Avaya Identity Engines Ignition Server Getting Started

Avaya Identity Engines Ignition Server

Release 8.0

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Contents

Purpose of this document

The *Avaya Identity Engines Ignition Server Getting Started* guide explains how to install and configure the Avaya Identity Engines Ignition Server (AIEIS). This guide is written for network administrators who want to quickly install and configure AIEIS.

The *Getting Started* guide explains a simple configuration, and the *Administration* guide provides a complete reference showing other configuration options.

New in this release

The following sections detail what is new in *Avaya Identity Engines Ignition Server Getting Started* (NN47280-300).

- "Features" on page 7
- "Other changes" on page 8

Features

See the following sections for information about feature changes:

- "RADIUS proxy authentication service" on page 7
- "Access Portal license" on page 7

RADIUS proxy authentication service

Avaya Identity Engines Ignition Server (AIEIS) Release 8.0 offers the ability to set up a RADIUS proxy authentication service. A RADIUS proxy server forwards RADIUS requests to a remote server for authentication. The Ignition Server can act as the RADIUS proxy server that forwards the authentication requests, or as the remote server that receives the authentication requests.

For more information about setting up a RADIUS proxy authentication service, see "Set up a RADIUS proxy server" on page 62.

Access Portal license

Avaya Identity Engines Ignition Access Portal (Access Portal) is a new licensed feature in AIEIS Release 8.0. Access Portal is a virtual machine based captive portal and firewall distribution that controls the access of client devices to the network. Access Portal blocks all traffic from client devices and allows network access only after successful authentication. Access Portal allows guests with non-802.1X compatible equipment to authenticate and connect to the network in your organization. You must apply the Access Portal license to enable this feature.

For more information about applying feature licenses, see "Applying the license" on page 22.

Other changes

This document is combined with the contents of the former *Avaya Identity Engines Ignition Server Configuration* guide to form a comprehensive *Getting Started* guide.

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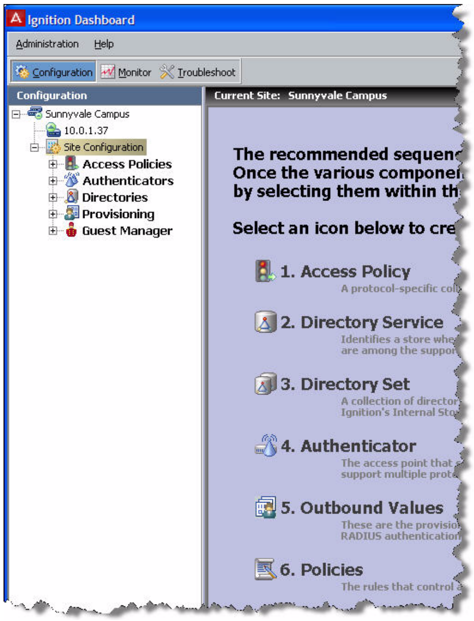
Introduction

The Avaya Identity Engines Ignition Server authenticates users onto your wired and wireless networks and VPNs. The Getting started chapter in this guide shows you how to install and configure the Ignition Server Virtualization Appliance, apply and install the license, and how to run Dashboard. The Configuration chapter in this guide shows you how to set up Ignition Server to act as the RADIUS server for your switches and access points, and it shows you how to connect Ignition Server to your Active Directory (AD) or LDAP user database to authenticate users. An optional section shows you how to set rules that place each user on the right VLAN.



The recommended sequenc
Once the various componen
by selecting them within th

Select an icon below to cre

A protocol-specific coll

Identifies a store whe
are among the suppor

A collection of director
Ignition's Internal Sto

The access point that s
support multiple prot

These are the provisio
RADIUS authentication

The rules that control a

Getting started

Use this chapter to perform these Avaya Identity Engines Ignition Server (AIEIS) appliance installation and configuration tasks. Perform your set-up in the following phases:

1. Install and configure the Ignition Server virtualization appliance, below, page 16
2. Applying the license page 22
3. Installing the license page 23
4. Run Dashboard page 28

- Set up Service Port (Optional), page 29 and Set admin password and set user, site, and node names, page 30
- Further configuration page 31

VMware ESXi server

Hardware platforms supported by VMware's ESXi Servers versions 4.x and 5.0 are supported. The VM requires an x86_64 capable environment, a minimum of 2 GB of memory, 30 GB of available disk storage, two CPUs, at least one physical NIC card (preferably three NICs), and three Logical NIC cards. VMware lists on its site supported hardware platforms for ESXi. (http://www.vmware.com)

Installation on a VMware ESXi server is done using an OVF file which already incorporates the OS Red Hat Enterprise Linux.

Reminder: Avaya provides the Identity Engines Ignition Server and Ignition Access Portal as Virtual Appliances. Do not install or uninstall any software components unless Avaya specifically provides the software and/or instructs you to do so. Also, do not modify the configuration or the properties of any software components of the VMs (including VMware Tools) unless Avaya documentation and/or personnel specifically instructs you to do so. Avaya does not support any deviation from these guidelines.

Warning! Do not install or configure VMware Tools or any other software on the VM shipped by Avaya:

- Avaya does not support manual or automated VMware Tools installation and configuration on Avaya supplied VMs.
- Turn off automatic VMware Tools updates if you have enabled them. Refer to the instructions below to disable automatic updates and to check if you have accidentally installed VMware tools.

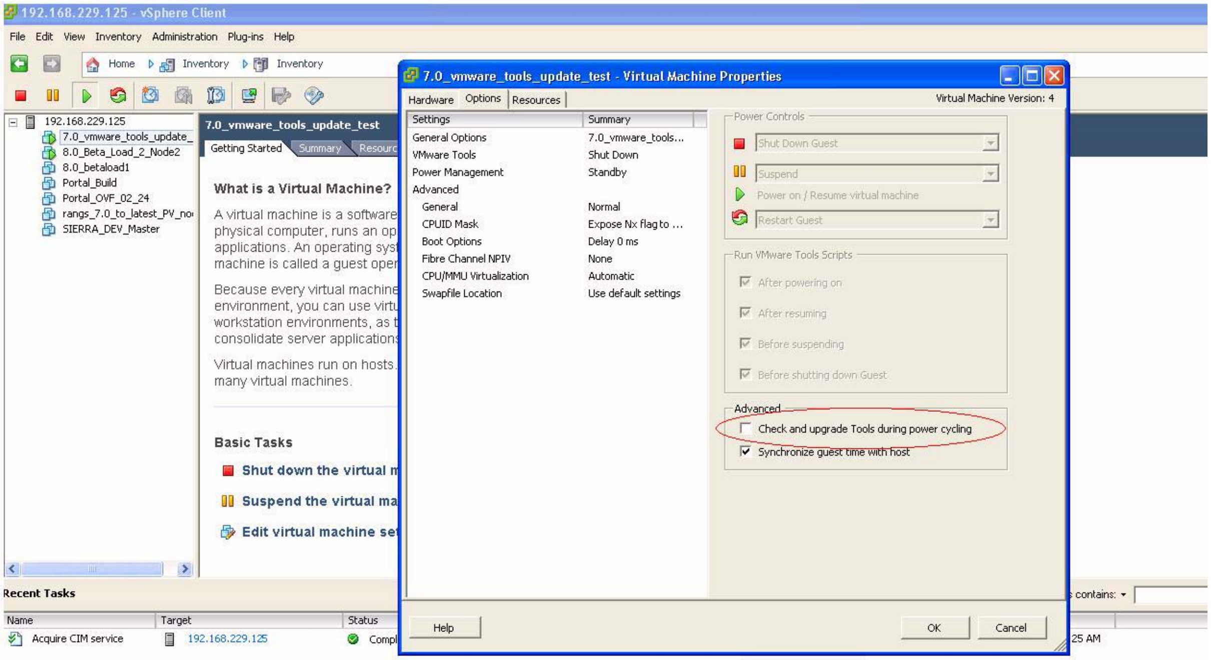
- Avaya determines which VMware Tools to install and configure. When required, Avaya provides these tools as part of the installation or package upgrade procedures. Avaya provides these tools because VMware Tools configures the kernel and network settings and unless Avaya tests and approves these tools, Avaya cannot guarantee the VM will work after the tool is installed and configured.
- Avaya does not support the installation of any VMware specific, RHEL specific, or any third party vendor package or RPM on its VM other than what Avaya ships as a package, image, or OVF.

Preventing automatic VMware Tools updates:

To prevent automatic VMware Tools updates:

1. Use the VI Client to log in to the ESXi Server hosting the Ignition VM.
2. Go to **Getting Started** > **Edit Virtual Machine Settings** > **Options** > **VMware Tools** > **Advanced**, and ensure the **Check and upgrade Tools during power cycling** check box is not selected. This is the supported setting.
3. Click **OK**.

Figure 1 Preventing automatic VMware Tools updates


192.168.229.125 - vSphere Client
File Edit View Inventory Administration Plug-ins Help
Home Inventory Inventory
192.168.229.125
7.0_vmware_tools_update_
8.0_Beta_Load_2_Node2
8.0_betaload1
Portal_Build
Portal_OVF_02_24
rangs_7.0_to_latest_PV_no
SIERRA_DEV_Master
7.0_vmware_tools_update_test
Getting Started Summary Resourc
Basic Tasks
Shut down the virtual m
Suspend the virtual ma
Edit virtual machine se
Recent Tasks
7.0_vmware_tools_update_test - Virtual Machine Properties
Hardware Options Resources
Virtual Machine Version: 4
Help
OK
Cancel

What is a Virtual Machine?

A virtual machine is a software physical computer, runs an op applications. An operating syst machine is called a guest oper

Because every virtual machine environment, you can use virtu workstation environments, as t consolidate server applications

Virtual machines run on hosts. many virtual machines.

Settings	Summary
General Options	7.0_vmware_tools...
VMware Tools	Shut Down
Power Management	Standby
Advanced	
General	Normal
CPUID Mask	Expose Nx flag to ...
Boot Options	Delay 0 ms
Fibre Channel NPIV	None
CPU/MMU Virtualization	Automatic
Swapfile Location	Use default settings

Power Controls
- Shut Down Guest
- Suspend
- Power on / Resume virtual machine
- Restart Guest

Run VMware Tools Scripts
- ☑ After powering on
- ☑ After resuming
- ☑ Before suspending
- ☑ Before shutting down Guest

Advanced
- ☐ Check and upgrade Tools during power cycling
- ☑ Synchronize guest time with host

Name	Target	Status
Acquire CIM service	192.168.229.125	Compl

Checking the VMware Tools status (ESXi 4.1)

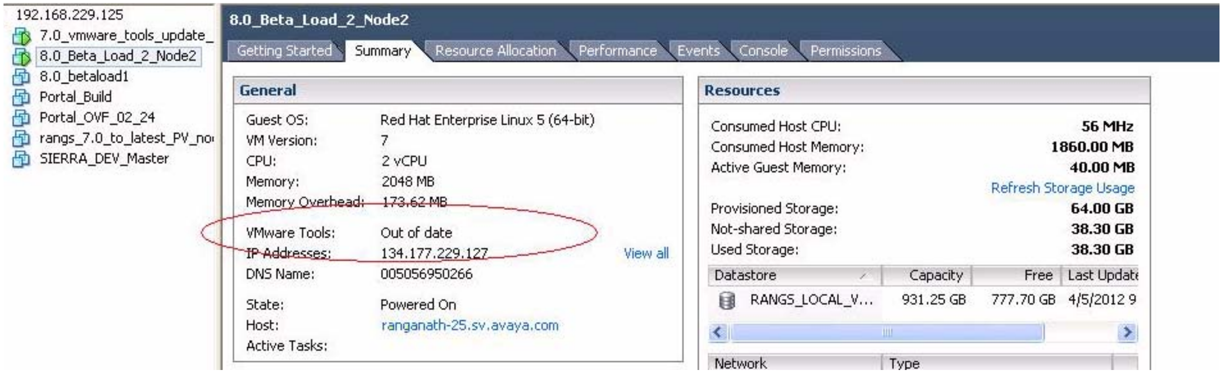
The **Summary** tab of the VM describes the VMware Tools status.

To check the VMware Tools status on an ESXi 4.1 server:

1. Use the VI Client to log in to the ESXi Server hosting the Ignition VM.
2. Go to the **Summary** tab.

   If you are using the vmware-tools supplied by Avaya and did not upgrade, the status displays as “VMware Tools: Out of date”.

Figure 2 VMware Tools: Out of date



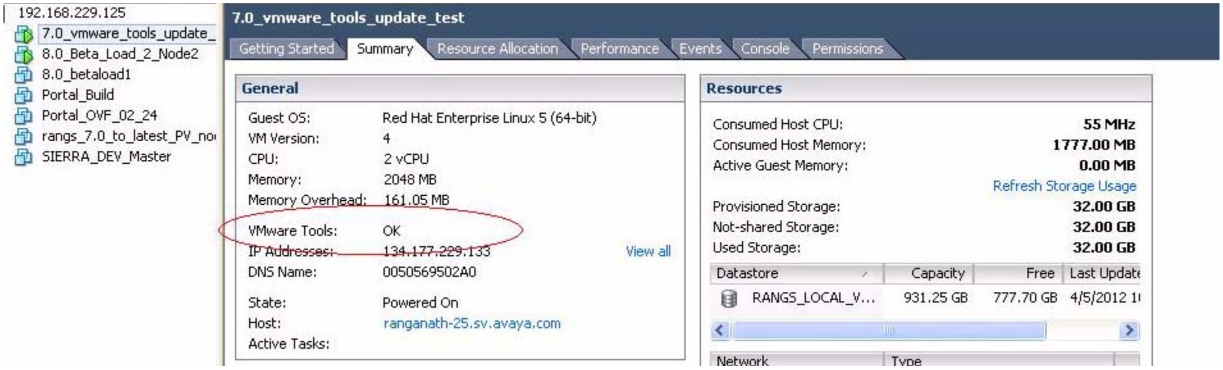
Guest OS: Red Hat Enterprise Linux 5 (64-bit)
VM Version: 7
CPU: 2 vCPU
Memory: 2048 MB
Memory Overhead: 173.62 MB
VMware Tools: Out of date
IP Addresses: 134.177.229.127
DNS Name: 005056950266
State: Powered On
Host: ranganath-25.sv.avaya.com
Active Tasks:

Consumed Host CPU: 56 MHz
Consumed Host Memory: 1860.00 MB
Active Guest Memory: 40.00 MB
Provisioned Storage: 64.00 GB
Not-shared Storage: 38.30 GB
Used Storage: 38.30 GB

Datastore	Capacity	Free	Last Update
RANGS_LOCAL_V...	931.25 GB	777.70 GB	4/5/2012 9

If you upgraded the VMware Tools, the status displays as “VMware Tools: OK”.

Figure 3 VMware Tools: OK



Guest OS: Red Hat Enterprise Linux 5 (64-bit)
VM Version: 4
CPU: 2 vCPU
Memory: 2048 MB
Memory Overhead: 161.05 MB
VMware Tools: OK
IP Addresses: 134.177.229.133
DNS Name: 0050569502A0
State: Powered On
Host: ranganath-25.sv.avaya.com
Active Tasks:

Consumed Host CPU: 55 MHz
Consumed Host Memory: 1777.00 MB
Active Guest Memory: 0.00 MB
Provisioned Storage: 32.00 GB
Not-shared Storage: 32.00 GB
Used Storage: 32.00 GB

Datastore	Capacity	Free	Last Update
RANGS_LOCAL_V...	931.25 GB	777.70 GB	4/5/2012 1

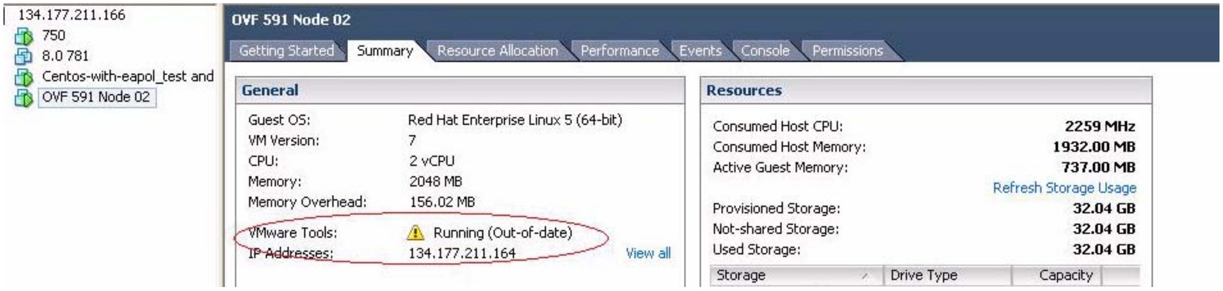
Checking the VMware Tools status (ESXi 5.x)

To check the VMware Tools status on an ESXi 5.x server:

1. Use the VI Client to log in to the ESXi Server hosting the Ignition VM.
2. Go to the **Summary** tab.

If you are using the vmware-tools supplied by Avaya and did not upgrade, the status displays as “VMware Tools: Running (Out-of-date).

Figure 4 VMware Tools: Running (Out-of-date)

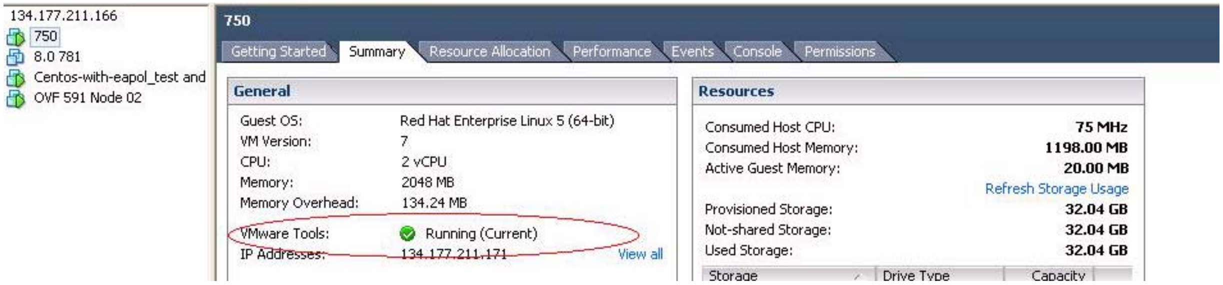


Guest OS:	Red Hat Enterprise Linux 5 (64-bit)
VM Version:	7
CPU:	2 vCPU
Memory:	2048 MB
Memory Overhead:	156.02 MB
VMware Tools:	Running (Out-of-date)
IP Addresses:	134.177.211.164

Consumed Host CPU:	2259 MHz
Consumed Host Memory:	1932.00 MB
Active Guest Memory:	737.00 MB
Provisioned Storage:	32.04 GB
Not-shared Storage:	32.04 GB
Used Storage:	32.04 GB

If you upgraded the VMware Tools, the status displays as “VMware Tools: Running (Current)”.

Figure 5 VMware Tools: Running (Current)



Guest OS:	Red Hat Enterprise Linux 5 (64-bit)
VM Version:	7
CPU:	2 vCPU
Memory:	2048 MB
Memory Overhead:	134.24 MB
VMware Tools:	Running (Current)
IP Addresses:	134.177.211.171

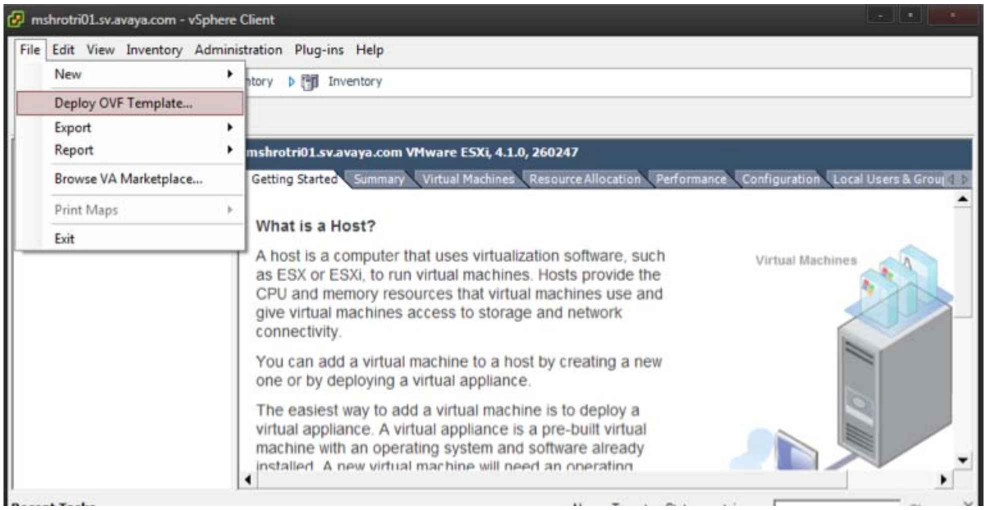
Consumed Host CPU:	75 MHz
Consumed Host Memory:	1198.00 MB
Active Guest Memory:	20.00 MB
Provisioned Storage:	32.04 GB
Not-shared Storage:	32.04 GB
Used Storage:	32.04 GB

Install and configure the Ignition Server virtualization appliance

Avaya recommends that you use the VMware vSphere Client to import the VM into your system. Start the VMware vSphere Client and log in to the ESXi Server you want to install the Avaya Ignition Server on. You will need to use the Virtual Appliance Deploy OVF Template option.

1. From the VSphere Client, select **File > Deploy OVF Template**.

Figure 6 Deploy OVF Template



What is a Host?

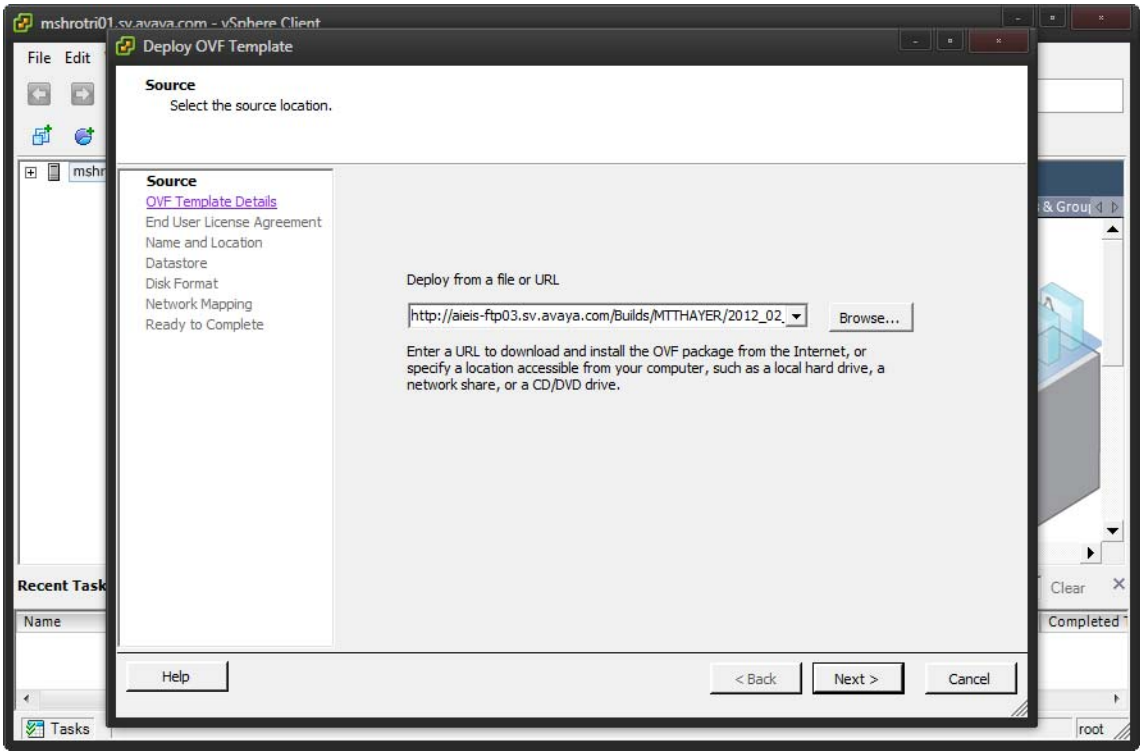
A host is a computer that uses virtualization software, such as ESX or ESXi, to run virtual machines. Hosts provide the CPU and memory resources that virtual machines use and give virtual machines access to storage and network connectivity.

You can add a virtual machine to a host by creating a new one or by deploying a virtual appliance.

The easiest way to add a virtual machine is to deploy a virtual appliance. A virtual appliance is a pre-built virtual machine with an operating system and software already installed. A new virtual machine will need an operating

2. The Source screen appears. Select the location from which you want to import the Ignition Server virtual appliance.

Figure 7 Source



Source

Select the source location.

Deploy from a file or URL

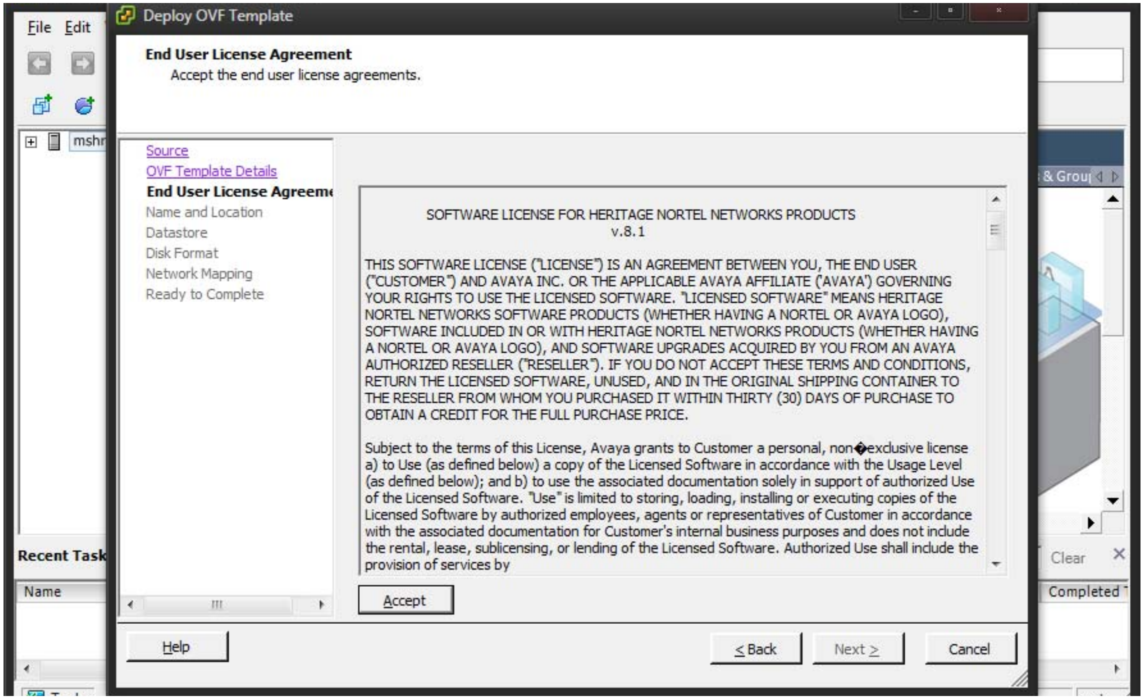
http://aieis-ftp03.sv.avaya.com/Builds/MTTHAYER/2012_02_

Enter a URL to download and install the OVF package from the Internet, or specify a location accessible from your computer, such as a local hard drive, a network share, or a CD/DVD drive.

3. Click **Next**. In the OVF Template Details screen, review your settings. You can click **Back** to make changes, or click **Next** to continue.

4. The **End User License Agreement** screen appears. Click **Accept** to accept the license and click **Next**.

Figure 8   End User License Agreement



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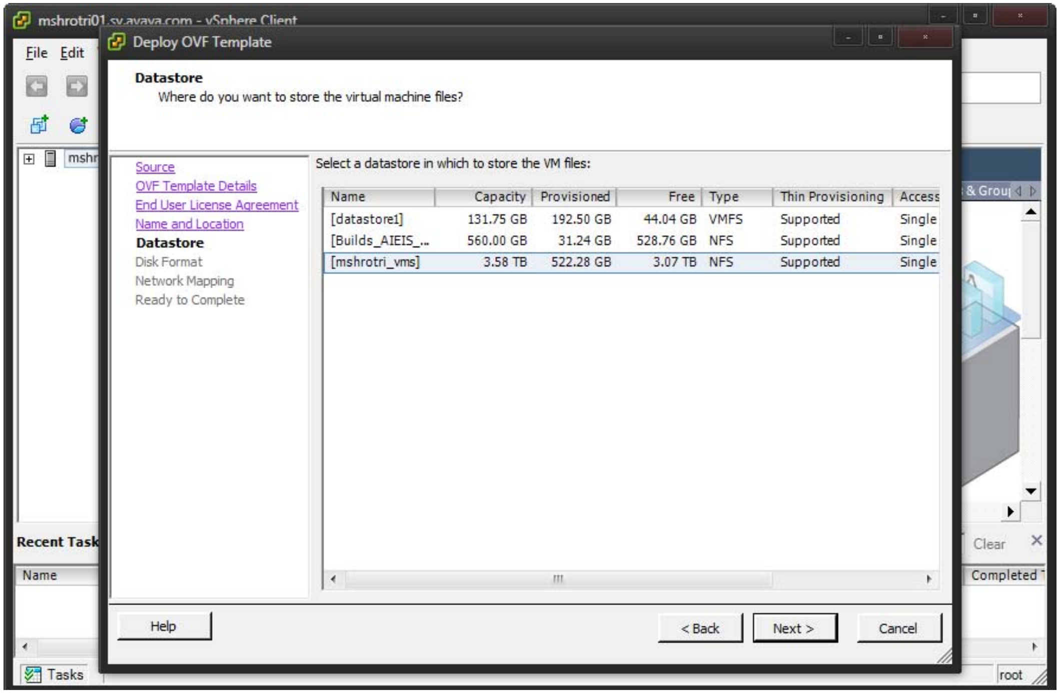
5. The **Name and Location** screen appears. You can either accept the default name or choose to rename the virtual machine. Click **Next**.

6. The **Datastore** screen appears. Select the location where you want to store the files for the virtual appliance and click **Next**.

Figure 9   Datastore



Datastore

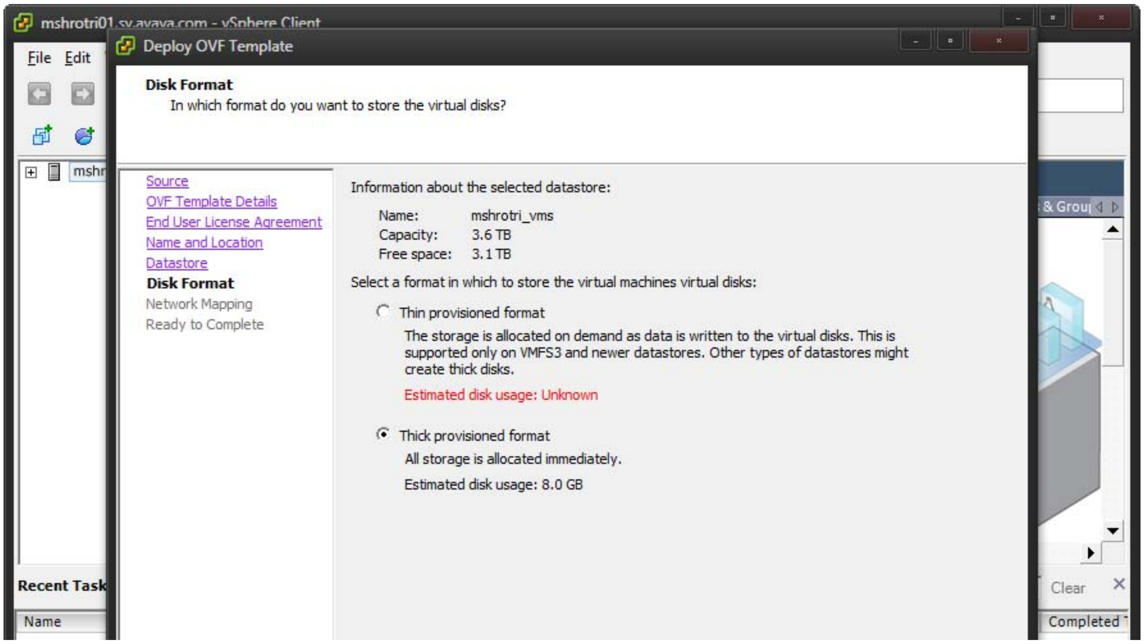
Where do you want to store the virtual machine files?

Select a datastore in which to store the VM files:

Name	Capacity	Provisioned	Free	Type	Thin Provisioning	Access
[datastore1]	131.75 GB	192.50 GB	44.04 GB	VMFS	Supported	Single
[Builds_AIEIS_...	560.00 GB	31.24 GB	528.76 GB	NFS	Supported	Single
[mshrotri_vms]	3.58 TB	522.28 GB	3.07 TB	NFS	Supported	Single

7. The **Disk Format** screen appears. Select a format in which to store the virtual machine’s virtual disks and click **Next**.

Figure 10 Disk Format



mshrotri01.sv.avaya.com - vSphere Client

Deploy OVF Template

Disk Format

In which format do you want to store the virtual disks?

Information about the selected datastore:

Name: mshrotri_vms
Capacity: 3.6 TB
Free space: 3.1 TB

Select a format in which to store the virtual machines virtual disks:

○ Thin provisioned format

The storage is allocated on demand as data is written to the virtual disks. This is supported only on VMFS3 and newer datastores. Other types of datastores might create thick disks.

Estimated disk usage: Unknown

● Thick provisioned format

All storage is allocated immediately.

Estimated disk usage: 8.0 GB

8. The **Network Mapping** screen appears. Associate the Avaya Ignition Server NIC's to correct VM Network based on your site configuration. Then click on **Next**.

9. The **Ready to Complete** screen appears. Review your settings. Use the **Back** button to make any changes or click **Finish** to start the import.

   The Import now starts. Once the import completes you should see a **Summary** window display.

10. After the import completes you need to verify and adjust some of the VM settings. Open up VM setting dialog and select the Options tab. Do the following:

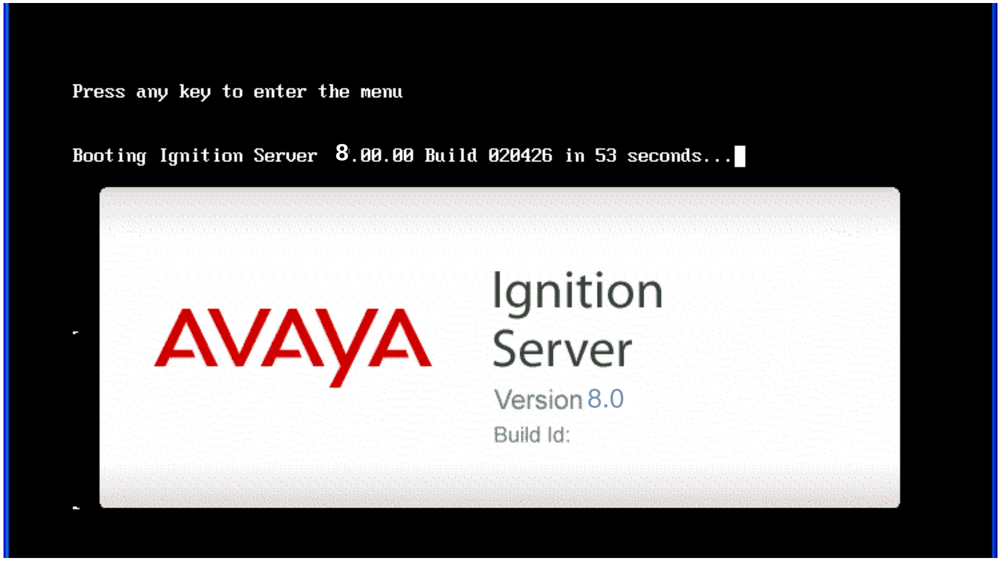
    a. Ensure to click the **Synchronize guest time with host** option.

    b. Change the System Default Power Off from **Power off** to **Shutdown Guest**. Click **OK**.

    c. Open the VM setting dialog and select the Hardware tab. Adjust the **Network Adapter (1/2/3)** settings and configure the right NIC for each interface.

You are now ready to boot the Avaya Ignition Server for the first time. You will see a splash screen displayed as the boot up starts.

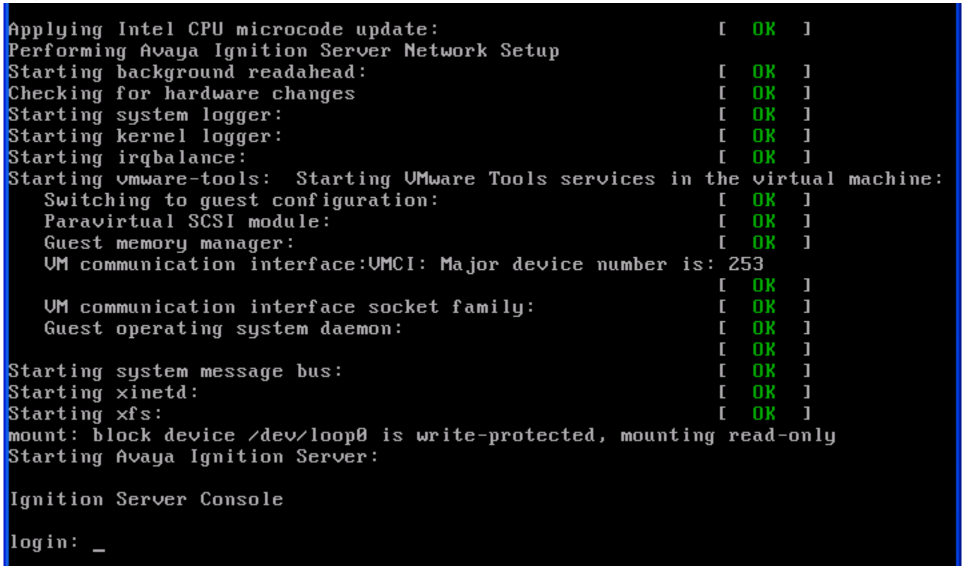
Figure 11 Boot up



```
Press any key to enter the menu

Booting Ignition Server 8.00.00 Build 020426 in 53 seconds...
```

11. Once the Ignition Server Console login prompt is shown you are ready to enter the administration IP address. Login using admin for the user name and admin for password, you should change the password after you login.

Figure 12 Console

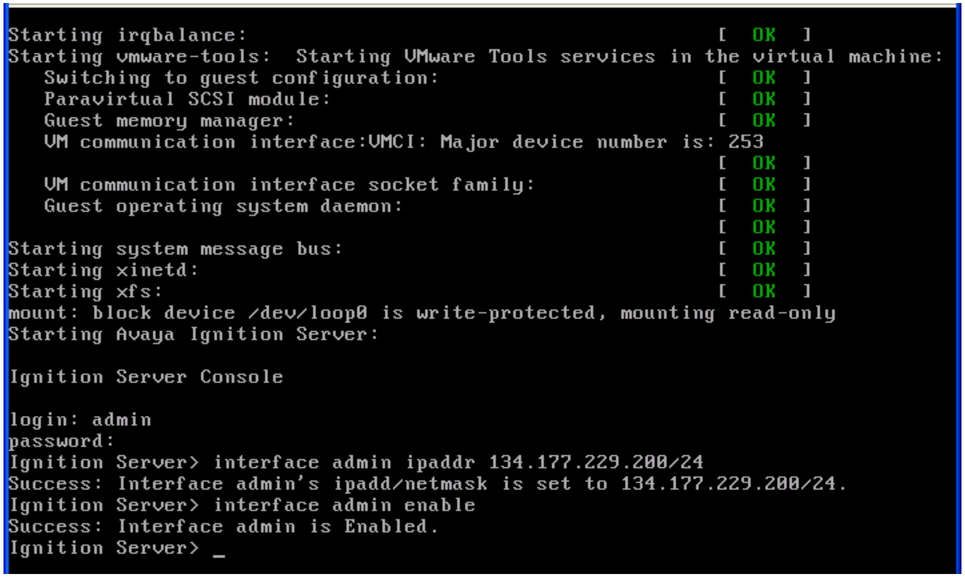


```
Applying Intel CPU microcode update:                          [  OK  ]
Performing Avaya Ignition Server Network Setup
Starting background readahead:                                [  OK  ]
Checking for hardware changes                                 [  OK  ]
Starting system logger:                                       [  OK  ]
Starting kernel logger:                                       [  OK  ]
Starting irqbalance:                                          [  OK  ]
Starting vmware-tools:  Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:                          [  OK  ]
   Paravirtual SCSI module:                                   [  OK  ]
   Guest memory manager:                                      [  OK  ]
   VM communication interface:VMCI: Major device number is: 253
                                                              [  OK  ]
   VM communication interface socket family:                  [  OK  ]
   Guest operating system daemon:                             [  OK  ]
                                                              [  OK  ]
Starting system message bus:                                  [  OK  ]
Starting xinetd:                                              [  OK  ]
Starting xfs:                                                 [  OK  ]
mount: block device /dev/loop0 is write-protected, mounting read-only
Starting Avaya Ignition Server:

Ignition Server Console

login: _
```

12. Use the interface commands as shown in the next screen to configure the admin interface.

- Only Static IP configuration is supported.
- Configure your admin interface with an IP address.
  Cli command example: “interface admin ipaddr x.y.z.x/netmask”
- If needed, configure your default route.
  Cli command example: “route add 0.0.0.0/0 <gw-ip> “

Figure 13 Admin interface commands



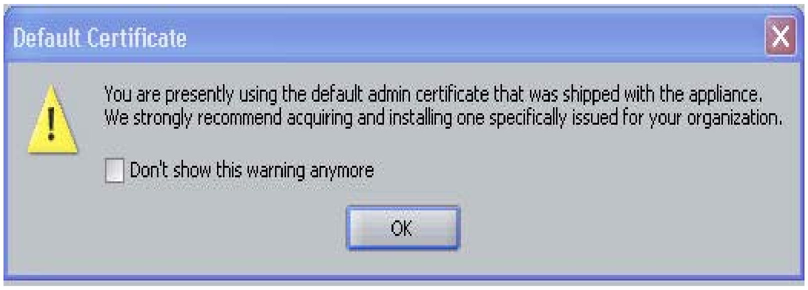
```
Starting irqbalance:                                       [  OK  ]
Starting vmware-tools:  Starting VMware Tools services in the virtual machine:
   Switching to guest configuration:                       [  OK  ]
   Paravirtual SCSI module:                                [  OK  ]
   Guest memory manager:                                   [  OK  ]
   VM communication interface:VMCI: Major device number is: 253
                                                           [  OK  ]
   VM communication interface socket family:               [  OK  ]
   Guest operating system daemon:                          [  OK  ]
                                                           [  OK  ]
Starting system message bus:                               [  OK  ]
Starting xinetd:                                           [  OK  ]
Starting xfs:                                              [  OK  ]
mount: block device /dev/loop0 is write-protected, mounting read-only
Starting Avaya Ignition Server:

Ignition Server Console

login: admin
password:
Ignition Server> interface admin ipaddr 134.177.229.200/24
Success: Interface admin's ipadd/netmask is set to 134.177.229.200/24.
Ignition Server> interface admin enable
Success: Interface admin is Enabled.
Ignition Server> _
```

13. Install the Dashboard on to your Desktop machine, see “Install the Ignition Dashboard Desktop application” on page 24.

14. Once installation is complete click on the desktop icon to start the application. A **Login** dialog displays.

15. Enter in the same IP address that you used for the admin interface. The default password is admin if you have not already changed it on the Ignition Server. If you have not configured the admin certificate or the base license you will see the following message.

Figure 14 Default Certificate



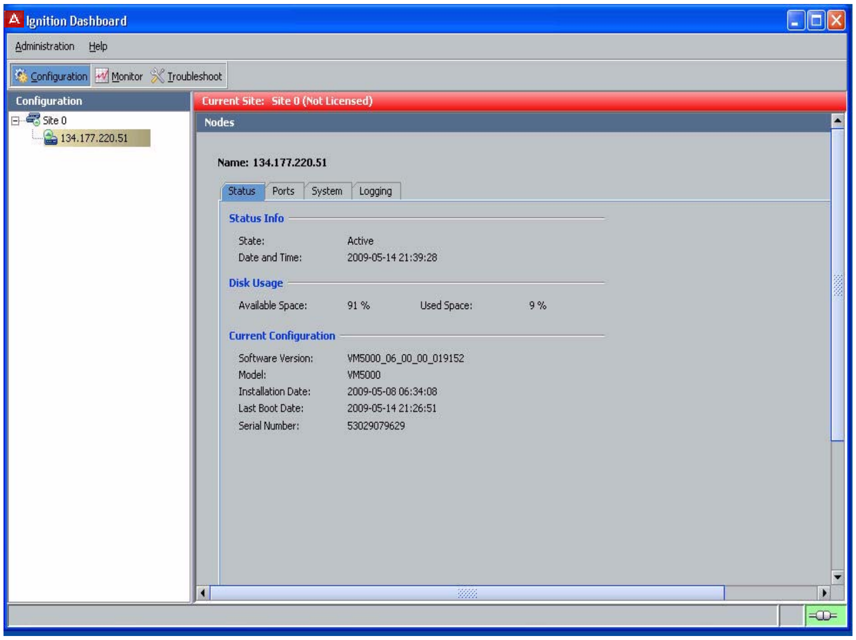
Default Certificate

You are presently using the default admin certificate that was shipped with the appliance. We strongly recommend acquiring and installing one specifically issued for your organization.

□ Don't show this warning anymore

If you click **OK** to both dialogs you see a display similar in the following window.

Figure 15 Ignition Dashboard



Current Site: Site 0 (Not Licensed)

Nodes

Name: 134.177.220.51

Status Info

State:	Active
Date and Time:	2009-05-14 21:39:28

Disk Usage

Available Space:	91 %	Used Space:	9 %

Current Configuration

Software Version:	VM5000_06_00_00_019152
Model:	VM5000
Installation Date:	2009-05-08 06:34:08
Last Boot Date:	2009-05-14 21:26:51
Serial Number:	53029079629

In order to obtain your license you will need to perform the following steps in the License Mangement in VMware which follows. Once you have obtained your license you can proceed with the final configuration of the Avaya Ignition Server in your environment.

Applying the license

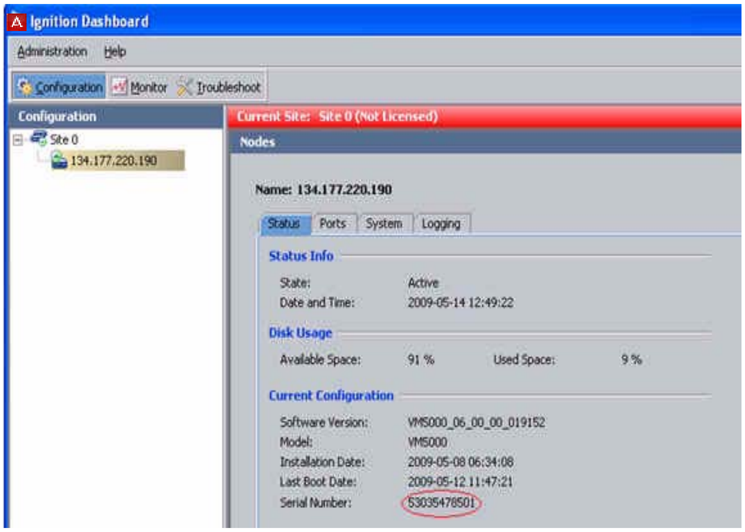
The Avaya Identity Engines Ignition Server (AIEIS) Software ships without any licenses. There are six different software licenses that can be installed on Ignition Server: Base License, Guest Manager License, NAP Posture License, TACACS+ License, Ignition Reports License, and Access Portal License. At a minimum, you must obtain the Base License to be able to configure and run the server.

Note: If you are applying an Access Portal license, select the Access Portal License that matches the Ignition Server Base License (lite, small, or large).

1. Avaya provides a telephone number for you to use to report problems or to ask questions about your product. The support telephone number is 1-800-242-2121 in the United States. For additional support telephone numbers, see the Avaya Web site: http://www.avaya.com/.

2. Once this is purchased, Customer Support sends a software CD and certificate that contains a unique product code and an e-mail address. Send this unique product code and the Node Serial Number to the e-mail address provided. The Node Serial Number can be obtained from Dashboard from the Status tab of Node Configuration as shown in the figure below:

Figure 16 Apply license



Current Site: Site 0 (Not Licensed)

Name: 134.177.220.190

Status Info

State: Active
Date and Time: 2009-05-14 12:49:22

Disk Usage

Available Space: 91 % Used Space: 9 %

Current Configuration

Software Version: VMS000_06_00_00_019152
Model: VMS000
Installation Date: 2009-05-08 06:34:08
Last Boot Date: 2009-05-12 11:47:21
Serial Number: 53035478501

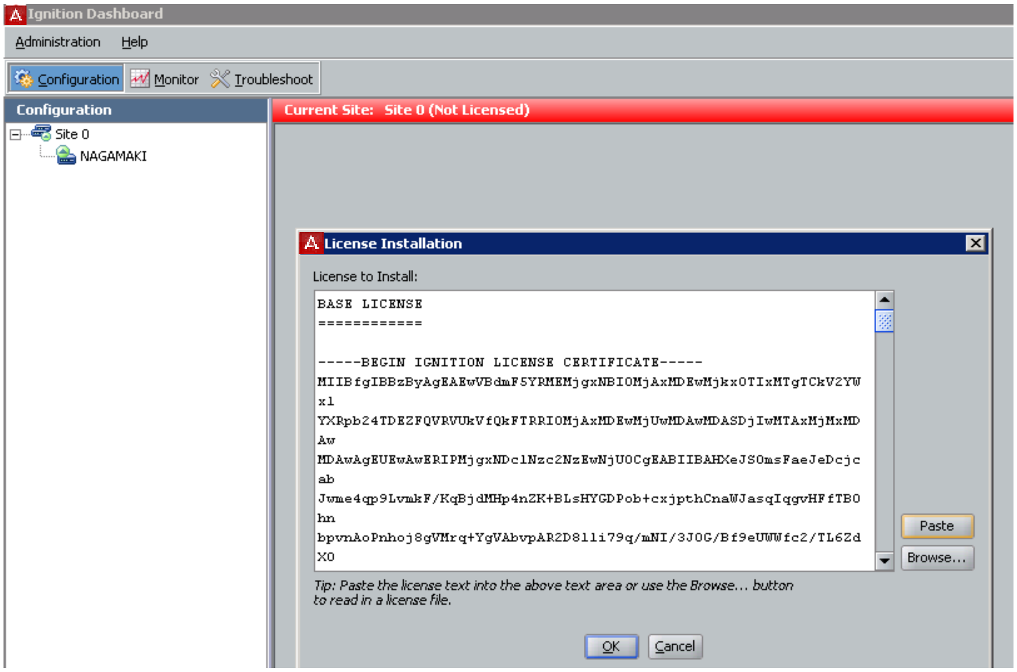
3. After the unique product code and Node Serial Number is verified, a software license file is sent back to you. Install this license on the server using Dashboard.

Installing the license

You can install the license on the Ignition Server using Dashboard. To install the license, perform the following steps:

1. Select the Configuration tab.
2. Select the Site.
3. Select the Licenses tab.
4. Click on Install….
5. Paste the license text and click OK.

Figure 17 Install license



License to Install:

```
BASE LICENSE
============

-----BEGIN IGNITION LICENSE CERTIFICATE-----
MIIBfgIBBzByAgEAEwVBdmF5YRMEMjgxNBIOMjAxMDEwMjkxOTIxMTgTCkV2YW
xl
YXRpb24TDEZFQVRVUkVfQkFTRRIOMjAxMDEwMjUwMDAwMDASDjIwMTAxMjMxMD
Aw
MDAwAgEUEwAwERIPMjgxNDclNzc2NzEwNjU0CgEABIIBAHXeJSOmsFaeJeDcjc
ab
Jwme4qp9LvmkF/KqBjdMHp4nZK+BLsHYGDPob+cxjpthCnaWJasqIqgvHFfTB0
hn
bpvnAoPnhoj8gVMrq+YgVAbvpAR2D8lli79q/mNI/3JOG/Bf9eUWWfc2/TL6Zd
X0
```

Tip: Paste the license text into the above text area or use the Browse... button to read in a license file.

Install the Ignition Dashboard Desktop application

Ignition Dashboard is a desktop application that lets you manage the Ignition Server appliance. Use this interface to create, view, or alter configuration information for authenticators, service categories, and the policies that apply to authentication and authorization.

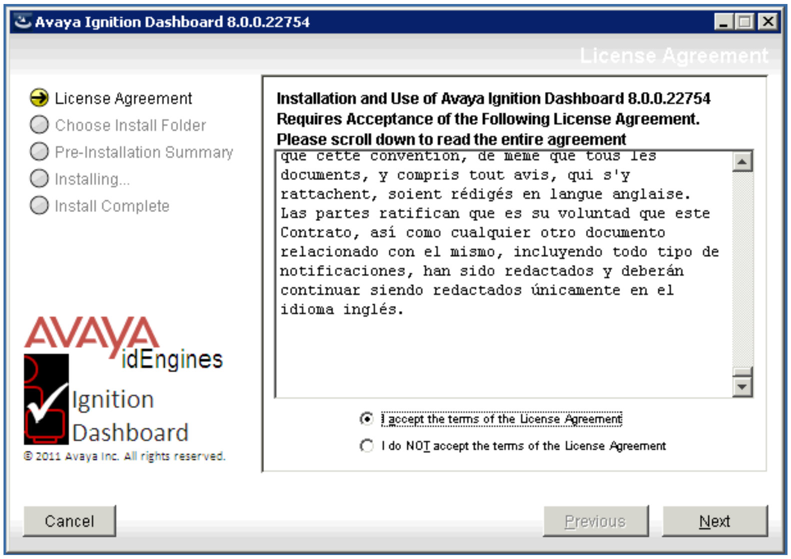
To proceed with the Ignition Dashboard installation, have the following tools and information ready:

- the Identity Engines product software shipped with your Ignition Server appliance
- a computer running Windows XP Service Pack 3 (32 bit), Windows 7 (32 bit and 64 bit), Windows Server 2003 (32 bit and 64 bit), or Windows Server 2008 (32 bit and 64 bit)
- a minimum of 2 GB of memory
- the default Ignition Server administrator name (`admin`) and password (`admin`)

To install:

1. If any version of Dashboard is already installed on the computer, make sure the Dashboard application is not currently running. If Dashboard is running, shut it down now.
2. Place the Ignition Server CD into the CD drive of your computer, and:
   - On Windows, the Windows AutoRun feature will run the Installer immediately. (If the AutoRun feature is disabled on your computer, navigate to your CD drive and double-click the installer file. It has a name like `DashboardInstaller-8.0.0<Build Number>.exe`.
3. In the License Agreement screen, scroll down to read the entire license. Select the radio button to accept the license and click **Next**.

Figure 18 License Agreement screen



Installation and Use of Avaya Ignition Dashboard 8.0.0.22754 Requires Acceptance of the Following License Agreement.
Please scroll down to read the entire agreement

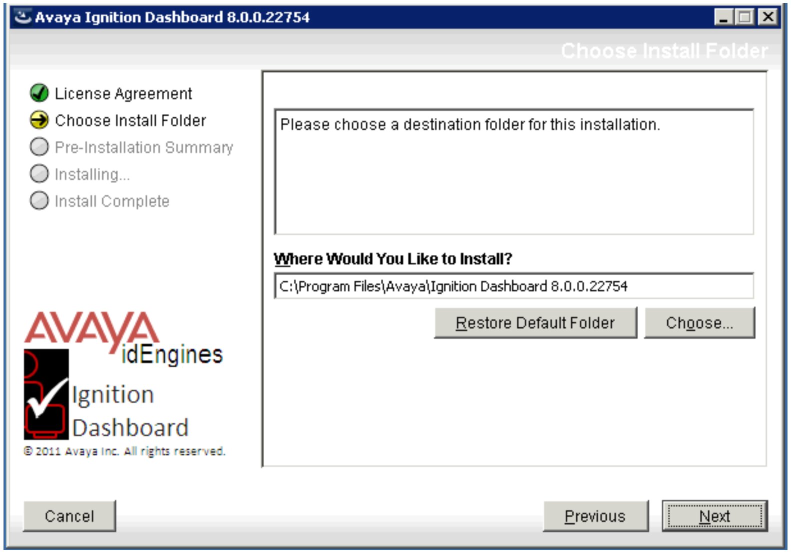
```
que cette convention, de meme que tous les
documents, y compris tout avis, qui s'y
rattachent, soient rédigés en langue anglaise.
Las partes ratifican que es su voluntad que este
Contrato, así como cualquier otro documento
relacionado con el mismo, incluyendo todo tipo de
notificaciones, han sido redactados y deberán
continuar siendo redactados únicamente en el
idioma inglés.
```

● I accept the terms of the License Agreement

○ I do NOT accept the terms of the License Agreement

4. In the Choose Install Folder screen, choose your destination folder and click **Next**.

Figure 19 Choose Install Folder screen



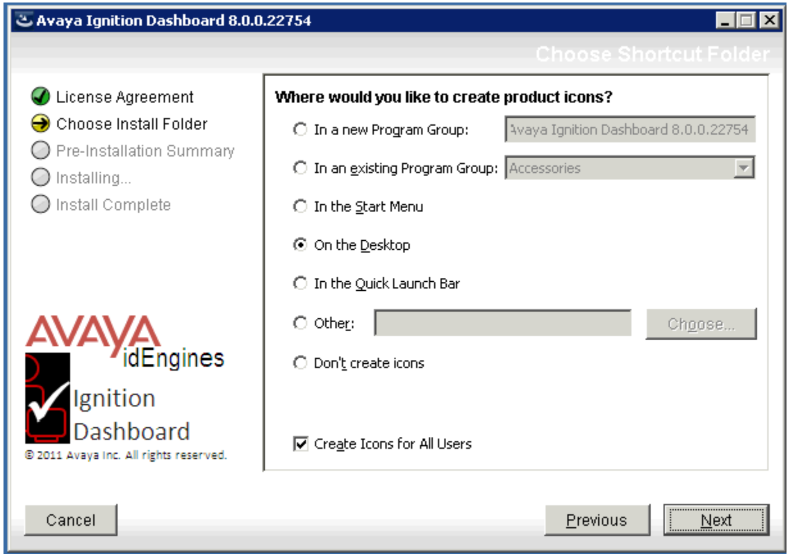
Please choose a destination folder for this installation.

Where Would You Like to Install?

C:\Program Files\Avaya\Ignition Dashboard 8.0.0.22754

5. In the Choose Shortcut Folder screen, indicate where you would like the Dashboard shortcut to appear, and click **Next**.

Figure 20 Dashboard shortcut location



Where would you like to create product icons?

○ In a new Program Group: Avaya Ignition Dashboard 8.0.0.22754

○ In an existing Program Group: Accessories

○ In the Start Menu

● On the Desktop

○ In the Quick Launch Bar

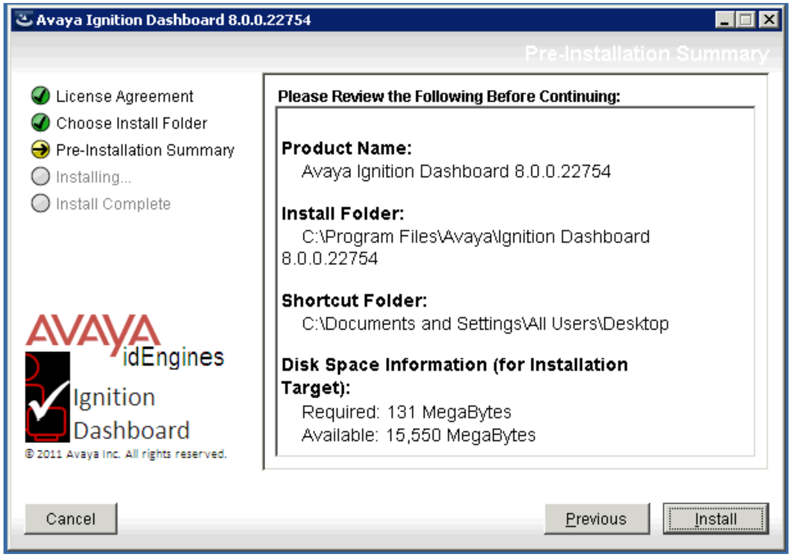
○ Other:

○ Don't create icons

☑ Create Icons for All Users

6. In the Pre-Installation Summary screen, review your installation settings. If you wish to make changes, click the **Previous** button to edit the details of the locations of the installation. When you are satisfied with the setup you have chosen, click **Install**. The installer displays a pre install confirmation window.

Figure 21 Pre-Installation Summary screen



Avaya Ignition Dashboard 8.0.0.22754

Pre-Installation Summary

Please Review the Following Before Continuing:

Product Name:
Avaya Ignition Dashboard 8.0.0.22754

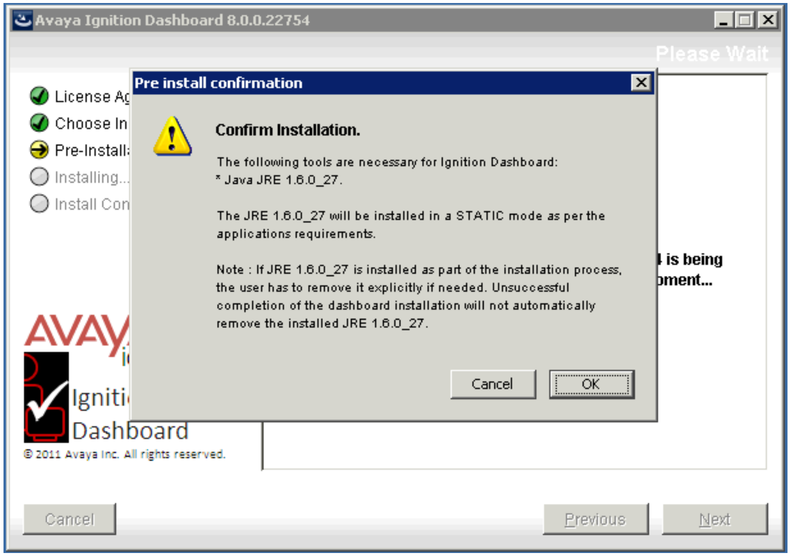
Install Folder:
C:\Program Files\Avaya\Ignition Dashboard 8.0.0.22754

Shortcut Folder:
C:\Documents and Settings\All Users\Desktop

Disk Space Information (for Installation Target):
Required: 131 MegaBytes
Available: 15,550 MegaBytes

7. In the Pre install confirmation window, click **OK** to confirm the installation.

Figure 22 Pre install confirmation window



Avaya Ignition Dashboard 8.0.0.22754

Please Wait

Pre install confirmation

Confirm Installation.

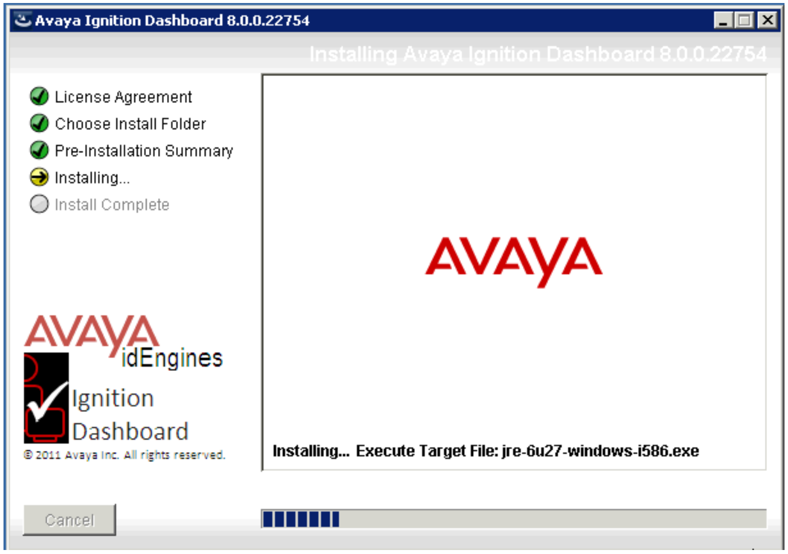
The following tools are necessary for Ignition Dashboard:
* Java JRE 1.6.0_27.

The JRE 1.6.0_27 will be installed in a STATIC mode as per the applications requirements.

Note : If JRE 1.6.0_27 is installed as part of the installation process, the user has to remove it explicitly if needed. Unsuccessful completion of the dashboard installation will not automatically remove the installed JRE 1.6.0_27.

The installation starts. The installer displays a dialog box showing the progress of the installation.

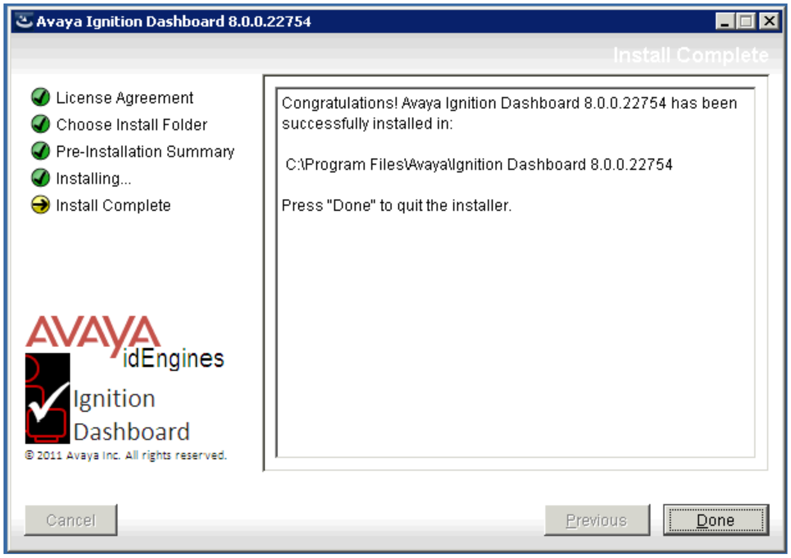
Figure 23 Installation progress



Installing... Execute Target File: jre-6u27-windows-i586.exe

8. When the installation is complete, the installer displays the Install Complete screen. In the Install Complete screen, click **Done**. An icon for Ignition Dashboard will appear in the location you designated.

Figure 24 Install Complete screen



Congratulations! Avaya Ignition Dashboard 8.0.0.22754 has been successfully installed in:

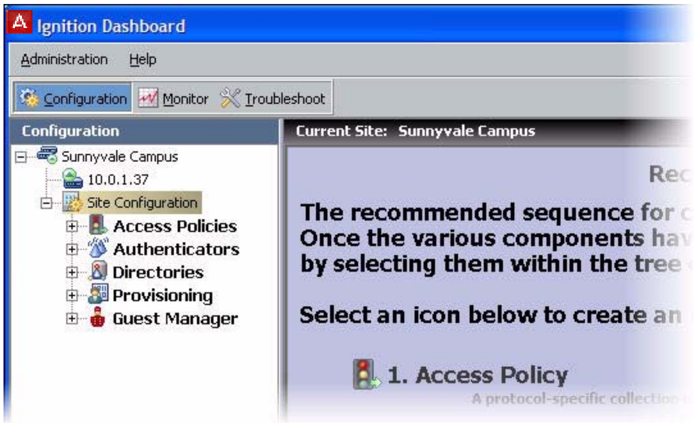
C:\Program Files\Avaya\Ignition Dashboard 8.0.0.22754

Press "Done" to quit the installer.

Run Dashboard

If your Ignition Server appliance is connected only via its Admin Port, skip this section and turn to “Further configuration” on page 31. If your installation will use Service Port A, follow these steps:

1. On your administration computer, start Ignition Dashboard by double-clicking its icon on the desktop.
2. In the login screen, type the default **User Name**: `admin`. Type the default **Password**: `admin`.
3. In the **Connect To:** field, type the fully-qualified domain name or the IP address you assigned to the Ignition Server appliance Admin Port.
4. Click **OK**. A warning dialog appears reminding you to replace the default certificate shipped with the Ignition Server appliance. Ignore the warning. (For instructions on replacing the certificate, see the *Avaya Identity Engines Ignition Server Administration Guide*.) After you dismiss the warning dialog, Ignition Dashboard appears:

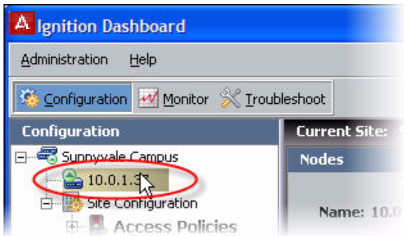


The recommended sequence for c
Once the various components hav
by selecting them within the tree

Select an icon below to create an

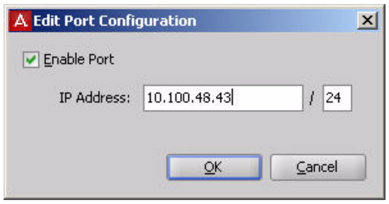
Set up Service Port (Optional)

1. In Dashboard's navigation tree, click on the IP address or name of your Ignition Server appliance (node).



2. In the Nodes panel, click the **Ports** tab and click the **Service Port** row.
3. Click the **Edit** button.

4. In the Edit Port Configuration window, do the following:



☑ Enable Port

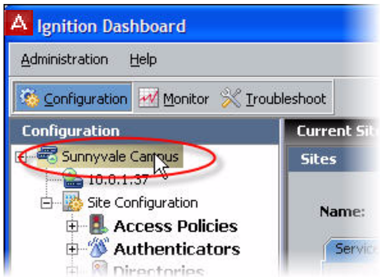
IP Address: 10.100.48.43 / 24

- Click **Enable Port.**
- Set the port address in the **IP Address** field, and set the subnet mask in the field to the right. Use the port settings you wrote down in Step 12 on page 20. You must enter the subnet using network prefix notation (an integer between 0 and 32 representing the number of bits in the address that will be used in the comparison).

5. Click **OK**.

Set admin password and set user, site, and node names

1. In the main navigation tree of Dashboard, click on the site (called "Site 0" by default, this is typically the top item in the tree).



2. Select the command, **Actions: Change User Name** to change the administrator login name.
3. Select the command, **Actions: Change Password** to change the administrator password.
4. Select the command, **Actions: Rename Site** to rename the site. A site is typically a pair of Ignition Servers, but it may consist of just one server.
5. To rename your node (your Ignition Server appliance) do this: In Dashboard's main navigation tree, right-click on the IP address or name of your Ignition Server appliance and choose the command **Rename Node**.

Your basic set-up is complete. See "Further configuration" below for your next steps.

Further configuration

To prepare the Ignition Server appliance for testing or production use, your next step is to connect it to your switches, wireless access points, and user data stores, as explained in the next chapter, Configuration. For more detailed information on Ignition features, consult the *Avaya Identity Engines Ignition Server Administration Guide*.

Configuration

The chapter assumes you are familiar with network terminology, have experience setting up and maintaining networks and network security, and have installed your Ignition Server appliance as shown in the previous chapter, Getting started.

The steps you will follow are:

- Make settings on the Ignition Server appliance (page 34)
- Create a RADIUS access policy (page 37)
- Create a user in the internal user store (page 38)
- Set up your connection to a user store (page 40)
    - Connecting to Active Directory (page 40)
    - Connecting to LDAP (page 54)
- "Set up a RADIUS proxy server" on page 62
- Create a directory set (page 64)
- Create virtual groups (page 66)
- Create authenticators (page 69)
- Set your authentication policy (page 71)
- Set your identity routing policy (page 73)
- Set your authorization policy (page 74)
- Test your configuration (page 80)

Note: Make sure you have a copy of the *Avaya Identity Engines Ignition Server Administration Guide* available. The *Getting Started Guide* explains a simple configuration, and the *Administration Guide* provides a complete reference showing other configuration options.

Before you begin

Make sure you have completed the following set-up tasks before you start configuring the Ignition Server appliance.

1. **Network settings:** Complete the steps shown in the previous chapter, "Getting started".
   - Set up the Ignition Server appliance and set its network settings.
   - Install Ignition Dashboard on your Windows OS.
2. **Switch settings:** Configure each authenticator (network switch or wireless access point) to recognize the Ignition Server appliance as its RADIUS server. To do this, use the management tools of each switch to set the switch's RADIUS server address to the Ignition Server ADMIN or SVC interface IP address. (By default, Ignition Server handles RADIUS requests on its ADMIN interface, but you can change this to the SVC interface as shown in Step 5 on page 36.) Use UDP port 1812 as the RADIUS server port.
3. **802.1X settings:** If you will use 802.1X authentication:
   - Use the management tools of each switch or access point to enable 802.1X authentication on that device.
   - On client machines that will connect to the network, make sure a wireless/wired, 802.1X-capable supplicant is installed and configured for 802.1X authentication.
   - If you wish to follow the example configuration in this document, make sure the supplicant is set up for PEAP/MSCHAPv2 authentication.
4. **RADIUS accounting settings:** If you will use RADIUS accounting, configure your switch or access point to send its accounting packets to the Ignition Server appliance. To do this, use the management tools of your device, setting the appropriate Ignition Server IP address as the RADIUS server address and port 1813 as the RADIUS accounting port.
5. **VPN client settings:** If you will use IPSec for VPN access, make sure that client machines (those that will VPN into the network) have an installed VPN client that speaks PAP or MSCHAPv2.

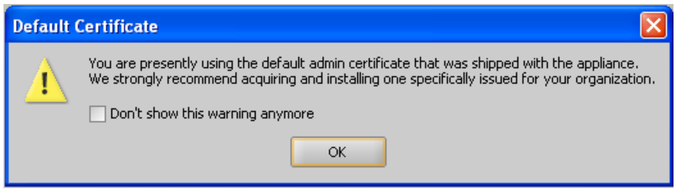
Next Steps: Proceed to the next section to set up the Ignition Server appliance.

Make settings on the Ignition Server appliance

You use Ignition Dashboard to set the Ignition Server appliance, perform network configurations, and specify the network parameters for the RADIUS Service.

1. Start Ignition Dashboard: Double-click Ignition Dashboard icon on your desktop, or select **Start → Programs → Ignition Dashboard → Ignition Dashboard**. The application displays its login window.

2. Type the Ignition Server administrator **User Name** and **Password**. The default login credentials are *admin/admin*. In the **Connect To** field, enter the IP address of your Ignition Server appliance, and click **OK**.

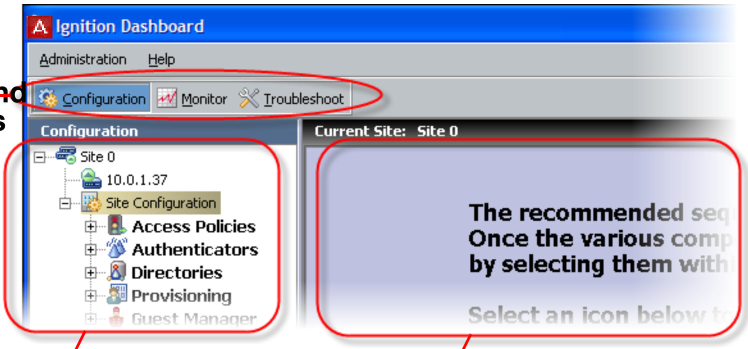


You are presently using the default admin certificate that was shipped with the appliance.
We strongly recommend acquiring and installing one specifically issued for your organization.

□ Don't show this warning anymore

Initially, the **Default Certificate** window appears alerting you that you are using the default *Ignition Dashboard-to-Ignition Server certificate* ("admin certificate") that was shipped with Ignition Dashboard. Click **OK** to dismiss the window. (Avaya recommends that you later consult the "Certificates" chapter of the *Avaya Identity Engines Ignition Server Administration Guide* and replace the certificate as explained there.)

Dashboard displays its main window, which consists of three tabs, a navigation tree, and a reading and editing panel.



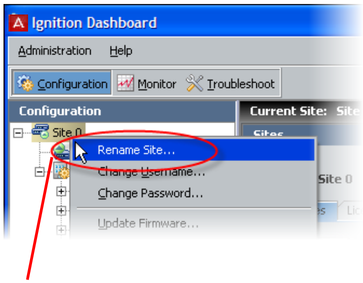
The recommended seq
Once the various comp
by selecting them with
Select an icon below t

Configuration, Monitor, and Troubleshoot tabs

Navigation tree

Reading and editing panel

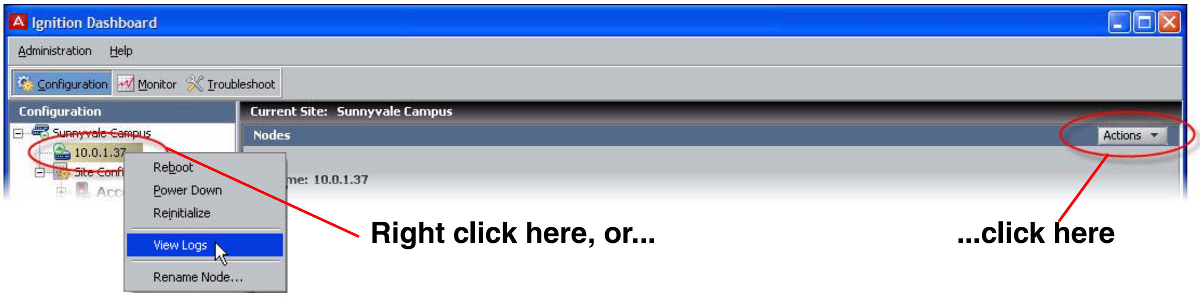
3. In the **Configuration** tree, click on *Site 0*, then right-click on *Site 0* and select the **Rename Site** command. In the **Rename Site** dialog, type a name for your site. Your site is your Ignition Server or your HA pair of Ignition Servers. In this example, we'll use the name *Sunnyvale Campus*. Click **OK** to accept the new name.



Right-click

4. In the navigation tree, click on the machine name or IP address of the Ignition Server appliance you wish to configure. The application displays the **Nodes** panel, which allows you to manage network settings on the appliance, and check its current status.

Hint: The **Actions** menu allows you to manage the appliance hardware (actions such as rebooting and shutting down). To use the **Actions** menu, right-click the IP address of your Ignition Server in the navigation tree, or, with the IP address selected, click the **Actions** menu at the upper right.

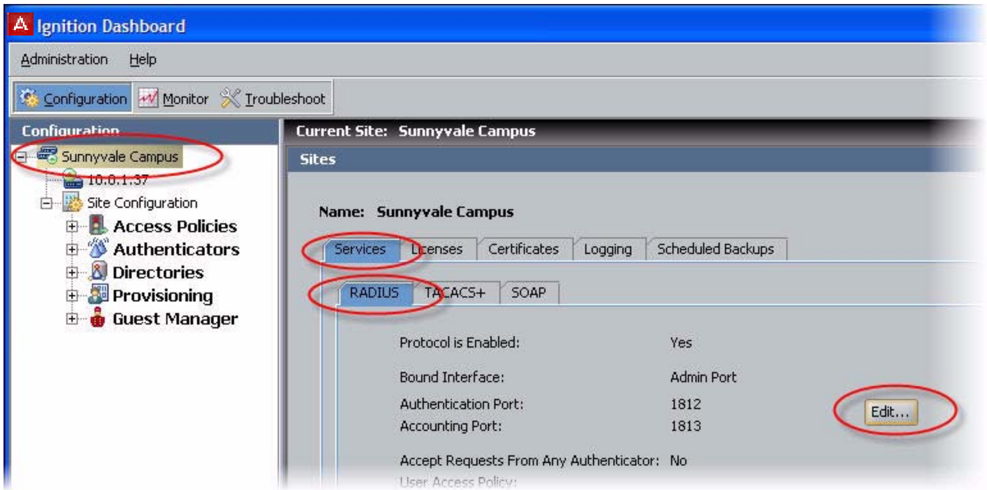


Right click here, or... **...click here**

5. Optional: If you intend to separate your *authentication network* from your *network management* network, do the following. For most installations, this is not necessary.

   a. *Do this only if your authentication network is separate from your management network.* **Activate the Service Port (“SVC”):** In Dashboard’s navigation tree, click the IP address/name of your node. Click the **Ports** tab, click the **Service Port** row, and click **Edit**. Click the **Enable** check box and, in the **IP Address** field assign an address to the port. In the adjacent field type the net mask. Click **OK**.

   b. *Do this only if your authentication network is separate from your management network.* **Bind Ignition Server’s RADIUS service to the service port (“SVC”):** In Dashboard’s navigation tree, click the name of your site (for example, *Site 0* or *Sunnyvale-Campus*). Click the **Services** tab, click the **RADIUS** tab, and click **Edit**.



Name: Sunnyvale Campus

Protocol is Enabled: Yes

Bound Interface: Admin Port

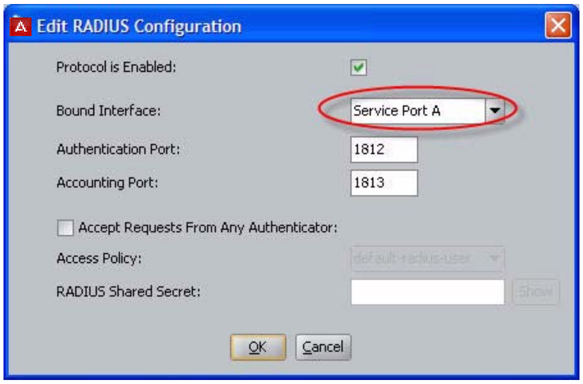
Authentication Port: 1812

Accounting Port: 1813

Accept Requests From Any Authenticator: No

User Access Policy:

In the **Edit RADIUS Configuration** window, set the **Bound Interface** to *Service Port*. In the **Authentication Port** and **Accounting Port** fields, use the default values of 1812 and 1813 unless your authenticators require a different RADIUS server port. Click **OK**.



Edit RADIUS Configuration

Protocol is Enabled: ☑

Bound Interface: Service Port A

Authentication Port: 1812

Accounting Port: 1813

☐ Accept Requests From Any Authenticator:

Access Policy: default-radius-user

RADIUS Shared Secret:

c. *Do this only if you authentication network is separate from your management network:* Make sure you have plugged in the cable connecting the Ignition Server's **SVC** interface to the network that contains your switches, access points, and other authenticators.

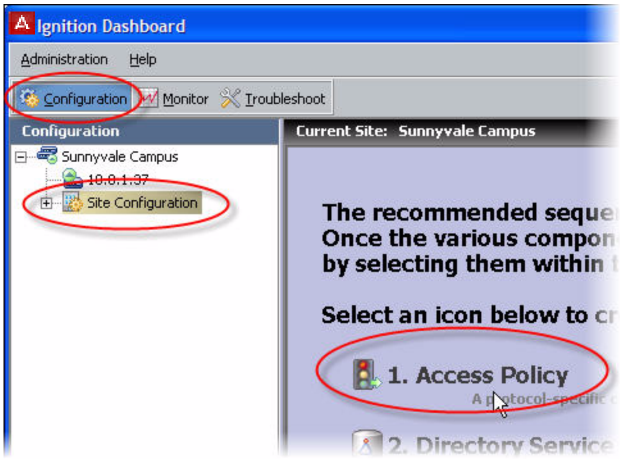
6. Reboot your Ignition Server by right-clicking its IP address in the navigation tree and selecting the **Reboot** command.

Next Steps: Proceed to the next section to create a basic access policy.

Create a RADIUS access policy

Your RADIUS access policy contains the rules that determine how a user must authenticate and, based on the user's identity, what network the user will be allowed to use.

Each authenticator has one RADIUS access policy applied to it, meaning that all users connecting through that authenticator are governed by that RADIUS access policy.



Current Site: Sunnyvale Campus

The recommended seque
Once the various compon
by selecting them within

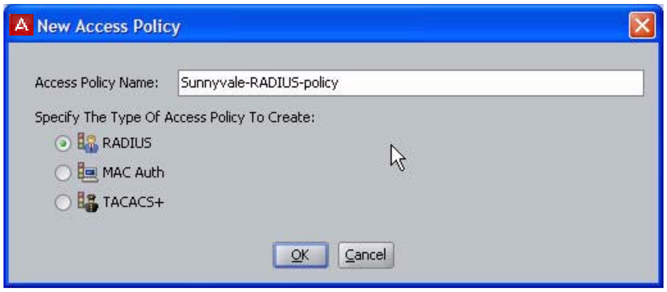
Select an icon below to cr

Procedure:

1. If Dashboard is not connected to your Ignition Server, connect it now by selecting **Administration: Login**.

2. In the main window of Dashboard, click **Configuration**, click **Site Configuration** in the navigation tree, and click **Access Policy** in the main window.

3. In the New Access Policy window, type a name for your policy and click the **RADIUS** check box. The name typically offers a clue as to which authenticators will use this policy. For example, the name may indicate the location of the authenticators.



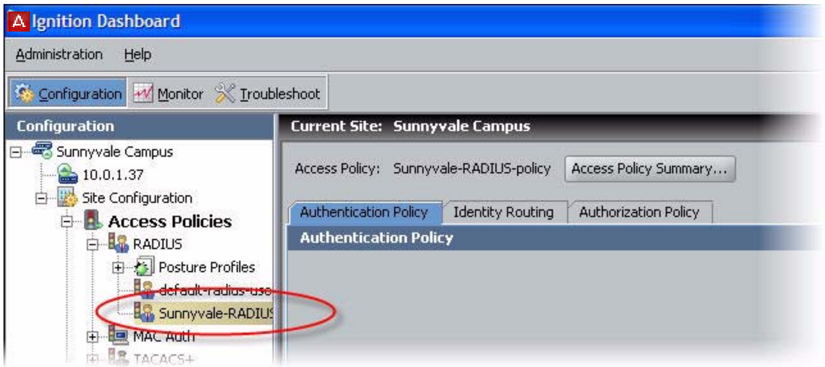
Access Policy Name: Sunnyvale-RADIUS-policy

Specify The Type Of Access Policy To Create:

● RADIUS
○ MAC Auth
○ TACACS+

4. Click **OK**.

Your access policy has been saved. For now, we will leave the policy empty. Later, you can add rules to it by clicking on the **Configuration** tab, expanding the **Site Configuration** item in the tree (click the plus sign to expand an item), and expanding the **RADIUS** item in the tree. Click the name of your policy and use the tabs and **Edit** buttons in the main panel to edit the policy.



Access Policy: Sunnyvale-RADIUS-policy

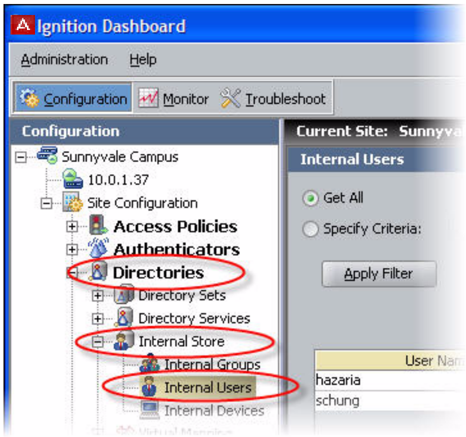
You will add rules to your access policy later, as shown in the section, “Set your authentication policy” on page 71.

Next steps: Create a user account as shown in “Create a user in the internal user store” on page 38.

Create a user in the internal user store

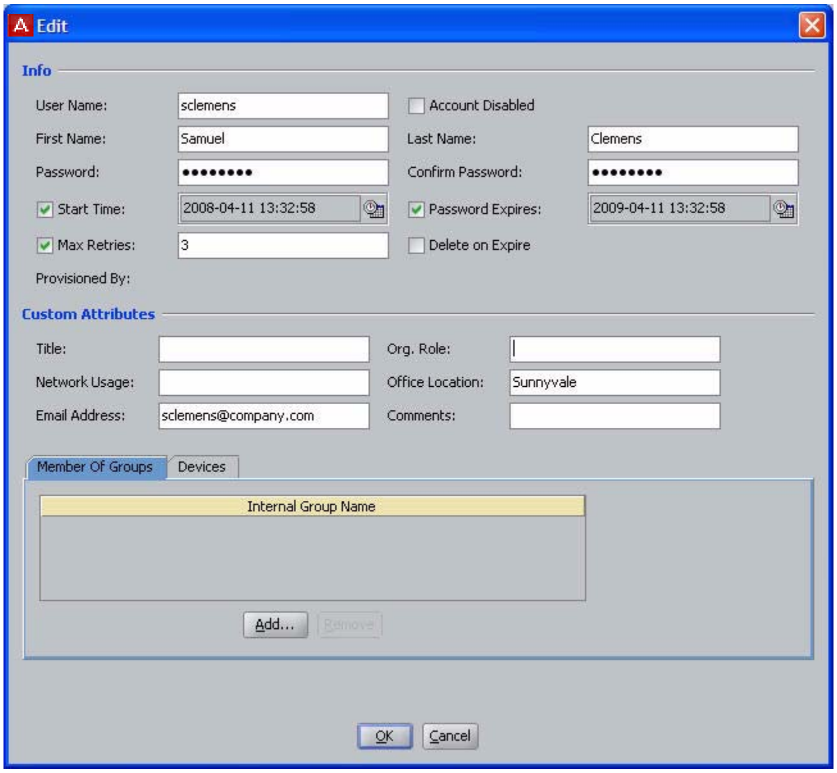
This section is optional. If you do not plan to use the Ignition Server internal user store, then you should skip this section and turn to “Set up your connection to a user store” on page 40.

Ignition Server typically authenticates users against your corporate user store (for example an Active Directory or LDAP store), but the Ignition Server appliance also contains a local store, called the *internal user store*. You may use the embedded store to complement your corporate AD or LDAP store. For example, you may wish to create temporary guest user accounts in the embedded store, rather than placing them in the corporate user store where employee accounts reside.



This section creates a user account in the internal user store. Later, we will build the access policy to determine this user's access rights.

1. In Dashboard's **Configuration** tab, click the plus sign next to **Directories** and click the plus sign next to **Internal Store**. Click on **Internal Users**. At the bottom of the window, click the **New** button.



User Name:	sclemens	□ Account Disabled	
First Name:	Samuel	Last Name:	Clemens
Password:	••••••••	Confirm Password:	••••••••
☑ Start Time:	2008-04-11 13:32:58	☑ Password Expires:	2009-04-11 13:32:58
☑ Max Retries:	3	□ Delete on Expire	
Provisioned By:			

Title:		Org. Role:	
Network Usage:		Office Location:	Sunnyvale
Email Address:	sclemens@company.com	Comments:	

2. In the user editing window, in **User Name** enter *sclemens*, in **First Name** enter *Samuel*, in **Last Name** enter *Clemens*, in **Password** enter *secret12* (or any password you like), in **Confirm Password** enter the password again. Click **OK** to save the user.

Next step: Connect to your enterprise user store as shown in "Set up your connection to a user store" on page 40.

Set up your connection to a user store

The Avaya Identity Engines' Ignition Server appliance can be configured to retrieve users from any combination of internal and external data stores, including external Active Directory (AD) and LDAP stores, as well as the internal user store of the Ignition Server appliance.

The set of connection settings for a data store is called a *directory service* in Ignition Server. This section shows you how to create a directory service. For each store you wish to use, you will define one directory service. After you define your directory services, you will place them in *directory sets* (see page 64) that tell Ignition Server when to use which service.

Note! If you are using only the Ignition Server embedded store to store user accounts, you need not create a directory service. Instead, proceed to "Create a directory set" on page 64.

To connect to your used data store: Use one of the following procedures:

- "Connecting to Active Directory", below; or
- "Connecting to LDAP" on page 54

Connecting to Active Directory

The rest of this section explains how to connect to an Active Directory data store that contains your site's user accounts and groups. Once the Ignition Server has connected to AD and joined the domain, it can authenticate users against Active Directory.

This section consists of:

- "Gather Active Directory connection settings" on page 41
- "Prepare to connect to Active Directory" on page 43
- "Create the Service Account in AD" on page 45
- "Set the AD permissions of the service account" on page 47
- "Connect Ignition Server to AD" on page 51
- "Troubleshoot AD and LDAP connections" on page 58

Gather Active Directory connection settings

Gather your AD connection settings. Use the AD connection settings that you used and created starting on page 45, or talk to your AD administrator to find the connection settings for your AD data store. Record them in the table that follows. Gather this information for each store that will authenticate users.

Table 1 Settings for connecting to an AD store

<table>
<tr><th>Setting name</th><th>Setting value</th></tr>
<tr><td><b>AD Domain Name</b></td><td>________________________________</td></tr>
<tr><td colspan="2">The <b>AD Domain Name</b> specifies the Active Directory domain that holds your user accounts. Domain names typically carry a domain suffix like “.COM” as in, for example, “COMPANY.COM”.</td></tr>
<tr><td><b>Service Account Name</b></td><td>________________________________</td></tr>
<tr><td colspan="2">The <b>Service Account Name</b> is the name of the AD administrator account that the Ignition Server will use to connect to the AD server. In the documentation, we refer to this account as the <i>Ignition Server service account</i>. If you wish to perform MSCHAPv2 authentication, the service account must have permission to create and delete computer accounts (the <i>Create Computer Object</i> and <i>Delete Computer Object</i> permissions) in the <i>Netlogon account root</i> in Active Directory. See “Netlogon account root DN,” below. If you have not specified a Netlogon account root DN in Ignition Server, then the service account must have these permissions in the <i>Computers container</i> of your AD service.
Ignition Server uses the service account to join the Active Directory domain. Joining the domain requires creating a machine account in the <i>Netlogon account root</i> and periodically resetting the password on that account for security. The machine account itself is necessary to perform Netlogon authentication requests for MSCHAPv2 traffic to Active Directory.
<b>Note:</b> Make sure that the name you enter here is the sAMAccountName of the administrator. The sAMAccountName is usually the user id of the user without the domain prefix. For example, the sAMAccountName for the user <i>COMPANY.COM/Administrator</i> will usually be <i>Administrator.</i>
For help creating the service account, see “Create the Service Account in AD” on page 45. For help setting its permissions, see “Set the AD permissions of the service account” on page 47.</td></tr>
<tr><td><b>Service Account Password</b></td><td></td></tr>
<tr><td colspan="2">The <b>Service Account Password</b> is the password for the AD service account. <i>Do not record the password here.</i></td></tr>
<tr><td><b>Security Protocol</b></td><td><b>Simple or SSL</b></td></tr>
<tr><td colspan="2">The <b>Security Protocol</b> setting specifies whether Ignition Server should SSL-encrypt traffic to the directory service.Avaya Identity Engines recommends that you use an SSL connection.</td></tr>
<tr><td><b>IP Address (Primary)</b></td><td>________________________________</td></tr>
<tr><td colspan="2">The <b>IP Address</b> of the primary AD data store.</td></tr>
</table>

Table 1 Settings for connecting to an AD store

Setting name	Setting value
Port (Primary)	________________________
The LDAP **Port** of the primary AD data store. For SSL enter 636. If SSL is not used, enter 389. You *cannot* use the global catalog port (3268). *Please use the LDAP ports (389 and 636) only!*	
Name	________________________
The **Name** is a name you will use in Ignition Server to identify this AD data store. This can be any name.	
NetBIOS Domain	________________________
The **NetBIOS Domain** name (pre-Windows 2000 domain name) of your AD data store. This setting is typically written in all uppercase letters, as in, "COMPANY". This setting applies only to *Active Directory* stores. For instructions on using Microsoft tools to find this name, see "Looking up AD settings: Finding Domain and NetBIOS names" on page 61.	
NETBIOS Server Name	________________________
The **NETBIOS Server Name** is optional. It allows Ignition Server to find the NETBIOS server where Ignition Server will perform the Netlogon (a prerequisite to performing MSCHAPv2 authentication). If the **NETBIOS Server Name** is not specified, then Ignition Server relies on DNS to find the NETBIOS server. Avaya strongly recommends that you specify a **NETBIOS Server Name** to ensure that MSCHAPv2 authentication can continue when the DNS server is unavailable. The directory service set-up wizard will help you determine the NETBIOS server name by retrieving a list of domain controllers in the domain.	
Directory Root DN	________________________
The **Directory Root DN** is the root of the AD tree containing your groups and schema, expressed using X.500 naming. For example, `dc=company,dc=com`. When you connect the directory service, the Ignition Server Create Service wizard will attempt to choose a Directory Root DN for you. See "Looking up AD settings: Finding your Root DNs" on page 60 for information on finding this DN.	
User Root DN	________________________
The **User Root DN** specified the AD container that holds your user records, expressed using X.500 naming. For example, `cn=users,dc=company,dc=com` or `ou=uswest,ou=americas,dc=company,dc=com`. When you connect the directory service, the Ignition Server Create Service wizard will attempt to choose a User Root DN for you. See "Looking up AD settings: Finding your Root DNs" on page 60 for information on finding this DN.	
Netlogon Account Root DN	________________________

Table 1 Settings for connecting to an AD store

Setting name	Setting value
	The **Netlogon Account Root DN** is the container in AD where the Ignition Server will create its own machine account when joining the AD domain. This setting is optional. If specified, Ignition Server will only attempt to create its machine account in the specified location. If left unspecified, Ignition Server obtains the Netlogon account root DN from the domain controller. Specifically, Ignition Server gets the DN of the *well known computer root* from the DC and uses that as the Netlogon account root DN. The Netlogon account root DN is typically the Active Directory Computers container (by default, this has a DN similar to *cn=computers,dc=company,dc=com*). The machine account is required so that Ignition Server can perform Netlogon authentication requests for MSCHAPv2 traffic to AD. If you wish to perform MSCHAPv2 authentication, then your service account must have appropriate permissions in this DN. For help setting account permissions, see "Set the AD permissions of the service account" on page 47.

Next steps: Prepare your environment as explained in "Prepare to connect to Active Directory" on page 43.

Prepare to connect to Active Directory

Check and, if needed, address the following before you try to connect.

Warning. If you plan to use MSCHAPv2 authentication, you *must* perform the checks listed here.

1. **Make sure you have gathered your AD connection settings** as explained in "Gather Active Directory connection settings" on page 41.
2. **Check your clock settings.** When the Ignition Server connects to an Active Directory server, the Ignition Server clock must be in sync with the clock on the Active Directory Server. If the clocks are out of sync, then the Ignition Server cannot connect to the Active Directory store.
3. **Check your firewall settings.** If a firewall protects your Active Directory server, make sure it does not block the ports required by Ignition Server. Ignition Server needs access to the following ports: 88 (UDP), 389 (TCP), 445 (TCP), 464 (UDP), 636 (TCP).
4. **Check your Active Directory security settings.** Ignition Server works with all default installations of AD, but if you have adjusted your AD installation to prohibit NTLMv1 authentication, then Ignition Server cannot perform MSCHAPv2 authentication.

   To make sure NTMLv1 authentication is enabled in your AD installation, check the following two settings in the Windows registry of your Windows domain controller (DC). Use the Windows *regedit* tool to do this.

   - Make sure that the following key is *not* set on the DC: `HKLM\System\CurrentControlSet\LSA\DisallowMsvChapv2`

- Make sure that the following key is set to a value of 1, 2, 3, or 4. A setting of 5 will cause Ignition Server's support for MSCHAPv2 authentication to fail in all cases. The key name is `HKLM\System\CurrentControlSet\Control\LSA\ LMCompatibilityLevel`

5. **Find or create your service account.** Make sure you have a user account in AD that can act as the Ignition Server Service Account. If you need to create a new account, follow the instructions in "Create the Service Account in AD" on page 45.

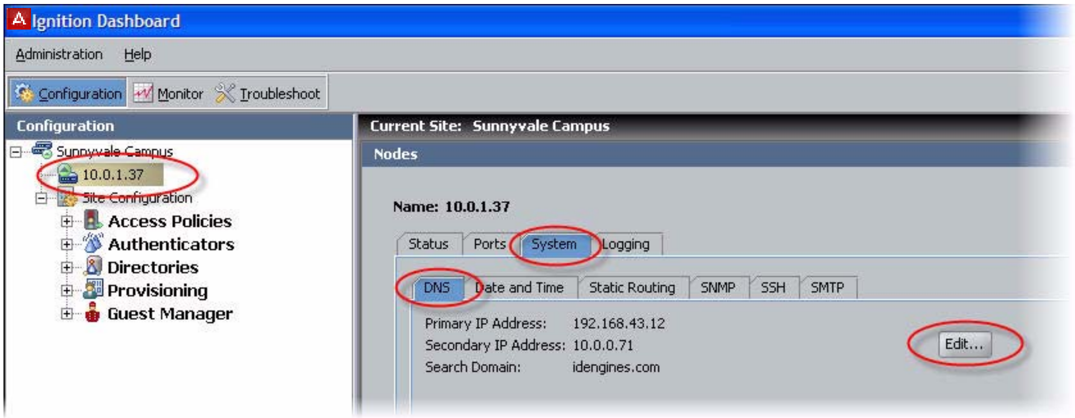
6. **Set permissions on your service account.** If you wish to perform MSCHAPv2 authentication, make sure your Ignition Server Service Account has, at a minimum, permission to create and delete computer accounts in the Netlogon account root of AD. If you need set this up, follow the instructions in "Set the AD permissions of the service account" on page 47.

7. **Optional: Check your machine authentication settings.** If your organization's security policy requires a script to run on each client before that client may connect, then do the following:

   - Make sure all client machine names are saved in the correct location in AD, which is typically under "cn=computers, ...".
   - Make sure this location is set in Ignition Server as the User Root DN or any container above that in the directory tree.

8. **Recommended: Make DNS settings on Ignition Server.** If your site uses MSCHAPv2 authentication, Avaya strongly recommends that you configure your Ignition Server appliance's *DNS settings* so that Ignition Server can resolve the address of your AD server.

   To check and edit your DNS settings, click **Configuration** in the Dashboard main window, click the name of your node in the navigation tree, then click the **System Tab**, and click the **DNS** tab. Click **Edit**. You can check and edit the addresses of your DNS servers in the **Edit DNS Configuration** window.



Name: 10.0.1.37

Primary IP Address: 192.168.43.12
Secondary IP Address: 10.0.0.71
Search Domain: idengines.com

Next steps: Connect to AD as explained in "Connect Ignition Server to AD" on page 51.

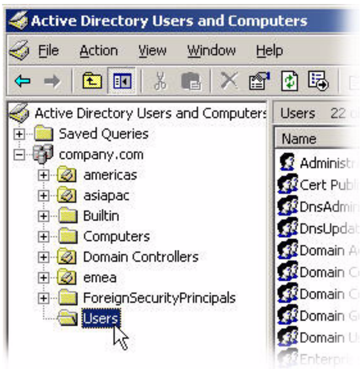
Create the Service Account in AD

To connect to Active Directory, the Ignition Server appliance requires a user account (which we call a *service account*) in Active Directory. If you wish to perform MSCHAPv2 authentication, then this service account must have write and delete permissions in the Netlogon account root of your AD service. The location of the service account in AD does not matter.

If you have a suitable account already, you may skip this section and turn to "Set the AD permissions of the service account" on page 47. If you wish to create an account, follow the steps below.

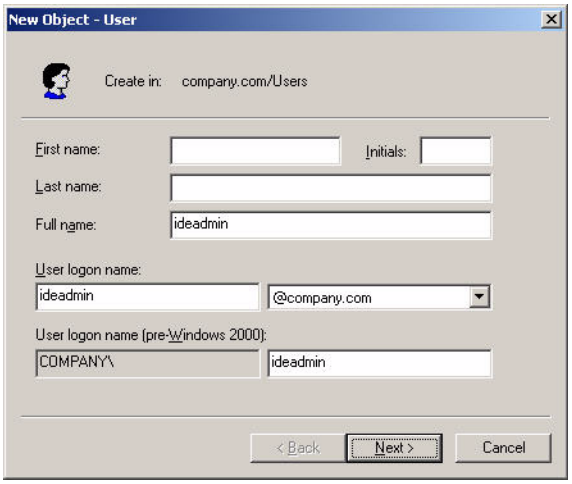
1. Log into your AD server machine as the Domain Administrator or as a user with sufficient privileges to create users.
2. Open the Active Directory Users and Computers snap-in from the Administrative Tools or the Windows Control Panel.

3. In the object tree on the left side, click on the container in which you will create the new user. For this example we'll use the **Users** container.



4. Select the **Action: New: User** command.

5. In the **New Object - User** window, create the Ignition Server service account. Avaya recommends creating an account that will be used exclusively by the Ignition Server appliance. For this example, we use the account name, "ideadmin". Click **Next** after specifying the name.


New Object - User

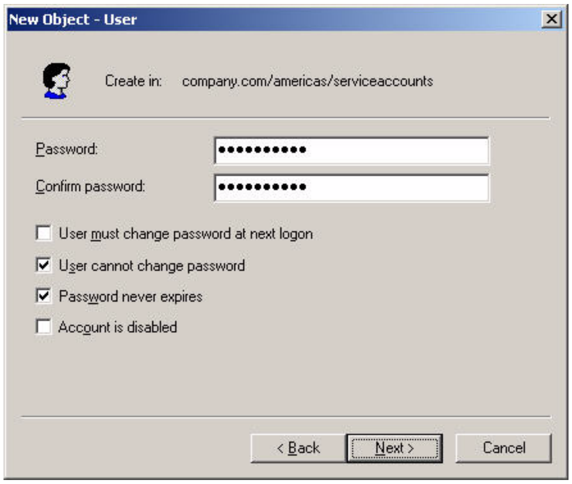
Create in: company.com/Users

First name:
Initials:
Last name:
Full name: ideadmin

User logon name: ideadmin @company.com

User logon name (pre-Windows 2000): COMPANY\ ideadmin

6. Assign a secure password to the account. Follow your organization’s password policies. If you wish to ensure the reliability of the service account, check the **User cannot change password** and **Password never expires** checkboxes.



New Object - User

Create in: company.com/americas/serviceaccounts

Password: •••••••••••

Confirm password: •••••••••••

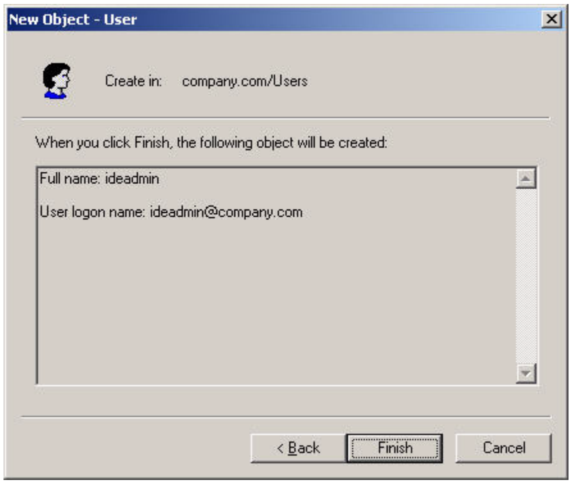
☐ User must change password at next logon

☑ User cannot change password

☑ Password never expires

☐ Account is disabled

7. Click **Finish** to save the new account.



New Object - User

Create in: company.com/Users

When you click Finish, the following object will be created:

Full name: ideadmin

User logon name: ideadmin@company.com

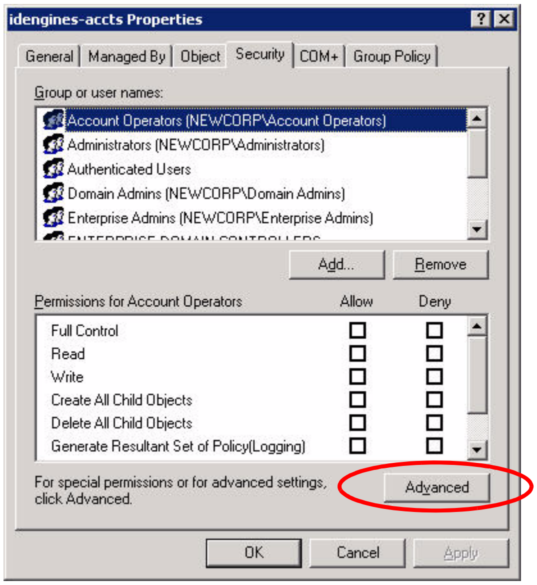
Set the AD permissions of the service account

If you plan to support MSCHAPv2 authentication, the Ignition Server service account must have permission to create and delete computer accounts (the *Create Computer Object* and *Delete Computer Object* permissions) in the *Netlogon account root* of your Active Directory service. (For a description of this container, see Netlogin Account Root DN in the “Settings for connecting to an AD store” table.)

This section shows you how to grant the minimal required permissions to your service account. If your service account already has the right permissions, proceed to “Gather Active Directory connection settings” on page 41, instead.

1. Log into your AD server machine as the Domain Administrator.
2. Open the Active Directory Users and Computers snap-in from the Administrative Tools or the Windows Control Panel. Under **View**, enable **Advanced Features**.
3. In the object tree on the left side, click on the container that will serve as your Netlogon account root. You may configure the location Ignition Server will use as the Netlogon account root. See Netlogin Account Root DN in the “Settings for connecting to an AD store” table for information on setting or finding this DN.

   Note: If you wish to create a new container that will serve as the Netlogon account root, click on the root domain in the tree and create the new *OU* there.
4. Right click your *Netlogon account root container*, select the **Security** tab, and, under the **Permissions for Account Operators** list, click the **Advanced** button.



Group or user names:

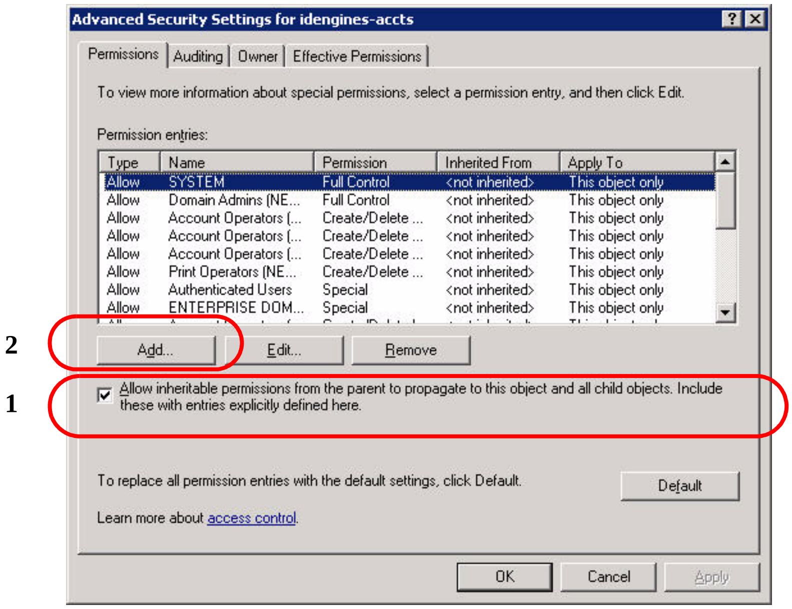
- Account Operators (NEWCORP\Account Operators)
- Administrators (NEWCORP\Administrators)
- Authenticated Users
- Domain Admins (NEWCORP\Domain Admins)
- Enterprise Admins (NEWCORP\Enterprise Admins)

Permissions for Account Operators	Allow	Deny
Full Control	□	□
Read	□	□
Write	□	□
Create All Child Objects	□	□
Delete All Child Objects	□	□
Generate Resultant Set of Policy(Logging)	□	□

For special permissions or for advanced settings, click Advanced.

5. In the Advanced Security Settings window, click the permissions tab and:
   - Make sure the **Allow inheritable permissions from the parent to propagate...** checkbox is checked.

- Click the **Add...** button.



Advanced Security Settings for idengines-accts

To view more information about special permissions, select a permission entry, and then click Edit.

Permission entries:

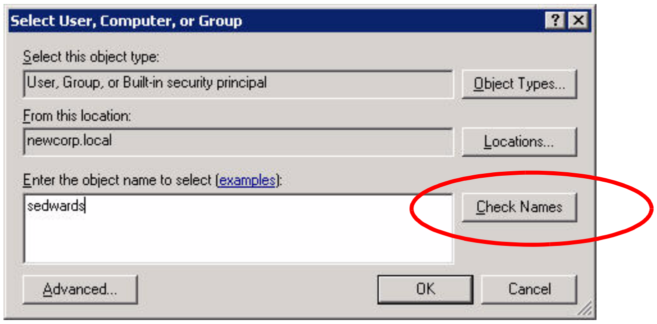
Type	Name	Permission	Inherited From	Apply To
Allow	SYSTEM	Full Control	<not inherited>	This object only
Allow	Domain Admins (NE...	Full Control	<not inherited>	This object only
Allow	Account Operators (...	Create/Delete ...	<not inherited>	This object only
Allow	Account Operators (...	Create/Delete ...	<not inherited>	This object only
Allow	Account Operators (...	Create/Delete ...	<not inherited>	This object only
Allow	Print Operators (NE...	Create/Delete ...	<not inherited>	This object only
Allow	Authenticated Users	Special	<not inherited>	This object only
Allow	ENTERPRISE DOM...	Special	<not inherited>	This object only

☑ Allow inheritable permissions from the parent to propagate to this object and all child objects. Include these with entries explicitly defined here.

To replace all permission entries with the default settings, click Default.

Learn more about access control.

6. In the **Enter the object name** field, type the name or partial name of your Ignition Server service account and click **Check Names**.



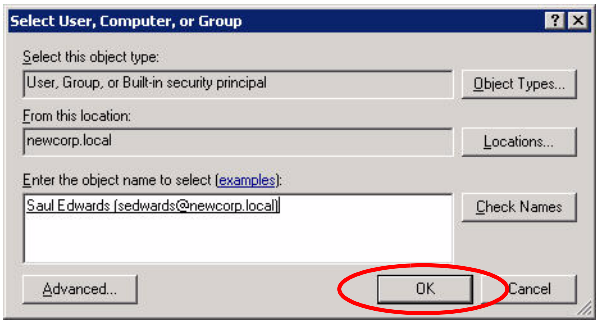
Select User, Computer, or Group

Select this object type: User, Group, or Built-in security principal

From this location: newcorp.local

Enter the object name to select (examples): sedwards

7. The window displays a list of names that match the name you typed. Click the desired account name and click **OK**.



Select User, Computer, or Group

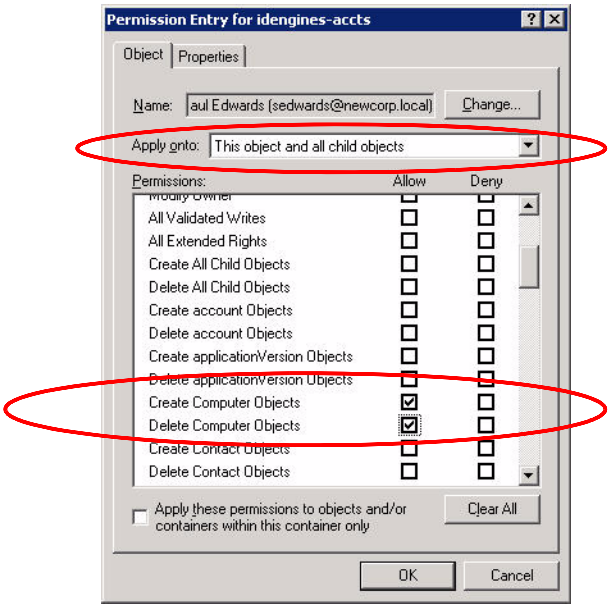
Select this object type: User, Group, or Built-in security principal

From this location: newcorp.local

Enter the object name to select (examples): Saul Edwards (sedwards@newcorp.local)

8. In the **Permission Entry** window, click the Object tab and:

   - In the **Apply onto** field, choose *This object and all child objects*.



Permission Entry for idengines-accts

Name: aul Edwards (sedwards@newcorp.local)

Apply onto: This object and all child objects

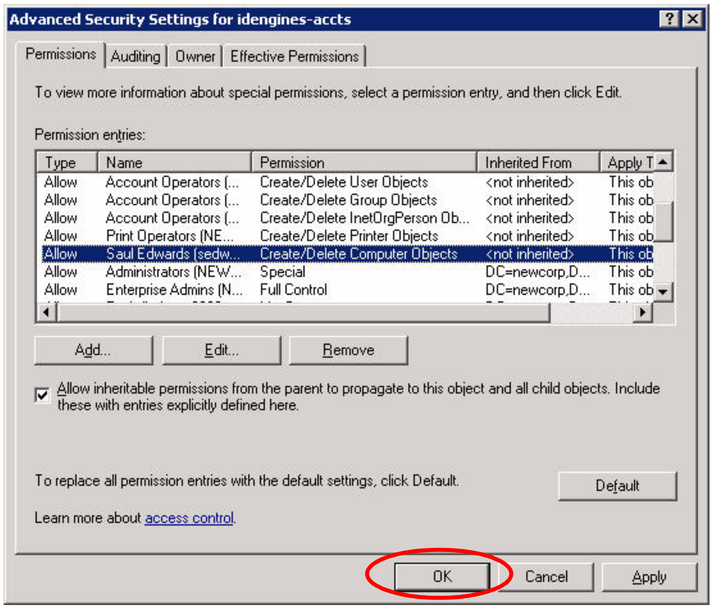
Permissions:	Allow	Deny
Modify Owner	□	□
All Validated Writes	□	□
All Extended Rights	□	□
Create All Child Objects	□	□
Delete All Child Objects	□	□
Create account Objects	□	□
Delete account Objects	□	□
Create applicationVersion Objects	□	□
Delete applicationVersion Objects	□	□
Create Computer Objects	☑	□
Delete Computer Objects	☑	□
Create Contact Objects	□	□
Delete Contact Objects	□	□

□ Apply these permissions to objects and/or containers within this container only

   - In the permissions table, scroll to find the rows, **Create Computer Objects** and **Delete Computer Objects**, and click the **Allow** checkbox for each.

   - Click **OK**.

9. Click **OK** again to dismiss the Advanced Security Settings window and again to close the snap-in.



Advanced Security Settings for idengines-accts

To view more information about special permissions, select a permission entry, and then click Edit.

Permission entries:

Type	Name	Permission	Inherited From	Apply T
Allow	Account Operators (...	Create/Delete User Objects	<not inherited>	This ob
Allow	Account Operators (...	Create/Delete Group Objects	<not inherited>	This ob
Allow	Account Operators (...	Create/Delete InetOrgPerson Ob...	<not inherited>	This ob
Allow	Print Operators (NE...	Create/Delete Printer Objects	<not inherited>	This ob
Allow	Saul Edwards (sedw...	Create/Delete Computer Objects	<not inherited>	This ob
Allow	Administrators (NEW...	Special	DC=newcorp,D...	This ob
Allow	Enterprise Admins (N...	Full Control	DC=newcorp,D...	This ob

☑ Allow inheritable permissions from the parent to propagate to this object and all child objects. Include these with entries explicitly defined here.

To replace all permission entries with the default settings, click Default.

Learn more about access control.

Now that you have granted the Ignition Server service account the appropriate permissions, the Ignition Server can authenticate users against the AD service.

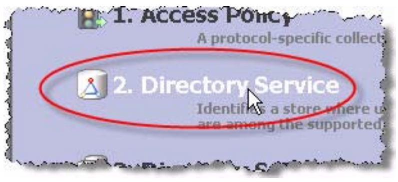
Next steps: “Gather Active Directory connection settings” on page 41

Connect Ignition Server to AD

To connect Ignition Server to your Active Directory data store, you will save the AD store as a *directory service* in Ignition Server. The directory service specifies the connection settings that Ignition Server uses to connect to AD. You will create one directory service for each AD domain you wish to connect to, and you can search across multiple directory services by grouping them into a directory set as explained on page 64.

The sections that follow assume that your user data resides in Active Directory and that you have an AD user account that you can use as the Ignition Server service account. If you need to create a service account, turn to “Create the Service Account in AD” on page 45.

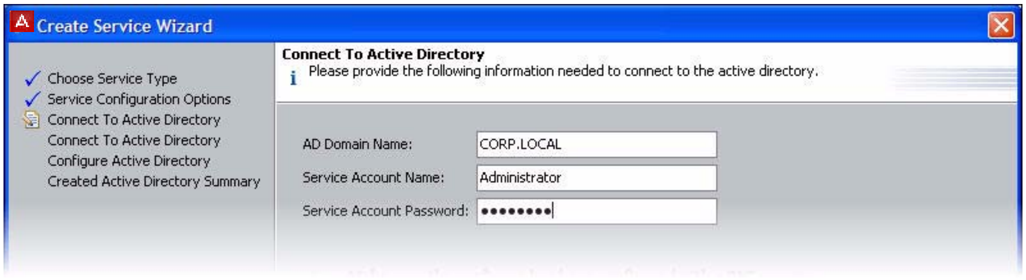
Connect using Ignition Server’s AD connection wizard in *automatic connection* mode:



1. In Dashboard’s **Configuration** tab, in the navigation tree, click **Site Configuration**.
2. Click the **Directory Service** link in the main panel.
3. In the Choose Service Type window, click **Active Directory** and click **Next**.
4. In the Configuration Options window, click **Automatically configure** and click **Next**.

   Note: If your AD connection attempt fails while you are carrying out the steps below, see “Troubleshoot AD and LDAP connections” on page 58.

5. The Connect to Active Directory window appears. Enter the connection settings you gathered on Page 14, or use the login you created starting on page 45.


Create Service Wizard
Choose Service Type
Service Configuration Options
Connect To Active Directory
Connect To Active Directory
Configure Active Directory
Created Active Directory Summary

Connect To Active Directory

Please provide the following information needed to connect to the active directory.

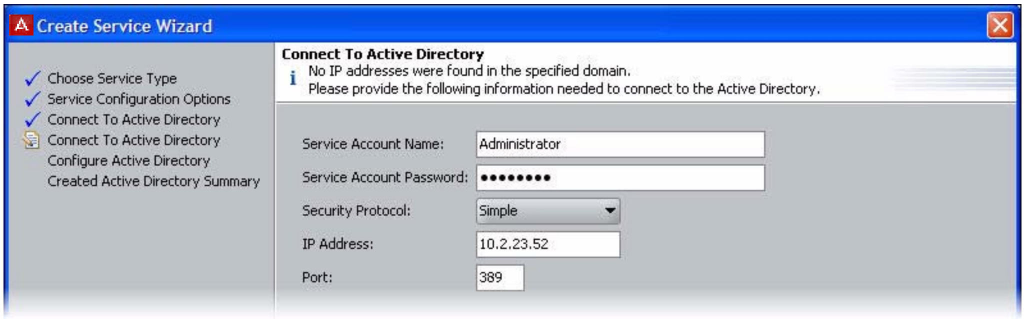
AD Domain Name: CORP.LOCAL

Service Account Name: Administrator

Service Account Password: ••••••••

6. In the next screen:

   - Enter the AD service account credentials in the Service Account Name and Password fields.
   - Pick the **Security Protocol**: choose **Simple** for unencrypted communication with AD, or choose **SSL** for encrypted communication.
   - In the **IP Address** field, type the address of your desired AD server.
   - Check the **Port** setting and edit it if needed. Ignition Server defaults to the port number used by most AD servers.



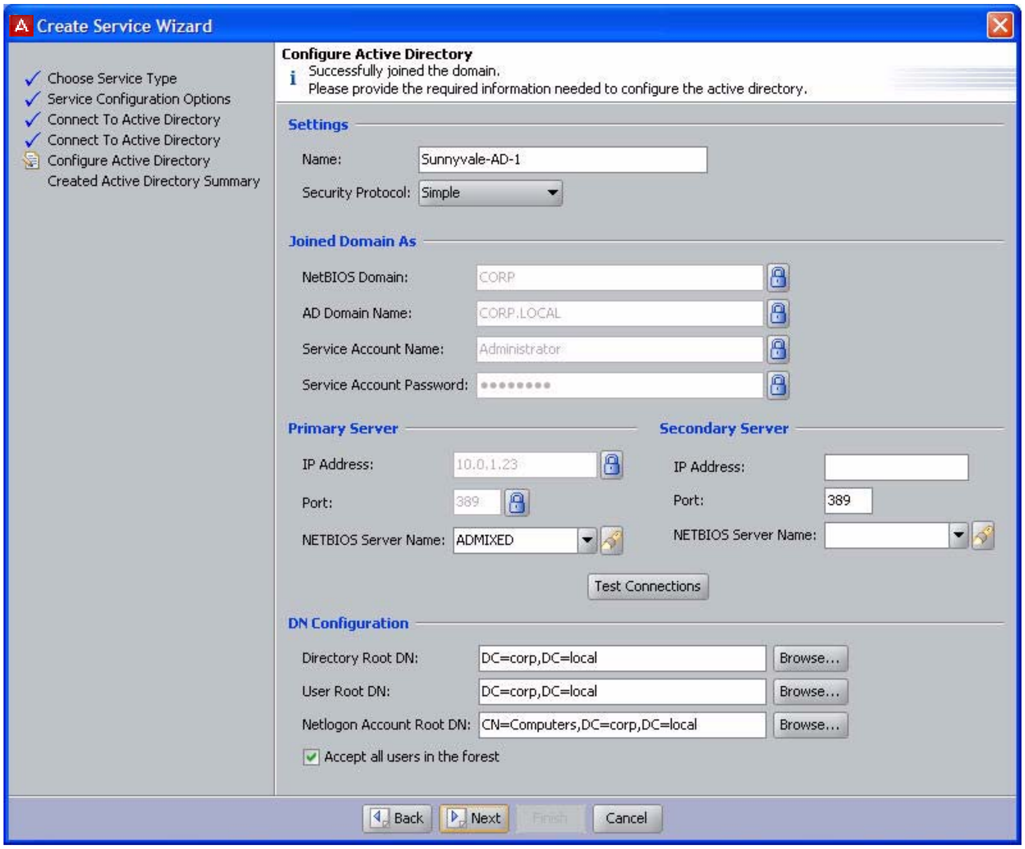
Create Service Wizard

✓ Choose Service Type
✓ Service Configuration Options
✓ Connect To Active Directory
Connect To Active Directory
Configure Active Directory
Created Active Directory Summary

Connect To Active Directory
No IP addresses were found in the specified domain.
Please provide the following information needed to connect to the Active Directory.

Service Account Name: Administrator
Service Account Password: ••••••••
Security Protocol: Simple
IP Address: 10.2.23.52
Port: 389

7. The Configure Active Directory window appears.



Create Service Wizard

✓ Choose Service Type
✓ Service Configuration Options
✓ Connect To Active Directory
✓ Connect To Active Directory
Configure Active Directory
Created Active Directory Summary

Configure Active Directory
Successfully joined the domain.
Please provide the required information needed to configure the active directory.

Settings
Name: Sunnyvale-AD-1
Security Protocol: Simple

Joined Domain As
NetBIOS Domain: CORP
AD Domain Name: CORP.LOCAL
Service Account Name: Administrator
Service Account Password: ••••••••

Primary Server
IP Address: 10.0.1.23
Port: 389
NETBIOS Server Name: ADMIXED

Secondary Server
IP Address:
Port: 389
NETBIOS Server Name:

DN Configuration
Directory Root DN: DC=corp,DC=local
User Root DN: DC=corp,DC=local
Netlogon Account Root DN: CN=Computers,DC=corp,DC=local
☑ Accept all users in the forest

In the **Settings** section, type a **Name** for this directory service. For this example, call it `Sunnyvale-AD-1`.

In the **Joined Domain As** section, the settings are already populated by the wizard. If you need to change a setting, click the lock/unlock button and edit the field. For an explanation of each field, see the table on page 14.

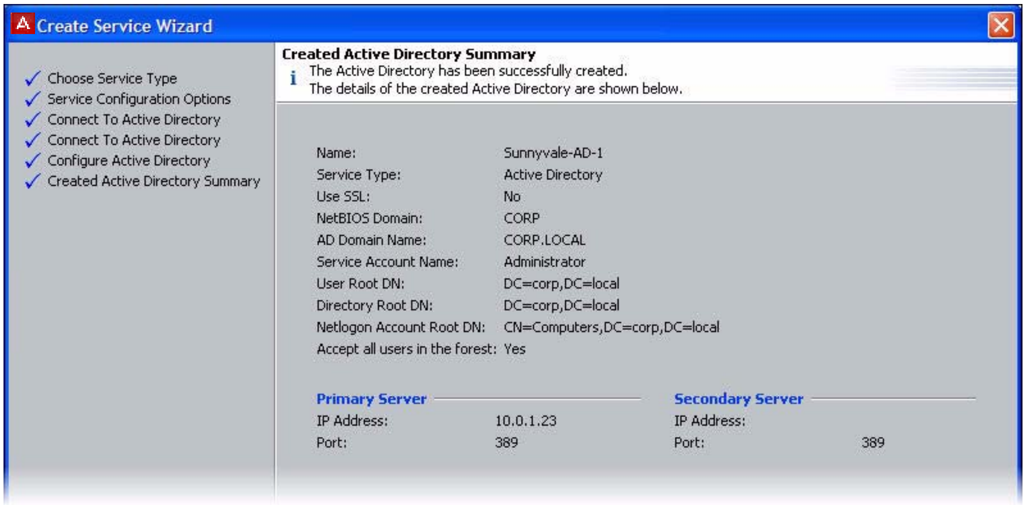
The **Primary Server IP Address** and **Port** fields are populated by the wizard; if necessary, click to unlock and edit them.

The **Secondary Server IP Address** and **Port** fields are optional. If you have a backup AD server, enter its address here.

The **DN Configuration** fields are populated by the wizard; if necessary, edit them. The Directory Root, User Root, and Netlogon Account Root are explained in the table, table on page 14. You may type the DN directly or click the **Browse** button to browse your directory to find it. Note that the schema browser will not display auxiliary classes; those you must type directly.

Click **Next**.

8. The wizard applies your settings to create the directory service in Ignition Server and displays the confirmation page shown below. If the settings are correct, click **Finish** to create the directory service.


Create Service Wizard
✓ Choose Service Type
✓ Service Configuration Options
✓ Connect To Active Directory
✓ Connect To Active Directory
✓ Configure Active Directory
✓ Created Active Directory Summary

Created Active Directory Summary

The Active Directory has been successfully created.
The details of the created Active Directory are shown below.

Name:	Sunnyvale-AD-1
Service Type:	Active Directory
Use SSL:	No
NetBIOS Domain:	CORP
AD Domain Name:	CORP.LOCAL
Service Account Name:	Administrator
User Root DN:	DC=corp,DC=local
Directory Root DN:	DC=corp,DC=local
Netlogon Account Root DN:	CN=Computers,DC=corp,DC=local
Accept all users in the forest:	Yes

Primary Server

IP Address:	10.0.1.23
Port:	389

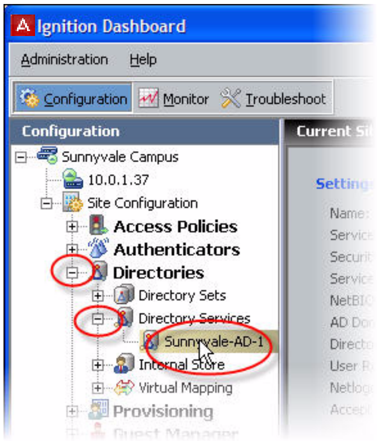
Secondary Server

IP Address:	
Port:	389

Your directory service has been saved in Ignition Server. To check your connection, see the hint below.

Next steps: Do one of the following:

- If the connection attempt succeeded, continue with "Create a directory set" on page 64.
- If your connection attempt failed, see "Troubleshoot AD and LDAP connections" on page 58.



Hint: Editing a directory service

To edit your directory service, follow these steps:

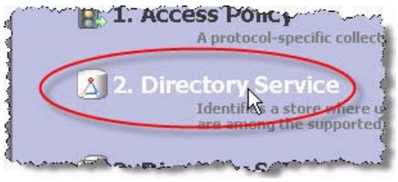
1. In Dashboard's **Configuration** tab, in the navigation tree, click the plus sign next to **Directories**.
2. Click the plus sign next to **Directory Services**.
3. Click the name of your directory service.
4. The main panel displays the connection details of the service. To test the connection, click the **Test Connections** button. To edit the connection, click **Edit**.

Connecting to LDAP

To connect Ignition Server to your LDAP store, you will save the store as a *directory service* in Ignition Server. The directory service specifies the connection settings that Ignition Server uses to connect to LDAP. You will create one directory service for each LDAP server you wish to connect to, and you can search across multiple directory services by grouping them into a *directory set* as explained on page 64.

The sections that follow assume that your user data resides in LDAP and that you have an LDAP administrator account that you can use as the Ignition Server service account.

You will connect using Ignition Server's LDAP connection wizard in *automatic connection* mode:

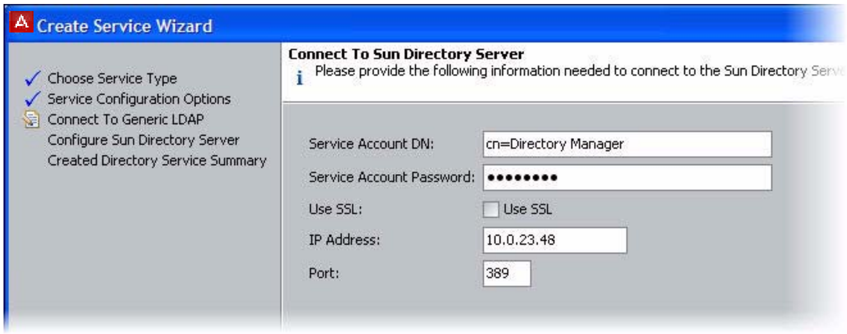


1. In Dashboard's **Configuration** tab, in the navigation tree, click **Site Configuration**.
2. Click the **Directory Service** link in the main panel.
3. In the Choose Service Type window, click your type of LDAP store (for example, *Sun Directory Server*) and click **Next**.

4. In the Configuration Options window, click **Automatically configure** and click **Next**.

   Note: If your LDAP connection attempt fails while you are carrying out the steps below, see “Troubleshoot AD and LDAP connections” on page 58.

5. The Connect to Directory Server window appears. Use the guidelines below for filling out the fields.



Create Service Wizard

✓ Choose Service Type
✓ Service Configuration Options
Connect To Generic LDAP
Configure Sun Directory Server
Created Directory Service Summary

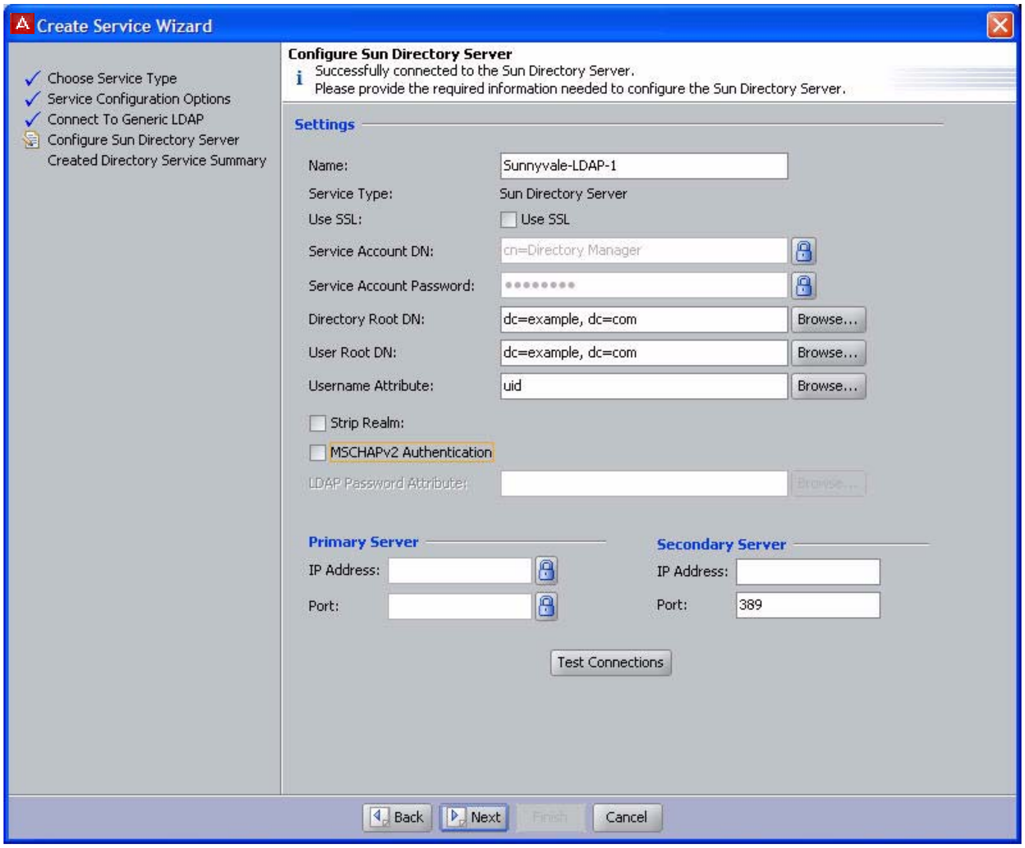
Connect To Sun Directory Server
Please provide the following information needed to connect to the Sun Directory Serv

Service Account DN: cn=Directory Manager
Service Account Password: ••••••••
Use SSL: □ Use SSL
IP Address: 10.0.23.48
Port: 389

   - **Service Account DN**: DN of the LDAP administrator account. Ignition Server will connect as this administrator. For example, cn=Directory Manager
   - **Service Account Password**: Password of the LDAP administrator.
   - **Use SSL**: If Use SSL is turned on, Ignition Server uses SSL to encrypt traffic to the directory service. *Warning*: If you choose to connect to LDAP using a non-SSL connection, your service account credentials will travel over the network in unencrypted form. Avaya strongly recommends using an SSL connection to connect to your directory server.
   - **IP Address**: IP address of the primary LDAP server.
   - **Port**: Port number at which the LDAP service can be reached. When Use SSL is selected, the Port Entry is typically 636. When Use SSL is not selected, the Port Entry is typically 389.

6. Click **Next**.

The Configure Directory Server window appears.



Configure Sun Directory Server

Successfully connected to the Sun Directory Server.
Please provide the required information needed to configure the Sun Directory Server.

Name: Sunnyvale-LDAP-1
Service Type: Sun Directory Server
Use SSL: □ Use SSL
Service Account DN: cn=Directory Manager
Service Account Password: ••••••••
Directory Root DN: dc=example, dc=com
User Root DN: dc=example, dc=com
Username Attribute: uid
□ Strip Realm:
□ MSCHAPv2 Authentication
LDAP Password Attribute:

IP Address:
Port:

IP Address:
Port: 389

7. In the **Settings** section, type a **Name** for this directory service. For this example, call it `Sunnyvale-LDAP-1`.

   The **DN** and **Username** fields are populated by the wizard; if necessary, edit them or click the Browse button to set them. Note that the schema browser will not display auxiliary classes; those you must type directly. The fields are:

   - **Directory Root DN**: DN where the LDAP schema containing your users and groups may be found. For example, dc=company,dc=com. When you connect the directory service, the Ignition Server Create Service wizard will attempt to choose a Directory Root DN for you.
   - **User Root DN**: DN of the LDAP container Ignition Server from where will load user records. For example, cn=users,dc=stargironinc,dc=com. When you connect the directory service, the Ignition Server Create Service wizard will attempt to choose a User Root DN for you.
   - **Username Attribute**: An LDAP attribute that stores the user name. Typically, this is uid.

   Optional: If you wish to have Ignition Server strip the realm name from the username before submitting it for authentication, click the **Strip**

Realm check box. If this box is checked, then, for example, the user name jsmith@company.com would be submitted to LDAP as jsmith.

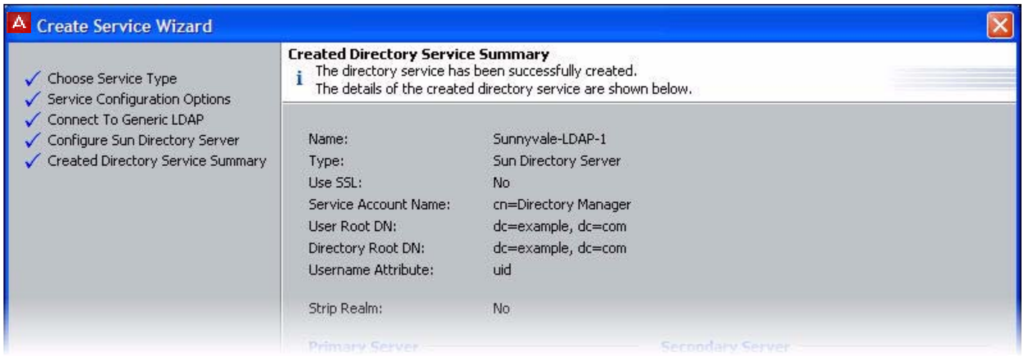
Optional: If this LDAP store will support MSCHAPv2 authentication, check the **MSCHAPv2 authentication** check box and, in the **LDAP Password Attribute** field, set the name of LDAP attribute that stores the hash of the user's MSCHAPv2 password. See "Setting up MSCHAPv2 Authentication on LDAP" in the *Ignition Server Administrator's Guide* for details.

The **Primary Server IP Address** and **Port** fields are populated by the wizard; if necessary, click the padlock button to unlock and then click in the fields to edit them.

The **Secondary Server IP Address** and **Port** fields are optional. If you have a backup server, enter its address here.

8. Click **Next**.

   The wizard applies your settings to create the directory service in Ignition Server and displays the confirmation page shown below. If the settings are correct, click **Finish** to create the directory service.


Create Service Wizard
✓ Choose Service Type
✓ Service Configuration Options
✓ Connect To Generic LDAP
✓ Configure Sun Directory Server
✓ Created Directory Service Summary

Created Directory Service Summary

The directory service has been successfully created.
The details of the created directory service are shown below.

Name:	Sunnyvale-LDAP-1
Type:	Sun Directory Server
Use SSL:	No
Service Account Name:	cn=Directory Manager
User Root DN:	dc=example, dc=com
Directory Root DN:	dc=example, dc=com
Username Attribute:	uid
Strip Realm:	No

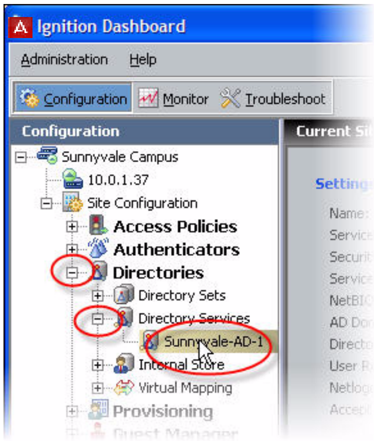
Primary Server

Secondary Server

Your directory service has been saved in Ignition Server. To check your connection, see the hint below.

Next steps: Do one of the following:

- If the connection attempt succeeded, continue with "Create a directory set" on page 64.
- If your connection attempt failed, see "Troubleshoot AD and LDAP connections" on page 58.



Hint: Editing a directory service

To edit your directory service, follow these steps:

1. In Dashboard's **Configuration** tab, in the navigation tree, click the plus sign next to **Directories**.
2. Click the plus sign next to **Directory Services**.
3. Click the name of your directory service.
4. The main panel displays the connection details of the service. To test the connection, click the **Test Connections** button. To edit the connection, click **Edit**.

Troubleshoot AD and LDAP connections

This section contains tips for:

- "Checking a directory connection" on page 58
- "Checking directory connections and cache status" on page 59
- "Testing a directory in-depth" on page 59
- "Looking up AD settings: Finding your Root DNs" on page 60
- "Looking up AD settings: Finding Domain and NetBIOS names" on page 61
- "Looking up AD settings: IP Address" on page 61

Checking a directory connection

To check that Ignition Server is connected to your directory service, do this:

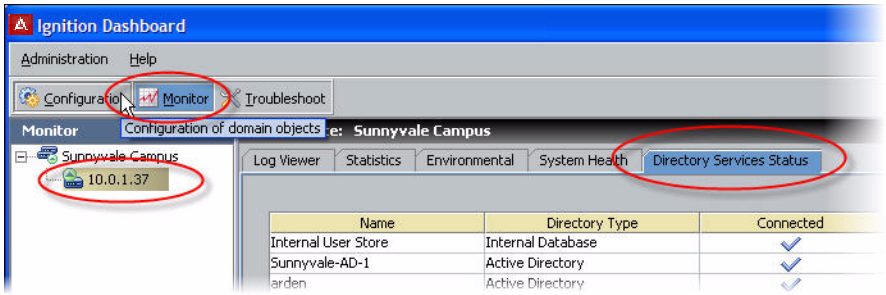
1. In Dashboard's **Configuration** tab, in the navigation tree, click the plus sign next to **Directories**.
2. Click the plus sign next to **Directory Services**.
3. Click the name of your directory service.
4. Click the **Test Connections** button.

Ignition Server tests the connection to the primary server and, if configured, the secondary server. For each server, the connection test consists of an anonymous bind to the directory; retrieval of the directory's root DSE; a bind using the service account credentials; and a search for the user root.

The Test Connection Results window displays the test outcome, displaying one success/failure line for the primary server and one line for the secondary server, if configured.

Checking directory connections and cache status

To check the connection status and cache status (Ignition Server caches user group memberships) of all of your directory services, do this:



Name	Directory Type	Connected
Internal User Store	Internal Database	✓
Sunnyvale-AD-1	Active Directory	✓
arden	Active Directory	✓

1. Click on Dashboard's **Monitor** tab,
2. In the navigation tree, click the IP address of your node (you Ignition Server).
3. Click the **Directory Services Status** tab.
4. Click the name of your directory service.
5. Click the **Test Connections** button.

For each service, the Directory Services window displays a row indicating the connection status. A blue check mark indicates Ignition Server succeeded in connecting to the server; a red "x" indicates it failed to connect.

Testing a directory in-depth

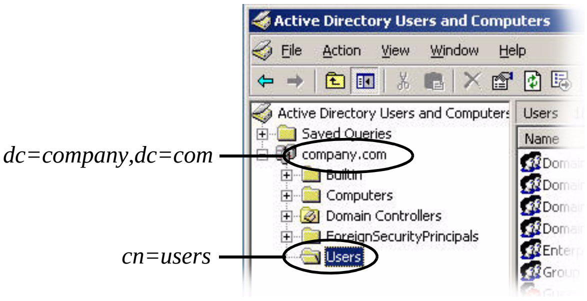
1. In Dashboard's **Troubleshoot** tab, in the navigation tree, click the IP address of your Ignition Server.
2. Click the **Directory Service Debugger** tab.
3. Click the **Process Request**, **User Lookup**, **Device Lookup**, or **Auth User** tab to run your tests. For instructions, see "Advanced Troubleshooting for Directory Services and Sets" in the *Avaya Identity Engines Ignition Server Administration Guide*.

Looking up AD settings: Finding your Root DNs

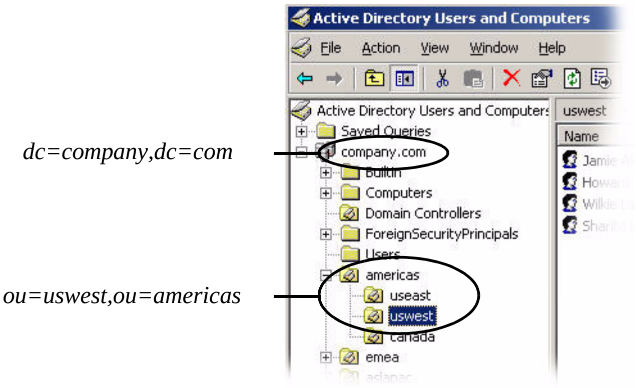
User Root DN and **Directory Root DN**: Enter the names of containers in your AD data store using X.500 naming. **User Root DN** points to the AD container that stores your user records. **Directory Root DN** points to the root of your AD tree and will be used to obtain schema and group information.

To find out the X.500 names of your containers, open the Active Directory Users and Computers snap-in and check the tree panel on the left. At the root of the tree is the DNS name of your AD server. This provides the “dc=company,dc=com” portion of the name in the example below. For User Root DN, you must find the appropriate container (“CN”) or organizational unit (“OU”) and use its name as the “cn=” or “ou=” portion of the name. Note that an OU name may contain spaces, but that no space may directly follow a comma in the X.500 name.

Example 1*: User Root DN is cn=users,dc=company,dc=com*



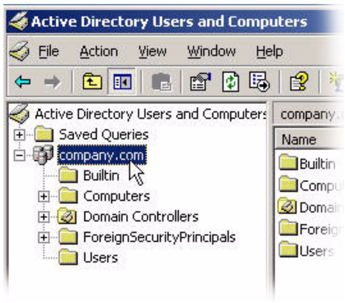
Example 2*: User Root DN is ou=uswest,ou=americas,dc=company,dc=com*



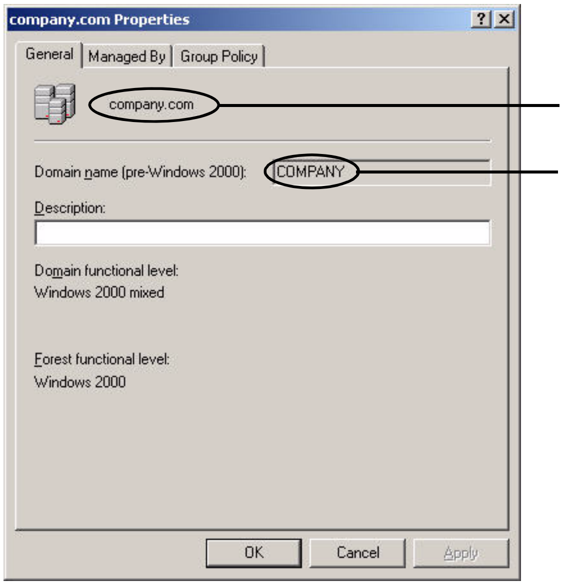
Form the full User Root DN name by pre-pending the CN or OU portion of the name to the root portion of the name as shown in the two examples above. In the text that follows, we will stick with “cn=users,dc=company,dc=com” as our example DN.

Looking up AD settings: Finding Domain and NetBIOS names

To find the **AD Domain Name** and **NetBIOS Name**, open the Active Directory Users and Computers snap-in and find your root domain in the tree panel on the left. In this example, the root domain is “company.com”. Right-click the root domain name and select **Properties** to open the Properties window.



In the General tab of Properties window, use the uppermost name as the “AD Domain Name” in Ignition Server, and use the Domain name (pre-Windows 2000) as the “NetBIOS Name” in Ignition Server.



company.com

Domain name (pre-Windows 2000): COMPANY

Description:

Domain functional level:
Windows 2000 mixed

Forest functional level:
Windows 2000

“AD Domain Name” in Ignition

“NetBIOS Name” in Ignition

Looking up AD settings: IP Address

To find the IP address of your AD server, log into the machine that hosts your AD server and use the “ipconfig” tool from the command line, or open the Windows Control Panel and select **Network Connections: Local Area Connection**. In the Local Area Connection Status window, click **Properties**. In the Local Area Connection Properties window, click **TCP/IP** and then click **Properties**. Read the **IP address** from the TCP/IP Properties window.

Set up a RADIUS proxy server

A RADIUS proxy server forwards RADIUS requests to a remote server for authentication. The Ignition Server can act as the RADIUS proxy server that forwards the authentication requests, or as the remote server that receives the authentication requests.

If you are using a RADIUS proxy server, you must configure an authentication service in Ignition. In Ignition, you manage authentication services in the Directory Services panel, in the same way you manage directory services.

Create a RADIUS proxy authentication service

The Create Service Wizard guides you through the steps needed to create a RADIUS proxy Authentication Service.

1. In the Dashboard **Configuration** hierarchy tree, click your site, expand **Site Configuration**, expand **Directories**, and click **Directory Services**. Click **New.**
2. Select the radio button for **RADIUS Proxy Service** and click **Next**.
3. In the **Configure RADIUS Proxy Service** window:
   - Assign the authentication service a name in the **Name** field. This is the name you will use in your Ignition Server policy to specify that this RADIUS proxy server should be used.
   - Enter the **Shared Secret** for the RADIUS proxy server.
   - If you want to send a regular “keepalive” ping, check the **Enable Keepalive** checkbox. Optionally, you can specify a **Keepalive User Name** and a **Keepalive Password**. These are the user name and password of a test account in your authentication server.

     With Keepalive turned on, Ignition Server periodically looks up the supplied username/password on the remote server to determine the reachability, and if successful, marks the service as *Connected* in the **Directory Services Status** tab. By default, Ignition Server uses a predefined username & password (idengines/idengines) to run the keepalive. If you entered a Keepalive User Name and a Keepalive Password, Ignition Server uses these credentials to run the keepalive. **Note**: The user credentials you enter to test keepalive do not have to be valid credentials. A reject message from the remote server for looking up invalid credentials is sufficient to determine the reachability.

     With Keepalive turned off, the Ignition Server assumes that the remote server is always reachable and marks it as *Connected*. You can test the connection at any time using the **Test Keepalive** button in this window, or using the Directory Service Debugger tab of Dashboard’s Troubleshoot view.

Note: Avaya recommends that you enable keepalive if you have multiple remote servers that receive requests. If one server is reported down, the requests can be proxied to the next available proxy server as defined in the directory set. If you do not enable keepalive, the Ignition Server assumes the remote server is always connected and the requests may get dropped if the remote server health status is not determined.

- For the primary RADIUS proxy server, and optionally for the secondary RADIUS proxy server, specify the **IP Address** and **Port**. If both the primary and secondary servers are configured and the Keepalive is not enabled, RADIUS proxy authentication attempts will occur with the primary server only. To ensure that authentication with the secondary server occurs following a failed authentication attempt with the primary server you must enable the Keepalive mechanism.
- Click the **Test Keepalive** button. Testing the connection might take a few minutes. If a configuration setting is incorrect, Ignition Server warns you.
- Click **Next**.

4. The next window summarizes the connection settings of the service. Click **Finish**.

Your new service appears in the Directory Services list. A blue check mark in the Connected column indicates a successful connection.

Add the RADIUS proxy server to a directory set

After you create a RADIUS proxy authentication service, create a directory set. See “Create a directory set” on page 64. You add the RADIUS proxy server to a directory set to specify that the RADIUS proxy server is the authentication service that verifies user credentials. You can add multiple remote servers to a directory set. Each remote server can handle different realms, or multiple remote servers can support the same realm to handle a fail-over scenario. When you add a RADIUS proxy server to a directory set, ensure that the **User Lookup Service** field is set to **none**. **Note**: You cannot add another type of directory service to a Directory set that contains a proxy service.

Create an Access Policy that includes the RADIUS proxy server

The next step is to create an Access Policy that includes the RADIUS proxy server. When you create your Identity routing policy, use the directory set that includes the RADIUS proxy server. In the Realm-Directory Set Map window, configure the realm for which the user wants to proxy the request. See “Set your identity routing policy” on page 73.

Proxying of MAC authentication requests

MAC authentication is typically used for devices that are incapable of performing 802.1X authentication. MAC authentication requests are also RADIUS requests. MAC authentication verifies that the MAC address submitted by a connecting client device matches an entry on your list of known MAC addresses. Using RADIUS proxy service, Ignition Server can also proxy the MAC authentication requests to a remote server. To proxy MAC authentication requests, enable RADIUS authentication for the authenticator and assign the access policy that is configured to use a proxy directory set. Do not enable MAC authentication for the authenticator which would otherwise do a local MAC authentication. On the remote server, enable MAC auth for this authenticator (proxy server) and configure the necessary MAC authentication policy.

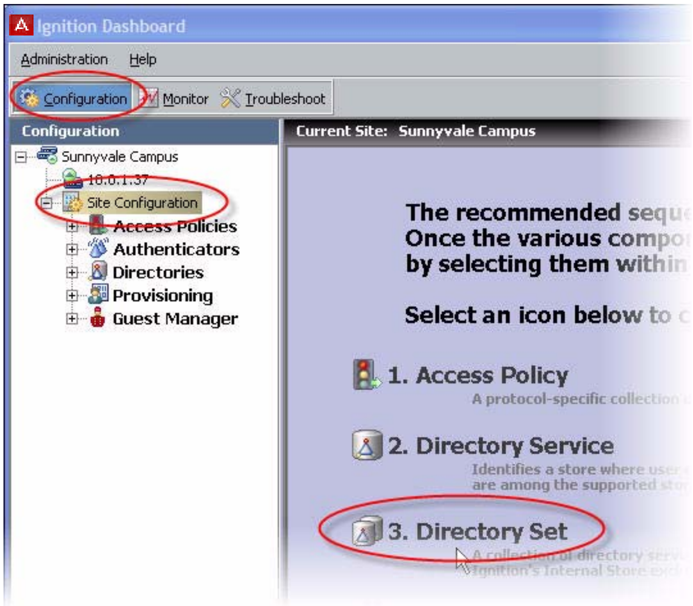
Configuration on the remote proxy server

On the remote server that handles the requests coming from the proxy servers, add the proxy server as a regular authenticator and assign the necessary access policy.

Create a directory set

A directory set is the mechanism Ignition Server uses to scan multiple directories for a user account. You will define each user data store (that is, each AD data store, LDAP data store, and the embedded store) as a directory service in Ignition Server, and you will group those directory services into a directory set. In order to authenticate a user, Ignition Server searches all the services in the set. For the purposes of this exercise, one directory set and one directory service will suffice. Follow these steps to create the set:

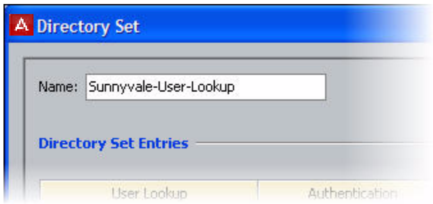
1. If Dashboard is not connected to your Ignition Server, connect it now by selecting **Administration: Login**.
2. In the main window of Dashboard, click **Configuration**, click **Site Configuration** in the navigation tree, and click “**3. Directory Set**” in the main panel.



3. In the Directory Set window, type a **Name** for your directory set. The name should indicate that this set determines the search order for user lookups at your site or organization.

4. Click the **Add** button to start adding directory services to the set.

5. In the Directory Set Entry window, specify the directory that will provide user account data and group memberships (**User Lookup Service**) and the directory that will authenticate users (**Authentication Service**).



Directory Set

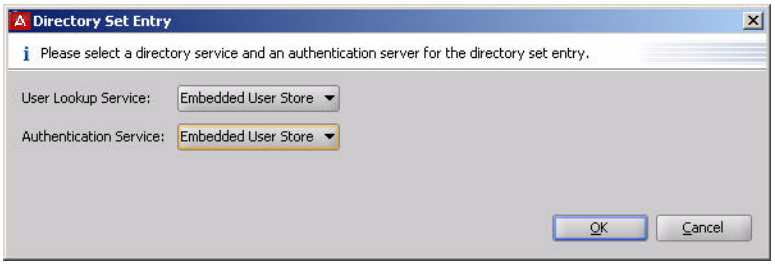
Name: Sunnyvale-User-Lookup

Directory Set Entries

   Note: Usually these are one and the same directory. You may choose different directories in cases where you wish to split your authentication from your user lookup, as you might when you couple RSA SecurID authentication with authorization based on AD group membership.

   For the example in this document, we'll use the internal user store so that we can later demonstrate an authentication of the user account we created earlier. If you have an LDAP or AD user you can test with, then feel free to use your AD or LDAP store, instead:

   - In the **User Lookup Service** drop-down list, select *Internal User Store*.
   - In the **Authentication Service** drop-down list, select *Internal User Store*.
   - Click **OK**.



Directory Set Entry

Please select a directory service and an authentication server for the directory set entry.

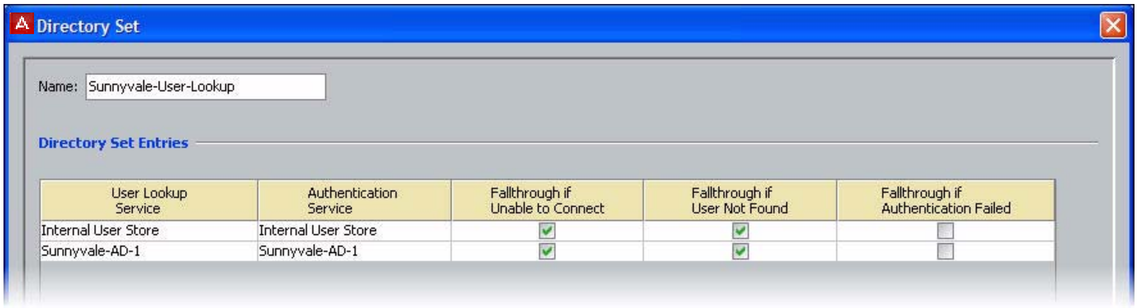
User Lookup Service: Embedded User Store

Authentication Service: Embedded User Store

6. If you are using an AD or LDAP user store, do the following:

   - In the Directory Set window, click **Add...** again.
   - In the **User Lookup Service** drop-down list, select the directory service you created earlier. In the example, we use the name *Sunnyvale-AD-1*.
   - In the **Authentication Service** drop-down list, select your directory service again.

- Click **OK**.
- In the Directory Set window, click the **Fallthrough** checkboxes in the top row of the table to specify how you want Ignition Server to handle directory failover. By checking these boxes, you can, for example, specify that Ignition Server will attempt authentication against *ActiveDirectory1* if the user's lookup in the *Internal User Store* fails.



Name: Sunnyvale-User-Lookup

Directory Set Entries

User Lookup Service	Authentication Service	Fallthrough if Unable to Connect	Fallthrough if User Not Found	Fallthrough if Authentication Failed
Internal User Store	Internal User Store	☑	☑	□
Sunnyvale-AD-1	Sunnyvale-AD-1	☑	☑	□

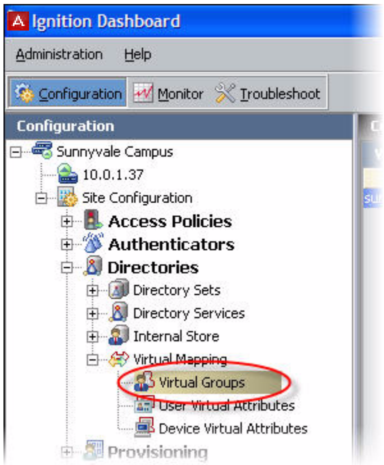
7. In the Directory Set window, click **Save** to save the set and dismiss the window.

Next step: Map user groups as shown in "Create virtual groups" on page 66.

Create virtual groups

Virtual groups are Ignition Server's mechanism for abstracting, or standardizing, group names across multiple user databases. You can map an Ignition Server virtual group to many groups in many databases, allowing you to treat these groups as a single group in your policies.

For example, you might create an Ignition Server virtual group called, "*Administrators*" and map it to the DN, "*ou=admin,ou=Users,dc=company,dc=com*" in the user database of your Fresno office, and also map it to the nsRole value "*AdminGroup*" in the user database in your Irvine office. Your access policies would refer to the group by the single name, "*Administrators*".

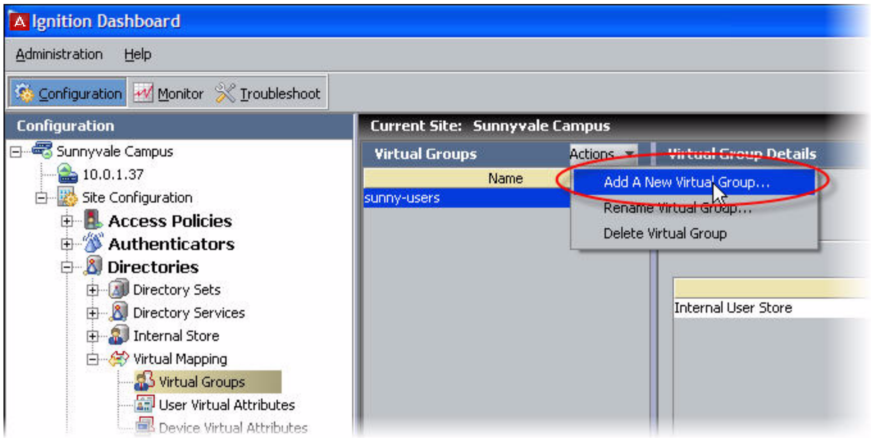


Virtual groups are required if you wish to evaluate group membership in your policies. Ignition Server looks up group membership only by means of a virtual group, so even if you have only one data store, you must create a virtual group.

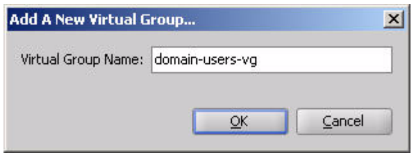
In this example, we will create a virtual group that maps to the Domain Users group in the AD store. Create the virtual group as follows:

1. In Ignition Dashboard, click **Configuration**, then, in the navigation tree, click the plus sign to expand **Site Configuration**, expand **Directories**, expand **Virtual Mapping**, and click **Virtual Groups.**

2. In the Virtual Groups panel, click **Actions** and select the command, **Add New Virtual Group…**



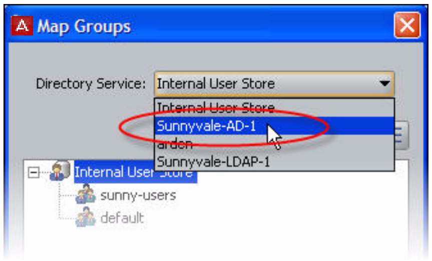
3. In the Add a New Virtual Group window, type the virtual group name and click **OK**. In this example, we give the virtual group the name `domain-users-vg`. This group will contain the members of the “Domain Users” group of the AD server.



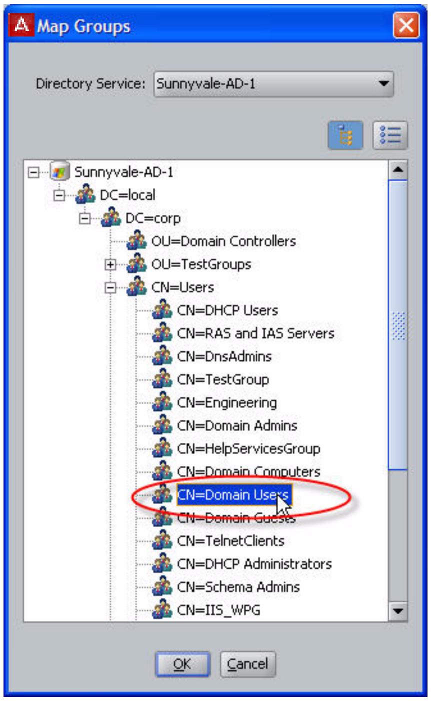
Virtual Group Name: domain-users-vg

4. In the Virtual Groups list, select the group name you just created. At the bottom of the Virtual Group Details panel, click **Add…**

5. In the Map Groups window, click in the **Directory Service** drop down list and select the name of your Directory Service.



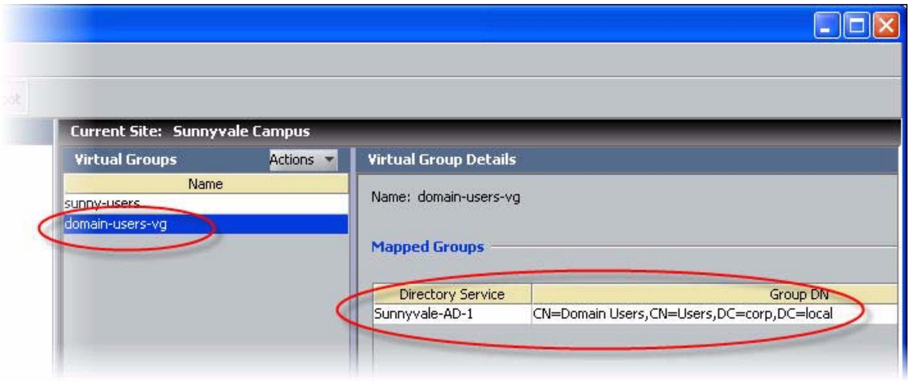
6. Use the tree list to find the group (AD container) you wish to map. In this example, we'll use the Active Directory group, "CN=Domain Users". This will enable us to create an Ignition Server authorization rule that grants access to any user who is a member of *Domain Users*. (**Note:** If you are using the Embedded Store instead, you may create an embedded group and map your virtual group to that instead.)
7. Click **OK** to close the Map Groups window. The new mapping appears in the Mapped Groups list.



Map Groups

Directory Service: Sunnyvale-AD-1

Sunnyvale-AD-1
DC=local
DC=corp
OU=Domain Controllers
OU=TestGroups
CN=Users
CN=DHCP Users
CN=RAS and IAS Servers
CN=DnsAdmins
CN=TestGroup
CN=Engineering
CN=Domain Admins
CN=HelpServicesGroup
CN=Domain Computers
CN=Domain Users
CN=Domain Guests
CN=TelnetClients
CN=DHCP Administrators
CN=Schema Admins
CN=IIS_WPG



Current Site: Sunnyvale Campus

Virtual Groups

Name
sunny-users
domain-users-vg

Virtual Group Details

Name: domain-users-vg

Mapped Groups

Directory Service	Group DN
Sunnyvale-AD-1	CN=Domain Users,CN=Users,DC=corp,DC=local

*The Ignition Server virtual group, **domain-users-vg**, maps to the AD group, **CN=Domain Users, CN=Users, DC=corp, DC=local**, in the **ActiveDirectory1** user*

Now that you have finished creating a virtual group, you may use membership in the group as a criterion for authorization and provisioning.

Next step: Create a record in Ignition Server for your switch or access point, as shown in "Create authenticators" on page 69.

Create authenticators

The network devices (switches, wireless access points, and VPN concentrators) that you secure with Ignition Server are called *authenticators*. Once you have created an authenticator, you will apply your authentication, authorization, and provisioning policies to it.

In the procedure that follows, you will create an authenticator for each switch and/or access point that will authenticate against Ignition Server.

1. Gather the IP addresses and other settings of each authenticator you will connect. Ignition Server can handle a large number of authenticators; we provide space to capture the settings of two authenticators here. You will use these connection details in Step 4 below.

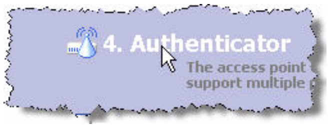
Authenticator connection settings

	Authenticator 1	Authenticator 2	Comment
Authenticator Name	____________	____________	Choose a name to identify the authenticator. This name will be used to refer to the authenticator within Ignition Server.
IP Address	____________	____________	IP address of authenticator.
Subnet Mask	____________	____________	*Optional:* If you wish to create one record (a “bundle”) to represent a number of authenticators, this field holds the mask describing the subnet in which all authenticators will be treated as one authenticator.
Container	____________	____________	*Optional:* If you are grouping your authenticators using Ignition Server’s “Container” mechanism, select this authenticator’s container.
Authenticator Type	____________	____________	One of the following: wired switch, wireless access point, or VPN concentrator.
Vendor	____________	____________	Manufacturer of the switch or access point.
Device Template	____________	____________	Ignition Server template to be used to specify formats (attribute names and types) for communicating with this authenticator.

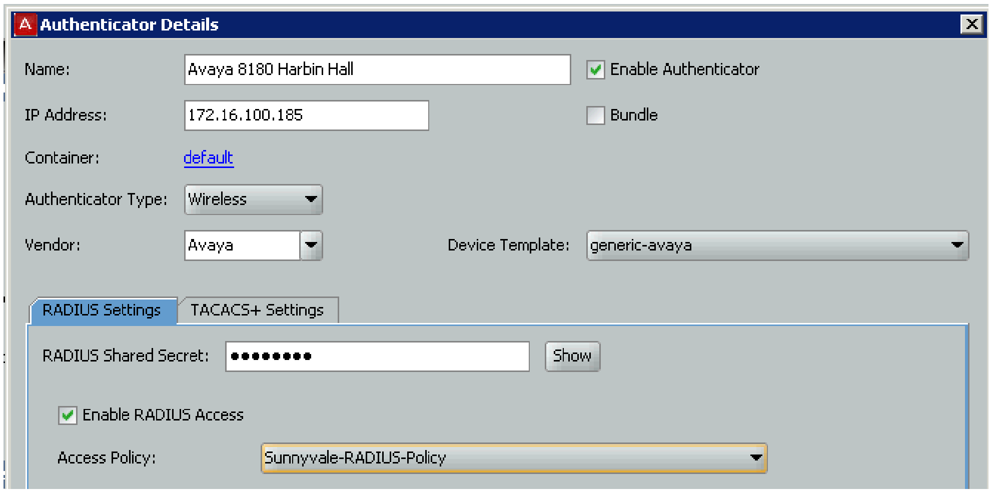
Authenticator connection settings (Continued)

	Authenticator 1	Authenticator 2	Comment
RADIUS Shared Secret	To connect, you must have the shared secret of each device. Do not record the shared secret here. In your switch documentation, the shared secret may also be referred to as a “specific key string” or an “encryption string.”		
Access Policy	______________	______________	Name of the Ignition Server RADIUS policy that contains your access rules for users connecting through this authenticator. For example, the name of the policy you created in Step 3 on page 38.

2. In Dashboard’s **Configuration** tab, in the navigation tree, click **Site Configuration**.
3. Click the **Authenticator** link in the main panel.



4. The application displays the **Authenticator Details** window.



Authenticator Details

Name: Avaya 8180 Harbin Hall

☑ Enable Authenticator

IP Address: 172.16.100.185

□ Bundle

Container: default

Authenticator Type: Wireless

Vendor: Avaya

Device Template: generic-avaya

RADIUS Settings | TACACS+ Settings

RADIUS Shared Secret: ●●●●●●●●● Show

☑ Enable RADIUS Access

Access Policy: Sunnyvale-RADIUS-Policy

Do the following:

- Fill in the fields using the information you collected in Step 1 above.
- Make sure the **Enable RADIUS Access** checkbox is checked.
- For **Access Policy**, choose the name of the policy you created in Step 3 on page 38.

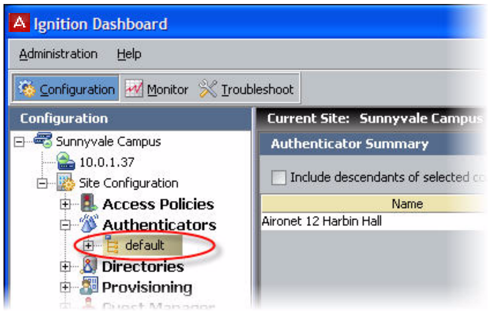
Note: For an explanation of the rest of the fields, refer to the “Authenticators” chapter of the *Ignition Server Administration Guide*.

5. Click **Save** to save the settings in the **Authenticator Details** window.

Next step: Set your credential verification rules as shown in “Set your authentication policy” on page 71.

Hint: Editing authenticators

To edit authenticators, follow these steps:



1. In Dashboard's **Configuration** tab, click the plus sign next to **Authenticators**. One or more items will appear in the list below **Authenticators**.

   Each name listed under the **Authenticators** node in the tree (for example, *default*) is an *authenticator container*. Authenticator containers are used to group authenticators so that you can apply a common treatment to them in your access rules. Many sites do not use this feature, and leaving all your authenticators in the *default* container is a common practice.

2. Click on the node that contains your authenticator. For example, click on the *default* node to open the authenticator you created earlier.

Set your authentication policy

You created an empty access policy in the section "Create a RADIUS access policy" on page 37. In this section and the ones that follow, you will use the Access Policy panel to add an authentication policy and add the various rules that make up your access policy.

About access policies

As mentioned earlier, your access policy is a set of rules that govern user authentication, secure communications for authentication, search order for user lookups (called "identity routing" in Ignition Server), authorization, and provisioning. In other words, the access policy controls whether and how that user will be permitted to use the network, as well as how the authentication transaction is to be done.

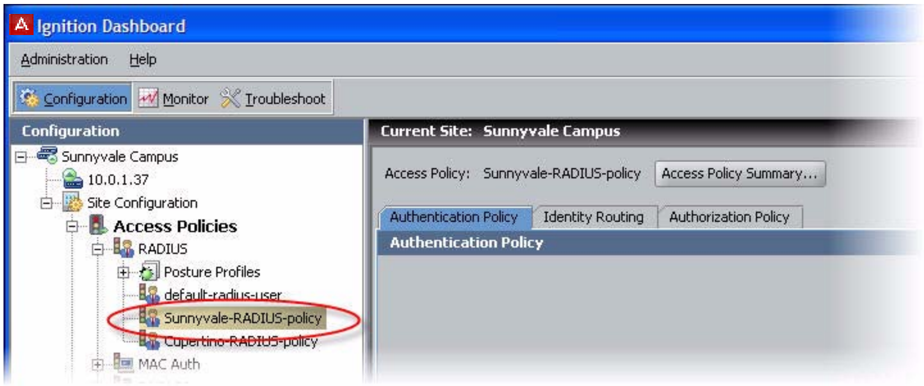
In your Ignition Server system you may define many access policies for the many different segments of your organization, but you will assign one and only one RADIUS access policy to each authenticator. This means that all users connecting through that authenticator are governed by that RADIUS access policy. You may use a single RADIUS access policy for any number of authenticators.

Procedure

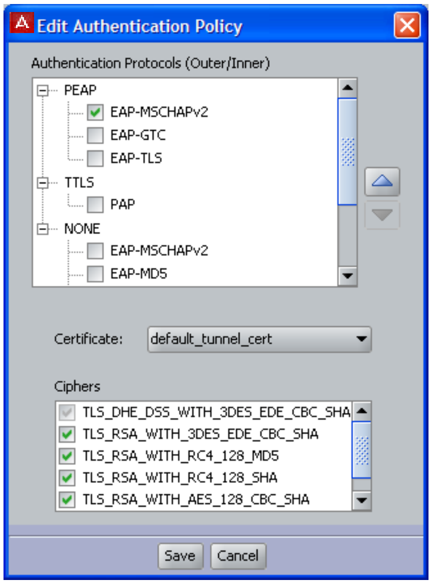
First you must set up your tunnel protocol policy. This policy specifies how to encrypt communications among the supplicant, authentication server (the Ignition Server appliance) and the user store during an authentication attempt.

The outer tunnel secures the connection between the supplicant and the Ignition Server appliance, and the inner tunnel secures the connection from the supplicant to the user store if an external user store (like AD) is used.

1. From the Dashboard main window, click on the **Configuration** tab, expand the **Site Configuration** item in the tree (click the plus sign to expand an item), and expand the **RADIUS** item in the tree. Click your policy's name to load it into the **Access Policy panel**.



2. Click the **Authentication Policy** tab and click the **Edit** button.


Edit Authentication Policy
Authentication Protocols (Outer/Inner)
Save
Cancel

PEAP
- ☑ EAP-MSCHAPv2
- □ EAP-GTC
- □ EAP-TLS

TTLS
- □ PAP

NONE
- □ EAP-MSCHAPv2
- □ EAP-MD5

Certificate: default_tunnel_cert

Ciphers
- ☑ TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA
- ☑ TLS_RSA_WITH_3DES_EDE_CBC_SHA
- ☑ TLS_RSA_WITH_RC4_128_MD5
- ☑ TLS_RSA_WITH_RC4_128_SHA
- ☑ TLS_RSA_WITH_AES_128_CBC_SHA

3. In the **Edit Authentication Policy** window, the **Authentication Protocols** section lets you establish the set of outer tunnel types and inner authentication protocols that your access policy supports.

   In the **Authentication Protocols** section, choose each authentication type as follows. The top-level headings (PEAP, TTLS, and NONE) represent the outer tunnel types. Click the +/- toggles to view the authentication types available for each tunnel type. Then:

   - In the **PEAP** section, click the *EAP-MSCHAPv2* check box.
   - In the **NONE** section, click the *PAP* check box.

   If you wish to verify that an authentication protocol is compatible with your data store, consult the section, “Supported Authentication Types” in the *Avaya Identity Engines Ignition Server Administration Guide.*

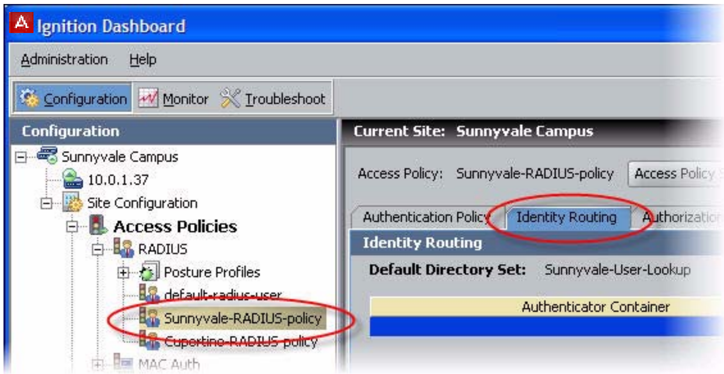
   You may sort the order in which Ignition Server will attempt to apply the authentication types to an authentication request by clicking the name of the authentication type or tunnel type and clicking the **up/down arrows** to sort the list.

Note: If your users are stored in Active Directory and the embedded store, then your policy will typically include at least the PEAP/EAP-MSCHAPv2 and NONE/PAP authentication types.

4. Click **Save**.

Set your identity routing policy

The next policy to be set in your access policy is the identity routing policy. This is Ignition Server's prescribed sequence for searching a set of user stores to find a user account when attempting authentication. This example sets a catch-all policy that will use a single directory set for all users.



Current Site: Sunnyvale Campus

Access Policy: Sunnyvale-RADIUS-policy

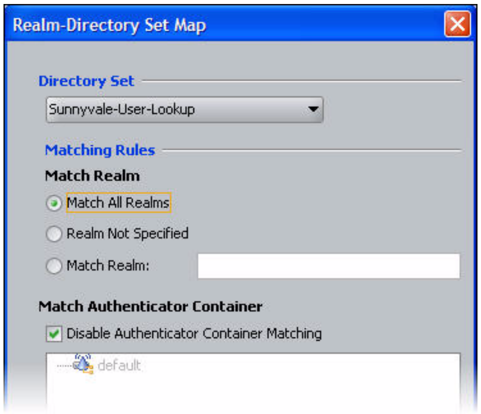
Identity Routing

Default Directory Set: Sunnyvale-User-Lookup

1. In the **Access Policy** panel, click the **Identity Routing** tab and click **Edit…**

2. In the Edit Identity Routing Policy window, click **New…**

3. In the Realm-Directory Set Map window:



Directory Set: Sunnyvale-User-Lookup

● Match All Realms

☑ Disable Authenticator Container Matching

   a. In the **Directory Set** drop down menu, select the directory set you created in Step 3 on page 65. If you are using the example names, this will be the set called *Sunnyvale-User-Lookup*.

   b. Tick the **Match All Realms** check box.

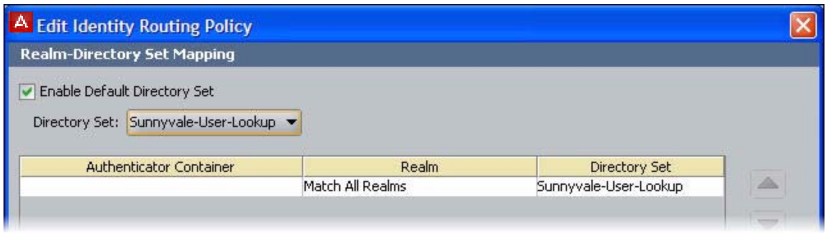
   c. Tick the **Disable Authenticator Container Matching** check box.

   d. Click **OK**.

Note that in a production system, you could add more realm-directory set mappings in order to look up various groups of users in various directory sets. When you do this, if you have an entry that is set to **Match All Realms**, then you must use the **down arrow** button to move that entry to the bottom of the list.

4. In the Edit Identity Routing Policy window, click **Enable Default Directory Set** and, in the **Directory Set** drop down list, pick *Sunnyvale-User-Lookup*.

   The Edit Identity Routing Policy window now looks like the one shown below. Your directory set name may differ from the one in this screenshot:



☑ Enable Default Directory Set

Directory Set: Sunnyvale-User-Lookup

Authenticator Container	Realm	Directory Set
	Match All Realms	Sunnyvale-User-Lookup

5. Click **Save** to save your routing and close the window.

Set your authorization policy

The next policy to be set in your access policy is the authorization policy. This policy is a set of rules that govern which users are granted access to which networks. Ignition Server can be set to evaluate user attributes, device attributes, and the context of the access request in order to decide whether to authorize the user. (Note: The authorization policy can also prescribe provisioning for users as explained in the Provisioning chapter of the *Avaya Identity Engines Ignition Server Administration Guide.*)

This guide provides separate examples, depending on where you store your user accounts:

- If your user accounts reside in the *Ignition Server internal user store*, see “Authorization policy—Example for embedded store users”, below.
- If your user accounts reside in an *AD user store*, see “Authorization policy—Example for AD users”, on page 77.

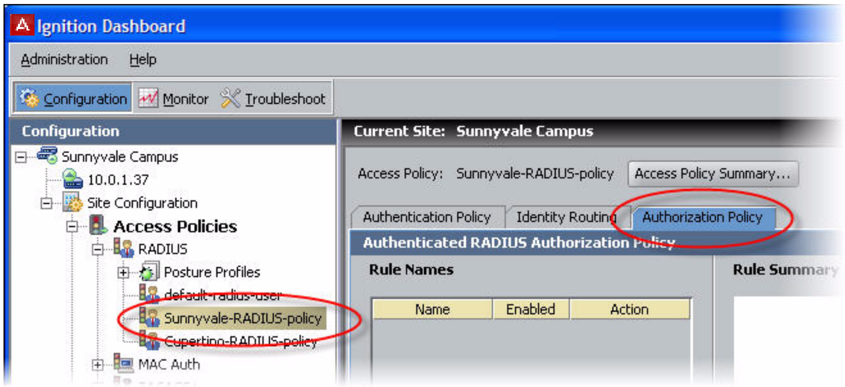
Note that you may store users in the embedded store, AD store, and additional stores at the same time, and handle them all in the same access policy (See “Set your identity routing policy” on page 73.)

Authorization policy—Example for embedded store users

If your user accounts are stored in the Ignition Server internal user store, set up your authorization policy as shown below.

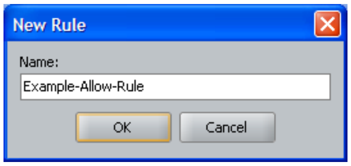
This section shows you how to create an authentication-only policy. Ignition Server always performs both authentication and authorization before it grants a user access, but in some installations, you may decide that authentication alone—checking the user's credentials—is sufficient to grant the user access. This example creates such a rule. To create your authentication-only rule, follow these steps:

1. Click the **Configuration** tab. In the navigation tree, expand **Site Configuration**, expand **Access Policies**, and expand **RADIUS**. Click the name of your policy and click the **Authorization policy** tab.



2. The top half of the **Authorization Policy** tab contains your RADIUS authorization policy. Click the top **Edit** button to edit it. The Edit Authorization Policy window appears.

3. In the **Rules** section, in the lower left part of the window, click **Add**. The application displays the New Rule dialog, where you name the new rule.



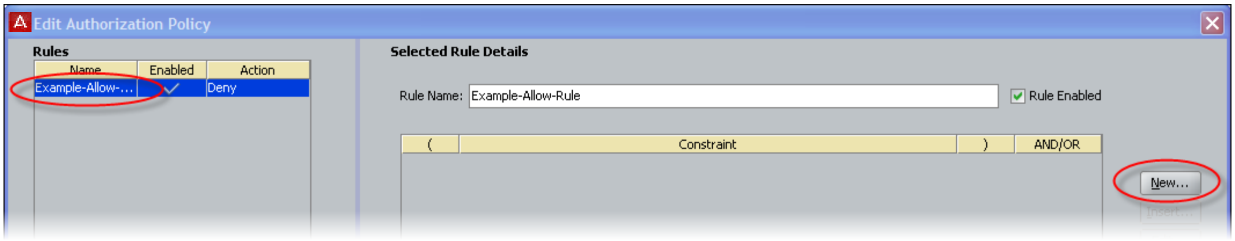
Name: Example-Allow-Rule

4. Type *Example-Allow-Rule* and click **OK**. The New Rule dialog closes. In the Edit Authorization Policy screen, the rule you just created appears in the **Rules** list that occupies the left side of the window.

   The **Rules** list of the Edit Authorization Policy window shows the rule sequence that forms your authorization policy. The right side of the window allows you to edit the rule you have selected in the list.

5. In the **Rules** list, click the rule you just created. The **Selected Rule Details** section displays the **Constraints** that form the rule. Right now there are none.

6. With your rule selected, go to the buttons to the right of the **Constraint** list and click **New**, as shown below.



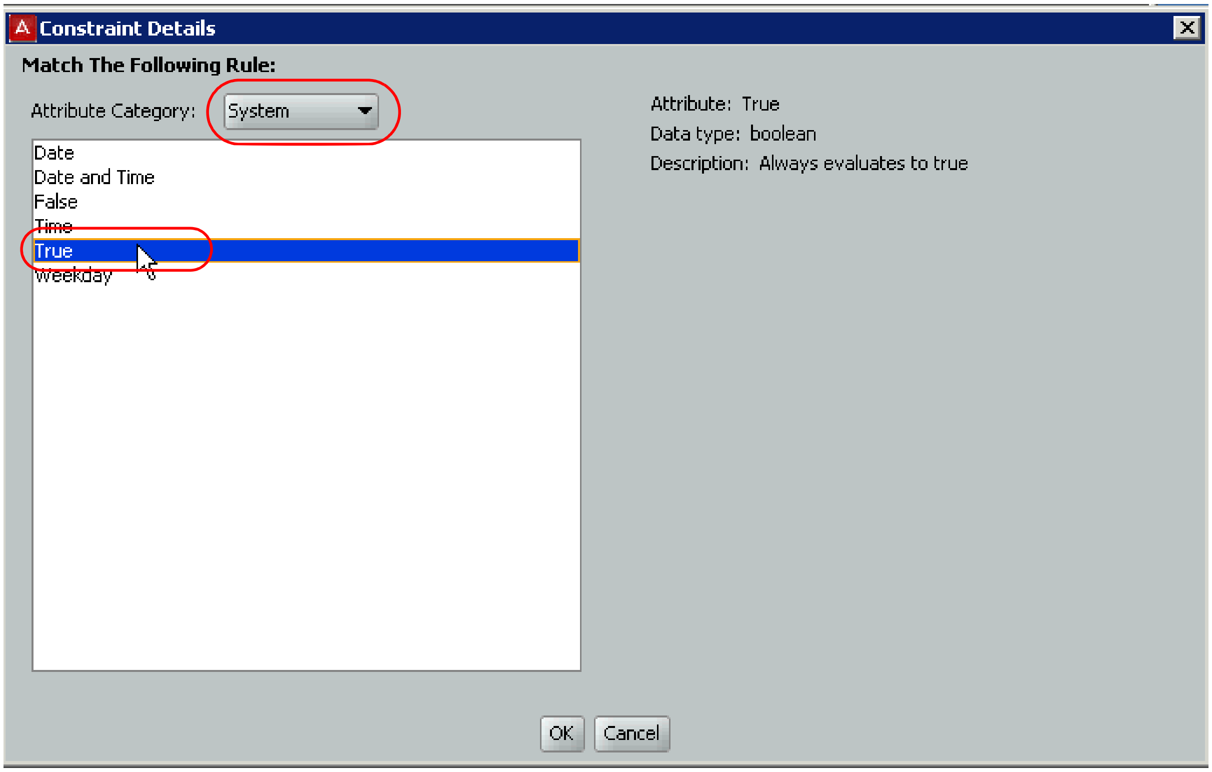
Name	Enabled	Action
Example-Allow-...	✓	Deny

Rule Name: Example-Allow-Rule ☑ Rule Enabled

(	Constraint	)	AND/OR

7. In the Constraint Details window, do the following. The steps below create a rule that always evaluates to true. Creating such a rule is pointless in a production system, but it allows us to demonstrate rule setting in this exercise. Bear in mind that, even if you have an *always-allow* rule like this, the authenticating user must still *authenticate successfully* and *pass all* DENY *rules* before she can trigger an *ALLOW* rule.

    - In the **Attribute Category** drop-down list, select the attribute category, **System**. In response, the list shows all the attributes for **System**.
    - In the list, select the attribute **True**.



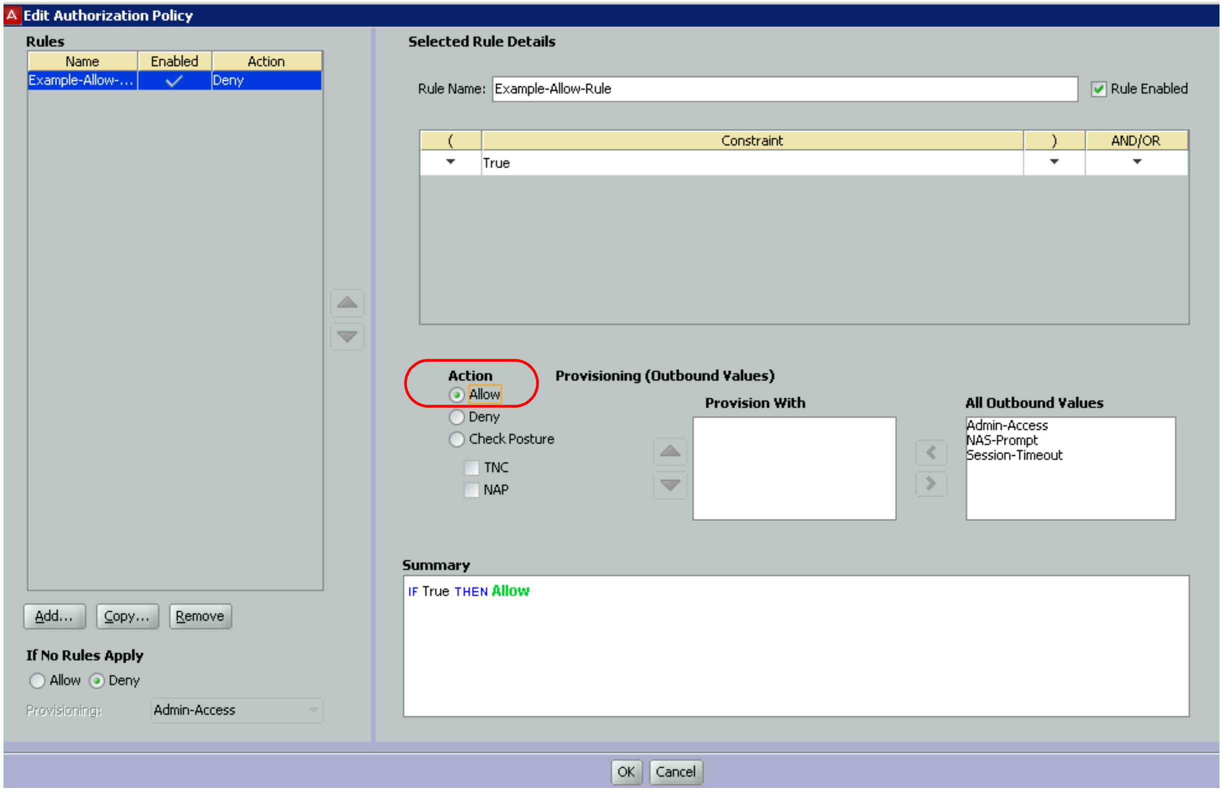
Attribute Category: System

Date
Date and Time
False
Time
True
Weekday

Attribute: True
Data type: boolean
Description: Always evaluates to true

- Click **OK** to close the Constraint Details window and return to the Edit Authorization Policy window.

8. In the **Action** section, select the **Allow** radio button.



9. In the **Provisioning** section, make no changes.

10. Click **OK** to close the Edit Authorization Policy window and return to the Access Policy window. You have finished setting policies in your access policy.

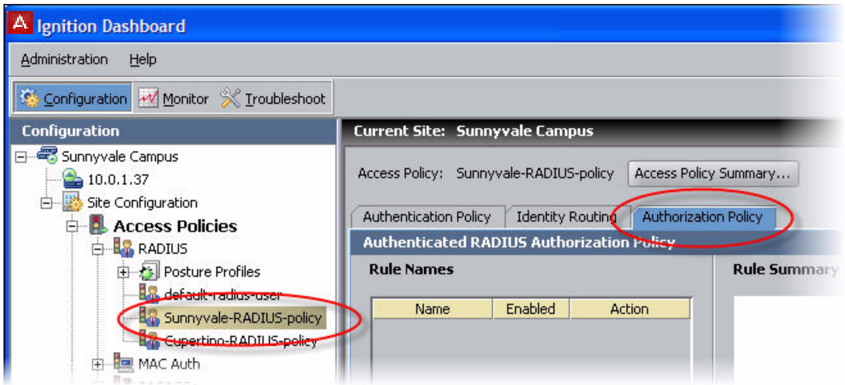
Next Steps: Congratulations! Your example configuration is complete. For information on troubleshooting, see “Test your configuration” on page 80.

Authorization policy—Example for AD users

The steps below show you how to create a policy that authorizes access for any user who has a user account on the AD domain (that is, if he or she has an account in the *Domain Users* group). Upon authentication, the user is provisioned based on his or her virtual group name. Note that the virtual group may map to a single AD workgroup or multiple workgroups on one or more domain controllers.

To create a rule that checks AD domain membership, follow these steps:

1. Click the **Configuration** tab. In the navigation tree, expand the **Site Configuration** item and expand the **RADIUS** item. Click the name of your policy and click the Authorization policy tab. Click the **Edit** button to edit the policy.



2. The top half of the **Authorization Policy** tab contains your RADIUS authorization policy. Click the top **Edit** button to edit it. The Edit Authorization Policy window appears.

3. In the **Rules** section, in the lower left part of the window, click **Add**. The application displays the New Rule dialog, where you name the new rule.

4. Type *CheckHasADAccount* and click **OK**. The New Rule dialog closes. In the Edit Authorization Policy screen, the rule you just created appears in the **Rules** list that occupies the left side of the window.

   The **Rules** list of the Edit Authorization Policy window shows the rule sequence that forms your authorization policy. The right side of the window (the **Selected Rule Details** section) allows you to edit the rule you have selected in the list.

5. With **CheckHasADAccount** selected in the **Rules** list, go to the buttons to the right of the **Constraint** list and click **New**.

   Note: To learn how Ignition Server evaluates sets of rules and constraints, consult the *Avaya Identity Engines Ignition Server Administration Guide*.

6. In the Constraint Details window, create your constraint as follows:

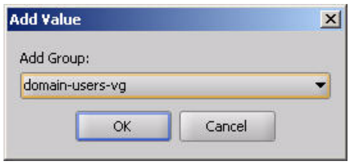
   a. In the drop down menu at the top of Constraint Details window, select the Attribute Category, *User*. The list just below this displays the names of attributes of type *User*.

   b. In the list, select the attribute named *group-member*.

   c. In the drop down menu of the Phrase section, select **Any One Of** and click the **Static Value** radio button.

   d. Click the **Add...** button.

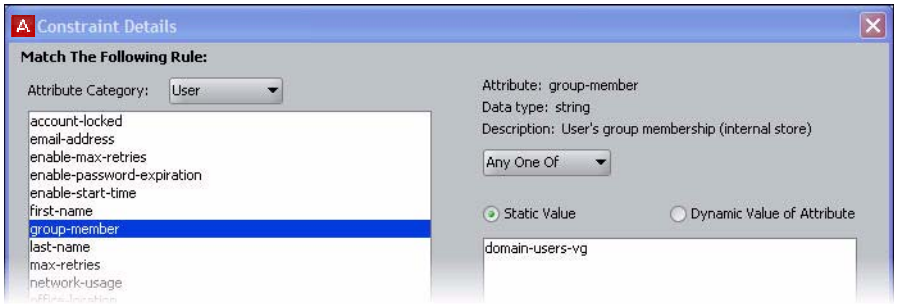
e. In the Add Value window, select the virtual group you created Step 3. If you are following the example, it is *domain-users-vg*. Click **OK** to close the window.



Add Value

Add Group: domain-users-vg

f. Click **OK** to close the Constraint Details window and return to the Edit Authorization Policy window.



Constraint Details

Match The Following Rule:

Attribute Category: User

account-locked
email-address
enable-max-retries
enable-password-expiration
enable-start-time
first-name
group-member
last-name
max-retries
network-usage

Attribute: group-member
Data type: string
Description: User's group membership (internal store)

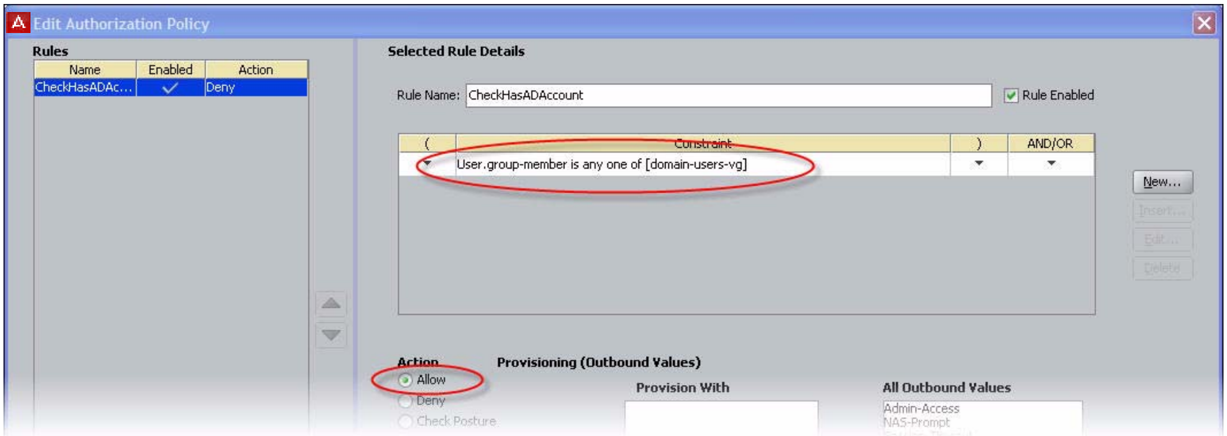
Any One Of

● Static Value ○ Dynamic Value of Attribute

domain-users-vg

7. In the **Action** section of the Edit Authorization Policy window, click the **Allow** button. In the **Provisioning** section, make no changes.

   At runtime, this rule will check whether the user is a member of the AD group, “Domain Users.” If the user is a member, the rule records an ALLOW action. During evaluation, if at least one ALLOW is recorded and if Ignition Server finishes evaluating the rule sequence without triggering a REJECT, the user is authorized.



Edit Authorization Policy

Rules

Name	Enabled	Action
CheckHasADAc...	✓	Deny

Selected Rule Details

Rule Name: CheckHasADAccount ☑ Rule Enabled

(	Constraint	)	AND/OR
	User.group-member is any one of [domain-users-vg]		

Action
● Allow
○ Deny
○ Check Posture

Provisioning (Outbound Values)

Provision With

All Outbound Values
Admin-Access
NAS-Prompt

8. Click **Save** to close the Edit Authorization Policy window and return to the Policy Management window.

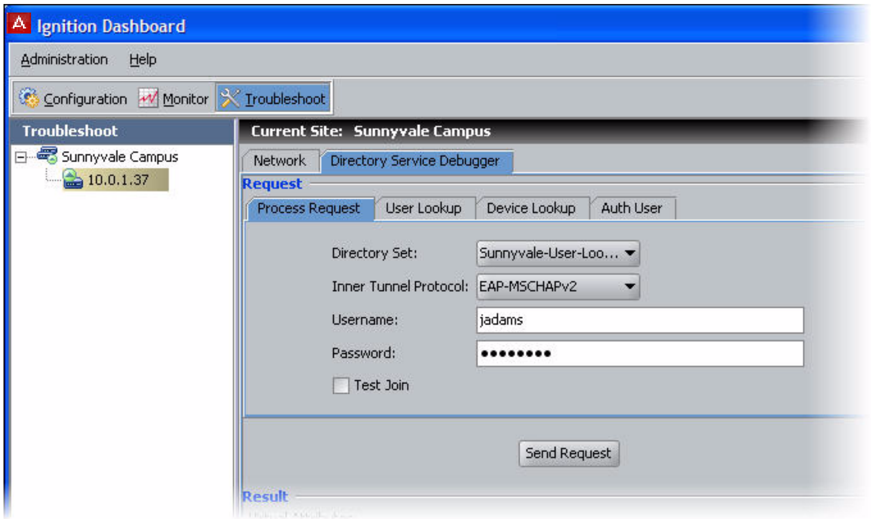
Next Steps: Congratulations! Your example configuration is complete. For information on troubleshooting, see “Test your configuration” on page 80.

Test your configuration

Checking user lookup and authentication

Use Dashboard’s Directory Service Debugger to perform a test login with a user account from your directory service:

1. Click Dashboard’s **Troubleshoot** tab.
2. In the navigation tree, click the IP address of your Ignition Server.
3. Click the **Directory Service Debugger** tab.



Directory Set: Sunnyvale-User-Loo...

Inner Tunnel Protocol: EAP-MSCHAPv2

Username: jadams

Password: ••••••••

□ Test Join

4. Click the **Process Request** tab.
5. Choose the **Directory Set**, *Sunnyvale-User-Lookup*.
6. Set the **Inner Tunnel Protocol** (authentication type) to one of:
   - EAP-MSCHAPv2 for AD-stored users, or
   - PAP for users stores in the internal user store.
7. Type a test **Username** and **Password.**
8. Click **Send Request.** The test results and retrieved user attributes appear in the **Results** panel.

Use NTRadPing as a test authenticator

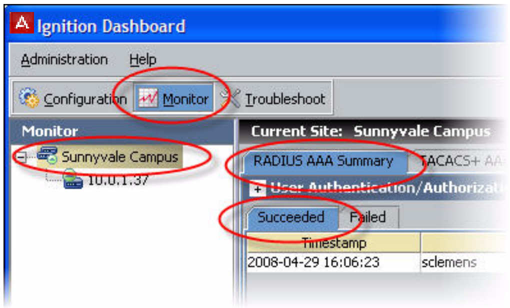
For testing, you can use a test tool such as Novell’s NTRadPing to send authentication requests directly from your computer to the Ignition Server. To do this:

1. Download the free NTRadPing tool from Novell and install it on your computer.
2. Define your NTRadPing installation in Dashboard as an Authenticator:

- In Dashboard, click the **Configuration** tab. In the navigation tree, click **Site Configuration**. Click the **Authenticator** link in the main panel.
- In the Authenticator Details window, type a **Name** for your test authenticator. Enter the **IP Address** of the computer on which you installed NTRadPing. In **RADIUS Shared Secret** enter any string of characters to use as the shared secret. Make sure the **Enable RADIUS Access** checkbox is ticked and choose your **Access Policy** in the drop down list. In this example, we used the name *Sunnyvale-RADIUS-policy*. Click **OK** to save.

3. Run NTRadPing and perform these steps in the NTRadPing window:
   - In the **RADIUS Server** field, type the Ignition Server IP address that hosts the Ignition Server RADIUS service is running. You can find this IP address in Dashboard. Click your server's IP address in the navigation tree. If you are using only one Ethernet interface on your Ignition Server, then this is your RADIUS server IP address. Otherwise, click the **Ports** tab to see the other IP addresses of your Ignition Server. If you use multiple interfaces and need to determine which of them hosts the RADIUS service, click the top node in Dashboard's navigation tree, click the **Services** tab, click the **RADIUS** tab. The **Bound Interface** field shows which interface hosts the service.
   - In the **RADIUS port** field, type the port number of the Ignition Server RADIUS service, which defaults to 1812. To find out the port number, click the **Services** tab and click the **RADIUS** tab, as shown above. The **Authentication Port** field shows the port.
   - In the **RADIUS Secret Key** field, type the shared secret you specified earlier in Dashboard.
   - Type your test credentials in the **User-Name** and **Password** fields.
   - Click **Send**. The field in the lower part of the NTRadPing window indicates success or failure and shows the details of the transaction.
4. Check Dashboard's Log Viewer for details on your test authentication attempt.
   - For a quick list of successful and failed authentication attempts, use the RADIUS AAA Summary. To do this: In Dashboard, click **Monitor**, click the *name of your Ignition Server site* ("Sunnyvale-Campus" in this

example), click **RADIUS AAA Summary**, and click either **Succeeded** of **Failed**.



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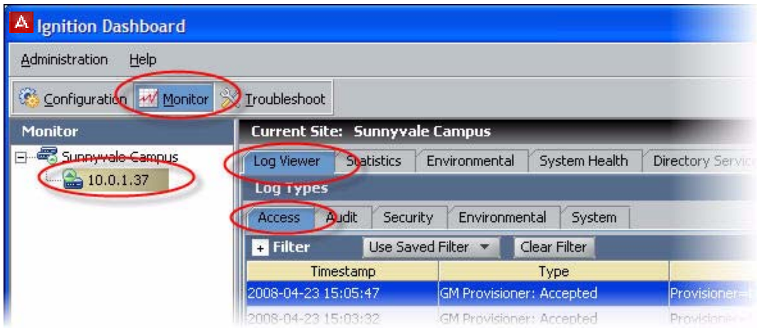
2008-04-29 16:06:23	sclemens

- For a detailed look at an authentication attempt, use the Log Viewer. To do this: In Dashboard, click **Monitor**, click the *IP address* of your Ignition Server, click the **Log Viewer** tab, and click the **Access** tab. Search through the list of log entries to find the message that describes your authentication request. For more details, click the record and click the **Access Record Details** link near the bottom of the page.



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2008-04-23 15:03:32	GM Provisioner: Accepted	Provisioner=