

# Working with DHCP Servers

## DHCP Servers

The DHCP tab combines server management, group organization, and pool management together under a single tab.

The screenshot shows the DHCP Servers tab in a web application. The top navigation bar includes links for Dashboard, Resources, DNS, DHCP (selected), Servers, IPAM, Peering, Reporting, and Global Commander. A search bar and user profile icon are on the right. Below the navigation bar, there's a sub-navigation bar with tabs for DHCP, DHCP Groups, DHCP Servers (selected), DHCP Pools, DHCP Classes, and DHCP Logging, along with an 'Add Server' button. The main content area is titled 'DHCP Server List' and contains a table with the following data:

| Server Name              | Server Backend | Server Host              | Parent Resource    | Actions           |
|--------------------------|----------------|--------------------------|--------------------|-------------------|
| QA DHCP VM               | ISC            | test-tools.6clabs.com    | TLR                | Delete Push Perms |
| Test Server 1            | ISC            | test.com                 | QA Test Resource 2 | Delete Push Perms |
| Approvals Test Server    | ISC            | test.com                 | TLR                | Delete Push Perms |
| Centos DHCP Managed DHCP | PV DHCP MySQL  | empty-centos1.6clabs.com | Centos DHCP        | Delete Push Perms |

The **DHCP Servers** tab contains functions for adding, updating, and managing DHCP servers as well as scheduling server tasks.

Users with resource "read" permissions may view DHCP Server information, however only those with either Admin permissions or granted group-level server permissions can manage DHCP server creation, edits, and deletion.

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## DHCP Server List Interface

DHCP

DHCP Groups

DHCP Servers

DHCP Pools

DHCP Classes

DHCP Logging

Add Server

### DHCP Server List

| Server Name              | Server Backend | Server Host              | Parent Resource    | Actions                    |
|--------------------------|----------------|--------------------------|--------------------|----------------------------|
| QA DHCP VM               | ISC            | test-tools.6clabs.com    | TLR                | <div>DeletePushPerms</div> |
| Test Server 1            | ISC            | test.com                 | QA Test Resource 2 | <div>DeletePushPerms</div> |
| Approvals Test Server    | ISC            | test.com                 | TLR                | <div>DeletePushPerms</div> |
| Centos DHCP Managed DHCP | PVDHCPMYSQL    | empty-centos1.6clabs.com | Centos DHCP        | <div>DeletePushPerms</div> |

1) **Add Server Button:** Opens a dialog for creating a DHCP server.

2) **Server List:**

3) **Server Name:** Name of the DHCP server. Click to open server details.

4) **Server Backend:** The DHCP Service backend type for the server. Available types are ISC and CPNR.

5) **Server Host:** The server host.

6) **Parent Resource:** The resource set as the Parent for the server.

7) **Actions:** The actions that may be performed on each server:

Actions

Delete

Push

Perms

8) **Delete:** Deletes the server from ProVision.

9) **Push:** Pushes all pools associated with the selected server.

10) **Perms:** Opens a shortcut to edit permissions for the selected server (Admin only).

## Working with DHCP Servers

### Add a Server

To create a new server, start from the **DHCP** Tab, select the **DHCP Servers** sub menu. Then, click the "Add Server" button next to "DHCP Server List".

DHCP

DHCP Groups

DHCP Servers

DHCP Pools

DHCP Classes

DHCP Logging

Add Server

### DHCP Server List

| Server Name | Server Backend | Server Host           | Parent Resource | Actions                    |
|-------------|----------------|-----------------------|-----------------|----------------------------|
| QA DHCP VM  | ISC            | test-tools.6clabs.com | TLR             | <div>DeletePushPerms</div> |

This will open the "Server Settings" page.

# Server Settings

## 1) Set Server Common Settings

In the "Common Settings" section of Server Settings, enter the new server's Display Name (the name that will appear on the ProVision interface), the FQDN / IP, server type, service type, and desired parent Resource (may be left at the default Top Level Resource).

**Server Settings :**

Common Settings

**Display Name:**

Enter Display Name

This is the server name that will appear in the DHCP interface.

**Server IP:**

ex: 216.239.32.10

DHCP server IP or Hostname.

**DHCP Service:**

ISC DHCP

**Parent Resource:**

TLR

The new server resource will be a child of the Parent Resource.

**Display Name:** Name you want the server to display.

**Server IP:** The IP or Hostname of the DHCP server.

**DHCP Service:** Select the DHCP service type - ISC DHCP, or Cisco Prime Network Registrar (CPNR).

**Parent Resource:** Select the resource to be the "parent" of the server - typically TLR (Top Level Resource), but may be a lower level resource such as a Customer or Location. The parent resource selection is the basis of access permissions for the server.

## 2) Set Server Specific Settings

The next section is entering server service-type specific settings. The options visible in this section will depend on the "DHCP Service" type chosen under "Common Settings".

Here, we see the fields for ISC DHCP server settings. Enter the server Username, Password, Port, Leases Directory, Server Start / Stop Commands, Server Test Command and Freelines (if desired).

Your fields may vary for other server types.

For SSH Public Key Authentication, click on the ON / OFF toggle to select "ON" or "OFF" as needed.

ISC DHCP Connection Settings

SSH Public Key Authentication:

OFF

Please choose your SSH authentication type.

Username:

Enter Username

Username for the SSH connection. It must have write access to the ISC DHCP configurations.

Password:

Enter Password

Port:

22

Server SSH Port.

SSH Route:

Use ssh routes in order to define a chain from ssh jump hosts.

Config File Path:

/etc/dhcp/dhcpd.conf

Path to the dhcpd.conf config.

Leases Directory:

/var/lib/dhcp

Path to the remote server where the leases are located.

Server Type:

DHCPv4

Depending on the Server type with option -4 or -6 ProVision will export only IPv4 or IPv6 pools.

Server Start Command:

/etc/init.d/dhcpd start

Server Stop Command:

/etc/init.d/dhcpd stop

Config Test Command:

/etc/init.d/dhcpd configtest

Skip Config Test:

OFF

If set to On, Config Test command will not be executed on the generated dhcpd.conf.

Skip PID Check:

OFF

If set to On, checking for new dhcpd pid will be disabled.

Freelins:

The Freelins will be applied to the server configuration.

### 3) Set Advanced Server Settings

If desired, Advanced Settings for the DHCP Server may be entered. Toggle "Authoritative Server" to "On" or "Off", and fill in the fields for Routers, Domain Name Servers, Domain Name, Default Lease Time, Max Lease Time, Local Port, or Log Facility.

Advanced Server Settings

Authoritative Server: ☐ OFF

Routers:  
Enter Routers.

Domain Name Servers:  
Enter Domain Name Servers.

Domain Name:  
Enter Domain Name.

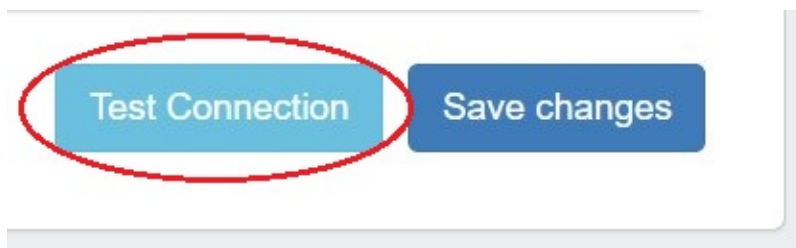
Default Lease Time:  
Ex 600

Max Lease Time:  
Ex. 86400

Local Port:  
Ex. 67

Log Facility:  
Ex. local7

After entering the server-specific settings in this section, you can click the "Test Connection" button at the bottom right of the page to test the server connection and authentication.



A success or failure response will pop up.

Successfully connected.

Test Connection Save changes

#### 4) Set DHCP Group Settings for Server

In the last section, select whether to attach the server to an existing DHCP Group. Pools assigned to the selected Group will automatically be attached to the server.

DHCP Group Settings

Attach to Groups:  
x Test Group

The server will be attached to the list of the groups and the pools from the groups are going to be exported automatically.

#### 5) Save Changes

Save your changes when done! Just click the "Save Changes" button at the bottom right of the page.

DHCP Group Settings

Attach to Groups:

✖ Test Group

The server will be attached to the list of the groups and the pools from the groups are going to be exported automatically.

Test Connection

Save changes

The new server will now be added to the DHCP Servers list. These settings may be changed at any time by selecting the server from the server list and editing the information.

## Edit Servers

Edit an existing server by clicking once on the server name in the DHCP Servers list.

| Server Name         | Server Backend | Server Host    | Parent Resource  | Actions                                            |
|---------------------|----------------|----------------|------------------|----------------------------------------------------|
| QA DHCP VM          | ISC            | test-tools.com | QA Test Resource | <div>Delete</div> <div>Push</div> <div>Perms</div> |
| Example DHCP Server | ISC            | 216.239.32.10  | TLR              | <div>Delete</div> <div>Push</div> <div>Perms</div> |
| 50281 DHCP Module   | ISC            | 1.2.3.4        | MyNewEntry       | <div>Delete</div> <div>Push</div> <div>Perms</div> |

The "Server Settings" page will open.

Click inside the field that you want to change, type your changes, and then click "Save Changes" at the bottom of the page.

DHCP Group Settings

Attach to Groups:

✖ Test Group

The server will be attached to the list of the groups and the pools from the groups are going to be exported automatically.

Test Connection

Save changes

## Review Pools Connected to a Server

There are two ways that pools may be connected to a DHCP server:

1) Directly connected, by attaching the pool to a server from the Pool Details page.

or,

2) Connected by a Group that has been set as the default DHCP Group for the server, selected under "DHCP Group Settings".

Both are able to be viewed on the DHCP Server Settings page.

To view either, open the Server Settings page for the server by clicking on the server name in the DHCP Servers list.

Edit an existing server by clicking once on the server name in the DHCP Servers list.

| Server Name         | Server Backend | Server Host    | Parent Resource  | Actions                                                           |
|---------------------|----------------|----------------|------------------|-------------------------------------------------------------------|
| QA DHCP VM          | ISC            | test-tools.com | QA Test Resource | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| Example DHCP Server | ISC            | 216.239.32.10  | TLR              | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| 50281 DHCP Module   | ISC            | 1.2.3.4        | MyNewEntry       | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |

The "Server Settings" page will open.

## Pools Directly Connected to the Server

Scroll to the bottom of the page, and open the module titled "Pools directly connected to the server" by clicking on the expansion arrow.

| Pools directly connected to the server        |                     |             |                   |                        |
|-----------------------------------------------|---------------------|-------------|-------------------|------------------------|
| <div>Subnet Pools</div> <div>Host Pools</div> |                     |             |                   |                        |
| Pool Name                                     | Last Modified       | IP          | MAC               | Actions                |
| gadgethost1                                   | 12/12/2022 12:11:27 | 2600:450::1 | 00:11:22:33:44:55 | <a href="#">Detach</a> |

A pool list will show the pool(s) that have been directly connected to this server.

Here, you may browse through subnet and host pools by selecting the appropriate tabs, sort the list by Pool Name or Last Modified, or open the Pool Details page by clicking on the name.

## Zones Connected via a Group

If a default Group has been selected under "DHCP Group Settings" for the server, pools under that Group will be connected to the server and able to be viewed on the Server Settings page.

Scroll to the bottom of the page, and open the module titled "Pools connected to Group '(Group Name)'" by clicking on the expansion arrow.

| Pools connected to Group: "Default Group"     |                     |                 |              |                |                        |
|-----------------------------------------------|---------------------|-----------------|--------------|----------------|------------------------|
| <div>Subnet Pools</div> <div>Host Pools</div> |                     |                 |              |                |                        |
| Pool Name                                     | Last Modified       | Subnet          | Range Min    | Range Max      | Actions                |
| Pool 1                                        | 06/23/2018 21:32:17 | 192.168.80.0/20 | 192.168.81.1 | 192.168.96.254 | <a href="#">Detach</a> |
| Pool 2                                        | 06/22/2018 19:31:36 | 10.140.93.80/30 | 10.140.93.81 | 10.140.93.82   | <a href="#">Detach</a> |
| Pool 3                                        | 06/22/2018 19:56:09 | 10.10.16.0/20   | 10.10.16.1   | 10.10.31.254   | <a href="#">Detach</a> |

A pool list will show the pool(s) that have been directly connected to this server.

Here, you may browse through subnet and host pools by selecting the appropriate tabs, sort the list by Pool Name or Last Modified, or open the Pool Details page by clicking on the name.

## Pushing a Server

### Manual Push

Manually pushing all pools on a server may be done directly from the DHCP Server list. Under the "Actions" section of the Server List, click the "Push" button for the desired server.

| Server Name         | Server Backend | Server Host    | Parent Resource  | Actions                                                           |
|---------------------|----------------|----------------|------------------|-------------------------------------------------------------------|
| QA DHCP VM          | ISC            | test-tools.com | QA Test Resource | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| Example DHCP Server | ISC            | 216.239.32.10  | TLR              | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| 50281 DHCP Module   | ISC            | 1.2.3.4        | MyNewEntry       | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |

Pushing may also be done while in the Server Settings page. While in the Server Settings page, click the "Push Pool" button at the top right of the page.

DHCP
DHCP Groups
DHCP Servers
DHCP Pools
DHCP Logging

Server Settings : DHCP - DHCP 6c Test Server - QA test
[Push Pools](#)
[Schedule Push](#)
[Scan Server](#)

Unpushed Configuration

Current Pushed Configuration

Common Settings

A "DHCP Push Status" box will appear, showing the status as the server is pushed. Once all pools have been pushed successfully, a green status message of "Finished DHCP Pushing Request" will appear. At this point, the push is complete and the window may be closed.

## Scheduled Push

DHCP server pushes may be scheduled from either the Admin Area [Scheduler](#) Tab, or from within the DHCP Server Settings page. Scheduled pushes require Admin access.

For information on scheduling a push from the [Scheduler](#) Tab, see [Scheduler Tab](#) documentation.

To schedule a push from a server's Settings page, open the Server Settings page for the desired server, and click on the "Schedule Push" button.

DHCP
DHCP Groups
DHCP Servers
DHCP Pools
DHCP Logging

Server Settings : DHCP - DHCP 6c Test Server - QA test
[Push Pools](#)
[Schedule Push](#)
[Scan Server](#)

Unpushed Configuration

Current Pushed Configuration

Common Settings

The Push Scheduler dialog will open. Click on the calendar on the left to select a date for the push, set the desired push time on the right, enter a notification email address, and then click "Save Changes".



Push Scheduler

Pick date and time (UTC):

<

January 2022

>

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23

24

25

26

27

28

29

30

31

1

2

3

4

5

Time

19:28

19:29

19:30

19:31

19:32

19:33

19:34

Notification Email:

something@example.com

Close

Save changes

Once a schedule push has been created, a "Scheduled Tasks" module will appear at the top of the Server Settings page.

Click on the expansion arrow for the module to open and view the tasks. Scheduled tasks may be deleted by clicking the "Delete" button under "Actions".

Server Settings : DHCP - DHCP 6c Test Server - QA test

Push Pools

Schedule Push

Scan Server

Scheduled Tasks

Task Name

Last Run

Repeat Time

Actions

Scheduled Push: DHCP - DHCP 6c Test Server - QA test

One time on 2018-06-24 at 15:20 PDT

Delete

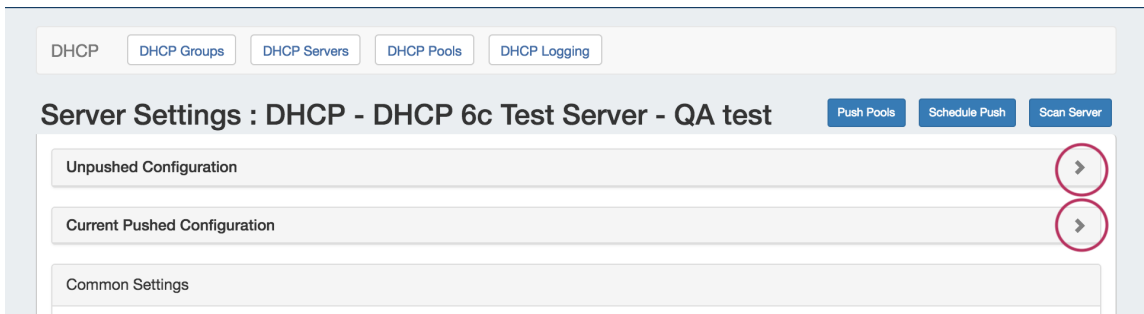
If necessary, the Scheduled Push may be edited from the [Scheduler](#) Tab in the Admin area. See the [Scheduler Tab](#) for information on editing scheduled tasks.

## Review Pushed / Unpushed Configurations

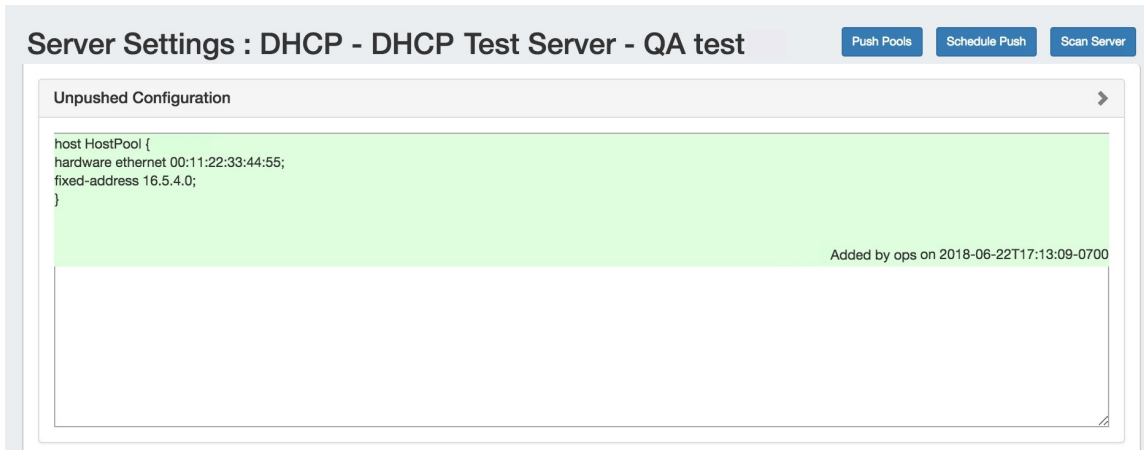
After a server has been created, unpushed edits may be viewed under the "Unpushed Configurations" module in Server Settings.

After a push, the most recent pushed configuration may be viewed under the "Current Pushed Configuration" module in Server Settings.

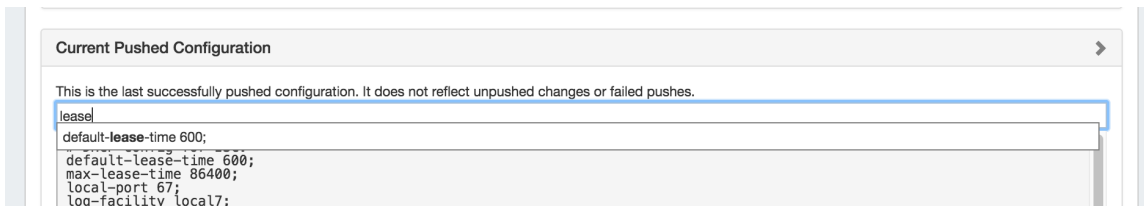
To open either, click the expansion arrow for the module on the top right of the header.



The Unpushed Configuration module will show the edits made to the configuration since the last successful push, and the user, time, and date of the change.

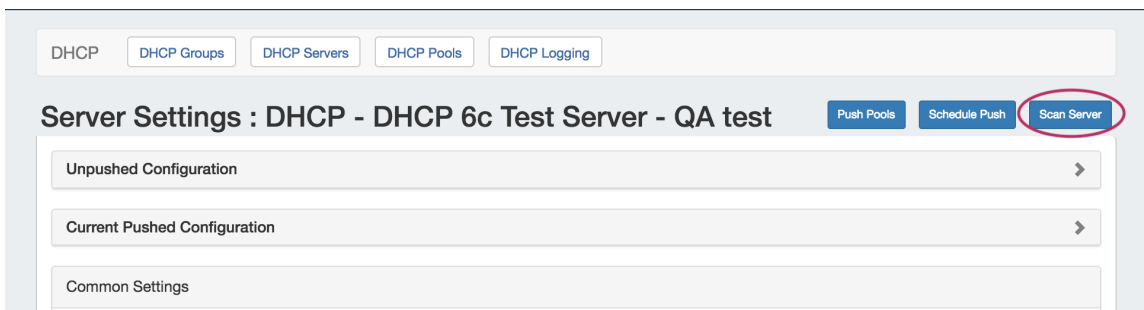


In Current Pushed Configuration, you may search for a specific line by entering a term in the search bar and hitting the "Enter" key - the config will jump to the appropriate line for review.



## Scan a Server

Scan a DHCP Server by clicking the "Scan Server" button at the top of the Server Settings page.



When complete, a "Server Statistics" module will appear. Expand the module, and if the server permissions allow, the scanned statistics will show in the module.

If permissions or directory location fails during the scan, an error message will show instead.

## Delete a Server

Delete a server by clicking the "Delete" button under the "Actions" section of the Server List for the desired server.

| Server Name         | Server Backend | Server Host    | Parent Resource  | Actions                                                           |
|---------------------|----------------|----------------|------------------|-------------------------------------------------------------------|
| QA DHCP VM          | ISC            | test-tools.com | QA Test Resource | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| Example DHCP Server | ISC            | 216.239.32.10  | TLR              | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |
| 50281 DHCP Module   | ISC            | 1.2.3.4        | MyNewEntry       | <a href="#">Delete</a> <a href="#">Push</a> <a href="#">Perms</a> |

## Additional Information

For more information on working with DHCP, see the following areas:

- [DHCP Tab](#)
- [Working with DHCP Groups](#)
- [Working with DHCP Pools](#)
- [Working with DHCP Gadgets](#)