME must be specified for an upgrade or the repository restore from the previous version will fail. Analyze_read jobs may also fail.
CBBFILEPATH	ClientHandler	The path needed for Change Block Backup temporary file storage: `/var/opt/teradata/dsa/cbb`
POSTGRESSPASSWORD	DSC	Password for Postgres user. No space, ', or " allowed.

Parameter	Component	Description
ISMASTER	ClientHandler	Specify yes or no on whether this server is the Web Service master server used in incremental job communication.
MASTERHOSTNAME	ClientHandler	Specify the host name of the Web Service master server used in incremental job communication.
VIEWPOINTURL	DSC	Hostname or IP address of the Viewpoint server.
VIEWPOINTPORT	DSC	Port number of the Viewpoint server.
CAMPRIMARYURL	DSC	Hostname or IP address of primary CAM system, which enables alert messaging
CAMPRIMARYPORT	DSC	CAM port number of primary CAM system. Default: 61616. [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.
CAMCLUSTERENABLED	DSC	Flag for enabling CAM clustering
CAMCLUSTERURL	DSC	Hostname or IP address of primary and failover CAM systems, which enable alert messaging
CAMCLUSTERPORT	DSC	CAM port number for clustered environment. This has the same value as CAMPRIMARYPORT. Default: 61616. [DSA 16.20.51 and later] CAM does not support SSL in this version. Port must be 61616.
DSARESTPORT	DSC	Port number for DSARest Web Service running on DSC server. Default: 9090.
DSARESTSCHEME	DSC	DSARest Web Service scheme, http or https. Default: https.
KEYSTOREPASS	DSC	Required if DSARESTSCHEME is https. Password for keystore. Minimum of 6 characters. No space, ', or " allowed. If JMS SSL is enabled, this password must match SSLKEYSTOREPASSWORD.
BARPASSWORD	DSC	Password for the BAR user. Used for Create, Read, Update and Delete (CRUD) operations on BAR. No space, ', or " allowed.
SERVERID	ClientHandler	The server ID is the name of a DSA media server, and is a unique logical name across a single DSA domain. It is defined using SQL 92 syntax and used as the selector for JMS message headers. If the ClientHandler package is installed on a TPA node, the server ID cannot be equal to the name of that system. It is not the ID for NetBackup or other third party servers.

Parameter	Component	Description
		Note: When upgrading a media server for multiple DSA Network Client (ClientHandler) instances, specify the server IDs in a comma-separated list, for example, `server1,server2`.
SERVERPORT	ClientHandler	Port number for datapath traffic, corresponds to the server.port property in clienthandler.properties. Default: 15401.
SSLTRUSTSTOREFILE	ClientHandler	Full file path for truststore file.
SSLKEYSTOREFILE	ClientHandler	Full file path for keystore file.
SSLKEYSTOREPASSWORD	ClientHandler	The value for the JMS SSL keystore password, in clear text. If DSARESTSCHEME is set to https, this value must match KEYSTOREPASS.
SSLENCKEYSTOREPASSWORD	ClientHandler	The value for the JMS SSL keystore password, in clear text. If DSARESTSCHEME is set to https, this value must match KEYSTOREPASS.
WSPORT	ClientHandler	Port number for ClientHandler Web Service traffic, corresponds to the WebService.port property in clienthandler.properties. Default: 15402.

The following is an example of a DSC server dsainputs file:

Important:

DSCNAME must be specified for an upgrade or the repository restore from the previous version will fail. Analyze_read jobs may also fail.

```
# DSC, Clienthandler, and BARCmdline AMQ Broker connection type ssl or tcp
CONNECTION=tcp

# DSC and BARCmdline shared fields
DSCNAME=
BURL=
BPORT=61616

# DSC dsainputs fields
POSTGRESPASSWORD=
BARPASSWORD=
KEYSTOREPASS=
DSARESTPORT=9090
DSARESTSCHEME=https
```

```
LANDINGZONE=/var/opt/teradata/dsa/postgres
VIEWPOINTURL=viewpointurl
VIEWPOINTPORT=80
VIEWPOINTTYPE=http
CAMCLUSTERENABLED=no
CAMPRIMARYURL=viewpointurl
CAMPRIMARYPORT=61616
CAMCLUSTERURL=camurl
CAMCLUSTERPORT=61616

#BARCmdline only dsainputs
BARCMDLINE_JAVA_HOME=

# Clienthandler dsainputs fields
BROKERLIST=
SERVERID=
SSLTRUSTSTOREFILE=/etc/opt/teradata/dsa/client.pem
SSLKEYSTOREFILE=/etc/opt/teradata/dsa/client-keystore.pem
SSLKEYSTOREPASSWORD=
SSLENCKEYSTOREPASSWORD=
ISMASTER=
MASTERHOSTNAME=
CBBFILEPATH=/var/opt/teradata/dsa/cbb
SERVERPORT=15401

# AXMNetbackup dsainputs fields
BACKUPAPPCLIENTNAME=
```

The following code is an example of a dsainputs file for a DSA media server:

```
BROKERLIST=tdactivemq_server:61616
CONNECTION=TDActiveMQ connection type, either tcp or ssl
SERVERPROTOCOL=tcp
SERVERID=dsams name: uname -n
DSCUSER=dscuser
USERID=600
SSLTRUSTSTOREFILE=/etc/opt/teradata/dsa/client.pem
SSLKEYSTOREFILE=/etc/opt/teradata/dsa/client-keystore.pem
SSLKEYSTOREPASSWORD=Client keystore passwordin clear text, used for ssl
on TDActiveMQ
ISMASTER=n
MASTERHOSTNAME=dsadsc server where the master server is running
CBBFILEPATH=/var/opt/teradata/dsa/cbb
```

Installing DSA Software on BAR Servers Using PUT

Prerequisite:

- Master server - Teradata ActiveMQ, Analytics Database, and PUT are installed and running on a SUSE LINUX server before installing any of the DSA component packages.
- Media server - PUT is installed and running on a SUSE LINUX server before installing any of the DSA component packages.
- For new installations, the dscuser must be created prior to installing DSC and ClientHandler. This does not apply to upgrades.

A Teradata Version Migration and Fallback (VM&F) upgrade is not required nor suggested for DSA package installation. However, if major OS changes are being applied when the DSA packages are being installed, you should use a VM&F upgrade.

1. Start PUT.
2. In the main screen, select **Install/Upgrade Software** and click **Next**.
3. In the **Configuration Mode** screen, select **Typical** and click **Next**.
4. In **Network Subnet Selection**, select **127.0.0.0 (LOOPBACK)** and click **Next**.
5. In **Select Nodes**, verify that the node name in the **Selected** list represents the BAR servers where DSA will be installed and click **Next**.
6. In the **System Information Warning** screen, click **Next**.
7. If the **System Check Found Problems** screen appears, verify that there are no issues that need attention (or correct any issues that need correcting), and click **Ignore**.
8. Accept the default selection in the **Select Spool Area for Linux Nodes** screen and click **Next**.
9. In the **Enter Source for New Packages** screen, enter or select the path `/var/opt/teradata/`*`ccnumber`*`/pkgs` and click **Next**.
10. In the **Media Source Confirmation** screen, enter or select the source for the new package and click **Next**.
11. In the **Group Nodes** screen, verify that the nodes displayed in the right panel have the following settings and click **Next**. If they do not have these settings, select **Modify Group** and make the necessary changes.

Server Type	Description
DSC	**Node Type** - DSADSC
Media	**Node Type** - TPA

12. In the **Select Packages** screen, select and add the software packages:

Server Type	Component Description
DSC	DSC
Media	• AXMDDBoost is optional, based on customer deployment • ClientHandler • BARCmdline

If the machine on which you are installing packages has DSC and media server functionality, you would install the DSC, ClientHandler, and BARCmdline packages. You might also install one of the access modules, depending on your environment.

13. Accept the default options for the remaining steps.

Note:

If failures are encountered during the Package Support step, review the `/tmp/put-dscschemaupgrade.log` file located on the system.

Installing BAR Portlet Software Using PUT

Prerequisite:

The DSA components must already be installed on the DSC server or DSA media server before you install BAR portlet software on the Viewpoint server.

Important:

You cannot upgrade the BAR portlet software using this procedure. Use Installing the BARPortlets Package for upgrades.

Install the BAR portlet software on the Viewpoint server. If you have two or more Viewpoint portals in a clustered environment, the BAR portlets must be deployed on all the portal instances in order for them to be part of the cluster environment. For more information, please see *Teradata® Viewpoint Installation, Configuration, and Upgrade Guide for Customers*, B035-2207.

1. Move `barportlet-xx.xx.xx.xx-1.noarch.tar.gz` into the `/var/opt/teradata/`*ccnumber*`/pkgs` directory on the Viewpoint server.
2. Start PUT.
3. In the main screen, select **Install/Upgrade Software** and click **Next**.
4. In the **Configuration Mode** screen, select **Typical** and click **Next**.
5. In **Network Subnet Selection**, select **127.0.0.0 (LOOPBACK)** and click **Next**.
6. In **Select Nodes**, verify that the node name in the **Selected** list is **localhost (LINUX)**, and click **Next**. If a warning message appears, click **Ignore**.

7. In the **System Information Warning** screen, click **Next**.
8. If the **System Check Found Problems** screen appears, verify that there are no issues that need attention (or correct any issues that need correcting), and click **Ignore**.
9. Accept the default selection in the **Select Spool Area for Linux Nodes** screen and click **Next**.
10. In the **Enter Source for New Packages** screen, enter or select the path `/var/opt/teradata/`*`ccnumber`*`/pkgs` and click **Next**.
11. In the **Media Source Confirmation** screen, enter or select the source for the new package and click **Next**.
12. In the **Group Nodes** screen, verify that the node displayed in the right panel has the following settings and click **Next**:
    - **System** - System0
    - **Group** - Group0
    - **Node Type** - Viewpoint
13. When the question **"If you do not designate TPA nodes, the Teradata Database software will not be installed on any nodes. Do you wish to continue?"** appears, select **"Yes, keep them as they are"** and click **Next**.
14. Select **BARPortlet** and click **Next**.
15. Accept the default options for the remaining steps.
16. To verify the BAR portlet installed, type `rpm -qa | grep 'barportlet*'`

Note:

The BAR portlet should be included in the output.

Upgrading DSA Software Using PUT

If you are making major OS changes when you are upgrading the DSA packages, use a VM&F upgrade.

Note:

A VM&F upgrade automatically reboots the server. For all other upgrades, a reboot of the server is not required.

1. Check whether the PUT version running on your system is the latest PUT release.
   a. Find the PUT version running on your system.
   b. Determine the latest PUT release.
2. If you do not have the latest version of PUT running on your system:
   a. Download new PUT packages.
   b. Upgrade PUT.
3. Create a target directory.
4. Download or copy the latest software packages. DSC, DSAPostAMQ, ClientHandler, BARCmdline, and BARPortlets must be on the same version.

Upgrade Type	Description
Base release to an eFix	Downloading Software Packages
One base release to another	Copy the contents of the DSA CD to a directory on the BAR server. a. Insert the Teradata staging media into the drive. b. Perform the mount by typing the following at the command line: mount /dev /dvd /media 2. c. Copy the files from the staging media to the server: cp -r /media /var/opt /teradata/packages/DSA.

5. Ensure that the `dsainputs` file is available in the `/tmp` directory.

   Important:

   DSCNAME must be specified for an upgrade or the repository restore from the previous version will fail. Analyze_read jobs may also fail.

6. If you are upgrading to DSA 15.11 or later, change the following parameters in the `dsainputs` file or the ClientHandler configuration will be corrupt:
   a. Change ISNFSMASTER to ISMASTER.
   b. Change NFSMASTERHOSTNAME to MASTERHOSTNAME.
7. If you are upgrading to DSA 16.20 or later, you must include the following new parameters:
   - DSARESTSCHEME
   - KEYSTOREPASS
8. Install the new release of DSA software on the BAR servers as you did initially. However, in the **Network Subnet Selection**, select the Ethernet interface where all of the BAR servers are configured.
   a. Install DSA Software on BAR master and media servers using PUT.
   b. Install BAR portlet server using PUT.

Additional Information

Changes and Additions

Date	Release	Description
March 2023	17.20.04.00	17.20.04.00 adds updates for the following: • AJSE support at Job level • Proxy Server Support for cloud platforms
November 2022	17.20.03.00	17.20.01.00 adds updates for the following: • DSC Server Software Specification • Teradata ActiveMQ upgrade • teradata-jdk upgrade
March 2022	17.20.01.00	17.20.01.00 adds updates for the following: • Repo migration from Postgres to Postgres using PG_DUMP utility.
February2021	17.20.00.03	17.20.00.03 adds updates for the following: • Teradata ActiveMQ upgrade.
October 2021	17.20	17.20 adds updates for the following: • Teradata ActiveMQ upgrade. • Increase character limit for dsc_name. • Updating password. • Postgres to Postgres data migration
July 2021	17.10.01.00	17.10.01.00 adds updates for the following: • DSC Sever Software Specifications • Upgrading Software
March 2021	17.10	Initial release
January 2021	17.06	17.06 adds support for the following: • Configuring Google Cloud in the BAR portlets • Using multiple network fabrics
September 2020	17.05	Initial release

Supported Releases

This document supports the following versions of Teradata products.

- Teradata Vantage 2.2, which includes support for Analytics Database:
  - 17.05.xx

- Teradata Vantage 2.0 and Vantage 2.1, which include support for Analytics Database:
  - 17.00.xx
- Teradata Vantage 1.1, which includes support for Analytics Database:
  - 16.20 Feature Update 2
- Teradata Vantage 1.0, which includes support for Teradata Database:
  - 16.20 Feature Update 1
  - 16.20
- Teradata Database:
  - 16.10
  - 15.10
- Teradata DSA:
  - 17.10
- Teradata Viewpoint (minimum):
  - 16.50.01.00
  - 16.20.23.05
- Dell EMC Data Domain:
  - 6.1

Teradata Links

Link	Description
https://docs.teradata.com/	Search Teradata Documentation, customize content to your needs, and download PDFs. Customers: Log in to access Orange Books.
https://support.teradata.com	Helpful resources in one place: • Support requests • Account management and software downloads • Knowledge base, community, and support policies • Product documentation • Learning resources, including Teradata University
https://www.teradata.com/University/Overview	Teradata education network
https://support.teradata.com/community	Link to Teradata community

Related Documentation

Title	Publication ID
Teradata® DSA Release Definition Summarizes new features and fixed issues associated with the release.	B035-3154
Teradata® DSA User Guide Describes how to use the Teradata Data Stream Architecture (DSA) portlets and command-line interface.	B035-3150
Teradata® DSA - DSE for Veritas NetBackup Installation, Configuration, and Upgrade Guide Describes how to configure Data Stream Extensions software and devices.	B035-3151
Teradata® DSA - DSU Installation, Configuration, and Upgrade Guide Describes how to configure Data Stream Utility software and devices.	B035-3153
Teradata® DSA - DSE for IBM Spectrum Protect Installation, Configuration, and Upgrade Guide Describes how to configure Data Stream Extensions software and devices.	B035-3155
Teradata® DSA Quick Start Guide Guides you through a simple set up to verify connections.	B035-3156
Teradata® Viewpoint User Guide Describes the Teradata Viewpoint portal, portlets, and system administration features.	B035-2206
Teradata® Viewpoint Installation, Configuration, and Upgrade Guide for Customers Describes how to install Viewpoint software, configure settings, and upgrade a Teradata Viewpoint server.	B035-2207
Parallel Upgrade Tool (PUT) Reference Describes how to install application software using PUT.	B035-5716
Teradata Vantage™ - Database Administration Describes how to administer the Analytics Database.	B035-1093
Teradata® VantageCore VMware - Base, Advanced, Enterprise Tiers Getting Started Guide	B035-5958
Teradata® VantageCloud Enterprise on AWS (DIY) Installation and Administration Guide Describes how to deploy and configure Teradata software components to run in the AWS public cloud.	B035-2800
Teradata Vantage™ on Azure (DIY) Installation and Administration Guide Describes how to deploy and configure Teradata software components to run in the Azure public cloud.	B035-2810