

IP Pool Thresholds

- IP Pool Utilization Thresholds, on page 1
- Saving Your Configuration, on page 2
- Context-Level IP Pool and Group Thresholds, on page 3
- IP Address Pool-Level Thresholds, on page 3

IP Pool Utilization Thresholds

When IP address pools are configured on the system, they can be assigned to a group. All configured public IP address pools that were not assigned to a group are treated as belonging to the same group (automatically named "Public IP Pools"). Individually configured static or private pools are each treated as their own group.

IP address pool thresholds can be configured for all IP pools or pool groups configured within a system context or for individual pools or groups. These thresholds generate alerts or alarms based on calculations pertaining to percent-available for pool groups and percent-free, percent-on-hold, percent-released, and percent-used for individual pools.

Alerts or alarms are triggered for IP address pool utilization based on the following rules:

- **Enter condition:** When the actual IP address utilization percentage passes, or is equal to, the configured Threshold value an alert or alarm is set.
- **Clear condition:** When the actual IP address utilization percentage passes the Threshold value the alert or alarm is cleared.

If a trigger condition occurs within the polling interval, the alert or alarm is not generated until the end of the polling interval.

The following table describes the possible methods for configuring IP pool utilization thresholds:

Method	Description
Context-level	IP Pool Group: A single percent available threshold can be configured for all IP pool groups within a given context. The threshold is based on an aggregate measurement of available IP addresses for all IP pools within each group. **NOTE:** Separate alerts or alarms are generated for each group that experiences an event.
	IP Pool: The following thresholds can be configured for all IP address pools configured within a given system context: • Percent-free; • Percent-hold; • Percent-release; • Percent-used. **NOTE:** Separate alerts or alarms are generated for each pool that experiences an event.
IP address pool-level	The following thresholds can be configured for each IP address pool: • Percent-available for the group that the IP pool belongs to; • Percent-free; • Percent-hold; • Percent-release; and • Percent-used. Thresholds configured for individual pools take precedence over the context-level threshold that would otherwise be applied (if configured). In the event that two IP address pools belonging to the same pool group are configured with different group-available thresholds, the system uses the pool configuration that has the Enter condition that would be encountered first for the entire group.

Saving Your Configuration

When you configure thresholds they are not permanent unless you save the changes. When you have completed configuring thresholds, save your configuration to flash memory, an external memory device, and/or a network location using the Exec mode command **save configuration**. For additional information on how to verify and save configuration files, refer to the *System Administration Guide* and the *Command Line Interface Reference*.

Context-Level IP Pool and Group Thresholds

This section provides instructions for configuring a single IP address pool utilization threshold for all pools within the context. These become the default settings for all pool existing or created in this context. See IP Address Pool-Level Thresholds, on page 3 for setting thresholds for individual IP pools.

Note These instructions assume that IP address pools have been previously configured.

Configuring Context-Level IP Pool and Group Thresholds

Use the following example to configure the context-level IP Pool and group thresholds:

```
configure
 threshold poll { available-ip-pool-group | ip-pool-free | ip-pool-hold |
ip-pool-release | ip-pool-used } interval <time>
 context <context_name>
 threshold available-ip-pool-group  <low_thresh> [ clear  <high_thresh> ]
 threshold ip-pool-free <low_thresh> [ clear  <high_thresh> ]
 threshold ip-pool-hold <high_thresh> [ clear  <low_thresh> ]
 threshold ip-pool-release <high_thresh> [ clear  <low_thresh> ]
 threshold ip-pool-used  <high_thresh> [ clear  <low_thresh> ]
 threshold monitoring available-ip-pool-group
           end
```

IP Address Pool-Level Thresholds

This section provides instructions for configuring a single IP address pool utilization threshold for all pool groups within the context.

Note The IP pool-level threshold settings configured with the **ip pool** *pool_name* **alert-threshold** command take precedence over the context level IP pool threshold configuration commands.

Note These instructions also assume that IP address pools have been previously configured.

If the group-available threshold is set for individual IP pools that are a part of an IP pool group, the IP pool with the threshold that is encountered first sets the threshold for the entire group.

For example; assume there is a group named *IPGroup1*, and there are three IP pools in that group; *PoolA*, *PoolB*, and *PoolC*. Also assume that, at the IP address-pool level, the three pools have the group-available threshold set as follows:

- PoolA:

- Enter condition (low threshold) set to 40 percent
- Clear condition (high threshold) set to 60 percent

- PoolB:
  - Enter condition (low threshold) set to 30 percent
  - Clear condition (high threshold) set to 70 percent
- PoolC:
  - Enter condition (low threshold) set to 20 percent
  - Clear condition (high threshold) set to 50 percent

In this case, the Enter condition for the percentage of IP pool addresses available from the group that is encountered first is the low threshold setting for PoolA. So both the low and high threshold settings for PoolA are used for the whole group.

Configuring IP Address Pool-Level Thresholds

```
configure
 threshold poll { available-ip-pool-group | ip-pool-free | ip-pool-hold |
ip-pool-release | ip-pool-used } interval <time>
 context  <context_name>
 ip pool name alert-threshold group-available <low_thresh> [ clear <high_thresh>
 ]
 ip pool name alert-threshold pool-free <low_thresh> [ clear  <high_thresh> ]
 ip pool name alert-threshold pool-hold <high_thresh> [ clear  <low_thresh> ]
 ip pool name alert-threshold pool-release <high_thresh> [ clear <low_thresh>]
 ip pool name alert-threshold pool-used  <high_thresh> [ clear <low_thresh> ]
 exit
 threshold monitoring available-ip-pool-group
      end
```