

# Configuration of Address Resolution Protocol (ARP) on Sx500 Series Stackable Switches

## Objective

Address Resolution Protocol (ARP) is a telecommunication protocol which is used to resolve the network layer addresses into link layer addresses. The switch maintains an ARP table for all the devices that are present in its directly connected subnets. Whenever a switch needs to send or route packets to a local device, it first searches the ARP table to obtain the MAC address of the device. ARP is also very helpful for troubleshooting purposes.

ARP Configuration needs the following to be done:

1. Choose whether ARP configuration needs to work on Layer 2 mode or Layer 3 mode. Please refer to the article [Stack Settings on Sx500 Series Stackable Switches](#) if this configuration needs to be changed.
2. Create a VLAN; this is done only when the switch is in the Layer 3 mode because when switch is in Layer 2 mode it only operates in management VLAN which is created by default. This configuration can be found in the article [VLAN Creation on Sx500 Series Stackable Switches](#).
3. Create IPv4 Interface, which is created only when the switch is in the Layer 3 mode, which can be configured under **IP Configuration > Management and IP Interface > IPv4 Interface**.
4. Configure ARP, this is covered in this article.

If the switch is in Layer 3 mode Proxy ARP can also be configured. Proxy ARP is a method by which a device on a given network replies to ARP queries for a network address which is not on that network. The Proxy ARP knows about the location where the incoming traffic is destined and gives its own MAC address in reply to the ARP request. This article also explains how to enable ARP proxy on the switch. Once the ARP proxy is enabled in this page, it is enabled on all interfaces.

This article explains the steps for the configuration of ARP in both Layer 2 and Layer 3 mode.

## Applicable Devices

- Sx500 Series Stackable Switches

## Software Version

- 1.3.0.62

## [Basic ARP Configuration](#)

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP (Layer 2 or Layer 3)**. The *ARP* page opens:

**ARP**

☀ ARP Entry Age Out:  sec. (Range: 1 - 40000000, Default: 300)

Clear ARP Table Entries:  All  
 Dynamic  
 Static  
 Normal Age Out

**ARP Table**

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status  |
|--------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |

☀ ARP Entry Age Out:  sec. (Range: 1 - 40000000, Default: 60000)

Clear ARP Table Entries:  All  
 Dynamic  
 Static  
 Normal Age Out

Step 2. Enter the number of seconds the dynamic addresses can remain in the ARP Table in the ARP Entry Age Out field. A dynamic address ages out after the time in the table exceeds the ARP entry age out time. When a dynamic address ages out it is deleted from the table and it is added back in the table only when it is learned again. The default value for Layer 2 mode is 300 and 60000 for Layer 3 mode.

☀ ARP Entry Age Out:  sec. (Range: 1 - 40000000, Default: 300)

Clear ARP Table Entries:  All  
 Dynamic  
 Static  
 Normal Age Out

Step 3. Click the radio button which corresponds to the type of ARP entries to be cleared from the system in the Clear ARP Table Entries field.

- All — Deletes all the static and the dynamic addresses immediately.
- Dynamic — Deletes all the dynamic addresses immediately. Dynamic addresses are added from the ARP replies the switch gets so they age out after a configured time.
- Static — Deletes all the static addresses immediately. Static addresses are configured manually so they do not age out with time.
- Normal Age Out — Deletes dynamic addresses based on the configured ARP Entry Age Out Time.

Step 4. Click **Apply** to save the settings.

## ARP Configuration in Layer 2 Mode

### Add Entry to the ARP Table

**Note:** You may have to refer [Basic ARP Configuration](#) before this procedure.

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP**. The *ARP* page opens:

**ARP**

⚙️ ARP Entry Age Out:  sec. (Range: 1 - 40000000, Default: 300)

Clear ARP Table Entries:  All  
 Dynamic  
 Static  
 Normal Age Out

**ARP Table**

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status  |
|--------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |

The ARP Table displays the following fields.

- Interface — IPv4 Interface of the directly connected IP subnet where the IP device resides.
- IP Address — IP address of the IP device.
- MAC Address — MAC Address of the IP device.
- Status — Whether the entry was manually entered or dynamically learned.

Step 2. Click **Add**. The *Add ARP Entry* window appears.

**ARP Table**

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status  |
|--------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |

The IP Version field displays the IP address format supported by the host. Only IPv4 is supported.

**Note:** The Interface field displays the IPv4 interface on the switch. For Layer 2 mode, there is only one directly connected IP subnet which is always in the management VLAN. All the static and dynamic addresses in the ARP table reside in the management VLAN.

IP Version: Version 4  
 Interface: VLAN 1  
 \* IP Address: 192.168.1.200  
 \* MAC Address: 04059cd89ba3

Apply Close

Step 3. Enter the IP address of the local device in the IP Address field.

IP Version: Version 4  
 Interface: VLAN 1  
 \* IP Address: 192.168.1.200  
 \* MAC Address: 04059cd89ba3

Apply Close

Step 4. Enter the MAC address of the local device in the MAC Address field.

IP Version: Version 4  
 Interface: VLAN 1  
 \* IP Address: 192.168.1.200  
 \* MAC Address: 04059cd89ba3

Apply Close

Step 5. Click **Apply** which causes the ARP entry to be written to the running configuration file.

| ARP Table                |           |               |                   |         |
|--------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status  |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static  |

Add... Edit... Delete

## Edit ARP Entry

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP**. The *ARP* page opens:

| ARP Table                           |           |               |                   |         |
|-------------------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/>            | Interface | IP Address    | MAC Address       | Status  |
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static  |
| <input checked="" type="checkbox"/> | VLAN 1    | 192.168.1.250 | 04:97:3d:47:8c:5f | Static  |

Step 2. Check the desired entry and click **Edit**. The *Edit ARP Table* page opens:

Interface: VLAN 1

\* IP Address: 192.168.1.100

\* MAC Address: 04:7d:7b:03:26:c7

Status:  Dynamic  Static

Step 3. Edit the desired fields. The descriptions of the fields can be found in Steps 1 to 4 in the *Add Entry to the ARP Table* subsection of the article. The status of the fields can be changed to Static or Dynamic.

Interface: VLAN 1

\* IP Address: 192.168.1.100

\* MAC Address: 04:7d:7b:03:26:c7

Status:  Dynamic  Static

Step 4. Click **Apply**. The settings are applied.

| ARP Table                |           |               |                   |        |
|--------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.250 | 04:97:3d:47:8c:5f | Static |

## Delete ARP Entry

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP**. The *ARP* page opens:

| ARP Table                           |           |               |                   |        |
|-------------------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/>            | Interface | IP Address    | MAC Address       | Status |
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |
| <input checked="" type="checkbox"/> | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static |
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.250 | 04:97:3d:47:8c:5f | Static |

Step 2. Check the desired entry and click **Delete**. The interface is deleted.

| ARP Table                |           |               |                   |        |
|--------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.250 | 04:97:3d:47:8c:5f | Static |

## ARP Configuration in Layer 3 Mode

### Add Entry to the ARP Table

**Note:** You may have to refer [Basic ARP Configuration](#) before this procedure.

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP**. The *ARP* page opens:

| ARP Table   |           |               |                   |        |
|---|-----------|---------------|-------------------|--------|
| Filter: <input checked="" type="checkbox"/> Interface equals to <input type="text" value="VLAN 1"/> <input type="button" value="Go"/> <input type="button" value="Clear Filter"/> |           |               |                   |        |
| <input type="checkbox"/>  | Interface | IP Address    | MAC Address       | Status |
| <input type="checkbox"/>  | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |

The ARP Table displays the following fields.

- Interface — IPv4 interface of the directly connected IP subnet where the IP device resides.
- IP Address — IP address of the IP device.
- MAC Address — MAC address of the IP device.
- Status — Whether the entry was manually entered or dynamically learned.

Step 2. The Layer 3 mode has a Filter field. Choose the interface type from the drop-down list in the Filter field and click **Go**.

Step 3. Click **Add**. The *Add ARP Entry* window appears.

Note that only interfaces to which an IPv4 address is assigned are available for selection.

IP Version: Version 4

Interface:  Port  LAG  VLAN 1

IP Address: 192.168.1.200

MAC Address: 04059cd89ba3

Apply Close

The IP Version field displays the IP address format supported by the host. Only IPv4 is supported.

Step 4. For Layer 3 mode, an IPv4 interface can be configured in a port, LAG, or VLAN. Choose the IPv4 interface which is needed from the list of configured IPv4 addresses.

**Note:** In the above image Port and LAG cannot be selected as they are not configured with an IPv4 address. For LAG configuration, refer to article [Link Aggregation Group \(LAG\) Management and Settings on Sx500 Series Stackable Switches](#) and assign port with an IPv4 address.

Note that only interfaces to which an IPv4 address is assigned are available for selection.

IP Version: Version 4

Interface:  Port  LAG  VLAN 1

IP Address: 192.168.1.200

MAC Address: 04059cd89ba3

Apply Close

Step 5. Enter the IP address of the local device in the IP Address field.

Note that only interfaces to which an IPv4 address is assigned are available for selection.

IP Version: Version 4

Interface:  Port  LAG  VLAN 1

IP Address: 192.168.1.200

MAC Address: 04059cd89ba3

Apply Close

Step 6. Enter the MAC address of the local device in the MAC Address field.

Note that only interfaces to which an IPv4 address is assigned are available for selection.

IP Version: Version 4

Interface:  Port  LAG  VLAN 1

✱ IP Address: 192.168.1.200

✱ MAC Address: 04059cd89ba3

**Apply** Close

Step 7. Click **Apply** which causes the ARP entry to be written to the running configuration file.

**ARP Table**

Filter:  Interface equals to VLAN 1 Go Clear Filter

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status  |
|--------------------------|-----------|---------------|-------------------|---------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |
| <input type="checkbox"/> | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static  |

Add... Edit... Delete

## Edit ARP Entry

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP (Layer 2 or Layer 3)**. The *ARP* page opens:

**ARP Table**

Filter:  Interface equals to VLAN 1 Go Clear Filter

| <input type="checkbox"/>            | Interface | IP Address    | MAC Address       | Status  |
|-------------------------------------|-----------|---------------|-------------------|---------|
| <input checked="" type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Dynamic |
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static  |

Add... **Edit...** Delete

Step 2. Check the desired entry and click **Edit**. The *Edit ARP Table* page opens:

Interface:  Port  LAG  VLAN 1

✱ IP Address: 192.168.1.100

✱ MAC Address: 04:7d:7b:03:26:c7

Status:  Dynamic  Static

**Apply** Close

Step 3. Edit the desired fields. The descriptions of the fields can be found in Steps 1 to 6 in the *Add Entry to the ARP Table* subsection of the article. The status can be changed to Static or Dynamic.

**Note:** In the above image Port and LAG cannot be selected as they are not configured with an IPv4 address. For LAG configuration, refer to article [Link Aggregation Group \(LAG\) Management and Settings on Sx500 Series Stackable Switches](#) and assign port with an IPv4 address.

Interface:  Port  LAG  VLAN 1

IP Address: 192.168.1.100

MAC Address: 04:7d:7b:03:26:c7

Status:  Dynamic  Static

Apply Close

Step 4. Click **Apply**. The settings are applied.

ARP Table

Filter:  Interface equals to VLAN 2 Go Clear Filter

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status |
|--------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |
| <input type="checkbox"/> | VLAN 2    | 192.168.2.250 | 7c:5d:65:73:9d:3c | Static |

Add... Edit... Delete

## To Delete ARP Configuration

Step 1. Log in to the web configuration utility and choose **IP Configuration > ARP**. The *ARP* page opens:

ARP Table

Filter:  Interface equals to VLAN 1 Go Clear Filter

| <input type="checkbox"/>            | Interface | IP Address    | MAC Address       | Status |
|-------------------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/>            | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |
| <input checked="" type="checkbox"/> | VLAN 1    | 192.168.1.200 | 04:05:9c:d8:9b:a3 | Static |

Add... Edit... Delete

Step 2. Check the desired entry and click **Delete**. The entry is deleted.

ARP Table

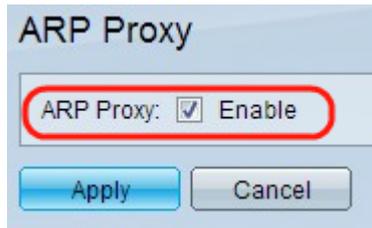
Filter:  Interface equals to VLAN 1 Go Clear Filter

| <input type="checkbox"/> | Interface | IP Address    | MAC Address       | Status |
|--------------------------|-----------|---------------|-------------------|--------|
| <input type="checkbox"/> | VLAN 1    | 192.168.1.100 | 04:7d:7b:03:26:c7 | Static |

Add... Edit... Delete

## ARP Proxy Configuration in Layer 3 Mode

Step 1. Log in to the web configuration utility to choose **IP Configuration > ARP Proxy (Layer 3)**. The *ARP Proxy* page opens:



The screenshot shows a web configuration utility window titled "ARP Proxy". Inside the window, there is a form field labeled "ARP Proxy:" with a checked checkbox and the word "Enable" next to it. This field is highlighted with a red circle. Below the form field are two buttons: "Apply" and "Cancel".

Step 2. Check **Enable** in the ARP Proxy field to enable the switch to reply to ARP requests through the use of the MAC address of the switch for the nodes that are located remotely.



The screenshot shows the same "ARP Proxy" configuration window. The "ARP Proxy:" field with the checked checkbox and "Enable" text is visible. The "Apply" button is highlighted with a red circle, indicating it is the next step in the process.

Step 3. Click **Apply**. The settings are applied.