NETGEAR®

Software Setup Manual

M4300 Intelligent Edge Series
Fully Managed Stackable Switches

Software Version 12.0.8 and later versions

M4300 Series Switches
M4300-96X Modular Switch

Support

Thank you for purchasing this NETGEAR product. You can visit https://www.netgear.com/support/ to register your product, get help, access the latest downloads and user manuals, and join our community. We recommend that you use only official NETGEAR support resources

Compliance and Conformity

For regulatory compliance information including the EU Declaration of Conformity, visit https://www.netgear.com/about/regulatory/.

See the regulatory compliance document before connecting the power supply.

Do not use this device outdoors. If you connect cables or devices that are outdoors to this device, see http://kb.netgear.com/000057103 for safety and warranty information.

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Revision History

Publication Part Number	Publish Date	Comments
208-10809-01	September 2019	• We changed the version on the cover page to the following: Software Version 12.0.8 and later versions. • We added models M4300-16X, M4300-24XF, and M4300-48XF to Supported switches on page 5. • We changed Register your switch on page 6. • We made other minor changes in the manual. • We published the manual in a new format.
208-10808-02	October 2018	We changed the version on the cover page to the following: Software Version 12.0.6 and later versions.
208-10808-01	June 2018	Initial publication.

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Get Started

This manual describes software configuration tasks that are most commonly used when you install a new NETGEAR M4300 series or M4300-96X fully managed switch.

Use this manual to perform the initial configuration of your switch after you install it as described in the hardware installation guide. The installation guide that comes with your switch provides an extract of the information that is presented in this software setup manual.

This chapter includes the following sections:

- Supported switches
- Available publications
- Register your switch
- Overview of the options to access the switch
- Overview of the local browser interface
- Start the switch and observe the power-on self-test
- Prepare a terminal if you intend to use a console port
- Set up or find the switch IP address configuration
- Access the local browser interface when you know the IP address
- Configure an SNMPv3 user profile using the local browser interface

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Note: For more information about the topics covered in this manual, visit the support website at netgear.com/support.

Note: Firmware updates with new features and bug fixes are made available from time to time at netgear.com/support/download/. Some products can regularly check the site and download new firmware, or you can check for and download new firmware manually. If the features or behavior of your product does not match what is described in this guide, you might need to update your firmware.

Supported switches

This release and this manual are for the following M4300 series switch models and model M4300-96X:

- Full 10G models:
  - **M4300-16X**. Full 10G switch model with sixteen 10G PoE+ copper ports in a half-width chassis
  - **M4300-8X8F**. Full 10G switch model with eight 10G copper ports and eight 10G fiber ports in a half-width chassis
  - **M4300-12X12F**. Full 10G switch model with twelve 10G copper ports and twelve 10G fiber ports in a half-width chassis
  - **M4300-24X24F**. Full 10G switch model with twenty-four 10G copper ports and twenty four 10G fiber ports in a full-width chassis
- 1G models with 10G uplinks:
  - **M4300-28G**. Switch model with twenty-four 1G copper ports, two 10G copper ports, and two 10G fiber ports in a full-width chassis
  - **M4300-28G-POE+**. Switch model with twenty-four 1G PoE+ copper ports, two 10G copper ports, and two 10G fiber ports in a full-width chassis
  - **M4300-52G**. Switch model with forty-eight 1G copper ports, two 10G copper ports, and two 10G fiber ports in a full-width chassis
  - **M4300-52G-POE+**. Switch model with forty-eight 1G PoE+ copper ports, two 10G copper ports, and two 10G fiber ports in a full-width chassis
- 10G models with RJ45/SFP+ combo ports:
  - **M4300-24X**. Switch model with twenty copper RJ45 ports and four 10G RJ45/SFP+ combo ports in a half-width chassis
  - **M4300-24XF**. Switch model with twenty-two 10G fiber ports and two 10G RJ45/SFP+ combo ports in a half-width chassis
  - **M4300-48X**. Switch model with forty-four copper RJ45 ports and four 10G RJ45/SFP+ combo ports in a full-width chassis
  - **M4300-48XF**. Switch model with forty-six 10G fiber ports and two 10G RJ45/SFP+ combo ports in a full-width chassis
- 10G modular chassis model:
  - **M4300-96X**. Modular chassis model for up to 12 port cards and slot-based port numbering.

Available publications

You can download the following publications by visiting netgear.com/support/download/:

- The installation guide for your switch and for the components:
  - *Installation Guide M4300 Intelligent Edge Series Fully Managed Stackable Switches*
  - *Installation Guide Fully Managed Switches Model M4300-96X*
  - *Installation Guide Fully Managed Switch Port Cards APM408C, APM408P, APM408F, and APM402XL*
  - *Installation Guide NETGEAR Power Supplies Units for Managed Switches, APS150W, APS250W, APS299W, APS550W, APS1000W, APS600W, and APS1200W*
- The hardware installation guide for your switch:
  - *M4300 Intelligent Edge Series Fully Managed Stackable Switches*
  - *Fully Managed Stackable Switch M4300-96X*
- The software manuals for the M4300 series switches, including modular model M4300-96X:
  - *M4300 Intelligent Edge Series Fully Managed Stackable Switches Software Administration* Manual
  - *M4300 Intelligent Edge Series Fully Managed Stackable Switches CLI Command Reference* Manual
  - *M4300 Intelligent Edge Series Fully Managed Stackable Switches User Manual*
  - *M4300 Intelligent Edge Series Fully Managed Stackable Switches Software Setup Manual* (this manual)

Register your switch

To qualify for product updates and product warranty, we encourage you to register your product. The first time you log in to the switch, you can register with NETGEAR. Registration confirms that your email alerts work, lowers technical support resolution time, and ensures that your shipping address accuracy. We would also like to incorporate your feedback into future product development. We never sell or rent your email address and you can opt out of communications at any time.

To register your switch with NETGEAR:

1. Visit the NETGEAR website for registration at https://my.netgear.com/registration/login.aspx.
2. Click the **Login** button, and follow the directions onscreen to register the switch with your NETGEAR email address and password.

   If you did not yet create a NETGEAR account, click the **Create account** link, follow the directions onscreen to create an account, and then register the switch with your NETGEAR email address and password.

Overview of the options to access the switch

To configure the switch, you can access it through any of the Ethernet network ports, out-of-band (OOB) port (also referred to as the service port), or one of the console ports:

- **Ethernet network port**. Use an Ethernet network connection to access either the local browser–based management interface (referred to as the local browser interface) or the CLI through an SSH or Telnet utility. You can use either the default IP address of the switch or a custom IP address. For you to access the switch over a custom IP address, you first must configure the IP address, or, if you use a DHCP server, find the DHCP-assigned IP address, which for an Ethernet network port is referred to as the management address.

- **OOB port**. Use an Ethernet out-of-band (OOB) connection to access either the local browser interface or the CLI through an SSH or Telnet utility. You can use either the default IP address of the switch or a custom IP address. For you to access the switch over a custom IP address, you first must configure the IP address, or, if you use a DHCP server, find the DHCP-assigned IP address, which for the OOB port is referred to as the service port address.

- **Console port**. Use the CLI over either a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal. To configure the management address and the service port address, you can use either the CLI or the ezconfig tool.

For more information about these access and configuration options, see .

Overview of the local browser interface

To access the switch through the local browser interface, use the latest version of a web browser such as Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer.

The local browser interface and CLI differ in various ways. For example, on the local browser interface, you can display the entire forwarding database. The CLI displays only 10 entries starting at specified addresses.

The switch accommodates two types of users: administrative users and guests. An administrative user can configure the switch for network application, but a guest cannot. The guest can only view the settings and status of the network. By default, both users can log in without a password. We strongly recommend that you create a unique password for the administrative user before placing the switch into production.

The local browser interface lets you configure and use the following types of features:

- **System**. Configuration and status information for system features and services such as the timer, DNS server, IP address, and system resource usage

- **Switching**. Features that relate to Layer 2 services such as VLANs, link aggregation, Spanning Tree Protocol, port configuration, and the MAC address table

- **Routing**. Layer 3 services such as VLAN routing, port routing, and protocols such as RIP, OSPF, VRRP, and other protocols
- **QoS**. Quality of Service features such as DiffServ and CoS queue assignment
- **Security**. Security services such as 802.1x port authentication, traffic control with various forwarding controls, and ACLs
- **Monitoring**. Ethernet port statistics, various system logs, and port mirroring
- **Maintenance**. Services to perform a firmware upgrade, to save the configuration, and to perform a backup of the configuration

Start the switch and observe the power-on self-test

When you supply power to the switch, the switch goes through a power-on self-test (POST). The POST runs every time that the switch initializes and checks the switch hardware before the switch boots. If the POST detects a critical problem, the startup procedure stops. The boot process runs for approximately 60 seconds.

If POST passes successfully, a valid executable image loads into RAM. If you connect a local terminal to the switch, POST messages display on the terminal and indicate test success or failure.

Prepare a terminal if you intend to use a console port

If you intend to use one of the console ports for initial configuration of the switch, connect a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal to one of the console ports on the switch.

You can use one of the following console ports on the switch:

- **Mini USB console port**. The switch comes with a mini USB to USB cable, which you can use to connect the mini USB console port on the switch to a USB port on a computer with a Windows, MAC, or Linux operating system or a VT100/ANSI terminal.

  Note: To use the mini USB port, you must install the USB driver on the computer. (The Windows USB driver is on the resource CD.)

- **RJ-45 RS232 console port**. The RJ-45 RS232 serial port uses the following settings:
  - **Baud rate**. 115,200 bps
  - **Data bits**. 8

- **Parity**. None
- **Stop bit**. 1
- **Flow control**. None

You can use the console cable that comes in the product package to connect the switch's RJ-45 RS232 console port to the DB9 port on the computer or VT100/ANSI terminal.

Prepare a computer with terminal emulation software

If you use a computer with a Windows, MAC, or Linux operating system instead of a VT100/ANSI terminal, configure the terminal emulation software:

- On a computer with a Windows operating system, you can use HyperTerminal or Tera Term.
- On a computer with a MAC operating system, you can use ZTerm.
- On a computer with a Linux operating system, you can use TIP.

To configure the terminal emulation software:

1. Select one of the serial ports to connect to the console.
2. Set the data rate, format, and flow control:
    - **Baud rate**. 115,200 bps
    - **Data bits**. 8
    - **Parity**. None
    - **Stop bit**. 1
    - **Flow control**. None
3. Under Properties, select the correct mode.
4. Select terminal keys.

Access the switch through a console port

You can use a locally or remotely attached terminal to access the switch through a console port.

To access the switch through a console port:

1. Connect a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal and open the appropriate COM port.

   When the terminal interface initializes, the login user prompt displays.

2. Enter your user name and password.

   The default user name is **admin** and the password is blank (that is, do not enter a password).

   You can now access the switch with its default configuration.

For information about how to perform the initial configuration of the switch through either the CLI or the ezconfig tool, see the following sections:

- Use a console port and the CLI to set up the IP address configuration on page 19
- Use a console port and the ezconfig utility to set up the IP address configuration on page 14

Set up or find the switch IP address configuration

Before you can use the switch in your network, you must set up its IP address configuration or find the DHCP-assigned IP addresses. The IP address configuration includes the IP address, subnet mask, and gateway of the management interface and the IP address, subnet mask, and gateway of the OOB port.

For information about which ports you can use to access the switch, see Overview of the options to access the switch on page 7.

Set up the initial IP address configuration of the switch or find the DHCP-assigned IP addresses by using one of the following methods:

- **Local browser interface**. Use the local browser interface through the OOB port or any Ethernet network port to access the switch over its default IP address and change the IP address configuration (see Use the local browser interface to set up the IP address configuration on page 11).

  Tip: Use the local browser interface for configuration instead of the CLI. Web configuration is quicker and easier than entering the multiple required CLI commands.

- **ezconfig**. Use the ezconfig utility through the mini USB console port or RJ-45 RS232 console port to access the switch and change the IP address configuration (see Use a console port and the ezconfig utility to set up the IP address configuration on page 14).
- **CLI**. Use the CLI through the mini USB console port or RJ-45 RS232 console port to access the switch and change the IP address configuration (see Use a console port and the CLI to set up the IP address configuration on page 19).
- **DHCP server**. Connect a DHCP server through the OOB port or any Ethernet network port, use the CLI through the mini USB console port or RJ-45 RS232 console port to access the switch, and find the DHCP-assigned IP addresses (see Find the IP address configuration assigned by a DHCP server on page 20).

Use the local browser interface to set up the IP address configuration

You can configure the switch IP address configuration through the local browser interface.

For detailed information about how to use the local browser interface to configure the switch with all its options, see the *M4300 Series and M4300-96X Fully Managed Switches User Manual*, which you can download by visiting underlinedownloadcenter.netgear.com.

To set up the switch IP address configuration through the local browser interface:

1. Prepare your computer with a static IP address:

    -   For access over an Ethernet network port, use a static IP address in the 169.254.0.0/16 subnet.

        For example, use 169.254.100.201 for your computer.

    -   For access over the OOB port, use a static IP address in the 192.168.0.0/16 subnet.

        For example, use 192.168.0.201 for your computer.

2. Connect an Ethernet cable from an Ethernet port on your computer either to an Ethernet network port on the switch or to the OOB port on the switch.

3. Launch a web browser such as Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer.

4. Enter the default IP address of the switch in the web browser address field:

    -   For access over an Ethernet network port, enter **169.254.100.100**.

    -   For access over the OOB port, enter **192.168.0.239**.

    The login window opens.

5. Enter the user name and password.

    The default admin user name is **admin** and the default admin password is blank, that is, do not enter a password.

6. Click the **Login** button.

    The local browser interface menu displays.

7. To set up the service port, do the following:

    a. Select **System > Management > IPv4 Service Port**.

b. Select the Service Port Configuration Protocol **None** radio button.

c. In the **IP Address** field, enter the IP address for the service port.

For example, enter 172.26.1.110.

Note: The OOB port is also referred to as the service port.

d. In the **Subnet Mask** field, enter the subnet mask for the service port.

For example, enter 255.255.255.0.

e. In the **Default Gateway** field, enter the default gateway for the service port.

For example, enter 172.26.1.1.

f. Click the **Apply** button.

Your settings are saved.

8. To set up the IP address in the management VLAN, do the following:

a. Select **System > Management > IPv4 Management VLAN Configuration**.

b. In the **IP Address** field, enter the IP address for the switch.

For example, enter 10.100.5.100.

c. In the **Subnet Mask** field, enter the subnet mask for the switch.

For example, enter 255.255.255.0.

d. In the **Gateway** field, enter the network IP address for the gateway.

For example, enter 10.100.5.1.

e. Click the **Apply** button.

Your settings are saved.

9. To set up the management interface, do the following:

a. Select **System > Management > IPv4 Management Interface Configuration**.

b. Select the Configuration Method **Manual** radio button.

c. In the **IP Address** field, enter the IP address for the management interface.

For example, enter 10.100.4.100.

d. In the **Subnet Mask** field, enter the subnet mask for the management interface.

For example, enter 255.255.255.0.

e. In the **Gateway** field, enter the default gateway for the management interface.

For example, enter 10.100.4.1.

f. Click the **Apply** button.

Your settings are saved.

10. Log out of the local browser interface.

11. Return your computer to its original settings.

If you want log in to the local browser interface again, you now must use one of the newly assigned network IP addresses.

Use a console port and the ezconfig utility to set up the IP address configuration

You can manually configure the IP address of the switch through a console port by using the Easy Setup Wizard (ezconfig). The switch provides a mini USB console port and an RJ-45 RS232 console port.

The ezconfig utility is an interactive utility that provides a simplified procedure for setting up the following basic switch settings:

- Switch management interface IP address
- Switch OOB port (service port) IP address
- Switch admin user password
- Switch name and location

You can enter ezconfig either in Global Config mode (#) or in Display mode (>).

At any point in the setup, you can type Q to abort the program. ezconfig checks for any changes and prompts you to save the changes.

To set up the switch IP address configuration through a console port and start the ezconfig utility:

1. Connect a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal and open the appropriate COM port.

   For more information, see Prepare a terminal if you intend to use a console port on page 8.

   When the terminal interface initializes, the user login prompt displays.

2. Enter your user name and password.

   The default admin user name is **admin** and the default admin password is blank, that is, do not enter a password.

3. Enter the **ezconfig** command.

   The utility displays the following text:

   ```
   (Switch) >ezconfig

   NETGEAR EZ Configuration Utility

   --------------------------------

   Hello and Welcome!

   This utility will walk you through assigning the IP address for
   the switch management CPU. It will allow you to save the changes
   at the end. After the session, simply use the newly assigned IP
   address to access the Web GUI using any public domain Web browser.
   ```

```
Admin password not defined. Do you want to assign the admin
password (password length should vary in a range of 8 - 64
characters)? (Y/N/Q)
```

You are prompted to change the admin password.

4. For security reasons, change the default password by typing **Y**, typing a new password, and confirming the password.

   If you already set the password and do not want to change it again, type **N**.

```
Enter new password:********
```

```
Confirm new password:********
```

```
Password Changed!
```

```
The 'enable' password required for switch configuration through
the command line interface is currently not configured. Do you
wish to change it (Y/N/Q)?  y
```

```
Enter new password:********
```

```
Confirm new password:********
```

```
Password Changed!
```

5. To change the management VLAN ID, type **Y**, and type a new VLAN ID.

```
Current Management VLAN ID: 1
```

```
Do you want to set new Management VLAN ID (Y/N/Q)?
```

   You are prompted to set up the IP address of the switch.

6. Set up the IP address of the switch, either manually (type **C**) or through DHCP (type **D**):

```
Assigning an IPv4 address to your switch management
```

```
Current IPv4 Address Configuration
```

```
---------------------------------
```

```
Management VLAN ID: 1
```

```
IPv4 Address Assignment Mode: Manual
```

```
IPv4 Address: 0.0.0.0
```

```
Subnet Mask: 0.0.0.0
```

```
Default Router IPv4: 0.0.0.0
```

```
Routing Mode: Enable
```

```
IPv4 address has been assigned manually. What do you want to do?
```

```
C - Change IPv4 address.
```

```
D - Assign IPv4 address for the switch using DHCP Mode(current
IPv4 address will be lost).
```

```
N - Skip this option and go to the next question.

Q - Quit.

? - Help.

(C/D/N/Q/?)?
```

If the switch was already assigned an IP address and you do not want to change the IP address again, type **N**.

ezconfig displays the current IP address and subnet mask. By default, the network DHCP server assigns IP addresses automatically according to DHCP. However, you can overwrite the DHCP client mode by assigning a fixed IP address here. Once a fixed IP address is assigned, ezconfig automatically disables DHCP client mode and assigns the static IP address to the management VLAN.

7. To set up IPv6 address for management VLAN, type **C** to assign a new global IPv6 address, or type **D** to get an IP6 address from an IPv6 DHCP server, or type **A** to generate the IPv6 address automatically.

```
Management VLAN ID: 1

IPv6 Address: fe80::6eb0:ceff:fef9:f6e3/64

IPv6 Current state: TENT

EUI64: Disabled

Routing Mode: Enable


IPv6 address has been assigned manually. What do you want to do?

C - Add IPv6 address.

D - Assign IPv6 address for the switch using DHCP Mode.

A - Assign IPv6 address for the switch using Auto Mode.

N - Skip this option and go to the next question.

Q - Quit.

? - Help.

(C/D/A/N/Q/?)
```

8. To set up an IPv4 address for the OOB port (which is also referred to as the service port), type **Y** to assign the IPv4 address manually.

```
Current Out of Band(service port) IPv4 Address Configuration

--------------------------------

IP Address Assignment Mode: DHCP

IP Address: 172.26.2.135
```

```
Subnet Mask: 255.255.255.0

Default Router: 172.26.2.1

Do you want to assign IPv4 address manually? (Y/N/Q)?
```

The IPv4 address will be assigned automatically by the DHCP server in your network. You can disable DHCP mode and use a static (fixed) IPv4 address. If fixed IPv4 address mode is selected, DHCP mode is disabled, and you are prompted to set the values for these fields.

9. To set up an IPv6 address for the OOB port (which is also referred to as the service port), type **A** to generate an IPv6 address automatically, or type **D** to get an IPv6 address from the DHCP server, or type **C** to add an IPv6 address to the OOB port.

```
Service port IPv6 Address Mode: None

IPv6 Administrative Mode: Enabled

Service port IPv6 Address Mode autoconfigure: Disabled

IPv6 Address: fe80::6eb0:ceff:fef9:f6e1/64

Network IPv6 address gateway:

IPv6 Default Router: fe80::222:3fff:fe9e:9605

EUI Flag: True

The IPv6 address has been assigned manually. What do you want to
do?

A - Assign IPv6 address for the switch using Auto Mode.

D - Assign IPv6 address for the switch using DHCP Mode.

G - Assign IPv6 Gateway.

C - Add IPv6 address.

N - Skip this option and go to the next question.

Q - Quit.

? - Help.
```

10. To change the management interface, type **O** to select the OOB port (which is also referred to as the service port) as the source IP address of the management protocol such as syslog, SNMP client, and so on. Or type **V** to select the IP address of the management LAN as the source IP address of the management protocol.

```
Current Management Interface Configuration

-------------------------------

Management Interface: L3 Management VLAN

Current management interface is L3 Management VLAN. What do you
want to do?
```

```
O - Change to Out of Band port (service port).

V - Change to L3 Management VLAN.

N - Skip this option and go to the next question.

Q - Quit.

? - Help.

(O/V/N/Q/?)
```

11. To enable the routing interface, type **Y**.

```
Do you want routing to be enabled (Y/N)?
```

12. Assign a switch name and location information.

Enter alphanumeric characters only. Characters such as # and $ are not supported. The number of characters cannot exceed 31 characters.

```
Assigning System Name, System Location and System Contact to your
switch management

Current Configuration

-------------------------------

System Name:

System Location:

System Contact:

Do you want to assign switch name and location information?
(Y/N/Q)

Assigning SNTP server for time stamp to your switch management

Current Configuration

------------------------------

SNTP system clock server: unicast

SNTP server:

Do you want to enable SNTP system clock server? (Y/N)
```

13. Save the configuration by typing **Y**.

```
There are changes detected, do you wish to save the changes
permanently (Y/N)?

Y

The configuration changes have been saved successfully.

Please enter 'show running-config' to see the final configuration.

Thanks for using EzConfig!
```

Your changes are saved in flash memory (permanent storage).

The switch is now ready for web-based management as well as for management through Telnet and SSH.

Use a console port and the CLI to set up the IP address configuration

You can manually configure the IP address of the switch through a console port by using the CLI. The switch provides a mini USB console port and an RJ-45 RS232 console port.

To set up the switch IP address configuration through a console port and the CLI:

1. Connect a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal and open the appropriate COM port.

   For more information, see Prepare a terminal if you intend to use a console port on page 8.

   When the terminal interface initializes, the user login prompt displays.

2. Enter your user name and password.

   The default admin user name is **admin** and the default admin password is blank, that is, do not enter a password.

3. Configure the IP address of the switch's management interface in default management VLAN 1 by entering the following command:

   (management switch) (config) #ip management vlan 1 *ipaddress subnetmask*

4. Configure the IP address of the switch's gateway by entering the following command:

   (management switch) (config) #ip default-gateway *gateway-addr*

5. Disable DHCP mode on the switch's OOB port by entering the following command:

   (management switch) #serviceport protocol none

6. Configure the IP address of the switch's OOB port (which is also referred to as the service port) by entering the following command:

   (management switch) #serviceport ip *ipaddress subnetmask* [*gateway*]

7. To retain these changes during a reset of the switch, type **save** at the main menu prompt, and type **y** to confirm the changes.

8. To view the changes and verify the IP address information, enter the following commands:
   - For the management interface: **(management switch) #show ip management**
   - For the service port: **(management switch) #show serviceport**

The switch is now ready for web-based management as well as for management through Telnet and SSH.

Find the IP address configuration assigned by a DHCP server

If your network includes a DHCP server, the DHCP server automatically assigns the IP address configuration to the switch. By default, the switch functions as a DHCP client, allowing both the management interface and OOB port (which is also referred to as the service port) to be assigned IP addresses by the DHCP server. The first time that you connect the switch to the network, the DHCP server configures the switch with the IP address, subnet, and other information.

If you want the DHCP server to assign a particular IP address to the switch, for example in an IP address–to–MAC address binding configuration, you must preconfigure the DHCP server with the IP address and MAC information for the switch. After you configure the DHCP server, the first time that you connect the switch to the network, the DHCP server configures the switch with the IP address, subnet, and other information that you supplied.

To find the IP address configuration that is assigned by a DHCP server:

1. Connect a computer with a Windows, MAC, or Linux operating system and a terminal emulation program or a VT100/ANSI terminal and open the appropriate COM port.

   For more information, see <u>Prepare a terminal if you intend to use a console port on page 8</u>.

   When the terminal interface initializes, the user login prompt displays.

2. Enter your user name and password.

   The default admin user name is **admin** and the default admin password is blank, that is, do not enter a password.

3. To find the assigned IP addresses, enter the following commands:
   - For the management interface: `(management switch) #show ip management`
   - For the service port: `(management switch) #show serviceport`

   The active IP address displays.

4. Use either the management interface IP address or the OOB port IP address to log in to the switch's local browser interface.

Use UPnP or Bonjour to find the switch

By default, the switch receives an IP address from a DHCP server (or a router that functions as a DHCP server) in your network. You can also configure a static IP address (see <u>Use the local browser interface to set up the IP address configuration on page 11</u>).

UPnP and Bonjour allow for zero-configuration networking over IP. The switch broadcasts the IP address of its OOB port or management VLAN to the entire network to which the switch is connected. Any Windows-based computer, Mac, or Linux device that functions on the same network as the switch can discover the IP address of the switch through UPnP or Bonjour.

Access the Switch From a Windows-Based Computer

Note: For a computer that runs Windows 10, make sure that the Network Discovery feature is enabled before you start the next procedure

---

To access the switch from a Windows-based computer and discover the switch IP address:

1. Open Windows Explorer or File Explorer.
2. Click the **Network** link.
3. If prompted, enable the Network Discovery feature.
4. Under Network Infrastructure, locate your switch model.
5. Double-click **model-xxxxxx**, in which model is the model of the switch and xxxxxx are the last six octets of the MAC address of the switch.

   The login page of the local browser interface opens.

6. Enter **admin** for the user name, leave the password field blank, and click the **LOGIN** button.

   The Switch Information page displays. The page shows the IP address that is assigned to the switch.

Access the Switch From a Mac Using Bonjour

If your Mac supports Bonjour, you can use the following procedure.

To access the switch from a Mac using Bonjour and discover the switch IP address:

1. Open the Safari browser.
2. Select **Safari > Preferences**.

   The General page displays.

3. Click the **Advanced** tab.

   The Advanced page displays.

4. Select the **Include Bonjour in the Bookmarks Menu** check box.
5. Close the Advanced page.
6. Depending on your Mac OS version, select one of the following, in which model is the model of the switch and x.x.x.x is the IP address of the switch:
   • **Bookmarks > Bonjour > model x.x.x.x**
   • **Bookmarks > Bonjour > Webpages model x.x.x.x**

   The login page of the local browser interface opens.

7. Enter **admin** for the user name, leave the password field blank, and click the **LOGIN** button.

   The Switch Information page displays. The page shows the IP address that is assigned to the switch.

Access the local browser interface when you know the IP address

This procedure describes how to access the local browser interface when you already know the switch IP address for your access method.

Either connect to an Ethernet network port and use the management interface IP address or connect to the OOB port and use the OOB port IP address.

To access the local browser interface:

1. Connect an Ethernet cable from an Ethernet port on your computer either to an Ethernet network port on the switch or to the OOB port on the switch.

2. Launch a web browser such as Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer.

3. Enter **http://*<ipaddress>*** in the URL field of your browser, in which ***<ipaddress>*** is either the management interface IP address or the OOB port IP address, depending on your type of connection.

    A login window opens.

4. Enter **admin** for the user name, leave the password field blank, and click the **LOGIN** button.

    The System Information page displays. You can now navigate from this page to other pages and configure your switch.

You are ready to configure the switch through the local browser interface. For detailed information about how to use the local browser interface to configure the switch with all its options, the *M4300 Series and M4300-96X Fully Managed Switches User Manual*, which you can download by visiting downloadcenter.netgear.com.

Configure an SNMPv3 user profile using the local browser interface

Configuring an SNMPv3 user profile is a part of the user configuration. Any user can connect to the switch using the SNMPv3 protocol, but for authentication and encryption, additional steps are needed.

This procedure describes how to access the local browser interface and configure an SNMPv3 user profile when you already know the switch IP address for your access method.

Either connect to an Ethernet network port and use the management interface IP address or connect to the OOB port and use the OOB port IP address.

To configure an SNMP V3 new user profile:

1. Connect an Ethernet cable from an Ethernet port on your computer either to an Ethernet network port on the switch or to the OOB port on the switch.

2. Launch a web browser such as Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer.

3. Enter **http://<ipaddress>** in the URL field of your browser, in which **<ipaddress>** is either the management interface IP address or the OOB port IP address, depending on your type of connection.

   A login window opens.

4. Enter **admin** for the user name, leave the password field blank, and click the **LOGIN** button.

   The System Information page displays.

5. Select **System > Configuration > User Accounts**.

   The User Accounts page displays.

6. From the **User** menu, select **Create**.

   A new user is created.

7. In the **User Name** field, enter a new user name.

8. In the **Password** field, enter a new password and then retype it in the **Confirm Password** field.

   Note: If SNMPv3 authentication is used for this user, the password must be eight or more alphanumeric characters.

   ---

9. If you do not need authentication and encryption, go to <u>Step 13</u>.

10. To enable authentication, from the **Authentication Protocol** menu, select either **MD5** or **SHA**.

11. If you do not need encryption, go to <u>Step 13</u>.

12. To enable encryption, from the **Encryption Protoco**l menu, select **DES**. In the **Encryption Key** field, enter an encryption code of eight or more alphanumeric characters.

13. Click the **Apply** button.

    Your settings are saved.

2

Use the Auto Install Configuration

Auto Install is a software feature that provides for the configuration of a switch automatically when the switch is initialized and no configuration file is found on the switch.

This chapter includes the following sections:

- Auto Install configuration concepts
- Switch IP address assignment concepts
- TFTP IP address and configuration file name concepts
- About conflicting TFTP server configurations
- About DNS server requirements
- About obtaining a configuration file
- About obtaining an image from a TFTP server through Auto Install
- Configure Auto Install

Auto Install configuration concepts

The downloaded configuration file is not distributed across the chassis. When an administrator saves the configuration, the configuration file is distributed to all blades.

The Auto Install process requires you to enable DHCP. The downloaded configuration file is not automatically saved to the `startup-config` file. An administrator must explicitly issue a save request to save the configuration. The Auto Install process depends on the configuration of other devices in the network, including a DHCP server or a TFTP server and, if necessary, a DNS server.

Auto Install occurs in three phases:

1. Configuration or assignment of an IP address to the switch
2. Assignment of a TFTP server
3. Downloading a configuration file for the switch from the TFTP server

Switch IP address assignment concepts

If DHCP is enabled on the switch and an IP address is not yet assigned, the switch requests an IP address assignment. The IP address assignment through DHCP normally functions with the Auto Install feature. That is, the following information that is returned from the server is recognized:

- The IP address (`yiaddr`) and subnet mask (option 1) to be assigned to the switch.
- The IP address of a default gateway (option 3), if needed for IP address communication. Some network configurations require the specification of a default gateway through which some IP address communication can occur. Option 3 of a DHCP response specifies the default gateway.

After an IP address is assigned to the switch, if a host name is not already assigned, then Auto Install issues a DNS request for the corresponding host name. This host name is also displayed as the CLI prompt the same as if the **hostname** command was used.

TFTP IP address and configuration file name concepts

A DHCP server might return the following TFTP configuration file and IP address information:

- The name of the configuration file (bootfile or option 67) to be downloaded from the TFTP server.
- The identification of the TFTP server from which to obtain the bootfile. See the following fields:
  - The host name of the TFTP server (option 66 or sname). Either the TFTP address or name is specified, not both, in most network configurations. If a TFTP host name is given, a DNS server is required to translate the name to an IP address.
  - The IP address of the TFTP server (option 150).
  - The address of the TFTP server (siaddr) to be used for Auto Install requests.

You can also enter this information manually.

No DHCP configuration is saved in the `startup-config` file.

About conflicting TFTP server configurations

The TFTP server IP address can be deduced from multiple sources. It is selected from one of the following fields, listed from the highest priority to the lowest:

- The **sname** field of a DHCP reply
- The TFTP server name (option 66) of a DHCP reply
- The TFTP server address (option 150) field of a DHCP reply
- The **siaddr** field of a DHCP reply

About DNS server requirements

A DNS server is required to resolve the IP address of the TFTP server only if the sname or option 66 value is used.

About obtaining a configuration file

After obtaining IP addresses for both the switch and the TFTP server, the Auto Install process attempts to download a configuration file. A host-specific configuration file is downloaded, if possible. Otherwise, a network configuration file is used as a bridge to get the final configuration. For more information, see Host-specific configuration file on page 27 and Default network configuration file on page 27.

Host-specific configuration file

If the DHCP server specifies a bootfile name, the switch attempts to download a host-specific configuration file. The switch makes three unicast TFTP requests for the specified bootfile. If the unicast attempts fail, or if a TFTP server address was not provided, the Auto Install process stops. No broadcast attempts are made.

Note: The bootfile is required for a file type of `*.cfg`. The bootfile cannot be named `fastpath.cfg`, `startup-config`, or `hpc_broad.cfg`. These names are reserved.

Default network configuration file

If the switch cannot find the specified bootfile or the bootfile name from the DHCP server, the switch attempts to download the default network configuration file (`fp-net.cfg`). The switch issues TFTP requests for a network configuration file in the same manner that it attempts to download a host-specific configuration file.

The default network configuration file must contain IP address–to–host name mappings using the command **ip host** *hostname address*. If the default network configuration file does not contain the switch IP address, the switch uses DNS to attempt to resolve its host name.

The following example is a sample `fp-net.cfg` file:

```
config
...
ip host switch_to_setup 192.168.1.10
ip host another_switch 192.168.1.11
... <other hostname definitions>
exit
```

When a host name is determined, the switch issues a TFTP request for a file named *hostname*`.cfg`, in which *hostname* is the first eight characters of the switch's host name.

If the switch cannot map its IP address to a host name, Auto Install sends TFTP requests for the default configuration file `host.cfg`.

The following table summarizes the configuration files that can be downloaded, and the order in which they are sought.

Table 1. Configuration files and order

Order Sought	File Name	Description	Final File Sought
1	*bootfile*.cfg	Host-specific configuration file, ending in a *.cfg file extension. *bootfile* represents the name of the file.	Yes
2	fp-net.cfg	Default network configuration file.	No
3	*hostname*.cfg	Host-specific configuration file, associated with host name. *hostname* is the first eight characters of the switch's host name.	Yes
4	host.cfg	Default configuration file.	Yes

The following table displays the determining factors for issuing unicast TFTP requests.

Table 2. Unicast TFTP requests

TFTP Server Address Available	Host-Specific Router Configuration File Name Available	TFTP Request Method
Yes	Yes	Issue a unicast request to the TFTP server for the host-specific router configuration file.
Yes	No	Issue a unicast request to the TFTP server for a default network or router configuration file.

About obtaining an image from a TFTP server through Auto Install

You can use Auto Install to let the switch download an image from a TFTP server using DHCP option 125. The image update can either upgrade or downgrade the firmware on the switch.

For the switch to be able to download an image from a TFTP server, the DHCP server must include an image description file that lists the name of the image that the switch must download from the TFTP server. For example, the autoinstall_dhcp image description file on the DHCP server lists the m4300v12.0.8.7 image name that the switch must download from the TFTP server.

Option 125 in the DHCP server must contain the following information (the example uses the autoinstall_dhcp image description file and the m4300v12.0.8.7 image name):

- **Enterprise number (4 octets)**. 0x0000 0x11ae

  In decimals, the enterprise number for NETGEAR is 4526.

- **Data length (1 octet)**. 0x12

  The data length includes the SubOption code plus the SubOption length plus the image description file name: 1+1+16.

  - **SubOption code (2 octets)**. 0x05
  - **SubOption length (1 octet)**. 0x10

    The length of the name of the image description file.

  - **Image description file name (N octets)**. 61.7574.6f69.6e73.7461.6c6c.5f64.6863.70

    In plain text, the name of the image description file is `autoinstall_dhcp`.

The content of the `autoinstall_dhcp` image description file is `m4300v12.0.8.7.stk`, which is the name of the image that the switch must download from the TFTP server.

You can change the name for the image description file, but then you must also change the option 125 data length, which is based on the SubOption code, SubOption length, and image description file name.

Configure Auto Install

The following figure shows an Auto Install configuration with a DHCP server and a TFTP server, allowing a configuration file to be distributed across a chassis.

The following information is configured on the DHCP server:

- The IP address (`yiaddr`) and subnet mask (option1)
- The name of the configuration file (bootfile or option 67)
- The IP address of the TFTP server (option 150)

The configuration file is located on the TFTP server (for example, `switch.cfg`).
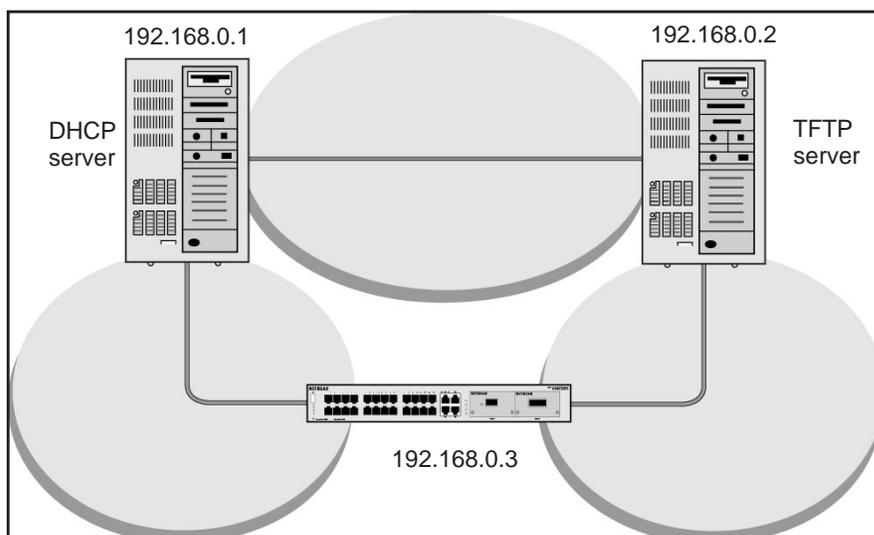

Figure 1. Components in an Auto Install configuration

Configure Auto Install through the CLI

This section describes how to configure Auto Install through the CLI.

To use the CLI to configure Auto Install:

1. Download the configuration file from the TFTP server.
2. Save the configuration file automatically after autoconfig completes.

    ```
    (Netgear switch) #boot host auto-save
    ```

3. Continue Auto Install:

    ```
    (Netgear switch) #boot autoinstall start
    ```

4. Request an IP address, configuration file name, and TFTP IP address from the DHCP server:

    ```
    (Netgear switch) #

    Config file 'startup-config' created successfully.

    AutoInstalled configuration is saved.

    (Netgear switch) #show autoinstall

    AutoInstall Mode............................. Stopped

    AutoInstall Persistent Mode.................. Enabled

    AutoSave Mode................................ Disabled

    AutoInstall Retry Count...................... 3

    AutoInstall State............................ AutoInstall is
    completed.
    ```

    Auto Install is now completed.

Configure Auto Install through the local browser interface

This section describes how to configure Auto Install through the local browser interface.

To use the local browser interface to configure Auto Install:

1. Prepare your computer with a static IP address:
    *   For access over an Ethernet network port, use a static IP address in the 169.254.0.0/16 subnet.

        For example, use 169.254.100.201 for your computer.

    *   For access over the OOB port, use a static IP address in the 192.168.0.0/16 subnet.

        For example, use 192.168.0.201 for your computer.

2. Connect an Ethernet cable from an Ethernet port on your computer to an Ethernet network port on the switch or to the OOB port on the switch.

3. Launch a web browser such as Google Chrome, Mozilla Firefox, or Microsoft Internet Explorer.

4. Enter the default IP address of the switch in the web browser address field:
   - For access over an Ethernet network port, enter **169.254.100.100**.
   - For access over the OOB port, enter **192.168.0.239**.
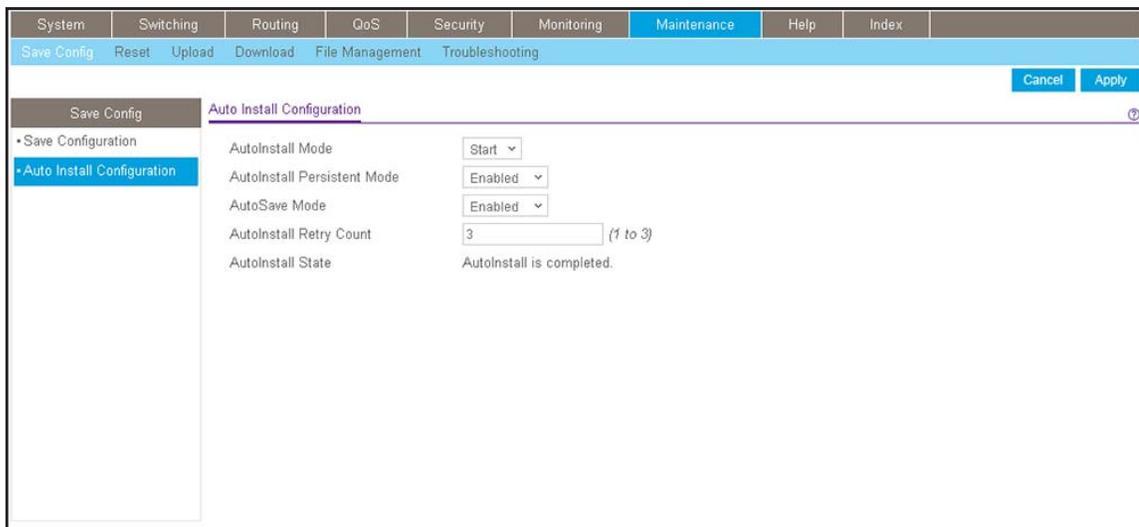
   A login window opens.

5. Enter the user name and password.

   The default admin user name is **admin** and the default admin password is blank, that is, do not enter a password.

6. Click the **Login** button.

   The local browser interface menu displays.

7. Select **Maintenance > Save Config > Auto Install Configuration**.

8. From the **AutoInstall Mode** menu, select **Start**.

9. From the **AutoSave Mode** menu, select **Enabled**.

10. Click the **Apply** button.

    Your settings are saved and the Auto Install process starts.

Monitor and complete the Auto Install process

When the switch boots in the absence of a saved configuration file, a message displays on the console stating that the Auto Install procedure is beginning. A message displays when Auto Install is complete. The message also indicates that the configuration must be saved to prevent Auto Install from being performed on the next reboot.

When Auto Install is successfully completed, the messages are in the buffered log, not on the console. You can execute a **show running-config** command to validate the contents of the configuration. You must be logged in as administrator.

About saving the configuration

An administrator must explicitly save the downloaded configuration in nonvolatile memory so that the configuration is available on the next reboot. If you are using the CLI, first make sure that the configuration is correct, and then enter the **copy running-config startup-config** command.

If the host-specific configuration file is not found

If the Auto Install process fails to download any configuration file, a message is logged. If a final configuration file is not downloaded, the entire process repeats every 10 minutes.

How to terminate the Auto Install process

You can terminate the Auto Install process at any time before downloading any configuration files. Terminate the Auto Install process if the switch is disconnected from the network or if no configuration files are configured on the TFTP server. Termination of the Auto Install process ends further periodic requests for a host-specific file.

About managing the downloaded configuration files

The configuration files downloaded through Auto Install are stored in nonvolatile memory. The files can be managed (viewed, displayed, deleted) along with files downloaded through the configuration scripting utility.

A configuration file is not automatically deleted after it is downloaded. However, the configuration file does not take effect upon a reboot. If you save the configuration file, the saved configuration takes effect upon reboot. If you do not save the configuration file, the Auto Install process occurs again on a subsequent reboot. A repeated install might cause previously downloaded files to be overwritten.

About restarting the Auto Install process

If the configuration file is not found on the switch, the Auto Install process automatically starts a subsequent reboot. A restart of the install process can occur if the configuration was never saved on the switch or if you issued a command to erase the configuration file.

During a particular session, you can restart the Auto Install process if you previously stopped it during the same login session. This action reinitiates the process for that login session only. We recommend that you restart the install process only when you are certain that the configuration is clear.

If no configuration file is stored on the switch, reinitialization of the switch after you enter the **erase startup-config** command automatically activates the Auto Install process.

Event logging for the Auto Install process

The switch logs a message for each of the following events:

- The Auto Install component receives a configuration file name and other options upon resolving an IP address through a DHCP client. The boot option values are logged.
- The Auto Install component initiates a TFTP request for a boot (configuration) file and receives the file, or the request times out. File names and server IP addresses and host names are logged.
- The Auto Install component initiates a request for a host name. The IP address and resolved host name are logged.
- The Auto Install component initiates a TFTP request for a *hostname.cfg* file and receives the file, or the request times out. File names and server IP addresses and host names are logged.
- The start of a configuration script is being applied.
- The CLI scripting utility fails to apply a configuration file.
- The Auto Install process is complete.
- The name of the specified configuration file conflicts with a reserved configuration file name.