

BIG-IQ™ System: Licensing and Initial Setup

Version 4.3



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Chapter 1

BIG-IQ System Introduction

- *Overview: BIG-IQ system*
-

Overview: BIG-IQ system

The BIG-IQ™ system is a tool that streamlines the management of F5 devices in your network. The functionality offered is dependent on your software license.

Cloud administrators use BIG-IQ Cloud to provide cloud tenants self-service access to shared computing resources such as networks, servers, storage, applications, and services. Cloud resources can be private or public, depending on the customer's requirements. Each tenant has restricted and dedicated access to cloud resources based on a specific user account or tenant role, ensuring that tenants have access only to their own resources. Cloud resources are easily expanded and reallocated as needed, providing flexible resource balancing.

Firewall managers use BIG-IQ Security to manage security firewalls for multiple devices from a central location. Firewall management includes discovering, editing, and deploying firewall configurations, as well as consolidating shared firewall objects. Once a firewall device is designated for central management, it is no longer managed locally unless there is an exceptional need.

Network administrators use BIG-IQ Device to interact with all of the managed F5 devices in their network. This centralized management includes the ability upgrade F5 devices, update configurations, and reallocate licenses as needed.

Additional resources and documentation for BIG-IQ systems

You can access all of the following BIG-IQ™ system documentation from the AskF5™ Knowledge Base located at <http://support.f5.com/>.

| Document | Description |
|---|--|
| <i>BIG-IQ™ Virtual Edition Setup</i> | BIG-IQ Virtual Edition (VE) runs as a guest in a virtual environment using supported hypervisors. Each of these guides is specific to one of the hypervisor environments supported for the BIG-IQ system. |
| <i>BIG-IQ™ Systems: Licensing and Initial Configuration</i> | This guide provides the network administrator with basic BIG-IQ system concepts and describes the tasks required to license and set up the BIG-IQ system in their network. |
| <i>BIG-IQ™ Device: Device Management</i> | This guide provides details about how to deploy software images, licenses, and configurations to managed BIG-IP devices. |
| <i>BIG-IQ™ Cloud: Cloud Administration</i> | This guide contains information to help a cloud administrator manage cloud resources, devices, applications, and tenants (users). |
| <i>BIG-IQ Cloud: Tenant User Guide™</i> | This guide contains information to help tenants manage applications. |
| <i>BIG-IQ™ Network Security Administration</i> | This guide contains information used to manage BIG-IP® firewalls, policies, rule lists (and other shared objects), and users. |
| <i>BIG-IQ™ Web Application Security Administration</i> | This guide contains information used to manage all policies in an enterprise by bringing under central management all the BIG-IP® devices where those policies reside. |
| Release notes | Release notes contain information about the current software release, including a list of associated documentation, a summary of new features, enhancements, fixes, known issues, and available workarounds. |
| Solutions and Tech Notes | Solutions are responses and resolutions to known issues. Tech Notes provide additional configuration instructions and how-to information. |

Chapter 2

BIG-IQ User Interface

- *About the BIG-IQ system user interface* |

About the BIG-IQ system user interface

The BIG-IQ™ system interface is composed of panels. Each panel contains objects that correspond with a BIG-IQ system feature. Depending on the number of panels and the resolution of your screen, some panels are collapsed on either side of the screen. You can cursor over the collapsed panels to locate the one you want, and click the panel to open. To associate items from different panels, click on an object, and drag and drop it onto the object to which you want to associate it.

Filtering for associated objects

The BIG-IQ system helps you easily see an object's relationship to another object, even if the objects are in different panels.

1. In a panel, click the object on which you want to filter.
The selected object name displays in the Filter field, and the screen refreshes to display unassociated objects as unavailable.
2. To further filter the objects displayed, you can type one additional object in the Filter field, and click the **Apply** button.
3. To display only those objects associated with the object you selected, click the **Apply** button.
The screen refreshes and the objects previously displayed in a gray font do not appear. Only objects associated with the object you click display, and the object you selected displays below the Filter field.
4. To remove a filter, click the **x** icon next to the object that you want to remove, below the Filter field.

Customizing panel order

You can customize the BIG-IQ system interface by reordering the panels.

1. Click the header of a panel and drag it to a new location, then release the mouse button.
The panel displays in the new location.
2. Repeat step 1 until you are satisfied with the order of the panels.

Chapter

3

Licensing and Initial Configuration

- *About licensing and initial configuration* |

About licensing and initial configuration

BIG-IQ™ system runs as a virtual machine in specifically-supported hypervisors or on the BIG-IQ 7000 series platform. After you set up your virtual environment your platform, you can license the BIG-IQ system. You initiate the license activation process with the base registration key.

The *base registration key* is a character string that the license server uses to verify the functionality that you are entitled to license. If the system has access to the internet, you select an option to automatically contact the F5 license server and activate the license. If the system is not connected to the internet, you can manually retrieve the activation key from a system that is connected to the internet, and transfer it to the BIG-IQ system.

License activation and initial configuration

You must have a base registration key to license the BIG-IQ™ system. If you do not have a base registration key, contact the F5 Networks sales group (<http://www.f5.com>).

If the BIG-IQ™ system is connected to the public internet, use this procedure to activate its license.

1. Using a browser on which you have configured the management interface, type the following URL syntax where `<management_IP_address>` is the address you specified for device management:
`https://<management_IP_address>`
 This is the IP address that the BIG-IQ system uses to communicate with its managed devices.
2. Log in to the BIG-IQ system with the default user name `admin` and password `admin`.
3. At the top of the screen, click **System** and **Overview**.
4. In the Setup panel, click the IP address of the BIG-IQ system.
 The panel expands to display additional properties.
5. In the **Base Registration Key** field, type or paste the BIG-IQ registration key.
6. In the **Add-on Keys** field, paste any additional license key you have.
7. For the **Activation Method** setting, select **Automatic**, and click the **Activate** button.
 The BIG-IQ system contacts the F5 Networks licensing server and displays the End User License Agreement (EULA).
8. To accept the EULA, click the **Accept** button.
 The screen refreshes and displays the license details.
9. Click **Properties**.
10. In the **Host Name** field, type a fully-qualified domain name (FQDN) for the system.
 The FQDN can consist of letters, numbers, as well as the characters underscore (`_`), dash (`-`), or period (`.`).
11. In the **Self IP Address** field, type the self IP address of your internal VLAN.
 The self IP address must be in Classless InterDomain Routing (CIDR) format. For example:
`10.10.10.10/24`
 This is the self IP address that managed devices use to communicate with the BIG-IQ system. This address is also referred to as the *discovery address*.
12. To add an additional self IP address, click the **+** sign, and in the new **Self IP Address** field that the system creates, edit the duplicated self IP address to reflect the additional self IP address that you want to add.
 Once you save this self IP address, you cannot change it.

13. Click **Services**.

14. In the **DNS Lookup Servers** field, type the IP address of your DNS server.

15. In the **DNS Search Domain** field, type the name of your search domain.

The DNS search domain list allows the BIG-IQ system to search for local domain lookups to resolve local host names.

16. In the **Time Servers** fields, type the IP addresses of your Network Time Protocol (NTP) servers.

17. Click the **Save** button to save your configuration.

Defining DNS and NTP servers for the BIG-IQ system

After you license the BIG-IQ™ system, you can specify the DNS and NTP servers.

Setting your DNS server and domain allows the BIG-IQ system to properly parse IP addresses. Defining the NTP server ensures the BIG-IQ system's clock is synchronized with Coordinated Universal Time (UTC).

1. Log in to the BIG-IQ system with the administrator user name and password.

2. Click **Services**.

3. In the **DNS Lookup Servers** field, type the IP address of your DNS server.

4. In the **DNS Search Domain** field, type the name of your search domain.

The DNS search domain list allows the BIG-IQ system to search for local domain lookups to resolve local host names.

5. In the **Time Servers** fields, type the IP addresses of your Network Time Protocol (NTP) servers.

6. Click the **Save** button to save your configuration.

Manual license activation and initial configuration

You must have a base registration key to license the BIG-IQ™ system. If you do not have a base registration key, contact the F5 Networks sales group (<http://www.f5.com>).

If the BIG-IQ™ system is not connected to the public internet, use this procedure to activate its license.

1. Using a browser on which you have configured the management interface, type the following URL syntax where `<management_IP_address>` is the address you specified for device management:

`https://<management_IP_address>`

This is the IP address that the BIG-IQ system uses to communicate with its managed devices.

2. Log in to the BIG-IQ system with the default user name `admin` and password `admin`.

3. At the top of the screen, click **System** and **Overview**.

4. In the Setup panel, click the IP address of the BIG-IQ system.

The panel expands to display additional properties.

5. In the **Base Registration Key** field, type or paste the BIG-IQ registration key.

6. In the **Add-on Keys** field, paste any additional license key you have.

7. For the **Activation** method setting, select **Manual** and click the **Activate** button.

The BIG-IQ system refreshes and displays the dossier in the **Dossier** field.

8. Copy the displayed dossier and transfer it to a system connected to the internet and navigate to the F5 Licensing Server at <https://activate.f5.com/license/>.

9. Copy the displayed dossier and transfer it to a system connected to the internet and navigate to the F5 Licensing Server at <https://activate.f5.com/license/>.

10. Paste the dossier into the **Enter your dossier** text box, or click the **Browse** button to locate it on the system, and click the **Next** button.
11. Copy or save the activation key and transfer it to the BIG-IQ system.
12. The End User License Agreement (EULA) displays.
When you click **Accept**, the screen refreshes to display the license details.
13. Click **Properties**.
14. In the **Host Name** field, type a fully-qualified domain name (FQDN) for the system.
The FQDN can consist of letters, numbers, as well as the characters underscore (_), dash (-), or period (.).
15. In the **Self IP Address** field, type the self IP address of your internal VLAN.
The self IP address must be in Classless InterDomain Routing (CIDR) format. For example:
10.10.10.10/24.
This is the self IP address that managed devices use to communicate with the BIG-IQ system. This address is also referred to as the *discovery address*.
16. To add an additional self IP address, click the + sign, and in the new **Self IP Address** field that the system creates, edit the duplicated self IP address to reflect the additional self IP address that you want to add.
Once you save this self IP address, you cannot change it.
17. Click **Services**.
18. In the **DNS Lookup Servers** field, type the IP address of your DNS server.
19. In the **DNS Search Domain** field, type the name of your search domain.
The DNS search domain list allows the BIG-IQ system to search for local domain lookups to resolve local host names.
20. In the **Time Servers** fields, type the IP addresses of your Network Time Protocol (NTP) servers.
21. Click the **Save** button to save your configuration.

Changing the time zone for the BIG-IQ system

You must have licensed the BIG-IQ™ system before you can modify the default time zone, if required.

The default time zone for the BIG-IQ system is Pacific Standard Time (PST). If you are in a time zone other than PST, you can change the time zone of the BIG-IQ system so that everything presented with a time stamp, including reports, displays with your local time.

1. Log in to the BIG-IQ command line as the root user.
2. View the time zone files by typing: `ls -laR /usr/share/zoneinfo`
3. Set the time zone using the following command syntax: `tmsh modify sys ntp timezone <timezone_filename>`

For example, `tmsh modify sys ntp timezone america/new_york`

4. To save the change, type `tmsh save / sys config`

Now everything displayed with a time stamp will reflect your local time.

Chapter 4

Default User Accounts and Passwords

- *About default passwords for pre-defined users*
-

About default passwords for pre-defined users

When you initially license the BIG-IQ™ system, it creates the following administrative roles with a default password.

- admin
- root

Changing the default password for the administrator user

You must specify the management IP address settings for the BIG-IQ™ system to prompt the system automatically create the administrator user.

After you initially license and configure the BIG-IQ system, it is important to change the password for the administrator password user from the default password, `admin`.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System >Users**.
3. On the Users panel, click the properties gear for **Admin User**.
4. In the **Password** and **Confirm Password** fields, type a new password.
5. Click the **Add** button.

Changing the default password for the root user

You must specify the management IP address settings for the BIG-IQ™ system to prompt the system automatically create the root user.

After you initially license and configure the BIG-IQ system, it is important to change the password for the root user from the default password, `default`.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **Users**.
3. On the Users panel, click the gear icon for the **root** user.
4. In the **Password** and **Confirm Password** fields, type a new password.
5. Click the **Save** button.

Chapter 5

Device Health Monitoring

- *Overview: Notifications for system events*
- *About configuring SMTP for alerts*
- *About SNMP integration*

Overview: Notifications for system events

You can easily manage the health of your network by configuring the BIG-IQ system to alert you when specific system events occur for your managed devices. You can receive notifications by having the BIG-IQ system send traps to your SNMP manager and you can also configure the BIG-IQ system to send alerts for certain events to a specified individual.

About configuring SMTP for alerts

To have a specific recipient receive an email message when an alert is triggered by a system event, configure BIG-IQ™ Device to deliver locally-generated email messages using the internet-standard for electronic mail transmission, Simple Mail Transfer Protocol (SMTP). Sending an email alert ensures that administrators are immediately notified when a specific system event occurs so they can quickly troubleshoot potential issues.

Specifying an SMTP server for alerts

Before you can configure SMTP, you must define a DNS server.

BIG-IQ™ Device uses SMTP email exchange protocol to deliver email messages. If you want BIG-IQ Device to send email alerts to recipients when specific system events occur, you must define an SMTP host.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click **Server**.
4. In the **Name** field, type a name for this server.
5. In the **SMTP Server Host** and **SMTP Server Port** fields, type the name of the mail server and its port.
6. In the **From address** field, type the email address that you want displayed as the reply-to address for the email.
7. From the **Encryption** list, select the encryption level required for the SMTP server.
8. To require that the SMTP server validates users before allowing them to send email:
 - a) Select **Yes** for the **Use Auth** setting.
 - b) Type the user name and password required to validate the user in the **Auth Username** and **Auth Password** fields.

You can now specify email recipients and select alerts on which to trigger an email.

Specifying email recipients and alert conditions

You can specify one or more recipients to receive an email that is triggered by an event that occurs on a managed device. By receiving an alert, a user can quickly troubleshoot potential issues.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.

3. Click **SMTP Config**.
4. Click **Settings**.
5. For the **Email Recipients** setting, in the **Name** and **Email Address** fields, type the information for the recipient who should receive an email when the selected alert conditions are triggered.
To add additional email recipients, click the plus (+) sign.
6. For the Alert **Conditions** setting, select the check box next to each event that should trigger an alert email.
7. If a threshold is associated with the condition, in the adjacent **Threshold** field, type a value on which you want to trigger an alert email.
8. Click the **Save** button.

You can now click **Server** and click the **Test Connection** button to verify that an email is sent and received.

About SNMP integration

SNMP is an industry standard protocol for monitoring devices on IP networks. BIG-IQ™ Device integrates easily with your SNMP manager, allowing you to centrally manage collected data. Once configured, the SNMP agent sends data collected from BIG-IQ Device to your third-party SNMP manager. BIG-IQ Device is compatible with SNMPv1, SNMPv2c, and SNMPv3.

Integrating with SNMP version 1 or 2

To prepare BIG-IQ™ Device to interface with your SNMP version 1 or 2 manager, you must complete the following procedures.

- Configure SNMP agent and access
- Create an SNMP trap destination

Configuring SNMP version 1 or 2 agent and access

You configure the SNMP agent and provide specific access to BIG-IQ™ Device so that the SNMP manager can collect data.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click **SNMP Config**.
The screen displays the SNMP Agent Properties settings.
4. In the **Contact Information** field, type the name and email address of the person who is responsible for SNMP administration, and in the **Machine Location** field, type the location of the SNMP manager system.
These details are for informational purposes only, and have no impact on how BIG-IQ Device interfaces with your SNMP manager.
5. To download the F5-specific MIBs, click the **Download MIB** link.
6. In the **Addresses/Networks** fields, type the IP address and networks (and the netmask if applicable) that the SNMP manager is allowed to access.
7. To add another address, click the plus (+) sign.

8. Click the **Save** button located at the top of the panel.
9. Click the **Access** tab.
The SNMP Access settings display.
10. In the SNMP v1/v2 Access section, from the **Type** list, select the appropriate protocol for the SNMP manager's IP address.
11. In the **Community** field, type the name of the associated community.
12. In the **Source Address** field, specify the IP address for the SNMP manager.
13. In the **OID** field, type the associated object identifier (OID).
14. From the **Access** list, select the type of MIB access you are providing for this SNMP manager.
15. Click the **Save** button located at the top of the panel.

You can now create SNMP trap destinations.

Creating an SNMP version 1 or 2 trap destination

You must configure the SNMP agent and provide access before you create an SNMP trap.

You create an SNMP trap destination to specify where to send SNMP messages, and to define the associated access.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click the **Traps** tab.
4. In the SNMP v1/v2 Destinations section, from the **Version** list, select the appropriate version of SNMP.
5. In the **Community**, **Destination**, and **Port** fields, type, respectively, the community name, IP address, and port for the trap destination.
6. To configure additional SNMP trap destination, click the plus (+) sign and specify the settings.
7. Click the **Save** button located at the top of the panel.

Integrating with SNMP version 3

To prepare BIG-IQ™ Device to interface with your SNMP version 3 manager, you must complete the following procedures.

- Configure SNMP agent and access
- Create an SNMP trap destination

Configuring the SNMP version 3 agent and access

You configure the SNMP agent and provide specific access to BIG-IQ™ Device so that the SNMP manager can collect data.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click **SNMP Config**.
The screen displays the SNMP Agent Properties settings.
4. In the **Contact Information** field, type the name and email address of the person who is responsible for SNMP administration, and in the **Machine Location** field, type the location of the SNMP manager system.

These details are for informational purposes only, and have no impact on how BIG-IQ Device interfaces with your SNMP manager.

5. To download the F5-specific MIBs, click the **Download MIB** link.
6. In the **Addresses/Networks** fields, type the IP address and networks (and the netmask if applicable) that the SNMP manager is allowed to access.
7. To add another address, click the plus (+) sign.
8. Click the **Save** button located at the top of the panel.
9. Click the **Access** tab.
The SNMP Access settings display.
10. In the SNMP v3 Access section of the screen, in the **User Name** field, type the SNMP manager's user name.
11. If you want to specify the authentication protocol for SNMP traps, from the **Auth Type** list, select the type that you want the system to use.
 - **MD5** specifies digest algorithm.
 - **SHA** specifies secure hash algorithm.
12. If you selected an **Auth Type**, from the **Privacy** list, also select the type of encryption you want the system to use to encrypt SNMP traps.
 - **AES** specifies Advanced Encryption Standard
 - **DES** for Data Encryption Standard.
13. In the **Privacy Password** field, type the required password for access.
SNMPv3 has special requirements when you create plain-text passwords on a router or switch:
 - The password must be at least eight characters long.
 - The password can include alphabetic, numeric, and special characters, but it cannot include control characters.
14. In the **OID** field, type the object identifier (OID) you want to associate with this user.
15. Click the **Save** button located at the top of the panel.

You can now create SNMP trap destinations.

Creating an SNMP version 3 trap destination

You must configure the SNMP agent and provide access before you can create an SNMP trap destination.

You create an SNMP trap destination to specify where to send SNMP messages, and define the security and encryption settings associated with those messages.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click **SNMP Config**.
The screen displays the SNMP Agent Properties settings.
4. Click the **Traps** tab.
5. In the **Destination**, and **Port** fields, type the IP address and port for the trap destination.
6. From the **Security Level** list, select the level of security you want the system to use to process SNMP messages.
 - **Auth, No Privacy**: Processes SNMP messages using authentication but without encryption.
 - **Auth and Privacy**: Processes SNMP messages using authentication and encryption.

7. In the **Security Name** field, type the user name the system uses to handle SNMP traps.
8. In the **Engine ID** field, type the unique identifier (`snmpEngineID`) for the remote SNMP protocol engine.
9. If you selected **Auth & Privacy** for the **Security Level** setting, from the **Privacy Protocol** list, select the type of encryption you want the system to use to encrypt SNMP traps.
 - **AES**: Uses Advanced Encryption Standard encryption
 - **DES**: Uses Data Encryption Standard encryption.
10. Click the **Save** button located at the top of the panel.

Chapter 6

Additional Network Configuration Options

- *About additional network configuration options*
-

About additional network configuration options

During the licensing and initial configuration procedures, you configure a single VLAN and associated self IP addresses. This is all the networking configuration required to start managing devices. However, if you find you need additional VLANs, the BIG-IQ™ system provides you with the ability to add them as required.

Configuring an additional VLAN

You must have licensed the BIG-IQ system before you can add a VLAN.

You have the option to configure an additional VLAN after you license and perform the initial configuration of the BIG-IQ system.

1. At the top of the screen, click **System > Networking**.
The Networking screen displays the VLANs and Self IPs panels.
2. To add a new VLAN, hover over the VLANs panel and click the + sign when it appears.
3. In the **Name** and **Description** fields, type a name and description to identify this new VLAN.
4. From the **Interface** list, select the port that you want this VLAN to use.

The *interface* is a physical or virtual port that you use to connect the BIG-IQ system to managed devices in your network.

5. Click the **Add** button to save this VLAN.
6. Hover on the Self IPs panel and click the + when it appears.
7. In the **Name** and **Address** fields, type the name and the self IP address.
8. From the **VLAN** list, select the VLAN to which you want to associate this self IP address.
9. In the **Description** field, type a description to identify this self IP address.
10. If you are configuring an additional VLAN for a BIG-IQ system in high availability (HA) cluster and you want to use this address for communication between the peers, select the **Use for HA Peer Communication** check box.
11. Click the **Add** button to save this self IP address.

Chapter

7

BIG-IQ System Management

- *Upgrading the BIG-IQ system*

Upgrading the BIG-IQ system

Before you can upgrade the BIG-IQ system, you must perform the following tasks:

- Reactivate your current license to ensure that you have a valid service check date.
- Download the `.iso` file for the upgrade from F5 Downloads to `/shared/images` on the BIG-IQ system. If you need to create this directory, use the exact name `/shared/images`.
- Locate the user configuration set (UCS) in the `/var/local/ucs` directory on the source installation location, and copy the UCS file to another system for safe keeping.

Use this procedure to upgrade a BIG-IQ system to a new software version.

1. Log in to the BIG-IQ system with the administrator user name and password.
2. At the top of the screen, click **System**.
3. Click **Software Update**.
The details of the current software installation display.
4. Click the **Update** button.
5. From the **Software Image** list, select the new image or browse to the location to which you saved it.
6. From the **Installation Location** list, select the volume to which you want to install the image.
Alternatively, you can specify a default boot location on the **System > Properties** screen. If a default location is defined, you do not have to select a volume from the **Installation Location** list.
7. For the Options setting:
 - Select **Reboot after Live Install** to automatically reboot the BIG-IQ system to the specified volume immediately after the software is installed.
 - Select **Set Default Boot Location** to manually reboot the BIG-IQ system at another time from the **System > Properties** screen.
8. Click the **Apply** button.

The BIG-IQ system upgrades the software and rolls forward the UCS file.

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