

Asigra Cloud Backup v14.1 Server Software Installation Guide

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1 About this guide

This guide describes how to install and upgrade the server software.

1.1 Intended audience

This guide is intended for anyone who is responsible for installing and upgrading the server software.

1.2 Formatting conventions

The following formatting conventions are used in this guide:

Bold

Bold font identifies components, window and dialog box titles, and item names.

Italic

Italic font identifies references to related documentation.

Monospace Font

Monospace font identifies text that you should type or that the computer displays.

NOTE: Notes emphasize information that is useful but not essential, such as tips or alternative methods for performing a task.

IMPORTANT: Important notes emphasize information that is essential to the completion of a task and draw special attention to actions that could adversely affect the operation of the application or result in a loss of data.

About this guide

Formatting conventions

2 Installing the DS-License Server software

This chapter describes how to install the DS-License Server software.

The DS-License Server runs as a service on Windows or a daemon on Linux and must constantly be accessible via a TCP/IP connection from the DS-System and BLM Archiver installations for those products to validate their licenses. There are two versions of the DS-License Server software: Capacity License Model (CLM) and Recovery License Model (RLM).

2.1 Preparing to install the DS-License Server software

This section describes the system requirements for installing the DS-License Server software.

2.1.1 Before you begin

- The target computer must be on the same network as the DS-Systems and BLM Archivers that will use the computer as their DS-License Server.
- You must purchase a storage capacity license that works with the DS-License Server.
- Plug in the HASP USB key you received from Asigra into the system running the License Server. Do not remove this key as long as the system is running.

NOTE: All required HASP drivers are installed with the DS-License Server RLM and a service/daemon will run constantly.

- The system with DS-License Server RLM must have Internet connectivity to authenticate with the Asigra License Server.

2.1.2 Hardware requirements

The following table lists the minimum hardware requirements for installing the DS-License Server software.

Hardware	Details
Processor	2.0 GHz
Memory	4 GB
Hard drive	1 GB free disk space (Windows) 2 GB free disk space (Linux)

Table 1 Hardware requirements for DS-License Server

Installing the DS-License Server software

Installing the DS-License Server software (Windows)

2.1.3 Port requirements

The following table lists the ports that are required by the DS-License Server software.

Port #	Description
4418	DS-License Server GUI to DS-License Server

Table 2 List of ports required for installing DS-License Server

2.2 Installing the DS-License Server software (Windows)

This section describes how to install the DS-License Server software on a Windows machine.

2.2.1 Software requirements

The following table lists the software requirements for installing the DS-License Server software on a Windows machine. For the latest information, see the *Support Matrix*.

NOTE: The DS-License Server software can be installed only on the 64-bit version of the supported operating system.

DS-License Server	Operating System
Recovery License Model (RLM)	<ul style="list-style-type: none">Windows Server 2016Windows 10
Capacity License Model (CLM)	<ul style="list-style-type: none">Windows Server 2016Windows 10

Table 3 Software requirements for DS-License Server (Windows)

2.2.2 Installing the DS-License Server software

This section describes how to install the DS-License Server software on a Windows machine.

To install the DS-License Server software:

1. Log onto the target installation computer as a local administrator.
2. On the DVD, click **Setup.exe**.
3. On the **Windows Product Installation Center** page, click **DS-License Server RLM** or **DS-License Server CLM**. A prerequisite check is performed.
4. Once the prerequisite check is complete, click **Next**.

5. On the **Software License Agreement** page, read the license agreement carefully, click **I accept the terms of the license agreement**, and then click **Next**.
6. On the **Directory Name** page, retain the default path for the installation directory, or click **Browse** to install to a different directory, and then click **Next**.
7. On the **Installation Type** page, select the type of installation, and then click **Next**.
8. On the **Summary Information** page, click **Install**.
9. Click **Finish**.

You can **Stop** and **Start** the service from the Windows Services screen.

2.3 Installing the DS-License Server software (Linux)

This section describes how to install the DS-License Server software on a Linux machine.

2.3.1 Software requirements

The following table lists the software requirements for installing the DS-License Server software on a Linux machine.

NOTE: The DS-License Server software can be installed only on the 64-bit version of the supported operating system.

DS-License Server	Operating System
Recovery License Model (RLM)	<ul style="list-style-type: none"> • Red Hat Enterprise Linux 7.3 or 7.4 • SUSE Linux Enterprise Server 11 SP4 or 12 SP3
Capacity License Model (CLM)	<ul style="list-style-type: none"> • Red Hat Enterprise Linux 7.3 or 7.4 • SUSE Linux Enterprise Server 11 SP4 or 12 SP3

Table 4 Software requirements for DS-License Server (Linux)

IMPORTANT: Before installing the software on Linux, we recommend you use the **setup_lin.sh** command on the DVD to automatically install the required Linux libraries. The individual RPM packages can be found in the */bin* folder.

Red Hat Enterprise Linux

If you are using Red Hat Enterprise Linux, download and install Java 1.8. You can run the DS-License Server RLM GUI with the following command line:

```
<path to java 1.8>/bin/java -jar" /opt/CloudBackup/DS-License
Server RLM/LicenseGUI.jar
```

2.3.2 Installing the DS-License server software

This section describes how to install the DS-License Server software on a Linux machine.

To install the DS-License Server software:

1. Log onto the installation computer as a root super user.
2. On the DVD, click **setup_lin.sh** in the root directory or run the setup program **setuplinux.bin** from the corresponding folder (CLM or RLM). A prerequisite check is performed.
3. Once the prerequisite check is complete, click **Next**.
4. On the **Software License Agreement** page, read the license agreement carefully, click **I accept the terms of the license agreement**, and then click **Next**.
5. On the **Installation Type** page, select the type of installation, and then click **Next**.
6. On the confirmation screen, click **Install**. When the installation is complete, the summary screen appears.
7. Click **Finish**.

You can **Stop** and **Start** the service using the following commands:

```
/etc/init.d/dslic stop  
/etc/init.d/dslic start
```

2.3.3 Installing the DS-License Server software in console mode

Console mode is a command-line style interface that requires single-key input commands to change the settings. The command prompt is preceded by a default number in brackets (for example “[0]”). For a different command, press another number from the menu on the screen.

To install the DS-License Server software:

1. Enter the command line: `setuplinux.bin-console`. A prerequisite check is performed, then select **[1]** and click **Enter**.
2. On the software license agreement page, keep pressing **Enter** till the end of the agreement, select **[1]** to accept, and then click **Enter**.
3. An **[X]** appears beside your selection. Select **[0]**, and then click **Enter**.
4. A confirmation command line appears. Select **[1]**, and then click **Enter**.
5. On the **Specify Destination Directory** page, specify the folder where the DS-License Server files will be installed. The default destination folder is:

```
/opt/CloudBackup/DS-License
```

6. To specify a different destination folder, type a valid path on the local computer, and then click **Enter**.
7. In the confirmation command lines select [**1**], and then click **Enter**.
8. Select the type of installation, **1** or **2** and click **Enter**. An [**X**] appears beside your selection.
9. Select [**0**], and then click **Enter**.
10. In the confirmation command line select [**1**], and then click **Enter**.
Once the installation wizard has finished copying the files, a confirmation command line appears.
11. Select [**3**], and then click **Enter**.

2.4 Upgrading the DS-License Server software

To upgrade the DS-License Server software, run the installation program from the upgrade DVD and follow the installation procedure as mentioned above in the corresponding sections for Windows and Linux.

For the DS-License Server (RLM), send the upgraded license information to Asigra to update the required information on the Asigra Master License Server.

Installing the DS-License Server software

Upgrading the DS-License Server software

3 Installing the DS-System software

This chapter provides detailed instructions on how to install the DS-System software.

The DS-System is a licensed component that receives and processes requests from DS-Clients and serves as the main repository for backed up data.

3.1 Preparing to install the DS-System software

This section describes the system requirements for installing the DS-System software.

3.1.1 Before you begin

We recommend that the DS-System database data files reside on a different physical device or disk controller than the log files (unless using different, more sophisticated integrity strategies, like RAID subsystems, database replication, standby servers, etc.). This will maximize performance and improve the chances of recovering the database.

NOTE: We recommend that you perform input/output performance tests on the target DS-System storage location (Standalone or N+1) using the Asigra I/O Load Test Tool. For more information, see the *Tools User Guide*.

Before you install the DS-System software, do the following:

- Ensure that the time on the target DS-System computer is correct.
- Ensure that there is a DS-License Server to which the DS-System can connect and validate its license.
- If you are connecting to a local database, ensure the database is running and that the user account used to log on to install DS-System has been added to the Microsoft SQL Server login with the *sysadmin server* role.
- If you are connecting to a remote database, ensure the database is installed on a supported operating system and the time zone is the same as the one on the DS-System computer. The database server must have rights to dump the DS-System database to the storage location(s).

3.1.2 Hardware requirements

The following table lists the minimum hardware requirements for installing the DS-System software.

Hardware	Details
Processor (dual)	3.0 GHz
Memory	4 GB (8 - 16 GB recommended)
Mirrored system disk (operating system and database).	18 GB, 10000 RPM
Network cards	2 x 100/1000 Mbps
Online disk subsystem storage	UW SCSI or fiber interface with hot swappable drives and hot spare drives.
Online disk subsystem backup	Fast tape library to back up online subsystem's storage or a replication DS-System.
DS-System database disk	20 GB for production DS-Systems.
Power supply	Hot swappable power supplies and UPS arrangement.
Cluster ready (optional)	To facilitate linking of multiple computer systems

Table 1 Hardware requirements for DS-System

3.1.3 Port requirements

The following table lists the required ports.

Port #	Description
3009	DS-System node to DS-System node (N+1 DS-System)
4400	DS-System to BLM
4404	DS-Operator to DS-System
4406	DS-System to Remote DS-VDR
4409	DS-System to DS-System (Multi-Directional Replication)
4417	DS-System to DS-License Server

Table 2 List of ports required for installing DS-System

NOTE: Port numbers 4400-4406 are IANA-assigned.

3.2 Installing the DS-System software (Windows)

This section describes how to install the DS-System software on a Windows machine.

3.2.1 Software requirements

The following table lists the software requirements for installing the DS-System software on a Windows machine. For the latest information, see the *Support Matrix*.

NOTE: The DS-System software can be installed only on the 64-bit version of the supported operating system.

Operating System	Database
Windows Server 2016	<ul style="list-style-type: none"> • Microsoft SQL Server 2017 • Microsoft SQL Server 2016 SP1 • Microsoft SQL Server 2014 SP2

Table 3 Software requirements for DS-System

3.2.2 Installing the DS-System software

This section describes how to install the DS-System software on a Windows machine.

NOTE: You cannot run the DS-System Installation from a Terminal Services Client.

To install the DS-System software:

1. Log onto the installation computer as a local administrator.
2. On the DVD, click **Setup.exe**.
3. On the **Windows Product Installation Center** page, click **DS-System**.
4. Select the installation language, and then click **OK**. A prerequisite check is performed.

NOTE: The selected language is installed for the DS-System service. Once set, the DS-System Service language cannot be changed (for logs and popup messages). The GUI language can be changed from the Initialization screen.

5. Once the prerequisite check is complete, click **Next**.

6. On the **License Agreement** page, read the license agreement carefully, select **I agree to the terms of the license agreement**, and then click **Next**.
7. On the **Select Destination Location** page, select the directory where setup will install DS-System, and then click **Next**.
8. On the **Select Installation Option** page, select the component(s) that you want to install, and then click **Next**.
9. On the **Microsoft SQL Server Instance** page, do the following, and then click **Next**.
 - a) Specify the DS-System database name; the default is **dssystem**.
 - b) Specify the Microsoft SQL server instance.
 - **Install** (local computer only): If this option is available, click **Next** to install a new Microsoft SQL Server Instance.
 - **Select**: Select a database instances from the list, or type the target computer and instance (computer_name\instance_name).

NOTE: You must configure Microsoft SQL Server with a *case-insensitive* sort order.

10. On the **DS-System Service Logon Account** page, do one of the following, and then click **Next**.
 - To use the local Windows account for DS-System to log on, select **Local System Account**. This will use the Windows local system account instead of a specific user account.
 - To specify another Windows account for DS-System to log on, select **This Account**, and then do the following:
 - a) Type the Windows user account or click **Browse** to select an account. This should be a valid Windows user account and be a member of the Administrators Group.
 - b) In the **Password** box, type the password for this account.
 - c) In the **Confirm** box, retype the password to confirm.
 - To automatically start the DS-System service when you restart the machine, select **Auto Start DS-System Service at boot time**.
11. On the **Specify Backup Root** page, specify the target folder where DS-System will store DS-Client backup data, and then click **Next**.

NOTE: A default folder is created with a randomly generated name of 8 - 16 alphanumeric characters. To specify a different folder, click **Browse** and select the required folder.

12. On the **Setup Complete** page, click **Finish**.

3.3 Installing the DS-System software (Linux)

This section describes how to install the DS-system software on a Linux machine.

IMPORTANT: Before installing the software on Linux, run the **setup_lin.sh** command on the DVD to automatically install the required Linux libraries. The individual RPM packages can be found in the */bin* folder.

The `pg_dump` utility must be installed on the DS-System computer for DS-System to be able to perform dumps of the 'dssystem' database. This utility is included if you install PostgreSQL locally, but if you install a remote database, you must install this utility on the DS-System computer.

3.3.1 Software requirements

The following table lists the software requirements for installing the DS-System software on a Linux machine.

NOTE: The DS-System software can be installed only on the 64-bit version of the supported operating system.

Operating System	Database
Red Hat Enterprise Linux 7.3, 7.4, or 7.5	• PostgreSQL 9.4, 9.5, 9.6, or 10
SUSE Linux Enterprise Server 11 SP4, 12 SP3, or 15	• PostgreSQL 9.4, 9.5, 9.6, or 10

Software requirements for DS-System (Linux)

NOTE: You must download and use the PostgreSQL interactive installer by EnterpriseDB.

3.3.2 Installing the DS-System software

This section describes how to install the DS-System software on a Linux machine.

To install the DS-System software:

Before you start, ensure that the PostgreSQL database is running.

1. Log on to the target installation computer as a **root** user.
2. On the DVD click **setup_lin.sh**.
3. On the Linux Product Installation Center page, click **DS-System**.
4. Select the language, and then click **Install**.

NOTE: The DS-System Service language cannot be changed (for logs and popup messages). The GUI language can be changed from the Initialization screen.

5. On the **License Agreement** screen, read the license agreement carefully, select **I agree to the terms of the license agreement**, and then click **Next**. A prerequisite check is performed.
6. Once the prerequisite check is complete, click **Next**.
7. On the **Select Installation Type and Destination** page, select the type of installation, select the destination folder for the installation files, and then click **Next**. (If you selected only DS-Operator, skip to step 11.)
8. On the **DS-System Database Credentials** page, do the following, and then click **Next**.
 - a) In the **Hostname** box, type the IP address of the machine running the PostgreSQL instance. (For the local computer you can type 127.0.0.1).
 - b) In the **Username** box, type the name Postgres (default) or any database super-user.
 - c) In the **Password** box, type the password for the Postgres user provided when installing PostgreSQL.
 - d) In the **Confirm** box, retype the password.
 - e) In the **Port** box, type the service port on the database server available for DS-System connections. The default is 5432, and should not be changed unless you have a specific requirement.
 - f) In the **Database Home** box, type the directory where the PostgreSQL client is installed.
 - g) In the **Start DS-System at boot time (run-level 3)** box, select this option to automatically start the DS-System service when the computer enters run-level 3 (boots up).
9. On the **Specify the storage location** page, specify the target folder where DS-System will store DS-Client backup data, and then click **Install**.

NOTE: A default folder is created with a randomly generated name of 8 - 16 alphanumeric characters. To specify a different folder, click **Browse** and select the required folder.

10. On the **Complete Installation** screen, select the required option, and then click **Done**.

You can manually start and stop the DS-System service using the following commands:

```
Start DS-System: /etc/init.d/dssys.sh start
```

```
Stop DS-System: /etc/init.d/dssys.sh stop
```

3.3.3 Installing the DS-System software in console mode

This section describes how to install the DS-System software on a Linux machine in the console mode.

The console mode offers a command-line style interface that requires single-key input commands to change settings.

NOTE: If a graphical interface is not installed on the UNIX system, DS-Operator cannot be run locally. DS-Operator can be run from a remote machine to connect to this DS-System daemon.

Before you start installing the DS-System software, ensure that the PostgreSQL database is running.

To install the DS-System software:

1. Log onto the installation computer as a **root** user.
2. Open the command line, change directory to the root folder of the installation DVD and run the **./setup_lin.sh -console** command.
3. On the Installation Center page, click **[4]**, and then press **Enter**.
4. Select the **Setup Language**, and then press **Enter**.
5. On the **Software License Agreement** page, keep pressing **Enter** till the end of the agreement.
6. Click **[Y]**, and then press **Enter**. A prerequisite check is performed.
7. On the **Select Installation Type and Destination** page, select the type of installation, select the folder for the DS-System installation files, and then press **Enter**. The default destination folder is */opt/CloudBackup/DS-System*.
8. On the **Database** page, do the following, and then click **Next**.
 - a) In the **Hostname** box, type the IP Address of the machine running the PostgreSQL instance (for the local computer you can type 127.0.0.1).
 - b) In the **Username** box, type the name Postgres (default) or any database super-user.
 - c) In the **Password** box, type the password for the Postgres user provided during the installation of PostgreSQL.
 - d) In the **Confirm** box, retype the password.

- e) In the **Port** box, type the service port on the database server available for DS-System connections. The default is 5432, and should not be changed unless you have a specific requirement.
- f) In the **Database Home** box, type the directory where the PostgreSQL client is installed - bin/psql.
- g) On the **Specify the storage location** page, type the target folder where DS-System will store DS-Client backup data, and then click **Install**.

NOTE: If you do not specify a folder, then a default folder is created with a randomly generated name of 8 - 16 alphanumeric characters.

9. On the **Complete Installation** page, select the required option, and then click **Enter**.

3.4 Configuring an N+1 DS-System

An N+1 DS-System is a configuration of at least three DS-System nodes on the same LAN working together to provide backup and restore services for DS-Clients. Each DS-System node performs its own storage and retrieval activities, but share a common database and online storage.

NOTE: An N+1 DS-System must be licensed for this type of configuration from the DS-License Server. For instructions, see the *DS-License Server User Guide*.

3.4.1 Before you begin

Before you configure an N+1 DS-System, consider the following:

- Each DS-System node must have access to the same backup root containing the DS-Client data.
- Each DS-System node must have access to the same database. It is recommended that the database be clustered for redundancy purposes.
- Each DS-System node must have its own configuration file (dssys.cfg) that specifies the database information and cluster ID.
- A separate configuration file (config) for the entire N+1 DS-System must be manually created in the primary storage location of the DS-System online storage (the <backup_root>\cluster folder).
- The DS-System service account must have access to the remote database. You can use the same user name and password on the remote database computer or use a domain user for the DS-System service account.

- The time on all DS-System nodes must be synchronized. You can use UTC (Coordinated Universal Time) via the NTP (Network Time Protocol) server, or any other third party utility that can keep the times synchronized on all nodes.
- On Linux, the PostgreSQL Client Utility (pg_dump) must be installed. This enables the DS-System database dump feature.

3.4.2 Configuring an N+1 DS-System

This section describes how to configure an N+1 DS-System. You must run the installations one at a time (not in parallel). The installation on the first node will create the DS-System database. Each of the subsequent installations must reuse the same database.

To configure an N+1 DS-System:

1. Install the DS-System software on each node and specify the same UNC path for the backup root.

IMPORTANT: Do not reboot your computer or restart the DS-System service at this stage.

2. On each node, open the DS-System configuration file (dssys.cfg) in the following location:

- For Windows:

```
C:\Program Files\CloudBackup\DS-System\dssys.cfg
```

- For Linux:

```
/etc/dssys.cfg
```

3. Edit the DS-System configuration file (dssys.cfg) to include the following line, and then save the changes:

```
ClusterID : <number>
```

Where “<number>” is the number from that identifies the node inside the N+1 DS-System. Each DS-System node must have its own unique ID.

4. Create a subfolder in the backup root folder called **cluster**.

```
<backup_root>/cluster/
```

5. Create a text file in the cluster subfolder called **config**.

```
<backup_root>/cluster/config
```

NOTE: Remove the .txt extension from the file name.

6. Edit the config file to include the IP address and port number of each node in the DS-System in the exact sequential order based on the ClusterID number from its dssys.cfg file, and then save the changes. For example:

```
10.10.70.1 3009
```

```
10.10.70.2 3009
```

```
10.10.70.3 3009
```

7. Start the DS-System service on each node.
8. Configure the connection settings for the DS-System nodes in DS-Operator. For more information, see the *DS-System User Guide*.
9. Configure an N+1 DS-System license on the Production DS-License Server. For more information, see the *DS-License Server RLM User Guide*.

3.5 Upgrading the DS-System software

This section describes how to upgrade the DS-System software on a Windows machine.

NOTE: Your existing DS-System license can be used. The upgrades will not be successful if the license does not have an upgrade subscription or the license has expired.

3.5.1 Before you begin

Before you begin the upgrade, do the following:

- Back up the existing DS-System database. For PostgreSQL, use the following command:

```
# pg_dump -U postgres dssystem > /<installation_path>/dssystem.dmp
```
- Ensure that DS-System is not running any backup/restore activities of importance.
- Perform changes to production DS-Systems one-at-a-time.

NOTE: If you are running an upgrade of the DS-System software, do not perform changes / updates to the DS-System hardware that same day. Allow some time to pass between major changes to the DS-System hardware, software, or storage.

To upgrade the DS-System software:

1. Stop the DS-System daemon and run the DS-System installation on the machine where the DS-System software is installed.
 - The installation will detect the existing DS-System database and will apply the database patches. The installation will also detect and upgrade the DS-System components that are installed on the DS-System machine.
2. Finish the installation and start the DS-System daemon.
3. Verify if you can connect to the DS-System daemon using the upgraded version of the DS-Operator GUI.
 - If the connection is successful, check the DS-System Event Log for errors.
 - Run **System Admin** or **Autonomic Healing** on all the DS-System's Customer / DS-Client accounts.

After upgrading DS-System, you must upgrade the DS-Clients. For more information, see the *Client Software Installation Guide*.

Installing the DS-System software

Upgrading the DS-System software

4 Installing the DS-NOC software

This chapter provides detailed instructions on how to install the DS-NOC software.

The DS-NOC (Network Operation Center) is an optional component that allows you to access DS-License Servers, DS-Systems, DS-Clients, BLM Archivers, and DS-Billing servers through a web-based interface.

4.1 Preparing to install the DS-NOC software

This section describes the system requirements for installing the DS-NOC software.

4.1.1 Before you begin

Before proceeding with the installation of DS-NOC, you must install PostgreSQL, Java Runtime Environment (JRE), and Apache Tomcat.

4.1.1.1 Installing PostgreSQL

You must download and install a supported version of PostgreSQL. For detailed instructions, see the PostgreSQL documentation.

For a list of the supported versions, see [Section 4.1.3, “Software requirements”](#).

4.1.1.2 Installing Java Runtime Environment (JRE)

You must download and install a supported version of Java Runtime Environment (JRE). For detailed instructions, see the Oracle documentation.

For a list of the supported versions, see [Section 4.1.3, “Software requirements”](#).

4.1.1.3 Installing Apache Tomcat

You must download and install a supported version of Apache Tomcat. For detailed instructions, see the Apache documentation.

For a list of the supported versions, see [Section 4.1.3, “Software requirements”](#).

To install Apache Tomcat on Windows, do the following:

- Ensure that any service listening on port 80 of the DS-NOC machine is not running.
- Install Apache Tomcat as a service.
- Change the HTTP 1.1 Connector Port to 80. (The default is 8080).
- Specify a user name and password for the Tomcat Administrator.
- Assign the role manager-GUI to the Tomcat Administrator.

To install Apache Tomcat on Linux, do the following:

- Ensure that any service listening on port 80 of the DS-NOC machine is not running.
- In the server.xml file for Apache Tomcat (found in \$CATALINA_HOME/conf), change the connector port to 80 (The default is 8080).
- Access http://localhost and point the JAVA_HOME environment variable to the JRE that is running on the DS-NOC machine.

NOTE: You can also point the JRE_HOME environment variable to a JDK that is running on the DS-NOC machine.

- Create a user name and set a password by adding the following lines to the tomcat-users.xml file that is found in \$CATALINA_HOME/conf: Following is an example.

```
<role rolename="admin-gui" />
<user username="admin" password="admin" roles="admin-gui" />
<role rolename="manager-gui" />
<user username="admin" password="admin" roles="manager-gui" />
```

NOTE: Ensure that you un-comment the Roles section in the tomcat-users.xml file.

4.1.2 Hardware requirements

The following table lists the minimum hardware requirements for installing the DS-NOC software.

Hardware	Details
Processor	3.0 GHz
Memory	4 GB
Hard drive	5 GB free disk space

Table 1 Hardware requirements for DS-NOC

4.1.3 Software requirements

The following table lists the software requirements for installing the DS-NOC software. For the latest information, see the *Support Matrix*.

Operating System	Database
Windows Server 2016	<ul style="list-style-type: none"> • PostgreSQL 9.4, 9.5, 9.6, or 10 • Apache Tomcat 8.5 or 9.0 with Java 1.8
Red Hat Enterprise Linux 7.3, 7.4, or 7.5	<ul style="list-style-type: none"> • PostgreSQL 9.4, 9.5, 9.6, or 10 • Apache Tomcat 8.5 or 9.0 with Java 1.8
SUSE Linux Enterprise Server 11 SP4, 12 SP3, or 15	<ul style="list-style-type: none"> • PostgreSQL 9.4, 9.5, 9.6, or 10 • Apache Tomcat 8.5 or 9.0 with Java 1.8

Table 2 Software requirements for DS-NOC

NOTE: You must download and use the PostgreSQL interactive installer by EnterpriseDB.

4.1.4 Port requirements

The following table lists the required ports.

Port #	Description
4402	DS-NOC to BLM service
4404	DS-NOC to DS-System
4416	DS-NOC to DS-Billing
4418	DS-NOC to Asigra DS-License Server

Table 3 List of ports required for installing DS-NOC

NOTE: Port numbers 4400-4406 are IANA-assigned.

4.1.5 Increasing the file size limit in Apache Tomcat

The default maximum upload size for a Tomcat server is 50 MB, which can cause issues with the DS-NOC deployment. To resolve this issue, you must increase the file size limit to accommodate the size of the noc.war file.

To increase the file size limit in Apache Tomcat:

1. Open the Apache Tomcat **web.xml** file in the following location:
 - For Windows: C:\Program Files\Apache Software Foundation\Tomcat<version>\webapps\manager\WEB-INF\web.xml
 - For Linux: /opt/apache-tomcat-<version>/webapps/manager/WEB-INF/web.xmlPort
2. Increase the max-file-size and max-request-size to accommodate the size of the noc.war file.

4.2 Installing the DS-NOC software

The DS-NOC (Network Operation Center) is an optional component that allows you to access DS-License Servers, DS-Systems, DS-Clients, BLM Archivers, and DS-Billing servers through a web-based interface.

NOTE: The DS-NOC software can be installed only on the 64-bit version of the supported operating system.

To install the DS-NOC software:

1. Using a web browser, connect to the Apache Tomcat web server.
 - If the web server is on a local computer, use the following URL: `http://localhost/`.
 - If web server is on a remote computer, use the following URL: `[http://%3cIP_of_DS-NOC_computer%3e/]http://<IP_of_DS-NOC_computer>/`.

NOTE: If the web server has been configured with a security certificate, use the prefix `https://`.

2. Click **Manager App** to open the Tomcat Web Application Manager. When prompted, enter the Apache Tomcat administrator credentials.
3. Click **Browse**, select the **noc.war** file, and then click **Deploy**.

4.3 Configuring the DS-NOC database

This section describes how to configure DS-NOC to use the PostgreSQL database you installed. These settings are saved on the DS-NOC server in the following file:

```
C:\Program Files\Apache Software Foundation\Tomcat
<version>\conf\asigraweb.cfg
```

To configure the DS-NOC database:

1. Using a web browser, connect to DS-NOC:
 - If DS-NOC is on the local computer, use the following URL:
`http://localhost/noc/`
 - If DS-NOC is on a remote computer, use the following URL:
`http://%3cIP_of_DS-NOC_computer%3e/noc/]http://<IP_of_DS-NOC_computer>/noc/`

NOTE: If the web server has been configured with a security certificate, use the prefix `https://`.

2. In the **DS-NOC Configuration** dialog box, do the following:
 - a) If you are connecting to a remote computer, in the **Configuration Password** box, type the configuration password.
 - b) In the **Server** box, type the IP address of the computer where the PostgreSQL database resides.
 - c) In the **Port** box, type the port number. PostgreSQL uses port 5432 by default.
 - d) In the **Database Name** box, type the name of the PostgreSQL database.
 - e) In the **User Name** box, type the user name required to access the PostgreSQL database.
 - f) In the **Password** box, type the password required to access the PostgreSQL database.
 - g) Click **Apply Configuration**.

If the configuration was successful, you can start using DS-NOC. For more information, see the *DS-NOC User Guide*.

4.4 Upgrading the DS-NOC software

This section describes how to upgrade the DS-NOC software.

To upgrade the DS-NOC software:

1. Using a web browser, connect to the Apache Tomcat web server.
 - If the web server is on the local computer, use the following URL:
`http://localhost/`
 - If the web server is on a remote computer, use the following URL:
`http://<IP_of_DS-NOC_computer>`

NOTE: If the web server has been configured with a security certificate, use the prefix **https://**.

2. Click **Manager App** to open Tomcat Manager. When prompted, enter the Apache Tomcat Administrator administrator credentials.
3. Undeploy DS-NOC, and then restart the Tomcat Web Application Manager.
4. Click **Browse**, select the updated **noc.war** file, and then click **Deploy**.

Installing the DS-NOC software

Upgrading the DS-NOC software

5 Installing the BLM Archiver software

This chapter describes how to install the BLM Archiver software.

The BLM Archiver is an optional component that is used for long-term data archiving on lower cost media. BLM Archiver receives data from the DS-System and stores the data in the staging buffer or consolidation buffer of the BLM Archiver, or cloud storage.

5.1 Preparing to install the BLM Archiver software

This section describes the system requirements for installing the BLM Archiver software.

5.1.1 Before you begin

IMPORTANT: Before installing the BLM Archiver software, you must install a DS-License Server so that the BLM Archiver can connect to it and validate its license. For more information, see [Chapter 2, “Installing the DS-License Server software”](#).

Before you begin the installation, do the following:

- If you are connecting to a remote database, ensure the database is installed on a supported operating system and the time zone is the same as the one on the BLM Archiver computer.
- Ensure the pg_dump utility is installed on the BLM computer so that BLM Archiver can perform dumps of the blm database. This is included if you install PostgreSQL locally, but if you install a remote database, you must install this utility on the BLM computer.
- To park data to the Microsoft Azure cloud, install the Visual C++ Redistributable for Visual Studio 2015 on the same Windows machine as BLM Archiver. We recommend that you apply the latest Windows updates to ensure that this redistributable is installed.

IMPORTANT: To install PostgreSQL, you must download and use the Interactive installer by EnterpriseDB.

5.1.2 Hardware requirements

The following table lists the minimum hardware requirements for installing the BLM Archiver software.

Hardware	Details
Processor	3.0 GHz (Dual)
Memory	4 GB

Table 1 Hardware requirements for BLM Archiver

5.1.3 Port requirements

The following table lists the required ports.

Port #	Description
4402	BLM GUI to BLM service
4417	BLM to Asigra DS-License Server
4419	BLM to BLM [UniDirectional Replication]

Table 2 List of ports required for installing BLM Archiver

NOTE: Port numbers 4400-4406 are IANA-assigned.

5.2 Installing the BLM Archiver software (Windows)

This section describes how to install the BLM Archiver software on a Windows machine.

5.2.1 Software requirements

The following table lists the software requirements for installing the BLM Archiver software. For the latest information, see the *Support Matrix*.

IMPORTANT: The BLM Archiver software can be installed only on the 64-bit version of the supported operating system.

Operating System	Database
Windows Server 2016	<ul style="list-style-type: none">PostgreSQL 9.4, 9.5, 9.6, or 10

Table 3 Software requirements for BLM Archiver (Windows)

NOTE: You must download and use the PostgreSQL interactive installer by EnterpriseDB.

5.2.2 Installing the BLM Archiver software

To install the BLM Archiver software:

1. Log onto the target installation computer as a local administrator.
2. On the DVD, click **Setup.exe**.
3. On the **Windows Product Installation Center** page, click **BLM Archiver**.
4. Select the required language and click **OK**. A prerequisite check is performed.
5. Once the prerequisite check is complete, click **Next**.
6. On the **Welcome** page, click **Next**.
7. On the **License Agreement** page, read the license agreement carefully, select **I accept the terms of the license agreement**, and then click **Next**.
8. On the **Choose Destination Location** page, select the directory where the BLM Archiver files will be installed, and then click **Next**.
9. On the **Select Components to Install** page, select **BLM GUI** and **BLM Archiver**, and then click **Next**.
10. On the **Enter PostgreSQL database credentials** page, do the following, and then click **Next**.
 - a) In the **Database Host** box, type the IP address or host name (use 127.0.0.1 if the database is running on the local computer).
 - b) In the **User name** box, type the user name for the PostgreSQL database that you provided when you installed PostgreSQL (“postgres” or any database super-user).
 - c) In the **User password** box, type the PostgreSQL database password that you provided when you installed PostgreSQL.

NOTE: If the BLM database does not exist, a pop up message will appear prompting you to create the BLM database. Click **Yes**.

11. On the **Storage Configuration** page, do the following, and then click **Next**.

Installing the BLM Archiver software

Installing the BLM Archiver software (Windows)

- a) In the **Staging Parameters** box, type the path.
 - b) In the **Consolidation Parameters** box, type the path and maximum file size.
 - c) In the **Restorable Image Parameters** box, type the maximum file size.
 - d) In the **Temporary Buffer for Indexing database** box, type a valid local buffer path on the BLM Archiver computer. This is the location where temporary files are written by BLM Archiver (whenever necessary).
12. If you are installing BLM Archiver on a Windows machine, on the **BLM Service Credentials** page, enter the **Windows User Account** and **Password** that BLM Service will use in the corresponding fields, and then click **Next**.

NOTE: This must be a valid Windows user account that has already been created and the account should be a member of the Administrators Group.

13. On the **Summary Information** page (for Windows only), click **Next**.
14. On the **Select Products** page, select the required action, and then click **Next**.
- Start BLM Archiver Service
 - Start BLM Archiver GUI
15. Click **Done**.

If you have installed BLM Archiver on a Linux machine, do the following:

- Check the **Open-Files Limit** for the BLM daemon and the Linux kernel. The parameters for open file limits must match the expected load on the BLM service. If you find errors in the BLM Event Log like "Too many open files", you must increase one or both these parameters:
 - The local limit that applies to the BLM daemon is found in the following line in the BLM startup script ("/etc/init.d/blmdaemon"):

```
ulimit -n NUMBER
```
 - The parameter for the global maximum number of open files available in the system is found in the Linux kernel. You should set "fs.file-max" in the "/etc/sysctl.conf" file and then run "sysctl -p" from a root shell. For details, refer Linux kernel documentation.

5.3 Installing the BLM Archiver software (Linux)

This section describes how to install the BLM Archiver software on a Linux machine.

5.3.1 Software requirements

The following table lists the software requirements for installing the BLM Archiver software. For the latest information, see the *Support Matrix*.

IMPORTANT: The BLM Archiver software can be installed only on the 64-bit version of the supported operating system.

Operating System	Database
Red Hat Enterprise Linux 7.3, 7.4, or 7.5	• PostgreSQL 9.4, 9.5, 9.6, or 10
SUSE Linux Enterprise Server 11 SP4, 12 SP3, or 15	• PostgreSQL 9.4, 9.5, 9.6, or 10

Table 4 Software requirements for BLM Archiver (Linux)

NOTE: You must download and use the PostgreSQL interactive installer by EnterpriseDB.

- For Linux, run the **setup_lin.sh** command on the DVD to install the required Linux libraries automatically. The individual RPM packages can be found in the */bin* folder.
- If you are using Red Hat Enterprise Linux, download and install Java 1.8. You can run the BLM Archiver GUI with the following command line:

```
/<path to java 1.8>/bin/java -jar "/opt/CloudBackup/BLM/  
blmgui.jar
```

5.3.2 Installing the BLM Archiver software

To install the BLM Archiver software:

1. Log onto the installation computer as a **root** user.
2. On the DVD, click **setup_lin.sh**.
3. On the **Installation Center for Linux Products** page, click **BLM Archiver**.

NOTE: Ensure the required libraries and corresponding RPM packages are on the target computer.

4. Select the required language and click **OK**. A prerequisite check is performed.

Installing the BLM Archiver software

Installing the BLM Archiver software (Linux)

5. Once the prerequisite check is complete, click **Next**
6. On the **Welcome** page, click **Next**.
7. On the **License Agreement** page, read the license agreement carefully, select **I accept the terms of the license agreement**, and then click **Next**.
8. On the **Choose Destination Location** page, select the directory where the BLM Archiver files will be installed. Click **Next**.
9. On the **Select Components to Install** page, select **BLM GUI** and **BLM Archiver**, and then click **Next**.
10. On the **Enter PostgreSQL database credentials** page, do the following, and then click **Next**.
 - a) In the **Database Host** box, type the IP address or host name (use 127.0.0.1 if the database is running on the local computer).
 - b) In the **User name** box, type the user name for the PostgreSQL database that you provided when you installed PostgreSQL (“postgres” or any database super-user).
 - c) In the **User password** box, type the PostgreSQL database password that you provided when you installed PostgreSQL.

NOTE: If the BLM database does not exist, a pop up message will appear prompting you to create the BLM database. Click **Yes**.

11. On the **Storage Configuration** page, do the following, and then click **Next**.
 - a) In the **Staging Parameters** box, type the path.
 - b) In the **Consolidation Parameters** box, type the path and maximum file size.
 - c) In the **Restorable Image Parameters** box, type the maximum file size.
 - d) In the **Temporary Buffer for Indexing database** box, type a valid local buffer path on the BLM Archiver computer. This is the location where temporary files are written by BLM Archiver (whenever necessary).
12. If you are installing BLM Archiver on a Windows machine, on the **BLM Service Credentials** page, enter the **Windows User Account** and **Password** that BLM Service will use in the corresponding fields, and then click **Next**.

NOTE: This must be a valid Windows user account that has already been created and the account should be a member of the Administrators Group.

13. On the **Summary Information** page (for Windows only), click **Next**.
14. On the **Select Products** page, select the required action, and then click **Next**.

- Start BLM Archiver Service
- Start BLM Archiver GUI

15. Click **Done**.

If you have installed BLM Archiver on a Linux machine, do the following:

- Check the **Open-Files Limit** for the BLM daemon and the Linux kernel. The parameters for open file limits must match the expected load on the BLM service. If you find errors in the BLM Event Log like "Too many open files", you must increase one or both these parameters:
 - The local limit that applies to the BLM daemon is found in the following line in the BLM startup script ("/etc/init.d/blmdaemon"):

```
ulimit -n NUMBER
```
 - The parameter for the global maximum number of open files available in the system is found in the Linux kernel. You should set "fs.file-max" in the "/etc/sysctl.conf" file and then run "sysctl -p" from a root shell. For details, refer Linux kernel documentation.

5.3.3 Installing the BLM Archiver software in console mode

Console mode offers a command-line style interface that requires single-key input commands to change settings. The command prompt is pre-ceded by a default number in brackets. If you press the Enter key, the default number is input. For a different command, press another number from the menu on the screen.

IMPORTANT: If a Graphical Interface is not installed on this UNIX operating system, you cannot run the BLM Archiver GUI locally. You can run the BLM Archiver GUI from a remote machine to connect to this BLM Archiver daemon.

- Ensure that the PostgreSQL database is running.
- If you are upgrading an existing BLM Archiver Installation, you should backup the existing BLM Archiver database. For PostgreSQL, use the command:

```
# pg_dump -U postgres blm > /<installation_path>/blm.dmp
```

To install the BLM Archiver software:

1. Log onto the target installation computer as a **root** user.
2. Change the directory to the root folder on the DVD, and then run the command **./setup_lin.sh -console**.
3. Select the language, and then press **Enter**.
4. Press **[6]** to select the product, and then click **Enter** to start the installation.
5. Select the **Setup Language**.

Installing the BLM Archiver software

Installing the BLM Archiver software (Linux)

- English: Press **[1]** and **Enter**.
 - German: Press **[2]** and **Enter**.
 - Simplified Chinese: Press **[3]** and **Enter**.
6. An **[X]** appears besides the selected language. Press **[0]** and **Enter**.
 7. Once the prerequisite check is performed Press **[1]** and **Enter** to continue.
 8. On the **Software License Agreement** page, keep pressing **Enter** until you reach the end of the agreement, then press **[1]** and **Enter**.
 9. An **[X]** appears besides your selection. Press **[0]** and **Enter** to accept.
 10. In the confirmation command line, press **[1]** and **Enter**.
 11. On the **Specify Destination Directory** page, enter the destination directory where BLM files will be installed and press **Enter**. The default destination is */opt/CloudBackup/BLM*.
 12. At the confirmation command line, press **[1]** and **Enter** to continue.
 13. On the **Select components to install** page, press **[0]** and **Enter**, as both the required components are selected by default.
 14. On the **BLM Archiver database credentials** page, enter the following:
 - In the **Database Host** box, type the IP Address of the machine where the PostgreSQL instance is running (the default IP address is 127.0.0.1 for the local computer), and then click **Enter**.
 - In the **User Name** box, type the database user name (“postgres” or any database super-user), and then click **Enter**.
 - In the **User Password** box, type the password for the database user, and then click **Enter**.
 15. At the confirmation command line, press **[1]** and **Enter** to continue.
 16. On the **Storage Configuration** page, enter the maximum value (in TB, GB or MB) wherever required:
 - In the **Staging Parameters** box, type the path and press **Enter**.
 - In the **Consolidation Parameters** box, type the path and press **Enter**. Type the maximum size you want to allocate and press **Enter**.
 - In the **Restorable Image Parameters** box, type the maximum size and press **Enter**.
 - In the **Temporary Buffer for Indexing database** box, type a path on the BLM Archiver computer, where temporary files are written by BLM Archiver (whenever necessary), and then press **Enter**.
 17. At the confirmation command line, press **[1]** and **Enter** to continue.
 18. On the **Summary** page, press **[1]** and **Enter** to continue.

19. On the **Finish** page, press **[1]** and **Enter** to continue.
 - Press **[1]** and **Enter** to start the BLM Archiver daemon and run the BLM GUI.
 - Use the following commands to manually start or stop the BLM Archiver service:

```
Start BLM Archiver: /etc/init.d/blmdaemon start
```

```
Stop BLM Archiver: /etc/init.d/blmdaemon stop
```

5.4 Upgrading the BLM Archiver software

This section describes how to upgrade the BLM Archiver software

IMPORTANT: Before upgrading the BLM Archiver software, ensure that the BLM Archiver is not running important archiving activities, searches, or restorable images requests.

Important notes for upgrades

1. You cannot use the existing BLM Archiver license, if your license does not have an upgrade subscription, or your license has expired.
2. Perform changes to production BLM Archivers one-at-a-time.
 - If you are upgrading the BLM Archiver software, do not perform changes / updates to the BLM Archiver hardware that same day.
 - Allow some time to pass between any major changes to the hardware / software / storage of BLM Archiver.

To upgrade the BLM Archiver software:

1. Stop the BLM Archiver service/daemon.
2. Run the BLM Archiver upgrade on the machine where the BLM Archiver software is installed.
 - The installation will detect the existing BLM Archiver PostgreSQL database and will apply the database patches.
 - The installation will also detect and upgrade the BLM Archiver components that are installed on the BLM Archiver machine.
3. If there are no errors, start the BLM Archiver service/daemon and verify the connection to the BLM Archiver service/daemon using the upgraded version of the BLM GUI.

Installing the BLM Archiver software

Upgrading the BLM Archiver software

6 Installing the DS-Billing software

This chapter provides detailed instructions on how to install the DS-Billing software.

DS-Billing is an optional component that can be used to maintain and generate billing information for registered DS-Systems and BLM Archivists.

6.1 Preparing to install the DS-Billing software

This section describes the system requirements for installing the DS-Billing software.

6.1.1 Before you begin

If you are installing to a remote Microsoft SQL Server, do the following:

- Add the account used to login to install DS-Billing to the Microsoft SQL logins and assign it the **sysadmin** server role.
- Ensure the remote database is installed on a supported operating system and the time zone is the same as the one on the DS-Billing computer.
- Ensure the Microsoft SQL Server has rights to dump the DS-Billing database on the storage location(s).

NOTE: You cannot run the DS-Billing installation from a Terminal Services Client.

6.1.2 Hardware requirements

The following table lists the minimum hardware requirements for installing the DS-Billing software.

Hardware	Details
Processor	3.0 GHz (Dual)
Memory	2 GB
System disk	18 GB
Database disk	10 GB
Network cards	1 x 100/1000 Mbps

Table 1 Hardware requirements for DS-Billing

6.1.3 Port requirements

The following table lists the required ports.

Port #	Description
4414	DS-Billing to BLM Archiver
4415	DS-Billing to DS-System
4416	DS-Billing GUI to DS-Billing

Table 2 List of ports required for installing DS-Billing

NOTE: Port numbers 4400-4406 are IANA-assigned.

6.2 Installing the DS-Billing software (Windows)

This section describes how to install the DS-Billing software on a Windows machine.

6.2.1 Software requirements

The following table lists the requirements for installing the DS-Billing software on a Windows machine. For the latest information, see the *Support Matrix*.

NOTE: The DS-Billing software can be installed only on the 64-bit version of the supported operating system.

Operating System	Database
Windows Server 2016	<ul style="list-style-type: none">• Microsoft SQL Server 2017• Microsoft SQL Server 2016 SP1• Microsoft SQL Server 2014 SP2

Table 3 Software requirements for DS-Billing (Windows)

6.2.2 Installing the DS-Billing software

This section describes how to install the DS-Billing software on a Windows machine.

To install the DS-Billing software:

1. Log on to the target DS-Billing computer as the root user.
2. On the DVD, click **setup.exe**.
3. On the **Windows Product Installation Center** page, click **DS-Billing**. A prerequisite check is performed.
4. Once the prerequisite check is complete, click **Next**.
5. On the **License Agreement** page, read the license agreement carefully, select **I agree to the terms of the license agreement**, and then click **Next**.
6. On the **Select installation options** page, select the component(s) you want to install, and then click **Next**. Your choices are:
 - Select **Typical** to install DS-Billing Service and the DS-Billing GUI.
 - Select **DS-Billing GUI only** to install the DS-Billing GUI. (skip to step 10)
 - Select **DS-Billing Service only** to install DS-Billing.
7. On the **Select destination location** page, specify the destination folder where the DS-Billing installation files will be installed, and then click **Next**.
8. On the **Select a Microsoft SQL Server Instance** page, specify the database instance, and then click **Next**.
 - In the **Select** box, select a database Instance from the list, or type the target computer and instance: (*computer_name\instance_name*).

IMPORTANT: The Microsoft SQL Server must be configured with a case-insensitive sort order.

9. On the **DS-Billing Service Logon** page, do the following, and then click **Next**:
 - Select the **Local System Account** option if you are installing a DS-Billing service using the local database. It will use the Windows Local System account instead of a specific user account.
 - In the **This Account** box, type the Windows User Account and Password the DS-Billing service will use. This must be a valid Windows user account and a member of the Administrators Group.
 - In the **Password** box, type the account password.
 - In the **Confirm** box, retype the account password.
 - Select the **Auto Start DS-Billing Service at boot time** option if you want to start the service automatically when you restart the DS-Billing computer.
10. On the **Setup Complete** page, click **Finish**.

6.3 Installing the DS-Billing software (Linux)

This section describes how to install the DS-Billing software on a Linux machine.

6.3.1 Software requirements

The following table lists the requirements for installing the DS-Billing software on a Linux machine. For the latest information, see the *Support Matrix*.

NOTE: You must download and use the PostgreSQL interactive installer by EnterpriseDB.

Operating System	Database
Red Hat Enterprise Linux 7.3, 7.4, or 7.5	• PostgreSQL 9.4, 9.5, 9.6, or 10
SUSE Linux Enterprise Server 11 SP4, 12 SP3, or 15	• PostgreSQL 9.4, 9.5, 9.6, or 10

Table 4 Software requirements for DS-Billing (Linux)

NOTE: Before installing the software on Linux, it is recommended that you run the **setup_lin.sh** command on the DVD to install the required Linux libraries automatically. The individual RPM packages can be found in the `/bin` folder.

6.3.2 Installing the DS-Billing software

This section describes how to install the DS-Billing software.

To install the DS-Billing software:

1. Log onto the target installation computer as a **root** user.
2. On the DVD, click **setup_lin.sh**.
3. On the **Linux Product Installation Center** page, click **DS-Billing**.
4. On the **Setup Language** page, select the installation language, and then click **Next**.
5. On the **Software License Agreement** screen, read the license agreement carefully, select **I agree to the terms of the license agreement**, and then click **Next**. A prerequisite check is performed.
6. Once the prerequisite check is completed, click **Next**.

7. On the **Select Installation type and Destination** page, select what you want to install, select the destination folder for the installation files, and then click **Install**.
 - DS-Billing Service (installs the service daemon)
 - DS-Billing GUI (installs the user interface to manage the service)
8. On the **Complete Installation** page, click **Done**.

You can manually start and stop the DS-Billing daemon with the following commands:

```
Start DS-Billing: /etc/init.d/dsbilling.sh start
```

```
Stop DS-Billing: /etc/init.d/dsbilling.sh stop
```

6.3.3 Installing the DS-Billing software in console mode

This section describes how to install the DS-Billing software in console mode.

NOTE: If a graphical interface is not installed on the Linux machine, DS-Billing GUI cannot run locally. DS-Billing GUI can be run from a remote machine to connect to this DS-Billing daemon.

To install the DS-Billing software:

1. Log onto the installation computer as a **root** user.
2. Open the command line, change directory to the root folder of the installation DVD and run the command `./setup_lin.sh -console`.
3. On the Installation Center page, select the product, press **[5]**, and then click **Enter**.
4. Select the **Setup Language** (English / German / Simplified Chinese) and press **Enter**.
5. In the *Software License Agreement* screen accept the terms of the license agreement and keep pressing **Enter** till you reach the end of the license agreement. To accept press **[Y]** and click **Enter**. A prerequisite check is performed.
6. Once the prerequisite check is complete, on the **Select Installation Type and Destination** screen, do the following:
 - a) Press **[1]** to install only the DS-Billing Service or press **[2]** to install only the DS-Billing GUI, and then press **Enter**.

NOTE: By default, both the service and the GUI are installed.

Installing the DS-Billing software

Installing the DS-Billing software (Linux)

- b) Select the destination directory where the DS-Billing files will be installed, and then press **Enter**.
 - For new DS-Billing installations, setup will automatically create a new embedded database.
 - If you are upgrading a DS-Billing installation that uses an embedded database, the default is to retain the existing database. If you do not retain the existing database, you will be creating a fresh DS-Billing installation.
 - If you are upgrading a DS-Billing installation that uses an external database, the existing database that is found will automatically be retained.
7. On the **Complete Installation** page, select the required option and then press **Enter**.
 - **Start DS-Billing GUI:** Select to launch the DS-Billing GUI.
 - **Start DS-Billing Service:** Select to start the DS-Billing daemon.
 - **Start DS-Billing at boot time (run-level 3):** Select to configure the DS-Billing daemon to automatically start every time the computer boots up.

You can start and stop the DS-Billing service with the following commands:

```
Start DS-Billing: /etc/init.d/ds_billing start
```

```
Stop DS-Billing: /etc/init.d/ds_billing stop
```

6.3.4 Configuring DS-Billing to use an external PostgreSQL database

Default installations of the Linux DS-Billing come with an embedded PostgreSQL database.

This section describes how to configure the Linux DS-Billing to use an external database.

IMPORTANT: The external PostgreSQL database must be the same version or higher than the embedded database.

To configure DS-Billing to use an external PostgreSQL database:

1. Install the DS-Billing on the target machine.

IMPORTANT: Do not start the DS-Billing service or the DS-Billing GUI.

2. Modify the dsbilling.cfg file to point to the external PostgreSQL database. The file is located in the following folder:

```
/<installation_path>/etc
```

- Database Home: This is the directory where you can find "bin/psql".
 - Database Host: IP address or computer_name where the PostgreSQL instance resides.
 - Database Type: PostgreSQL
 - Database User: postgres
 - Database Password: This must be in encrypted format. Use the **asigraenc** application in /<DS-Billing_Installation_Path>/Tools to generate an encrypted version of your postgres password.
 - Database Port: 5432
3. Create a new external dsbilling database using the following commands:

```
psql template1 -Upostgres
create database dsbilling template=template0 encoding='UTF8';
```

4. Verify that you have the following file in the /<installation_path>/db/scripts folder:

```
postgresbilling.sql
```

5. Run the following script to initialize the database:

```
psql -d dsbilling -Upostgres -f <path>/postgresbilling.sql
```

If the PostgreSQL database is on the local DS-Billing computer, the path is as follows:

```
/<installation_path>/db/scripts (default is /opt/CloudBackup/
DSBilling/ db/scripts).
```

If the PostgreSQL database is running on a remote computer, the path can be any location.

NOTE: To prevent connection issues between the DS-Billing computer and the PostgreSQL database, the IP address of the local DS-Billing computer must be added to the pg_hba.conf file located in the <Postgres_Installation_Path>/data folder.

6. Start the DS-Billing service with the following command:

```
/etc/init.d/dsbilling start
```

6.4 Upgrading the DS-Billing software

This section describes how to upgrade the DS-Billing software.

6.4.1 Before you begin

- Ensure that the PostgreSQL database is running, if you are upgrading a DS-Billing installation that is using an external database.
- Back up the existing DS-Billing database using the following command:

```
# pg_dump -U postgres dsbilling > /<installation_path>/dsbilling.dmp
```

To upgrade the DS-Billing software:

1. Stop the DS-Billing service / daemon.
2. Run the DS-Billing upgrade package.
 - The installation will detect the existing DS-Billing database and will apply the database patches.
 - The installation will also detect and upgrade the DS-Billing components that are installed on the DS-Billing machine.
3. Finish the installation and if no errors occurred from the database patches, start the DS-Billing service/daemon.
4. Check if you can connect to the DS-Billing service/daemon using the same (upgraded) version of the DS-Billing GUI. If the connection is successful, check the DS-Billing Event Log for errors.

NOTE: To upgrade the DS-Billing GUI, close all open DS-Billing GUI's on the machine where you will perform the upgrade; select and run the correct upgrade package; open the DS-Billing GUI and connect to a DS-Billing service that has the same upgraded version as the DS-Billing GUI.

7 Installing the Remote DS-VDR Tool

This chapter provides detailed instructions on how to install the Remote DS-VDR Tool.

You can use the Remote DS-VDR Tool to restore VMware VADP backup sets that have been backed up at the virtual machine level in a VMware ESX infrastructure. The backup must be of an entire virtual machine (not an individual disk).

7.1 Installing the Remote DS-VDR Tool (Windows)

This section describes the system requirements for installing the Remote DS-VDR Tool on a Windows machine.

7.1.1 Software requirements

The Remote DS-VDR Tool can be installed only on the 64-bit version of the supported operating system.

- Windows Server 2016
- Windows 10

For the latest information, see the *Support Matrix*.

7.1.2 Installing the Remote DS-VDR Tool

This section describes how to install the Remote DS-VDR Tool on a Windows machine.

To install the Remote DS-VDR Tool:

1. Log on as the **root** user.
2. On the DVD, click **setup.exe**.
3. On the **Windows Product Installation Center** page, click **Remote DS-VDR**. A prerequisite check is performed.
4. Once the prerequisite check is complete, click **Next**.
5. On the **Welcome** page, click **Next**.
6. On the **License Agreement** page, read the license agreement carefully, select **I accept the terms of the license agreement**, and then click **Next**.
7. On the **Destination Folder** page, select a folder to which the installation files will be copied, and then click **Next**.
8. On the **Ready to install** page, click **Next**.
9. On the **Installation Complete** page, click **Finish**.

7.2 Installing the Remote DS-VDR Tool (Linux)

This section describes how to install the Remote DS-VDR Tool on a Linux machine.

7.2.1 Software requirements

The Remote DS-VDR Tool software can be installed only on the 64-bit version of the supported operating system.

- Red Hat Enterprise Linux 7.3, 7.4, or 7.5
- SUSE Linux Enterprise Server 11 SP4, 12 SP3, or 15

For the latest information, see the *Support Matrix*.

IMPORTANT: Before installing the software on Linux, run the `setup_lin.sh` command on the DVD to automatically install the required Linux libraries. The individual RPM packages can be found in the `/bin` folder.

7.2.2 Installing the Remote DS-VDR Tool

This section describes how to install the Remote DS-VDR Tool on a Linux machine.

To install the Remote DS-VDR tool:

1. Run the setup program from the following folder on the installation DVD:

```
\Software\Tools\Remote_DS-VDR\Linux_64_bit
```

2. Login as the root user.
3. Copy the required rpm package to the target computer or run it from the installation DVD using the command:

```
rpm -i remote_ds-vdr-<version>-linux.x86_64.rpm
```

where `<version>` is a four digit version number specifying the major release, minor release, service pack, and hotfix (e.g. 13.3.0.0).

The Remote DS-VDR Tool is installed on the target machine in the folder:

```
/opt/CloudBackup/Remote_DS-VDR/.
```

After the installation is complete, the Remote DS-VDR Tool will start automatically when the machine reboots and run as a daemon (service).

The daemon (service) can be started / stopped / restarted using the following commands:

```
/etc/init.d/remote_ds-vdr.sh start  
/etc/init.d/remote_ds-vdr.sh stop  
/etc/init.d/remote_ds-vdr.sh restart
```

You can view the status of the Daemon (service) using the command:

```
/etc/init.d/remote_ds-vdr.sh status
```

7.3 Upgrading the Remote DS-VDR tool

This section describes how you can upgrade the Remote DS-VDR tool.

To upgrade in a Windows operating system:

Uninstall the existing version and then install the new version.

To upgrade in a Linux operating system:

In the command line, type the following command:

```
rpm -U remote_ds-vdr-<version>-linux.x86_64.rpm
```

where <version> is a four digit version number specifying the major release, minor release, service pack, and hotfix (e.g. 13.1.0.0).

Installing the Remote DS-VDR Tool

Upgrading the Remote DS-VDR tool