

# Infrastructure Navigator Installation and Administration Guide

vCenter Infrastructure Navigator 1.0.0

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# VMware vCenter Infrastructure Navigator Installation and Administration Guide

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The *VMware vCenter Infrastructure Navigator Installation and Administration Guide* provides information about installing and configuring of VMware vCenter™ Infrastructure Navigator.

Infrastructure Navigator is an application awareness plug-in to the vCenter Server that provides continuous dependency mapping of applications.

## Intended Audience

This information is intended for virtual infrastructure administrators who are familiar with virtual machine technology and datacenter operations.



# Infrastructure Navigator Overview

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VMware vCenter Infrastructure Navigator is an application awareness plug-in to the vCenter Server that provides continuous dependency mapping of applications.

Infrastructure Navigator offers application context to the virtual infrastructure administrators to monitor and manage the virtual infrastructure inventory objects and actions. Administrators can use Infrastructure Navigator to understand the impact of the change on the virtual environment in their application infrastructure.

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**NOTE** Plug-ins (also referred to as Extensions) expand the capabilities of vCenter Server by adding features and functionality to the base product.

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This chapter includes the following topics:

- [“Infrastructure Navigator Functionality,”](#) on page 7
- [“Infrastructure Navigator Target Users and Benefits,”](#) on page 8
- [“Infrastructure Navigator Architecture,”](#) on page 8
- [“Components of Infrastructure Navigator,”](#) on page 8

## Infrastructure Navigator Functionality

Infrastructure Navigator provides a centralized view of your application environment.

Infrastructure Navigator performs the following high-level functions:

- Maps virtual infrastructure resources such as virtual machines, Web servers, mail servers, database servers, application servers, cache servers, messaging servers, application management servers, and virtualization management servers.
- Displays relationships between applications and virtual machines through application dependency mapping.
- Detects inconsistencies from the norm and helps you troubleshoot errors.
- Allows you to take advantage of integration with other VMware products such as VMware vCenter Server and VMware vCenter Site Recovery Manager (SRM).

## Infrastructure Navigator Target Users and Benefits

Infrastructure Navigator creates a detailed model of the application environment and offers application context to its users.

Infrastructure Navigator helps virtual infrastructure administrators to accurately answer the following questions:

- Which application services are running on my virtual machines?
- What are the dependencies among application services running on different virtual machines?
- Where are the hidden optimization opportunities and how can I capitalize on them?
- How do certain application changes impact my environment?
- What are the risks involved in making changes in the virtual environment?
- How do certain virtual machine's issues impact application operation and how can I prevent or solve these issues?

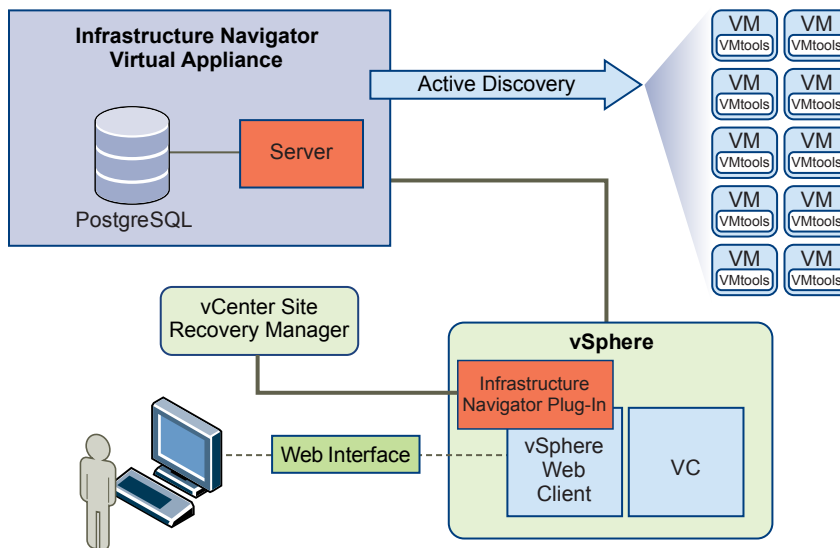
## Infrastructure Navigator Architecture

Infrastructure Navigator is a virtual appliance that you can import on the vCenter Server. A virtual appliance is a virtual machine image that contains software designed to run in a virtual machine.

With the components of Infrastructure Navigator, you can map services running in your virtual environment, examine the application discovery status, view and analyze the dependency map, and have a centralized view of the entire application environment.

The architecture illustrates various components of Infrastructure Navigator and their dependencies.

**Figure 1-1.** Infrastructure Navigator Architecture Diagram



## Components of Infrastructure Navigator

A component is a software or software design with a well-defined interface. A component represents specific behavior of the system.

[Table 1-1](#) lists and describes the principal components of Infrastructure Navigator.

**Table 1-1.** Infrastructure Navigator Components

Component	Description
Server in Infrastructure Navigator virtual machine	The Server component reconciles the data from Active Discovery and transfers the data to the Database component.
Database in Infrastructure Navigator virtual machine	The Database component stores the data received from the Server component. The Database component also stores Infrastructure Navigator configurations. <b>NOTE</b> Infrastructure Navigator does not support storing of data in an external database.
Infrastructure Navigator Plug-In in the vSphere Web Client	The Infrastructure Navigator Plug-In in the vSphere Web Client provides a graphical user interface that you use to view and analyze dependencies.



# Installing Infrastructure Navigator

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Infrastructure Navigator is a virtual appliance that can run in a VMware virtual infrastructure. You must ensure that your environment meets requirements so that you can deploy and use the Infrastructure Navigator virtual appliance.

This chapter includes the following topics:

- [“Register vCenter Server with vSphere Web Client,”](#) on page 11
- [“Virtual Machine Requirements,”](#) on page 12
- [“Software Requirements for Infrastructure Navigator,”](#) on page 12
- [“Infrastructure Navigator Port Requirements,”](#) on page 13
- [“Deploy an Infrastructure Navigator Virtual Appliance,”](#) on page 13

## Register vCenter Server with vSphere Web Client

You must register the vCenter Server with the vSphere Web Client so that you do not get an error when you start the vSphere Web Client for the first time.

### Prerequisites

- Log in to the system on which the vSphere Web Client is installed using remote desktop.

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**NOTE** You cannot register a vCenter Server system with the client from a remote system.

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- If you use the server IP address to access the vSphere Web Client and if your browser uses a proxy, add the server IP address to the list of proxy exceptions.

### Procedure

- 1 Open a Web browser and go to either of the following URLs.

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**NOTE** Use the localhost or loopback address instead of the server IP address if you want to access the administration tool.

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- <https://localhost:9443/admin-app>
- <https://127.0.0.1:9443/admin-app>

The vSphere Web Client Administration Tool appears.

- 2 Click **Register vCenter Server**.
- 3 In the **vCenter Server URL** text box, type the server name or IP address of the vCenter Server system.  
Do not include `http://` or `https://`.

- 4 Type the user name and password for the vCenter Server system.
- 5 Click **Register**.

If the credentials are valid, registration process is complete.

You can now use this instance of the Web Client to log in to the vCenter Server system. After the registration is complete, you can open the vSphere Web Client by clicking <https://localhost:9443/vsphere-client/>.

## Virtual Machine Requirements

You must meet certain requirements before you start deploying the Infrastructure Navigator virtual appliance on the vSphere Client.

**Table 2-1.** Virtual Machine Requirements

Component	Minimum Requirement
CPU	2 vCPU
Memory	4 GB
Disk size	20 GB
Network	1 Gbps

Additionally, you also need Infrastructure Navigator OVA to be deployed on the vCenter Server and predefined static IP pool on desired port groups.

## Software Requirements for Infrastructure Navigator

You must also meet certain software requirements before you proceed with the deployment of Infrastructure Navigator virtual appliance.

**Table 2-2.** Software Requirements

Component	Description
Virtual Infrastructure 5.0	vCenter Server 5.0 Following ESX/ESXi versions are supported: <ul style="list-style-type: none"> <li>■ Version 3.5 (build 425420)</li> <li>■ Version 4.0 (build 398348)</li> <li>■ Version 4.1 (build 433742)</li> <li>■ Version 5.x (all builds are valid)</li> </ul> vSphere Web Client 5.0
vSphere Web Client	vCenter Server registered with vSphere Web Client. For more information about how to register vCenter Server with vSphere Web Client, see <a href="#">“Register vCenter Server with vSphere Web Client,”</a> on page 11.
Virtual Center	Virtual Center IP address and administrator credentials.
Web browser	Internet Explorer or Firefox version that supports Flash version 10.
Remote desktop	Remote desktop access to the Virtual Center with installed Web browser.

## Infrastructure Navigator Port Requirements

Infrastructure Navigator requires certain TCP ports to be open for access requirements.

**Table 2-3.** Port Requirements

Port number	Description
From your PC to Infrastructure Navigator (configure Infrastructure Navigator )	
22	To enable SSH access to the Infrastructure Navigator virtual appliance.
vCenter Server to Infrastructure Navigator	
2868	For plug-in download. This download happens as part of the registration process.
6969	For connectivity from vSphere Web Client to Infrastructure Navigator.
Infrastructure Navigator to vCenter Server	
443	To access vSphere Web service API.
80	To access vSphere Web service API.
Infrastructure Navigator to target hosts and virtual machines	
443	For VIX protocol on target hosts to perform discovery.
902	For VIX protocol on target hosts to perform discovery.

## Deploy an Infrastructure Navigator Virtual Appliance

You can use the vSphere Client user interface to deploy the Infrastructure Navigator virtual appliance. VMware provides the appliance in an OVA format.

### Prerequisites

- Log in to the vSphere Client as a user with administrator privileges.
- Ensure that the virtual machine meets all requirements as described in [“Virtual Machine Requirements,”](#) on page 12 section.
- Configure vCenter Managed IP address so that the Infrastructure Navigator virtual appliance can access the vCenter Server. To configure vCenter Managed IP address in the vSphere Client, navigate to **Administration > vCenter Server Settings > Runtime Settings** and enter the IP address of the vCenter Server in **vCenter Server Managed IP** field.
- Download the Infrastructure Navigator virtual appliance files from VMware Web site.

### Procedure

- 1 In the vSphere Client, navigate to **File > Deploy OVF Template**.
- 2 Browse to the OVA file and select it and click **Next**.
- 3 In the OVF Template Details screen, Click **Next** and accept End User License Agreement and then click **Next**.
- 4 In the Name and Location screen, type a unique virtual appliance name according to the IT naming convention of your organization, and click **Next**.

If more than one Datacenter is present, you must select the Datacenter on which you want to deploy the virtual appliance.

- 5 If the Host/Cluster screen appears, select the host or cluster where you want to deploy the virtual appliance, and click **Next**.
- 6 If the Resource Pool screen appears, select the resource pool within which you want deploy the virtual appliance, and click **Next**.
- 7 In the Disk Format screen, select **Thin Provision** as the disk format, and click **Next**.  
The Properties screen appears.
- 8 Enter the administrative password for the root account in the Enter password field and enter the same password in Confirm password field.
- 9 Leave the Default Gateway, DNS, Network 1 IP Address, and Network 1 Netmask parameters blank if you want to acquire these values from DHCP server. You can also manually configure these addresses by using static allocation scheme. For more information about static allocation or dynamic allocation, see [“Selecting DHCP or Static Network Addresses,”](#) on page 23. Click **Next**.  
The Configure Service Bindings screen appears.
- 10 If you have configured the vCenter Managed IP address, you can proceed ahead with deployment and click **Next**.  
The Ready to Complete screen appears where deployment settings are summarized.
- 11 Select **Power on after deployment**, and then click **Finish** to confirm the settings and begin the deployment.  
The process of deploying the Infrastructure Navigator virtual appliance starts.

The process of deploying the Infrastructure Navigator virtual appliance might take several minutes. After the process is complete, the Infrastructure Navigator OVA is deployed on your vSphere Client.

### **What to do next**

For Infrastructure Navigator to start the application discovery process, you must enter a valid license. For more information about licensing, see [“Infrastructure Navigator Licensing,”](#) on page 15. You can also set a network proxy, change the time zone, or configure a static IP address. For more information, see [Chapter 5, “Configuring Network Settings and Setting Timezone,”](#) on page 23.

# Setting Up Infrastructure Navigator

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After you deploy Infrastructure Navigator virtual appliance you must first enter a valid license of the Infrastructure Navigator. After you enter a valid license, you can start the application discovery process, set the vCenter Server credentials, and integrate SRM. You can also get the system information and product logs information.

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**NOTE** In Linked Mode, the settings must be done on the vSphere Web Client that the Infrastructure Navigator virtual machine is deployed on.

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This chapter includes the following topics:

- [“Infrastructure Navigator Licensing,”](#) on page 15
- [“Managing Application Discovery,”](#) on page 17
- [“Update vCenter Credentials,”](#) on page 18
- [“Site Recovery Manager Integration with Infrastructure Navigator,”](#) on page 18
- [“Update SRM Administrator Credentials,”](#) on page 19
- [“Creating Product Support Package,”](#) on page 19
- [“Infrastructure Navigator Log Files,”](#) on page 19

## Infrastructure Navigator Licensing

If you deploy the Infrastructure Navigator virtual appliance on the vCenter Server, the virtual appliance is deployed without a license key. As a result, application discovery is disabled. You must enter a valid license key to start the application discovery process.

After you enter a valid license key, the Infrastructure Navigator monitors the number of virtual machines discovered by Infrastructure Navigator with regards to the number of virtual machines allowed. You can acquire a license depending on the number of virtual machines and applications running in your environment.

### Licensing in Linked Mode Environment

To enable the discovery process, you must enter the license key for all the instances of Infrastructure Navigator in a Linked Mode environment under the licensing section of vSphere Client.

In a Linked Mode environment, you might encounter two possible situations while entering license key for the Infrastructure Navigator virtual appliance.

- If you log in to any of the vCenter Server that is in Linked Mode and if it displays all instances of Infrastructure Navigator in the licensing screen, you need only single login to apply the licenses.

- If you log in to the vCenter Server that is in Linked Mode and if it displays the instance of Infrastructure Navigator specific to that particular vCenter Server, a separate login is needed for every vCenter Server that has an Infrastructure Navigator instance.

## Apply Infrastructure Navigator License

Infrastructure Navigator virtual appliance is deployed without a license key. Apply the license key to start the application discovery process.

### Prerequisites

Deploy the Infrastructure Navigator virtual appliance on the vCenter Server.

### Procedure

- 1 Log in to the vSphere client as an administrator.
- 2 Navigate to **View > Administration > Licensing**.  
The licensing window appears.
- 3 Select the **Asset** check box.  
The Infrastructure Navigator virtual appliance is listed.
- 4 Double-click the Infrastructure Navigator virtual appliance.  
The Assign License: VMware Infrastructure Navigator window appears.
- 5 Select the **Assign a new license key to this solution** check box.
- 6 Click **Enter Key**.  
The Add License Key window appears.
- 7 Type a valid license key and an optional label for the new license key and click **OK**.  
The license key is displayed.
- 8 Click **OK**.

The license key is applied for the Infrastructure Navigator virtual appliance. You can now start the discovery process.

## Evaluation License for Infrastructure Navigator

The evaluation license of Infrastructure Navigator is time based and is preset to expire in 30 days. If you apply an evaluation license for Infrastructure Navigator, every time you log in to the vSphere client and vSphere Web Client, an alert warning with the number of days left for the license to expire is displayed.

You can apply an evaluation license by using the vSphere Client as described in [“Apply Infrastructure Navigator License,”](#) on page 16. After you apply an evaluation license, the Start Discovery button in vSphere Web Client is enabled, but the discovery is not started, and a message that asks you to apply a license no longer appears. If an evaluation license expires and you have not disabled or uninstalled Infrastructure Navigator, an alert warning that the license has expired is displayed. However, even after the license expires, the Infrastructure Navigator plug-in is not disabled. The discovery process is not affected by expiration of the license and you can still view and manage the information presented by Infrastructure Navigator.

## Managing Application Discovery

The Administration screen of Infrastructure Navigator provides the functionality to manage the application discovery process. You can start the application discovery process to retrieve information about the applications running in your environment.

### Start Application Discovery

Infrastructure Navigator utilizes VMware tools to access the virtual machines. Start the application discovery process to retrieve the information about the applications running in your vCenter environment.

#### Prerequisites

- Ensure that you have entered the license for the Infrastructure Navigator virtual appliance. For more information, see [“Infrastructure Navigator Licensing,”](#) on page 15.

#### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.

The Administration screen appears.

- 3 Click **Start Discovery**.

The Enter vCenter administrator credentials window appears.

- 4 Type the user name and password and click **OK**.

You need to provide the vCenter Server administrator credentials if you are starting the application discovery for the first time.

If the credentials are valid, Infrastructure Navigator starts the discovery of all the applications in your environment and the message `Application Discovery is running` is displayed.

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**NOTE** After the discovery starts, the `Reconfigure virtual machine` task initiated by `com.vmware.vadm` appears in the vSphere Client for every virtual machine managed by the vSphere server.

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### Stop Application Discovery

You can stop the application discovery process and to ensure all the discovery actions performed by Infrastructure Navigator is stopped.

#### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.

The Administration screen appears.

- 3 Click **Stop Discovery**.

Infrastructure Navigator stops the application discovery process and the message `Application Discovery is stopped` is displayed.

## Update vCenter Credentials

If you have changed the vCenter credentials, you must update these credentials on the administration page of the Infrastructure Navigator virtual appliance in the vSphere Web Client.

### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.  
The Administration screen appears.
- 3 Click the **[user: <user name>]** link.  
The Enter vCenter administrator credentials window appears.
- 4 Type the user name and password and click **OK**.  
If the credentials are valid, Infrastructure Navigator updates the credentials successfully.

## Site Recovery Manager Integration with Infrastructure Navigator

The Site Recovery Manager (SRM) integration with Infrastructure Navigator displays the SRM Protection Groups and SRM Recovery Plans of the selected virtual machine.

### Start SRM Integration

Start the SRM integration to display the vCenter Site Recovery Manager information in the inventory table and dependency map.

#### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.  
The Administration screen appears.
- 3 Click **Turn On Integration**.  
The Enter vCenter Site Recovery Manager administrator credentials window appears.
- 4 Type the user name and password and click **OK**.  
You need to provide the SRM administrator credentials if you are starting the integration for the first time.  
If the credentials are valid, integration of SRM is started and the message `Integration is on` is displayed.

### Stop SRM Integration

Stop SRM integration to remove all columns and indicators of SRM from the Infrastructure Navigator screen.

#### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.  
The Administration screen appears.
- 3 Click **Turn Off Integration**.  
Infrastructure Navigator stops SRM integration and the message `Integration is off` is displayed.

## Update SRM Administrator Credentials

If you have changed the SRM administrator credentials, you must update the credentials on the Administration page of the Infrastructure Navigator virtual appliance in the vSphere Web Client.

### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.  
The Administration screen appears.
- 3 Click the **[user: <user name>]** link.  
The Enter Site Recovery Manager administrator credentials window appears.
- 4 Type the user name and password and click **OK**.  
If the credentials are valid, Infrastructure Navigator updates the credentials successfully.

## Creating Product Support Package

You can use the Infrastructure Navigator product support package to get system information and product logs information.

### Procedure

- 1 Connect to the Infrastructure Navigator virtual machine through SSH.
- 2 Navigate to `/opt/vadm-engine/bin/` by running the `cd /opt/vadm-engine/bin/` command.
- 3 Create the product support package by running the `./support_package.sh` command.

A `vadm_server_support_package_*.tgz` file is created and is stored in `/opt/vadm-engine/bin/` folder.

## Infrastructure Navigator Log Files

You can use the Infrastructure Navigator log files to define the format and location of component logs, define the archiving method of the logs, and define guidelines for logging levels.

All Infrastructure Navigator log files are located in `/var/log/vadm/`. [Table 3-1](#) lists all the generic log files that are available in Infrastructure Navigator.

**Table 3-1.** Generic Log Files

Generic Logs	Description
<code>activecollector.log</code>	The active collector log file
<code>dbconfig.log</code>	The database operations log file
<code>engine.log</code>	The engine log file
<code>engine.catalina.log</code>	Internal tcserver log file
<code>db/postgresql.log</code>	PostgreSQL log file
<code>system.log</code>	The system log file

[Table 3-2](#) lists the service log files available in Infrastructure Navigator.

**Table 3-2.** Services Log Files

<b>Services Log</b>	<b>Description</b>
<code>activecollector.stdout</code>	For the active collector services log
<code>engine.catalina-out.log</code>	For the engine services log

The vSphere Web Client log file is located on the vSphere Web Client server at `C:\Program Files\VMware\Infrastructure\vsphere Web Client\DMServer\serviceability\logs\log.txt`.

# Security Overview

Infrastructure Navigator offers strong network security to protect sensitive corporate data. The Infrastructure Navigator plug-in leverages the vCenter Server for authentication and eliminates the user management requirement.

Infrastructure Navigator uses PostgreSQL as the database and other individual process that are limited to a single virtual appliance. This limit reduces the vulnerability of the system by allowing the components to perform inter-process communication on the local protected channels.

This chapter includes the following topics:

- [“Firewall for Infrastructure Navigator,”](#) on page 21
- [“Protecting Sensitive Files,”](#) on page 22
- [“Securing Infrastructure Navigator,”](#) on page 22

## Firewall for Infrastructure Navigator

Infrastructure Navigator uses the SLES, SuSEfirewall2 firewall. Infrastructure Navigator requires certain TCP ports to be open for proper operation of the product.

[Table 4-1](#) identifies ports that Infrastructure Navigator uses to configure firewall.

**Table 4-1.** Open Ports

Port Number	Description
22	To enable SSH access to the Infrastructure Navigator virtual appliance.
80	To access vSphere Web service API.
2868	For plug-in download. This download happens as part of the registration process.
6969	For connectivity from vSphere Web Client to Infrastructure Navigator.

The firewall is started during the first boot of the operating system. To stop the firewall, monitor its status, and start the firewall, you can use the commands described in [Table 4-2](#).

**Table 4-2.** Commands for Firewall

Operation	Command
stop	<code>/etc/init.d/SuSEfirewall2_setup stop</code>
status	<code>/etc/init.d/SuSEfirewall2_setup status</code>
start	<code>/etc/init.d/SuSEfirewall2_setup start</code>

## Protecting Sensitive Files

Infrastructure Navigator has some sensitive files that must be protected from unauthorised access as that might compromise Infrastructure Navigator security.

The `vadm.keystore` file, found under `/opt/vadm-engine/conf/` is a critical file that contains private key and certificate of the application. Unauthorized access to this file might give an attacker access to the Infrastructure Navigator database.

The `vadm.keystore` file is protected by access controls. Do not change the permissions on the file or folder as it might either give too much access, reduce security, or restrict access, thereby preventing Infrastructure Navigator from working.

For the access controls to work properly, access to the Infrastructure Navigator virtual appliance must be strictly limited to those with a need to log in, with the minimal levels of access required. This involves limiting the use of the root account. Any backups of the Infrastructure Navigator virtual appliance must be strictly protected and encrypted with the keys managed separately from the backups.

## Securing Infrastructure Navigator

Infrastructure Navigator uses digital certificates to enable secure communication based on Transport Layer Security (TLS).

TLS is based on the Secure Sockets Layer (SSL) specifications developed by Netscape Communications and has been standardized by the Internet Engineering Task Force (IETF). TLS provides privacy of communication by using encryption and also allows you to verify the authenticity of the server with which you are communicating.

During the first boot of the appliance, a self-signed certificate is generated. This certificate is used for encrypted TLS communication between the Infrastructure Navigator virtual appliance and the vSphere Web Client.

# Configuring Network Settings and Setting Timezone

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# 5

After deploying the Infrastructure Navigator appliance, you can configure several options by using a VMware console window.

You can use the options on the **Console** tab of the vSphere Client to perform the following functions.

- Login
- Configure Network
- Set timezone

This chapter includes the following topics:

- [“Selecting DHCP or Static Network Addresses,”](#) on page 23
- [“Configuring Static IP Address,”](#) on page 24
- [“Setting the Default Gateway,”](#) on page 24
- [“Setting the DNS Servers,”](#) on page 24
- [“Setting the Host Name,”](#) on page 25
- [“Configuring the Network Proxy,”](#) on page 25
- [“Configuring DHCP,”](#) on page 25
- [“Setting the Time Zone,”](#) on page 26

## Selecting DHCP or Static Network Addresses

You can select whether you want to manually configure the network addresses by static allocation or use the DHCP server to dynamically allocate the addresses.

DHCP server allocates temporary IP address at the time of deployment process. As the DHCP address is temporary, it might be different if the virtual appliance is powered off for a long time before you power it on again. The time period depends on DHCP lease expiration. You can configure the Infrastructure Navigator virtual appliance to use a static address, which remains the same after restart. A static IP address allows all users of the appliance to be certain of its network address and associated host name so they can connect to it predictably.

## Configuring Static IP Address

You can configure the static IP address for your Infrastructure Navigator virtual appliance. A static IP address allows all users of the appliance to be certain of its network address so they can connect to it predictably.

### Procedure

- 1 Navigate to the console tab of your virtual appliance, select **Configure Network** and press Enter.  
If the Console screen is not visible, press Ctrl+D.  
A network interface configuration menu appears.
- 2 Type the menu number to configure IP address allocation for the network interface.
- 3 A message to configure IPv6 address appears. Type **n** as Infrastructure Navigator virtual appliance does not support IPv6 address.
- 4 A message to configure IPv4 address appears. Type **y**. A message that asks you to use DHCP server instead of static IPv4 address appears.
- 5 Type **n**. On subsequent lines, enter the static IPv4 address and netmask in dotted decimal notation.  
A confirmation message appears.
- 6 Type **y**. The static IP address is configured for the Infrastructure Navigator virtual appliance.  
You also need to configure default gateway, host name, and DNS servers.

## Setting the Default Gateway

The gateway, or router, mediates between the local subnet and other networks. If you configure static IP address, you must set the default gateway.

### Procedure

- 1 Navigate to the **Console** tab of your virtual appliance, select **Configure Network** and press Enter.  
If the Console screen is not visible, you can press Ctrl+D to view it.  
A network interface configuration menu appears.
- 2 Type the number associated with configuration of default gateway.
- 3 Select the interface that you want to associate with default gateway and press Enter.
- 4 Type the IPv4 address of the default gateway for the network interface and press Enter.  
If the parameters are correct, the default gateway is set for the network interface.

## Setting the DNS Servers

The DNS is a standard technology for managing the names of Web sites and other Internet domains. If you configure static IP address, you must set the DNS servers.

### Procedure

- 1 Navigate to the **Console** tab of your virtual appliance, select **Configure Network** and press Enter.  
If the Console screen is not visible, press Ctrl+D.  
A network interface configuration menu appears.
- 2 Type the number associated with DNS setting.

- 3 Type the IPv4 address of the primary DNS server.  
A secondary DNS server is optional but recommended.  
If the parameters are correct, the DNS server is set.

## Setting the Host Name

A host name is a label that is assigned to a device connected to a computer network. If you configure static IP address, you must set the host name.

### Procedure

- 1 Navigate to the **Console** tab of your virtual appliance, select **Configure Network** and press Enter.  
If the Console screen is not visible, press Ctrl+D.  
A network interface configuration menu appears.
- 2 Type the number associated with setting of host name.
- 3 Type the host name for the virtual appliance.  
If the parameters are correct, the host name is set for the network interface.

## Configuring the Network Proxy

By default, Infrastructure Navigator assumes that it has a direct connection to the Internet. If HTTP and other protocols go through a network proxy server you need to configure network proxy.

### Procedure

- 1 Navigate to the **Console** tab of your virtual appliance, select **Configure Network** and press Enter.  
If the Console screen is not visible, press Ctrl+D.  
A network interface configuration menu appears.
- 2 Type the number associated with setting of proxy server. A message *Is an IPv4 proxy server necessary to reach the Internet?* appears.
- 3 Press *y*, and then type the network address either an IP address or host name with dotted domain and port number of the proxy server.  
If the parameters are correct, the network proxy is set.

## Configuring DHCP

You can reconfigure your Infrastructure Navigator virtual appliance IP address to use DHCP if you have not configured the DHCP at the time of deployment of the virtual appliance.

### Procedure

- 1 Navigate to the console tab of your virtual appliance, select **Configure Network**, and press Enter.  
If the Console screen is not visible, press Ctrl+D.  
A network interface configuration menu appears.
- 2 Type the menu number to configure IP address allocation for the network interface.
- 3 Type *y* to configure an IPv4 address.
- 4 Type *y* to use a DHCP server instead of a static IPv4 address.  
The IPv4 address and netmask assignment are automatic.

- 5 Type **y**. The DHCP server allocates the IP address and takes you back to the network interface configuration menu.

## Setting the Time Zone

You can change the time zone for the Infrastructure Navigator virtual appliance to reflect the time zone of your region or country.

### Procedure

- 1 On the **Console** tab of the virtual appliance, select **Set Time zone** and press Enter.  
If the Console screen is not visible, press Ctrl-D.
- 2 In the Please identify a location screen, select your continent or ocean and press Enter.
- 3 In the country screen, select your region or country and press Enter.

The time zone of the county selected is displayed and you are asked for confirmation. If you validate the selection, the time zone of that particular country is set.

# Uninstalling Infrastructure Navigator

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Perform the uninstall process if you want to remove the Infrastructure Navigator plug-in from the vCenter Server.

## Uninstall Infrastructure Navigator Plug-in

Uninstall procedure removes the plug-in from the vCenter Server.

### Procedure

- 1 Log in to vSphere Web Client.
- 2 On the **vCenter Management** menu, navigate to **System Administration > Navigator**.

The Administration screen appears.

- 3 Click **Uninstall**.

A confirmation message is displayed.

- 4 Click **Yes**.

The uninstall process starts, and might take anywhere between 30 minutes to one hour depending on number of virtual machines and applications running in your environment.

After successful completion of the uninstall procedure the message, **Restart the vSphere Web Client Service to complete the uninstall process. You can then delete the Navigator virtual appliance is displayed** in the vSphere Web Client.

### What to do next

After you uninstall the Infrastructure Navigator plug-in, you can power off and delete the Infrastructure Navigator virtual machine from the vCenter Server. You need to restart the vSphere Web Client service to enable the installation of new Infrastructure Navigator plug-in in the future.



# Troubleshooting Infrastructure Navigator

# 7

Troubleshooting Infrastructure Navigator provides information about the problems that you might encounter when using VMware vCenter Infrastructure Navigator and provides possible workarounds.

This chapter includes the following topics:

- [“vCenter Certificate Error,”](#) on page 29
- [“Plug-In Does Not Work in vSphere Web Client After an Upgrade,”](#) on page 30
- [“Error in Retrieving Information Might Occur,”](#) on page 30
- [“Incorrect Marking of a Virtual Machine as an External Machine,”](#) on page 30
- [“Restart Discovery Fails Because of Licensing Issue,”](#) on page 31
- [“Deployment Failure After IP Address Change,”](#) on page 31
- [“Failure of the Virtual Appliance After DHCP Selection,”](#) on page 31
- [“VMware Tools Compatibility Error,”](#) on page 31
- [“Infrastructure Navigator Does Not Appear in the Licensing Asset,”](#) on page 32

## vCenter Certificate Error

If you try to manually replace the certificate on the vCenter Server, Infrastructure Navigator is not able to load the new certificate thumbprint.

### Problem

If you delete the `/opt/vmware/etc/vami/ovfEnv.xml` file, the new file created at restart contains the old certificate's thumbprint.

### Solution

- 1 Select a virtual machine and ensure that it is powered off.
- 2 Right-click the selected virtual machine and select **Edit Settings**.
- 3 Select the **vServices** tab.
- 4 Right-click **vCenter Extension vService Dependency** and click **Edit**.
- 5 Select **No Provider** from the **Provider** drop-down menu.
- 6 Click **OK** and click **OK** again.

**Solution**

Repeat steps 2 through 7 and in step 5 select **vCenter Extension vService** from the **Provider** drop-down menu. When you power on the virtual machine next time, its OVF environment is updated with the new vCenter certificate thumbprint.

**Plug-In Does Not Work in vSphere Web Client After an Upgrade**

If you upgrade to a new Infrastructure Navigator build, the plug-in does not work in vSphere Web Client.

**Problem**

After you upgrade to a new Infrastructure Navigator build and the log in to the vSphere Web Client, the plug-in does not appear in vSphere Web Client.

**Solution**

- 1 Restart the vSphere Web Client service.
- 2 Log in again to the vSphere Web Client.

The plug-in is now visible.

**Error in Retrieving Information Might Occur**

If you restart the Infrastructure Navigator virtual machine or the engine services, an error message is displayed.

**Problem**

If Infrastructure Navigator is unable to map services that are running on the selected vCenter entity, instead of the total number of services installed, an Error retrieving information from Infrastructure Navigator message is displayed.

**Solution**

Wait for few minutes and if the problem persists, restart the Infrastructure Navigator virtual appliance.

**Incorrect Marking of a Virtual Machine as an External Machine**

Infrastructure Navigator might incorrectly mark a virtual machine as an external machine.

**Problem**

Infrastructure Navigator can incorrectly mark a virtual machine as an external machine under the following conditions:

- Monitored virtual machine is configured with hardware version 4.
- Multiple IPv4 addresses are configured on the virtual machine.
- vCenter displays only one IP address for the virtual machine with hardware version 4, but according to Infrastructure Navigator, the IP address might be different. This issue does not occur with newer hardware versions, for example, hardware version 7 and 8.

**Solution**

If your virtual machine is located on an ESX 4.x or higher host, right click the powered-off virtual machine and select **Upgrade Virtual Hardware**.

## Restart Discovery Fails Because of Licensing Issue

After you upgrade or newly install the RTM vCenter Server environment and deploy an Infrastructure Navigator virtual appliance, you might encounter a licensing problem.

### Problem

If you upgrade or newly install the RTM vCenter Server environment, and then deploy Infrastructure Navigator virtual appliance, you might not be able to apply the Infrastructure Navigator license. As a result, you cannot start discovery.

### Solution

Restart the Infrastructure Navigator virtual appliance.

## Deployment Failure After IP Address Change

You cannot deploy the Infrastructure Navigator plug-in after you change the IP address of the Infrastructure Navigator virtual appliance.

### Problem

If you change the IP address of the Infrastructure Navigator virtual appliance, the Infrastructure Navigator plug-in fails to deploy in the vSphere Web Client.

### Solution

After the IP address change, restart the Infrastructure Navigator virtual appliance.

## Failure of the Virtual Appliance After DHCP Selection

The Infrastructure Navigator virtual appliance does not work if you assign the IP address by using DHCP.

### Problem

During the deployment of Infrastructure Navigator virtual appliance, if you assign the IP address to the Infrastructure Navigator virtual appliance by using DHCP, the virtual appliance does not work properly.

### Solution

Restart the Infrastructure Navigator virtual appliance and the vSphere Web Client.

## VMware Tools Compatibility Error

Virtual machine discovery might fail because of a VMware tools compatibility error.

### Problem

If you attempt to discover virtual machines with a VMware Tools version lower than the one compatible with ESX host version 3.5, the discovery might fail with the error message `Unknown discovery error`.

### Solution

Update VMware tools.

## Infrastructure Navigator Does Not Appear in the Licensing Asset

After the deployment of the Infrastructure Navigator virtual appliance, if you try to apply the license key, an error message is displayed.

### Problem

After successful deployment of the Infrastructure Navigator virtual appliance, if you navigate to **Administration > Licensing** to apply the license, an `Licensing is disabled` error message is displayed. Also, in the **Navigator** tab Discovery Status column displays `Pending first discovery` message.

### Solution

Perform one of the following workarounds.

- a Connect to the Infrastructure Navigator virtual appliance through SSH.
- b At the command prompt, execute `monit restart vadm-engine` command.
- c Execute `monit summary` command. Wait until the summary command reports that all services are running. The license registration process that failed is completed successfully.
- Restart the Infrastructure Navigator virtual appliance.

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