Gemini Central - Quick Start Guide

Version 3.0 | Hardware Appliance Version (G14)

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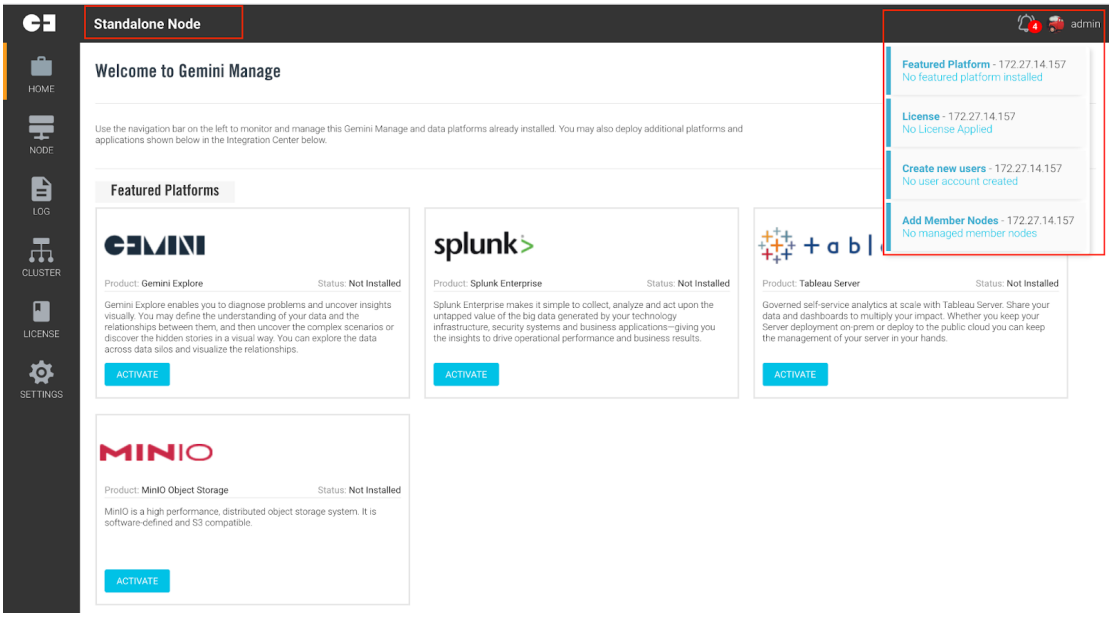
Overview & New Features

Welcome to **Gemini Central** - the new name for Gemini Enterprise Manage!

Recent iterations of Gemini software have been demonstrating the advantages of having a **Management Center** node at its core that can oversee an entire Splunk environment, or even multiple Splunk environments.

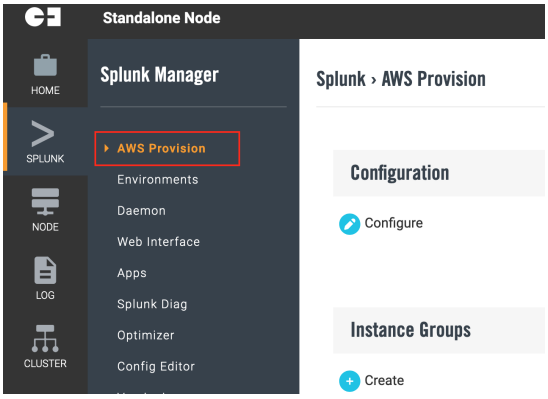
Recent features such as the central collation of Splunk diags and a central backup solution for all Splunk/Gemini config files have been very popular with customers. To complement this, we are introducing another new feature called, '**Recommended Actions**' that advises on outstanding issues that need to be addressed on a Gemini instance. From the **Management Center** node, selecting a '*Recommended Action*' relevant to any node will open it in a separate browser for immediate attention.



Another exciting new feature, **AWS Provisioning**, enables central provisioning of complete Splunk Indexer and Search Head clusters based on AWS EC2 instances using **Splunk AMI's** direct from a Gemini Central node, typically the **Management Center.**

This is a big departure to the use of the hardened OS built-in to the **Gemini AMI**, but will enable customers to get up and running quickly with complex Splunk environments on **AWS** in just a few minutes, provided the customer has their AWS secret keys and passwords available.

A **Gemini Agent** will be installed to each Splunk instance during the install, allowing the **Management Center** node central observation and a fast Splunk upgrade facility.



1.0 Gemini Central - Appliance Model Identification

1.1 Model: IM-2400H / IM-2600H

Front Panel

Figure 1. IM-2400H / IM-2600H Front-Panel

1. Power Button
2. VGA D-Sub

Back Panel

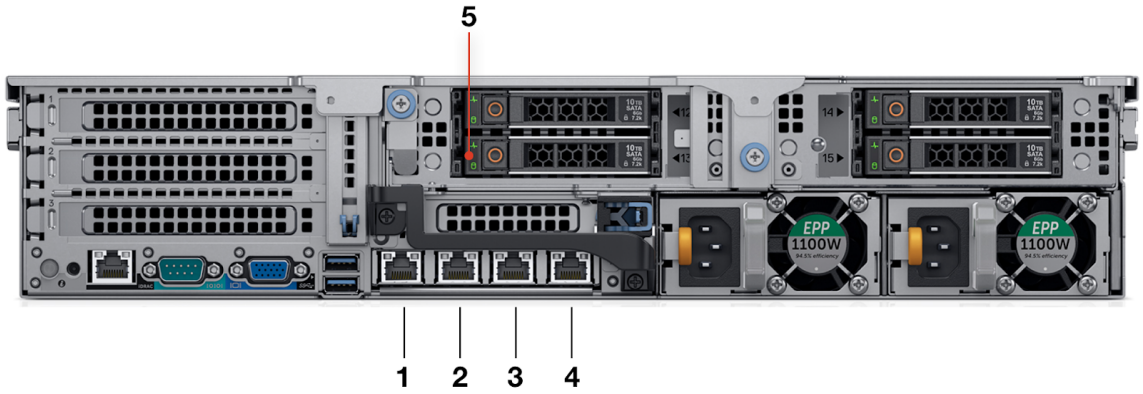


Figure 2. IM-2400H / IM-2600H Rear Panel

1. Ethernet Port 1
2. Ethernet Port 2
3. Ethernet Port 3
4. Ethernet Port 4
5. Spare Disk (IM-2600H)

1.2 Models: SS-1000S / SM-1000S / SL-1000S / IS-1100D / IM-1100H / IM-1200H / IM-1040S / IM-1060S / IS-1200S / IM-1200S / IL-1200S / IL-1200H

Front Panel

Figure 3. SS-1000S / SM-1000S / SL-1000S / IS-1100D / IM-1100H / IL-1200H / IM-1040S / IS-1200S / IM-1200S / IL-1200S Front-Panel

1. Power Button
2. VGA D-Sub

Back Panel

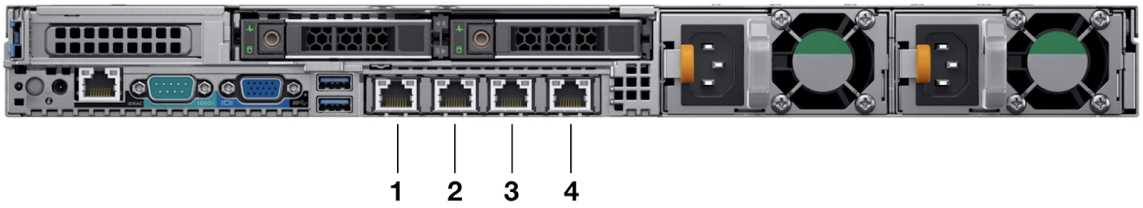


Figure 4. SS-1000S / SM-1000S / SL-1000S / IS-1100D / IM-1100H / IL-1200H / IM-1040S / IS-1200S / IM-1200S / IL-1200S Rear Panel

1. Ethernet Port 1
2. Ethernet Port 2
3. Ethernet Port 3
4. Ethernet Port 4

1.3 Models: G1000 / IB-1050D

Front Panel

Figure 5. G1000 / IB-1050D Front Panel

1. Power Button
2. VGA D-Sub

Rear Panel

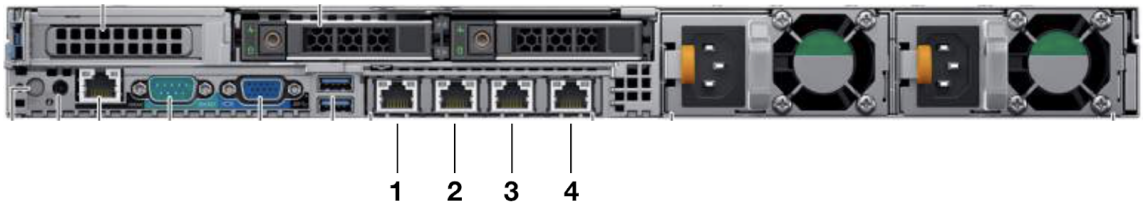


Figure 6. G1000 / IB-1050D Series Panel

1. Ethernet Port 1
2. Ethernet Port 2
3. Ethernet Port 3
4. Ethernet Port 4

2.0 Getting Started

2.1 Prerequisites

- **Cabling -** An ethernet cable and available ethernet switch connection, and a suitable power lead and available socket.
- **Networking -** One IP address which can be assigned to the Gemini appliance ethernet Port 1 (address, netmask and optional gateway details are required for manual configuration. DHCP is also supported)
- **Accessories** - VGA monitor and USB keyboard
- **Client -** A client PC on the same network as the Gemini appliance running a suitable web browser.
- Splunk: Access to a Splunk Enterprise installation tarball (splunk-*.*.*-*-Linux-x86_64.tgz).
- Tableau & Explore: Internet access is required for installation of these Featured Platforms.

Important Note on Network Access Control

To administer and run Gemini Central and its services, certain communication channels between clients and nodes are required. As a minimum, the following ports are required:

Port	Reason
443/TCP	Https access
22/TCP	SSH access
4444/TCP	Cluster communication

As the Web Interface and SSH console offer low-level system access, try to ensure that the network settings are biased towards a '**host-only**' approach and are not exposed to public access (ie. Anywhere, 0.0.0.0/0). Depending on the deployment, add inbound/outbound rules as needed.

2.2 Software - Gemini Central

This **Gemini Central Quickstart Guide** has been written specifically for provisioning physical hardware appliances using our secure hardened **Gemini OS**.

Other variants of Gemini Central are available as highlighted below. This Document references **Gemini Central on physical appliances**. Please locate another Quickstart guide if necessary.

- **Gemini Central Quickstart Guide 3.0 (Hardware Appliance)**
- Gemini Central Quickstart Guide 3.0 (VMware)
- Gemini Central Quickstart Guide 3.0 (AWS)
- Gemini Central Quickstart Guide 3.0 (Azure)

For a more comprehensive understanding of **Gemini Central**, please refer to the **Gemini Central - Administration Guide Ver 3.0.**

If this is the first, or primary **Gemini Central** appliance to be installed, use the following section to guide you through creating a '**Management Center**' that can be used to import other Gemini Central appliances.

Create as many appliances as required for use in a Splunk, MinIO, Explore or Tableau environment, using the procedures outlined in this guide and allow the **Management Center** node to control all other processes, including Splunk provisioning.

If you require the importing of existing local Splunk environments (non-Gemini instances) refer to the **Gemini Agents** section of the **Gemini Central - Administration Guide V3.0**.

The naming convention for Gemini's ISO files have the following pattern:

gemini-appliance-<major_release>.<minor_release>.<bug_fix>.iso

An example would therefore be:

gemini-appliance-2.7.1-285.iso

Please contact Gemini Support (support@geminidata.com) if you require the very latest, or indeed an earlier working version of the ISO file.

2.3 Hardware Appliance - Initial Power On

Connect the physical appliance to a suitable power supply.

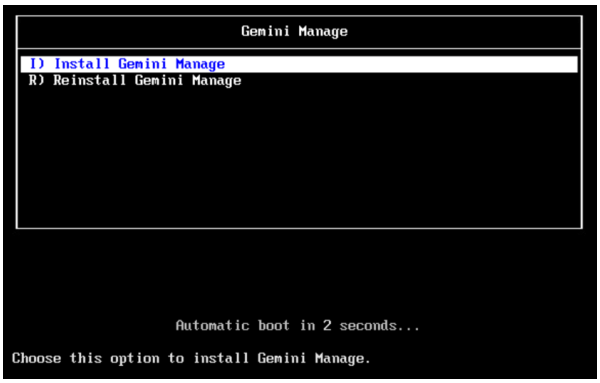
Connect a monitor to the VGA socket of the appliance (labeled as item '2' in the previous sections diagrams), and connect a USB Keyboard.

Press front panel Power Button (labeled as item '1' in the previous section diagrams). This button may need to be pressed twice the first time the appliance is turned on.

2.4 Hardware Appliance - System Initialization

When starting an appliance for the very first time we should ensure it has an IP address. Once assigned an IP address, all subsequent configuration, amendments, installations and future upgrades for this and other appliances can all be achieved using the Management Center appliance web interface.

When the appliance 'boots' to our ISO file, the following screen should be observed. If the 'login' prompt is not visible on the connected monitor, press 'enter' on the keyboard a few times. The login prompt should then appear.



Due to the automatic selection of option 1; '**Install Gemini Manage'**, the above screen may not actually be observed.

Following the installation of **Gemini Central** which can take 10 - 15 minutes, the screen will return a login prompt, similar to the one below:

```
gemini-1cece3 login:
```

You now have two options; If this appliance is to be included in an existing Gemini Central environment, and it has been issued an IP address via DHCP, simply login to your Gemini **Management Center** node and continue with instructions contained in the Provisioning Appliances section of this manual.

Alternatively, continue with this section if you need to achieve any of the following:

- If this instance is to become the **Gemini Management Center** or a standalone instance
- If you need to provision this instance with an **IP** address or **DNS** hostname
- If you need to change an **IP** address already assigned to this instance

At the terminal prompt, login to the interface using the following credentials:

username: **sbox**

password: **facing jet function drive** (note the spaces are important!)

You will be prompted to change the default password. Please complete this exercise and ensure that you record the new password.

Note: Contact support@geminidata.com if you have any issues or questions with the initial setup process.

2.5 Network Configuration

At the command prompt, use the **'sbox network'** command to create an IP address that will be used for the Gemini Central appliance.

Type the following at the prompt to reveal all network options available.

```
sbox network
```

```
[sbox@gemini ~]$ sbox network
Usage: sbox network [OPTIONS]

[OPTIONS]
      --reset    Reset all network interface to default value.
      -nic       Setup specific network interface, required for
```

```
                below options.
      --disable  Disable specific NIC, when given it ignores
                 --dhcp, -ip, -netmask and -gateway options.
      --dhcp     Config the specific NIC as DHCP.
      -ip        Set IP address for specific NIC.
      -netmask   Set subnet mask for specific NIC, required when
                 set IP address.
      -gateway   Set gateway on specific NIC. Optional.
[sbox@gemini ~]$
```

Using this command it is required that we create an IP address. Two methods are available to achieve this.

- Assign a static IP address (preferred option)
- Assign an IP address using DHCP

Static IP address assignment

We recommend that you create a permanent IP address for Gemini Central.

Identify the name of the device network interface using the following command at the terminal:

```
ip a current ip
```

The example output shown below reveals that the **interface name** is '**nic0'**, and the **address** is **192.168.1.100**.

```
[sbox@sboxnode1 ~]$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: nic0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP qlen 1000
    link/ether 08:00:27:9e:96:c0 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.100/24 brd 192.168.1.255 scope global dynamic nic0
       valid_lft 68091sec preferred_lft 68091sec
```

To create or change the current IP Address, at the terminal prompt use the following command to apply your chosen IP address.

```
sbox network -nic <network_interface> -ip <chosen_IP_address>
-netmask <Netmask> -gateway <Gateway_IP_address>
```

Example:

```
sbox network -nic nic0 -ip 192.168.1.100 -netmask 255.255.255.0
```

```
-gateway 192.168.1.1
```

Note: Network interface values can be verified using the '**`ifconfig`**' or **'ip a**' commands.

Additional IP addresses can be assigned using the Management Center, if required.

Note	To create a '**Host-only**' instance to operate solely within the local network, omit the **-gateway** option when using the above command.

IP Address assignment using DHCP

If you wish to configure the network using DHCP use the following alternative command:

```
sbox network -nic <Network interface name> --dhcp
```

3.0 Gemini Central - Web Interface

3.1 EULA Agreement

Further configuration of the instance can be completed using the web interface.

Using a supported web browser, navigate to:

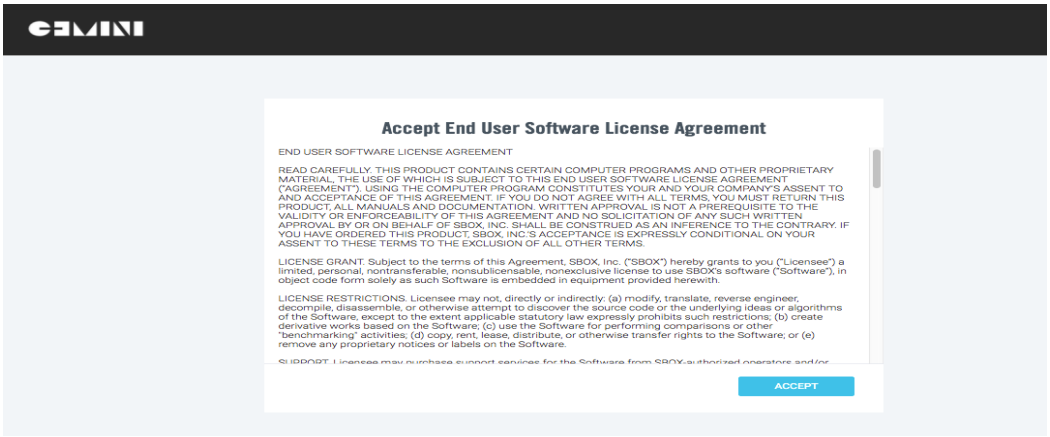
```
https://<ip_address or FQDN of instance>
```

If you have an appliance already dedicated to the role of **Management Center**, simply use this interface to add and manage all other Gemini instances which can be added as '**Unassigned Nodes**'.

If this instance is to become the **Management Center**, or if you just want to login to the web interface, use a suitable browser to access the IP address assigned, ensuring that you use the '**https:**' prefix.

Accept the browser certificate exception on the initial opening, to reveal the following ***End User Software License Agreement*** license screen.

After reading the terms and conditions, select '**Accept'** to advance to the next screen.



3.2 Localization Settings

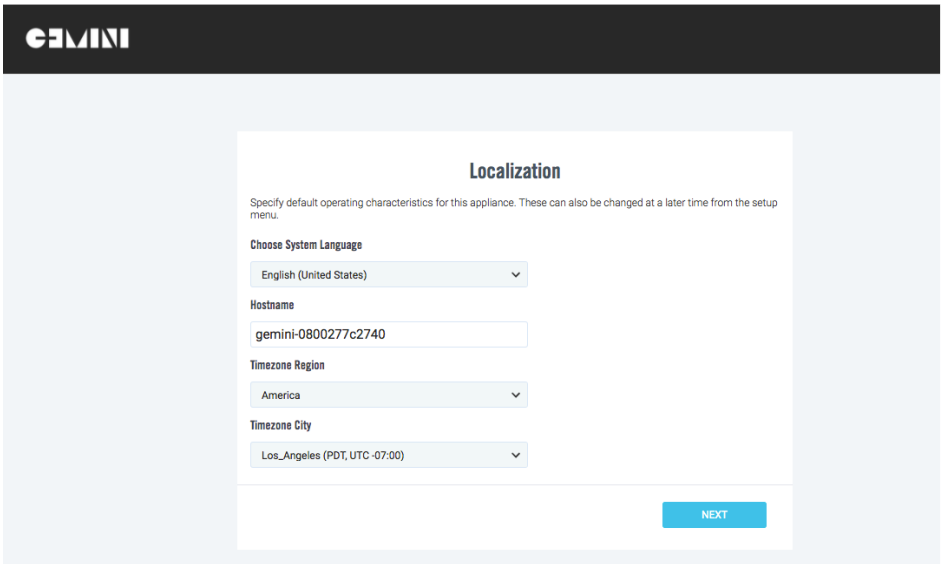
This screen allows you to set **locale** information regarding **language**, **timezone** and an appropriate DNS recognized **Hostname** for your appliance.

Gemini Central natively supports four languages;

- English (American)
- Traditional Chinese
- German
- Japanese

Select your preferred language to adjust the user experience accordingly.

Use the '**Node**' menu of the web interface at any time to modify these settings in the future.

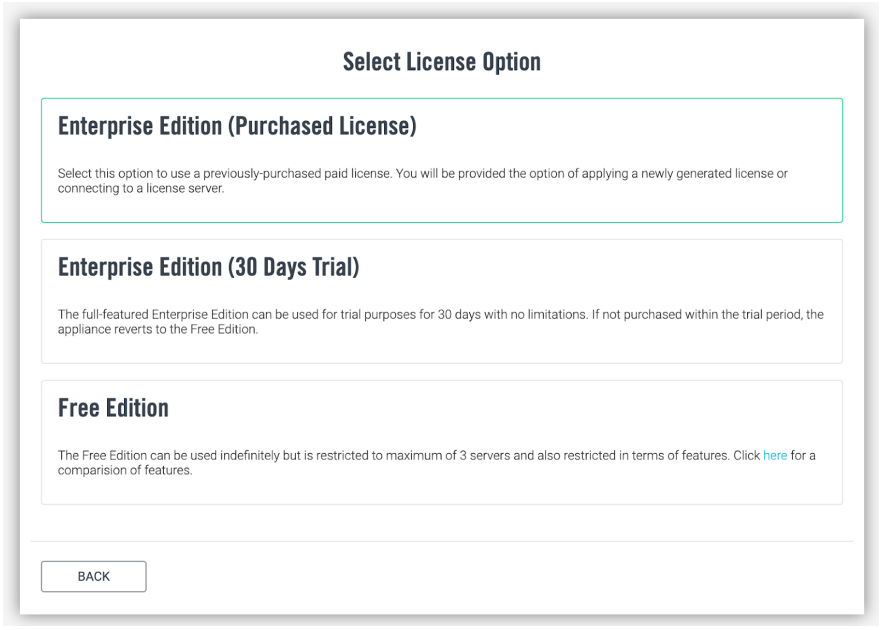


3.3 License Activation

This step allows you to activate the appropriate license for your intended use.

- **Enterprise Edition (Purchased Licence**)
  The most common option, select if you have an appropriate Gemini Licence.
- **Enterprise Edition (30 days Trial)**
  Select if you are entering into a trial of our product and simply want to test out the features.

  You may choose to select the **Enterprise Edition** at any time during the 30 day trial period.
- **Free Edition**
  The Free Edition may be used indefinitely, but is restricted to 3 Servers and some features have been disabled (see Note below)

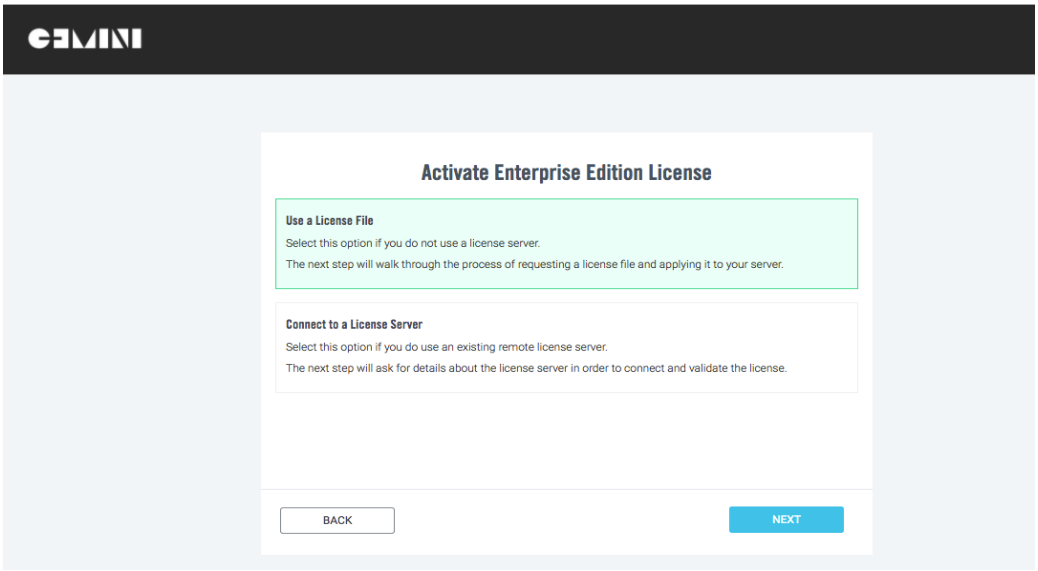


Notes	In the Free Edition: The following premium features are restricted: ○ No Failover group ○ No LDAP Authentication ○ No support for external storage, including NFS, CIFS, and S3. ○ No remote license server. ○ Limited Splunk configuration versioning, roll back for last 3 versions only. Gemini Cluster features are restricted. ○ Up to 4 nodes in a cluster maximum. ○ No scheduled jobs. ○ Jobs for Splunk upgrade are restricted. ○ Jobs for Gemini appliance boot control are restricted. ○ Jobs for Splunk service control are restricted.

Select the '**Next**' button to continue.

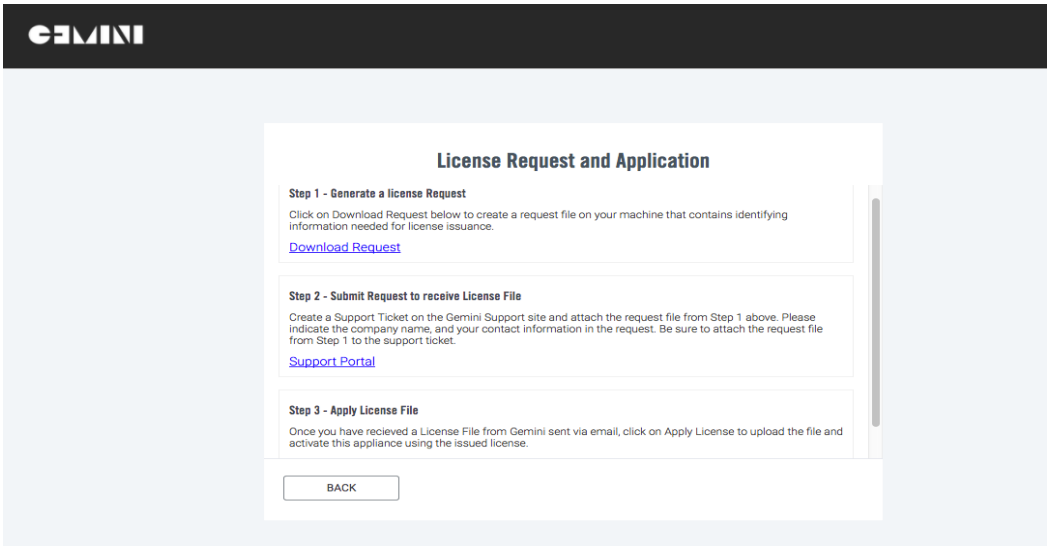
Use or request a Licence File

If you want to activate a pre-purchased Gemini Central license, or initiate the request of a Gemini Central License, and you do not have an existing Gemini License Server - select the first option, '**Use a License file**'.



This reveals a three-step process, as outlined in the screen below, beginning with a License request process.

Use the '**Licences**' menu of the web interface at any time to modify or view License settings.

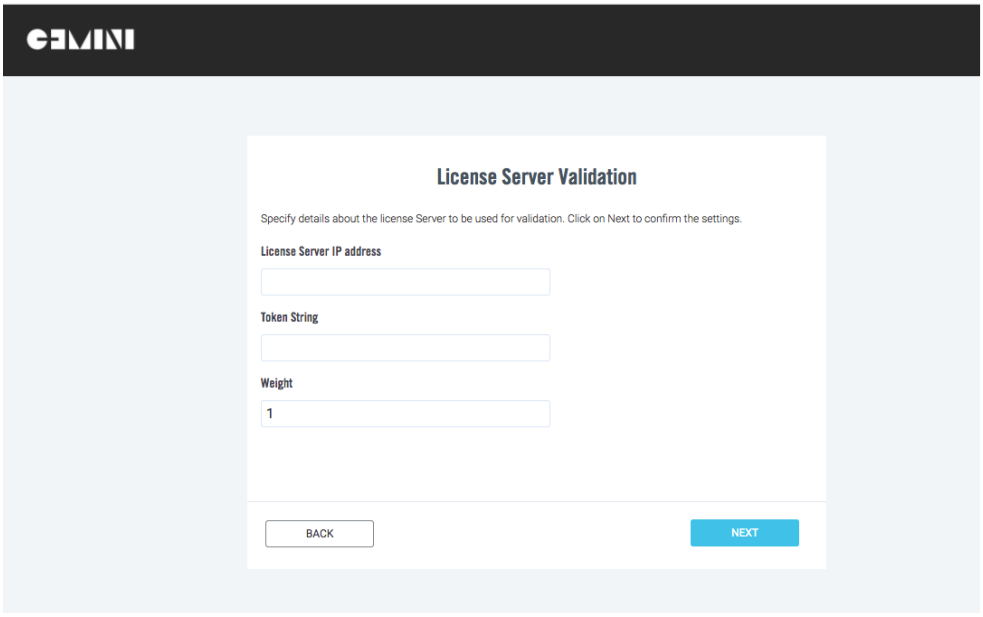


If you are applying for a License file during the **Bulk Provision** process, there can be a delay of up to 72 hours before your License file is made available. In order to proceed with the Bulk Provision process, use the '**Back**' button after completing **Step 2** of the License application wizard, and select the '**Trial License'** option.

On receipt of your **License File**, complete **Step 3** of the License application wizard using the '**License**' menu of the web interface at any time within the 30 day trial period.

Connect to a Licence Server

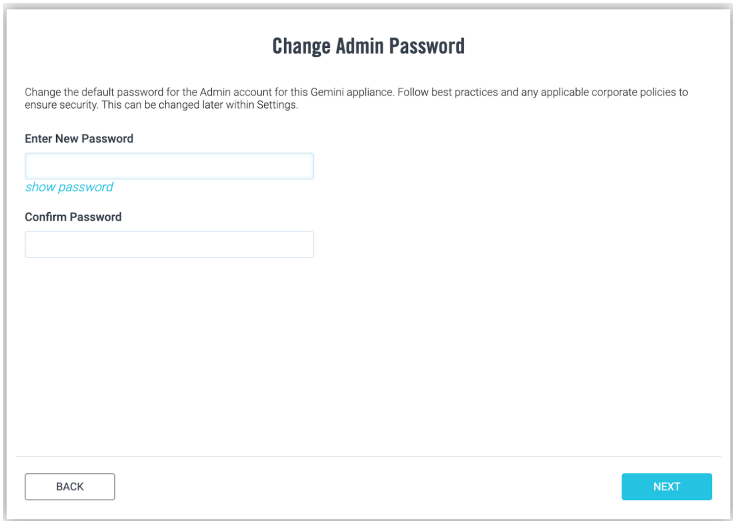
Alternatively, if a license server is used to manage all available licenses, selecting this option will allow you to specify license server information, including IP Address and token, in order to perform the validation. Select the '**Next**' button to continue.



3.4 Change Admin Password

The final step of the Gemini appliance initialization wizard is to create an administration account to enable access to the web interface. This is a mandatory requirement.

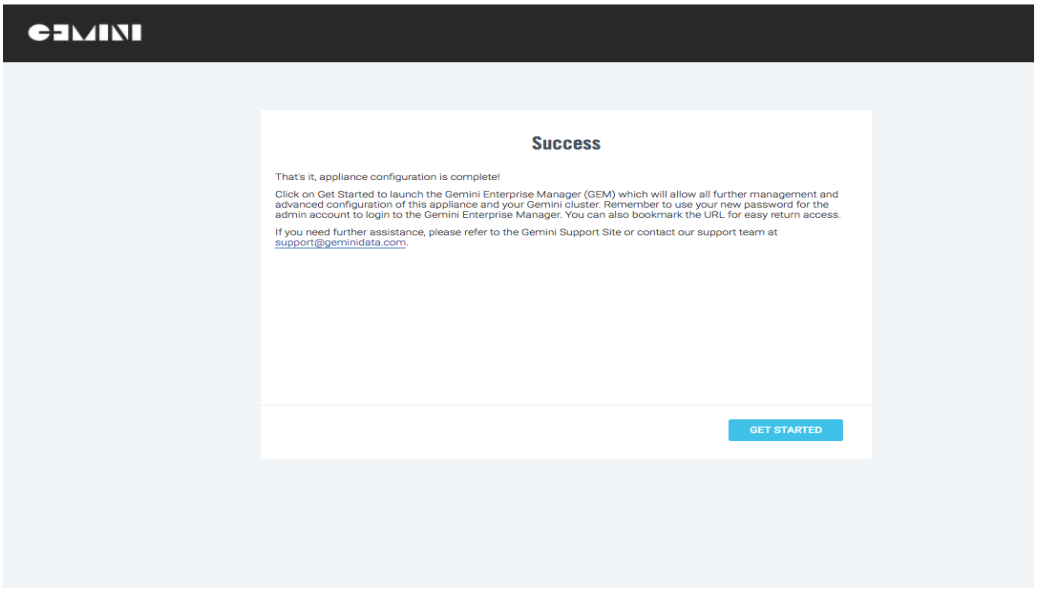
*** ***It is essential to record the admin account and password in a safe place*** ***



Success Screen

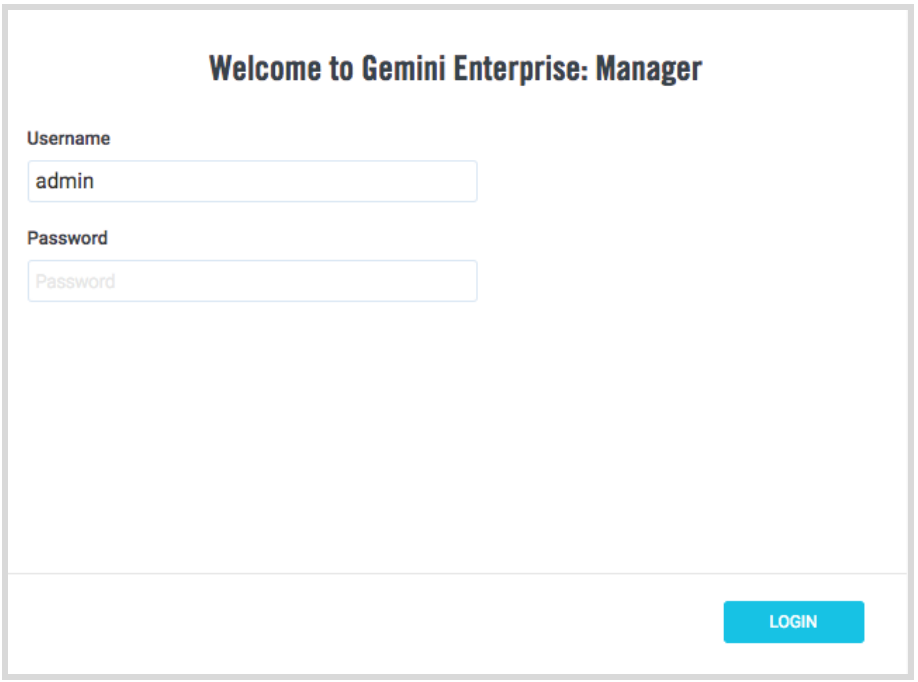
Congratulations! The 'Success' screen lets you know that this appliance has been configured.

Select '**Get Started**' to login to Gemini Central.



Initial Login Screen

Upon completion of the setup process and after selecting the **Get Started** button from the Success screen you will be presented with the login screen.



Login to Gemini Central with the username '**admin**' and the password created in the previous step.

Return visits to this interface will proceed directly to the login screen. Configured settings may still be changed within the corresponding areas within Gemini Central.

Further options can be achieved from the Gemini web interface, and some useful examples are given below;

- Create a **Gemini Management Center** from this instance used to control multiple Gemini nodes
- Activate **Splunk** on this instance for use as a Splunk server
- Activate **Explore** on this instance to make use of the **Inspect for Splunk Admin** app or to create analysis models
- Activate **Tableau** on this instance for Business Intelligence purposes
- Activate **MinIO** on this instance for additional storage purposes such as **Splunk SmartStore**.

Standalone instance

If you wish to use this instance simply as a standalone node, for instance as a Log Receiver, or Splunk Deployment server, use the web interface menus to configure the features required.

If you wish to access **Splunk** on the web interface, you first have to '**Activate**' it from the **Home** dashboard.

The Management Center

The Gemini **Management Center** could be considered a special standalone instance. It is usually the first Gemini Central instance created and can provide a central location for the control and management of all your Gemini instances.

The **Management Center** instigates centralized control and monitoring of Gemini instances, fast creation (Bulk Provision) of Splunk clusters including scaling of those clusters, and a central repository for Splunk Diag files.

3.5 Bulk Provisioning of multiple Appliances

The **Bulk Provisioning** process is a step-by-step workflow that allows the configuration of multiple instances in one simple process. This is usually achieved by the nominated **Management Center** node.

If you are using **Gemini Central** to build Splunk clusters, whether that be using hardware appliances, cloud instances, or virtual nodes, you will almost certainly want to make use of the **Bulk Provisioning** method of Splunk deployment.

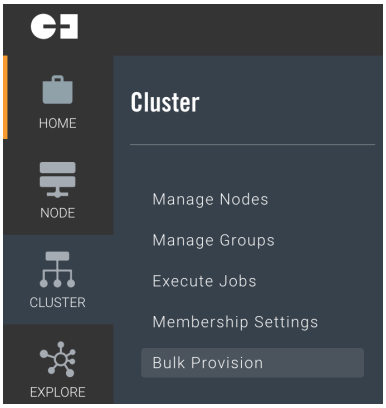
We have included this process within this Quickstart Guide for your convenience. Your **Gemini Central** journey therefore starts here!

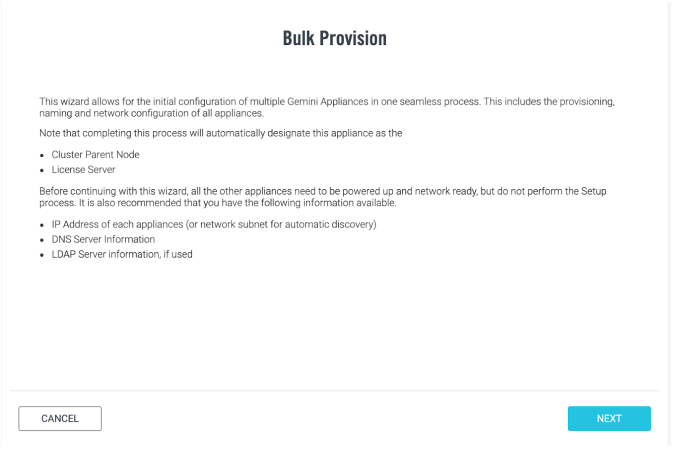
Ensure that the following are true before continuing;

- Each appliance contains the installed Gemini Central software
- Each appliance is powered on
- Each appliance is accessible on the network

To begin the **Bulk Provisioning** process of Gemini Central appliances, login to the Gemini web interface of your chosen **Management Center** as the '**admin**' user.

Select the '**Bulk Provision**' option from the **Cluster** menu.





This will invoke the **Bulk Provisioning wizard** allowing for the simultaneous configuration of multiple instances. This option covers all aspects of configuration including; server naming, network configuration, LDAP access, Splunk software installation, and configuration of Splunk clusters.

Select the '**Next**' button to navigate through the wizard.

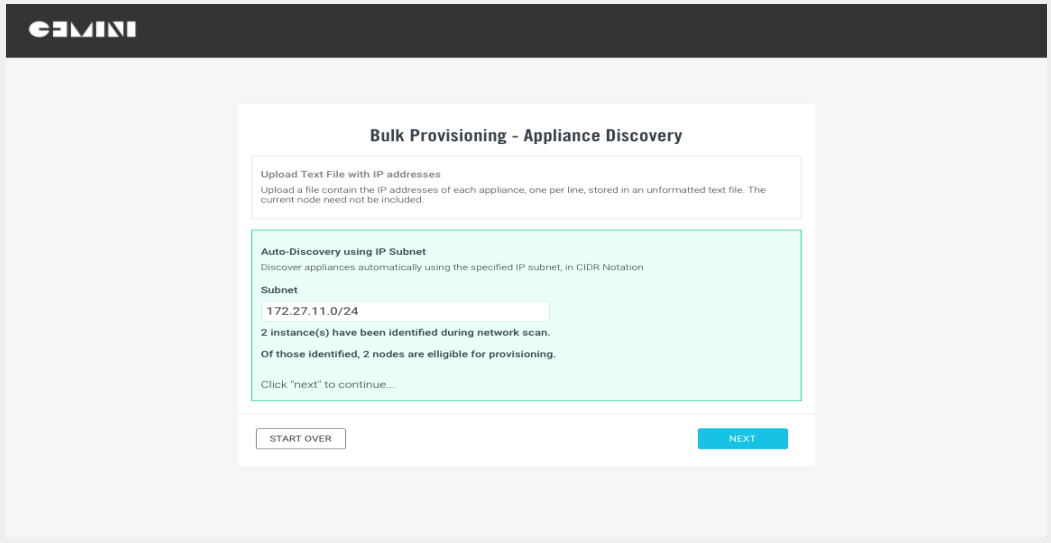
Bulk Provisioning - Appliance Discovery

The first step discovers and confirms appliances that are to be configured. The discovery process can be achieved in one of two ways:

Use of a text file: If all the IP addresses of appliances are known, you may add them to a text file containing one IP/DNS name per line. This can be uploaded during the discovery process.

Subnet search: Alternatively, the appliances can be discovered on the network by performing an IP subnet scan, using CIDR notation to specify (ie, 192.168.156.0/24).

Please note that the scope of the subnet will determine the length of time taken for the scan to complete.



Bulk Provisioning - Network Settings

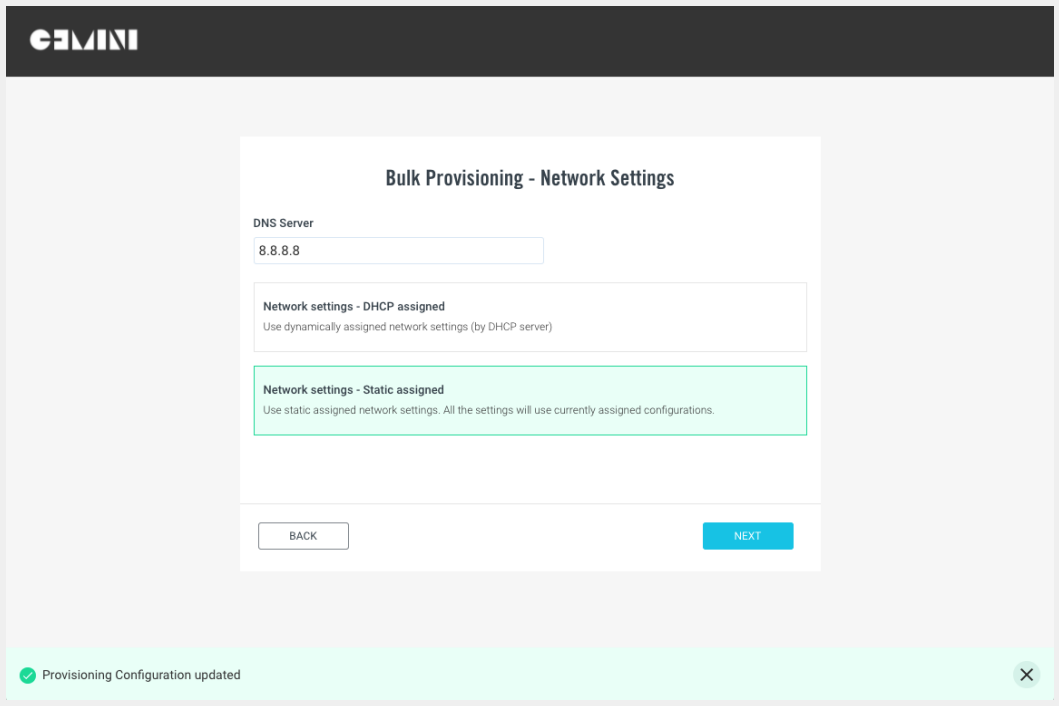
This step determines the mechanism used for assigning IP addresses to the appliances. Two options are available here;

Network settings - DHCP assigned

The default option uses a dynamic assignment of IP addresses using a DHCP Server. Note: This could mean a change to appliance IP addresses under some circumstances, but it is a fully automated solution.

Network settings - Static assigned (preferred option)

This option will also utilize DHCP. The difference here is that DHCP is used for the initial IP address assignment only. From then on, the IP address becomes ‘static’. This is useful when using a temporary DHCP server available during deployment.



Bulk Provisioning - Hostname assignment

If you have chosen the '**Static assigned**' option you have two options to consider regarding **hostname** assignment;

Using a Reverse DNS Lookup

If DNS records have been assigned for each appliance, this option will use the hostname discovered through the DNS server. This requires an 'A record' entry for each device, and the inclusion of a valid **DNS server** address in the entry box provided.

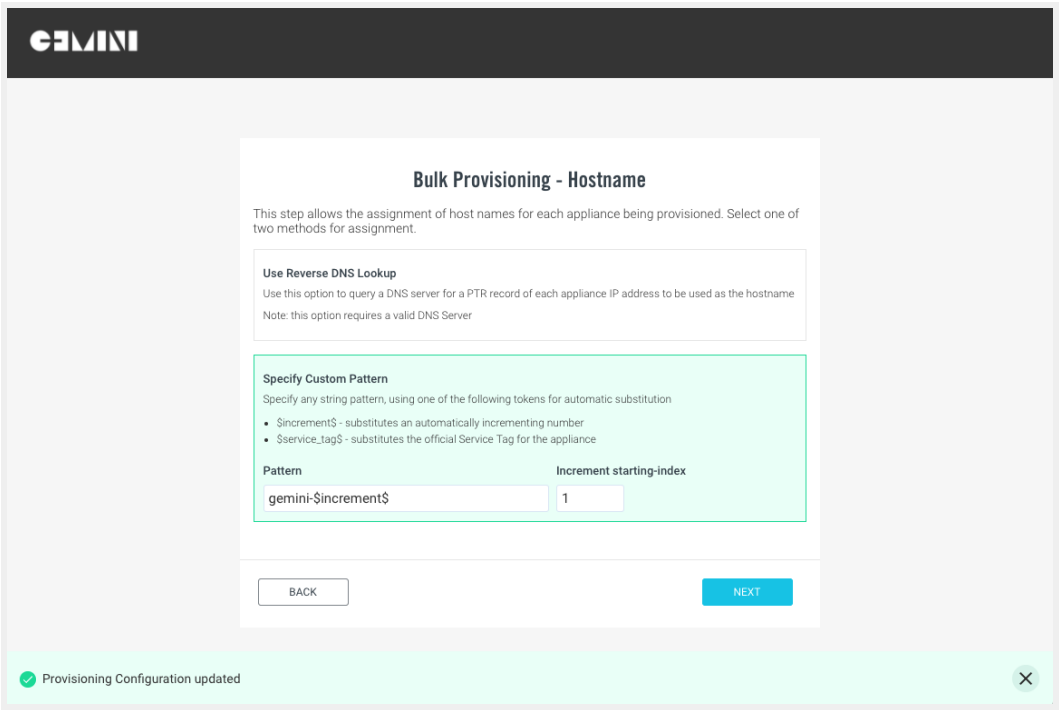
Specify Custom Pattern

This option allows the specification of a custom string to automatically compose each hostname. The following tokens can be used dynamically in this process:

- **$service_tag$** - will use the 'service tag' of the appliance, as indicated on the box or available from the Gemini support website.

- **$increment$** - will provide an automatically incrementing number usually used with a text prefix.

The example below will create appliances named; **gemini-1, gemini-2, gemini-3**, etc

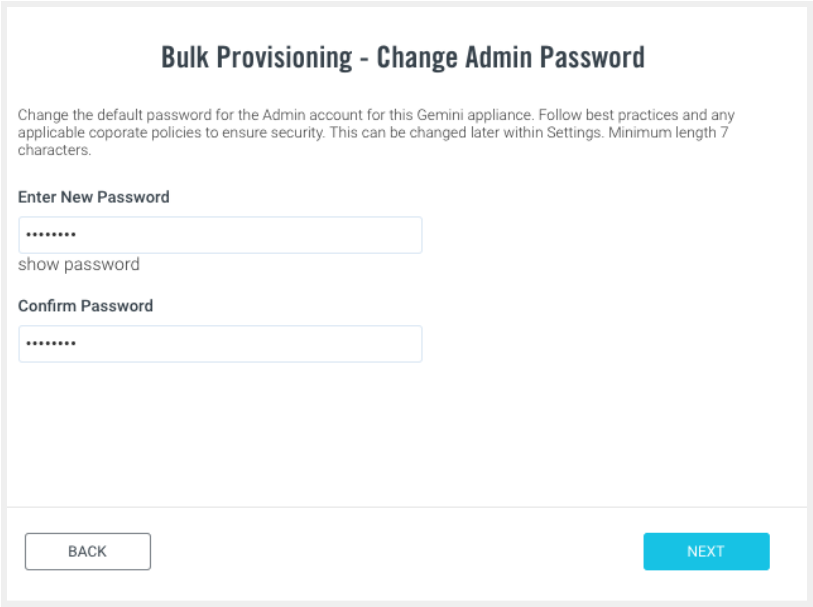


Bulk Provisioning - Change Admin Password

This step is used to specify the password for the '**admin**' account on ***each*** appliance to be configured allowing access to the Gemini web interface. This can be changed at a later date if required.

It is recommended that you use a strong password and follow the recommended appropriate password policy guidelines as required.

Please note that when using bulk provisioning, all appliances will be updated with the same admin password.



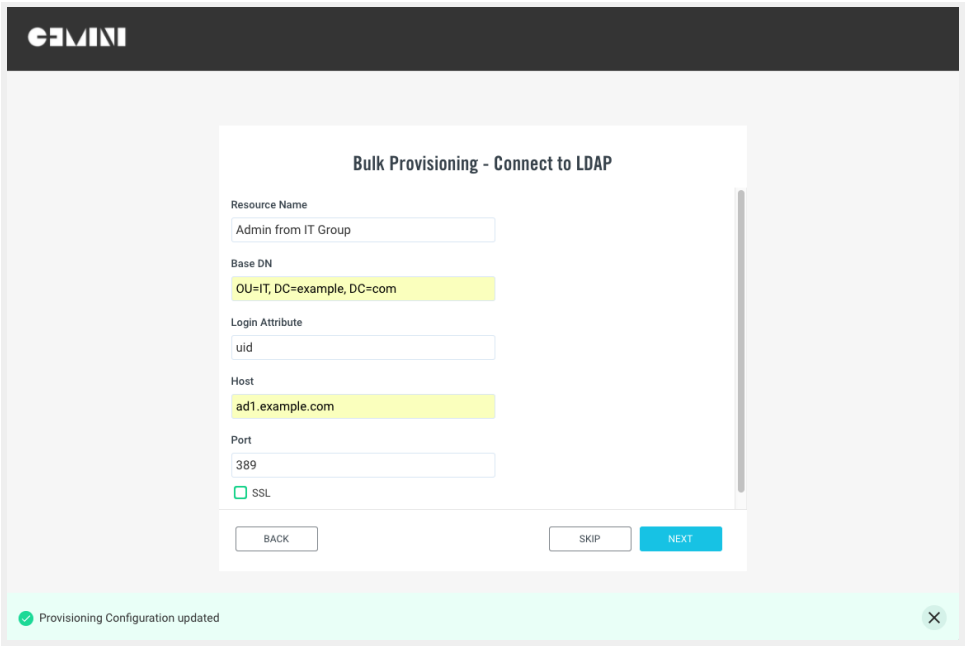
Bulk Provisioning - Connect to LDAP

If an LDAP account is required for access to each appliance, this step allows the specification of LDAP server authentication information. This will be used to authenticate users upon login to the appliance.

Refer to ***LDAP Authentication*** in the **Settings** chapter of the full Administration Guide for more details.

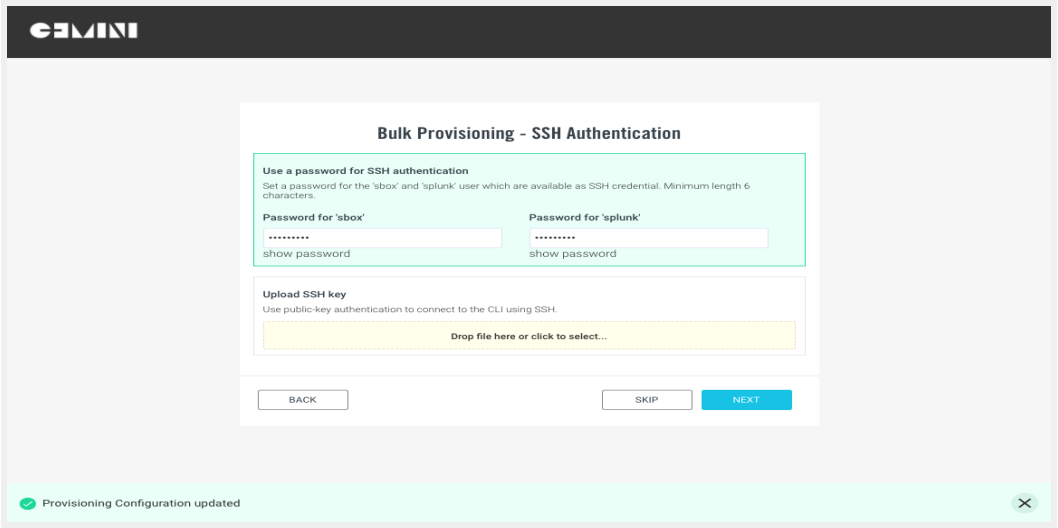
Please note that LDAP authentication is optional, and by default the appliance resorts to local account-based authentication. An example is given below.

Alternatively, press the '**skip**' button to configure at a later time.



Bulk Provisioning - SSH Authentication

This step allows for the control of SSH authentication. Use the first panel to set SSH passwords for the built-in '**sbox**' and '**splunk**' user accounts. Alternatively, use the second panel here to upload the **SSH private ke**y to complete the connection



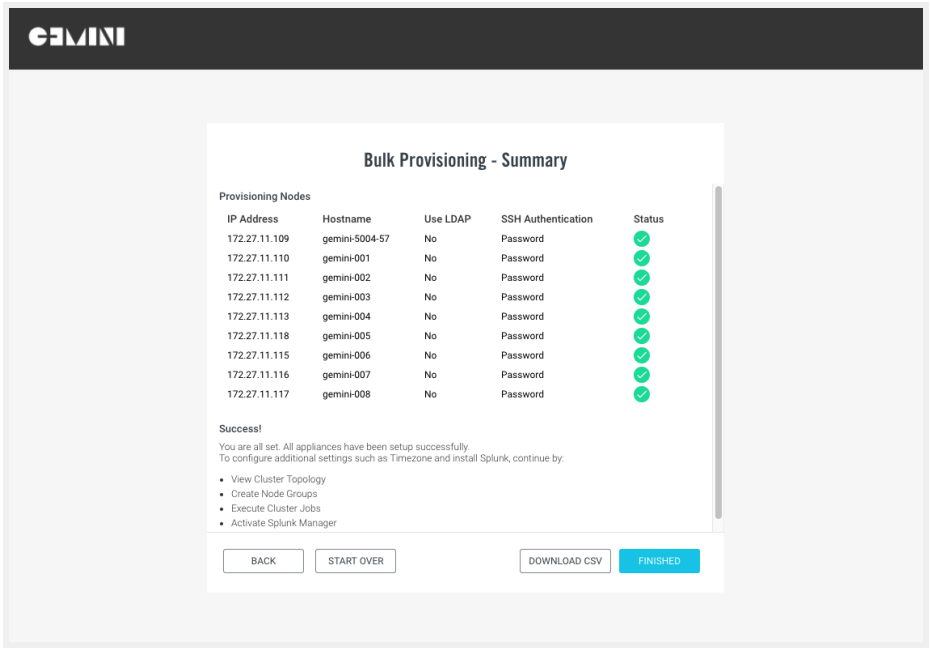
Bulk Provisioning - Summary

The **summary** screen lists all the appliances about to be provisioned along with their configuration settings. It should be used as a final review and confirmation step before starting the automated configuration.

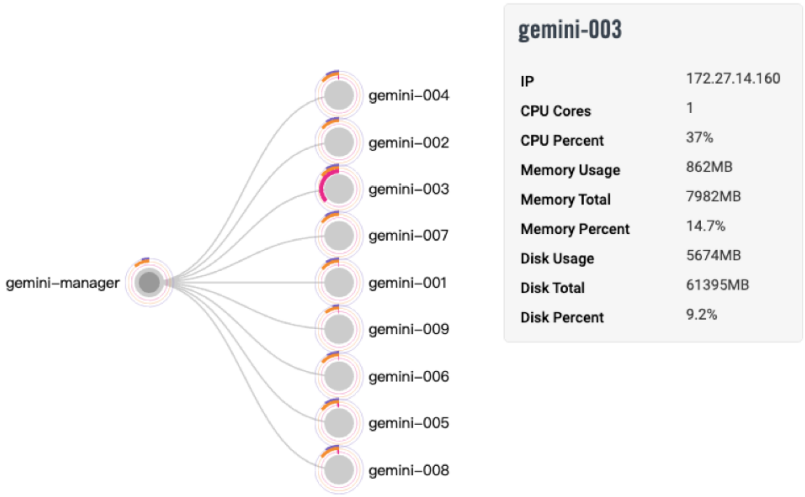
It is also strongly recommended that you use the **Download CSV** option here, as it contains the instance details provisioned during this process for future reference.

Select the '**Start'** button to initiate the automated provisioning process, which can take several minutes or longer depending on the number of appliances being provisioned.

The status of each appliance is updated in real-time. After the appliances have been provisioned, select **Finished** to complete the process.



Use the **Cluster / Manage Nodes** dashboard of the M**anagement Center** node to view the Manage Cluster of Gemini Central nodes.



At this stage, it is likely that you will want to install and configure Splunk clusters using the provisioned Nodes. For details regarding this process, please refer to the **Splunk Installation** section of the **Gemini Central - Administration Guide V3.0**.

3.6 Adding instances to an existing Manage Cluster

The addition of other Gemini nodes into an existing **Manage Cluster**, must be achieved from the '**Parent**' node. A parent node is the main control node for each unique Gemini Cluster. The most common parent node is of course the **Management Center**, and the addition of other instances to the parent cluster can be achieved using its **Cluster / Manage Nodes** dashboard.

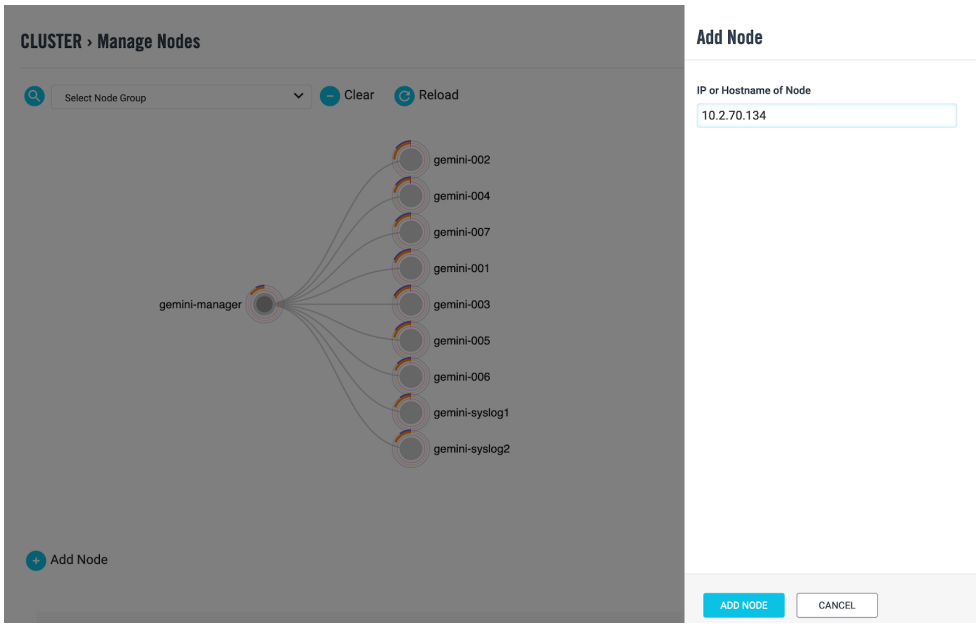
Note	In Version 2.8 and above, the addition of instances can be completed from the Management Center itself. Previous versions of Manage required the Parent Token String to be added to each child instance individually.

Gemini Central Child instances

Additional child nodes that include Gemini Central software could be; Gemini appliances, cloud instances, virtual nodes or remote Gemini Agents.

At the **Management Center** or other **Parent** node, navigate to the **Cluster / Manage Nodes** dashboard, and select the '**+ Add Node**' button.

Using the panel on the right, enter the **IP Address** or **Hostname** of the '**child**' instance.



3.7 Adjusting the Storage Plan

Beware of disk partitions and mount points. Not all disks are mounted on the system with default partitions on Gemini appliance models. There are different storage configurations on each appliance model;

- Onboard flash drives
- All hard disk drive(HDD)
- All solid-state disks(SSD)
- Hybrid configurations of the above

If the appliance is planned to store a large amount of data, ie. for a Splunk indexer or Hadoop worker node, complete the following checks before you start to deploy any applications:

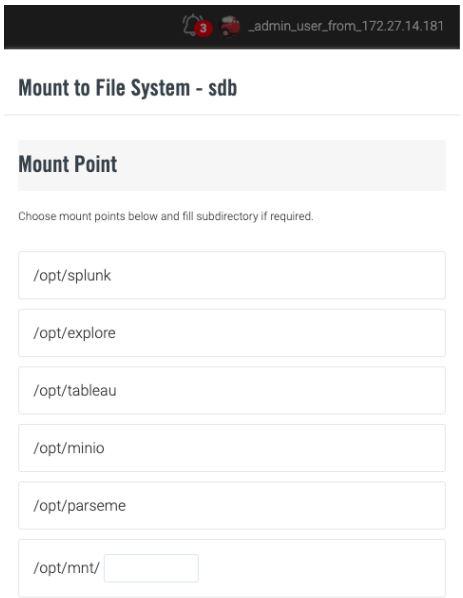
1. Understand the storage devices and mount points on the Appliance. Navigate to **NODE / Storage / Storage** and you will see a list view of storage devices and mount points.

2. HDD and SSD are mounted on the following mount points by default:
   - HDD disk will be mounted on **/opt/mnt/hdd01**.
   - SSD disk will be mounted on **/opt/mnt/ssd01**.
   - Not applicable to the following models: G1000, IB-1050D.

3. Design your storage plan and adjust the logical volumes and mount points. The default storage plan might not satisfy your needs. You may adjust them to the new logical volumes and new mount points. For example:
   - Unmount SSD and remove it from a logical volume, and merge it into **/opt** to extend it's capacity.
   - Unmount HDD and mount it on **/opt/splunk** so that the whole splunk including binary, configs, and data are stored on the same disk.

4. Mount points are available for the various **Featured Platforms**, as shown opposite.

   Alternatively, create and include your own, including subdirectory. Using an individual disk volume for specific featured platforms will help prevent the application from impacting the system and data store.



See also the section on **Managing Swap space** in the **Gemini Central - Administration Guide Ver 3.0** for guidance on whether this should be enabled and assigned.

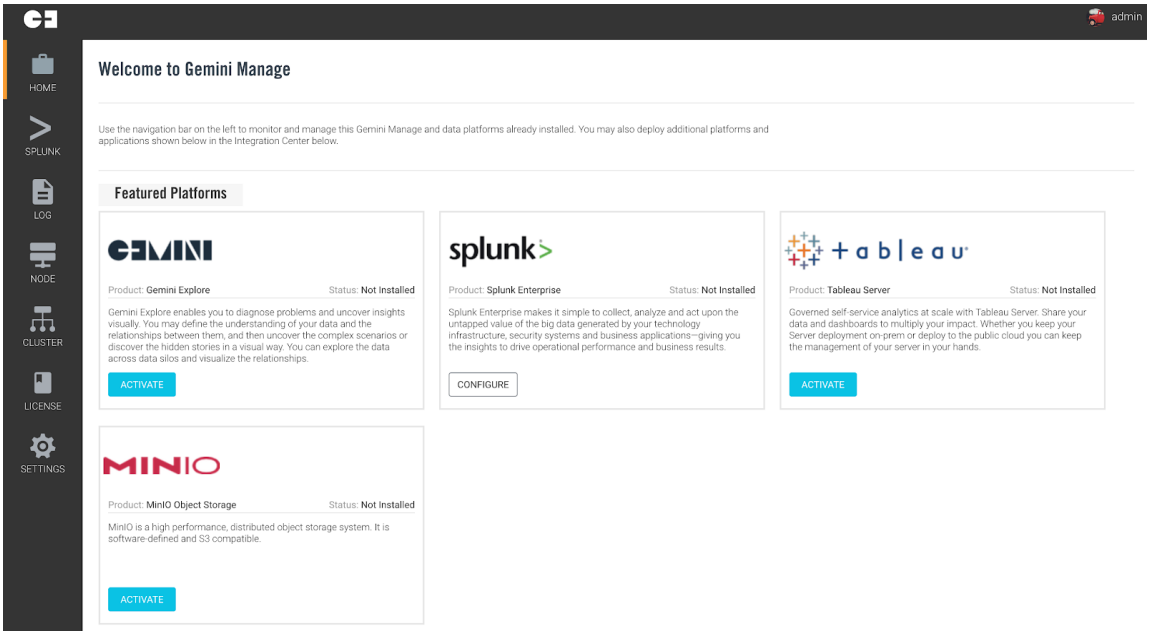
Note	A mix of variant storage types and speed, e.g. SSD, HDD and iSCSI connected disks in one RAID disk or in one logical volume is not recommended. It will slow down disk performance and make it unstable.

4.0 Install Featured Platforms

From the **Home** dashboard (shown below), use the '**Activate**' buttons to install featured platforms like **Gemini Explore**, **Splunk Enterprise**, **Tableau** or **MinIO.**

For more information regarding the installation and use of these Featured Platforms, and for details on all other features of Gemini Central, please refer to the **Gemini Central - Administration Guide V3.0**

Note	This process may involve accessing application websites and downloading binaries. Ensure you have internet access before proceeding further.



5.0 Additional Support

In order to import existing Splunk environments (non-Gemini instances) into **Gemini Central**, refer to the **Gemini Agents** section of the **Gemini Central Administration Guide V3.0**

To access the **Gemini Support** Documentation, Knowledge Base, and Video Library, or to open a support ticket, please visit **https://support.geminidata.com**

Use this site frequently to check for updates, patches and other information related to your appliance.