Device Configuration Prerequisites

Required Platform Configurations for Path Trace

For certain Path Trace features to work properly, you need to make some changes to the platforms mentioned in the following table.

Table 1: Required Platform Configurations for Path Trace

Platform	Required Configuration
• Cisco ASR 1000 • Cisco ASR 9000 • Cisco ISR-G2 • Cisco ISR-4451 -X	Configure NetFlow on these routers. For information, see Cisco NetFlow Configuration, on page 2.
Devices connected to a voice or video endpoint (for example, Cisco IP phones).	Enable IPDT for these devices to discover voice/data VLAN information about the endpoints. For information, see IP Device Tracking Configuration, on page 2.
Devices on which you want Performance Monitor information.	You do not need to make any changes to the devices to run a path trace to gather performance monitor information. Cisco Path Trace does this automatically when you initiate this type of a path trace. For information about the configuration changes that Cisco Path Trace makes, see Performance Monitor Configuration, on page 2.

Cisco NetFlow Configuration

Cisco NetFlow needs to be enabled on the following devices to support the Cisco APIC-EM path trace functionality:

- Cisco ASR 1000 Series Aggregation Services Routers
- Cisco ASR 9000 Series Aggregation Services Routers
- Cisco ISR-G2 Routers
- Cisco ISR-4451 -X

The controller pulls cached NetFlow records from the device for path trace. To enable NetFlow on your devices, refer to your specific device documentation. For general information about Cisco NetFlow technology, see the Cisco IOS Flexible NetFlow Technology Q&A document.

IP Device Tracking Configuration

The Cisco APIC-EM discovery function uses several protocols and methods to retrieve network information, such as hosts IP addresses, MAC addresses, and network attachment points. To use IP Device Tracking (IPDT) for discovery, you must manually enable IPDT on the devices and interfaces for this protocol to be used to collect host information. To enable IPDT on your devices, refer to your specific device documentation. For general information about IPDT, see IP Device Tracking (IPDT) Overview.

Performance Monitor Configuration

When you run a path trace to collect **Perf Mon** statistics, the Cisco APIC-EM automatically configures all of the devices in the requested path with the necessary flow monitor commands. The Cisco APIC-EM removes the configuration from the device if there is no corresponding path trace request present or after 24 hours of the path trace request, whichever is first.

The following configuration is sent to each device in the requested path:

```
flow record type performance-monitor APIC_EM-FLOW_ANALYSIS_PERFMON_RECORD
    match ipv4 protocol
    match ipv4 source address
    match ipv4 destination address
    match transport source-port
    match transport destination-port
    match transport rtp ssrc
    collect ipv4 dscp
    collect ipv4 ttl
    collect transport rtp jitter mean
    collect transport rtp jitter minimum
    collect transport rtp jitter maximum
    collect interface input
    collect interface output
    collect counter bytes long
    collect counter packets long
    collect counter bytes rate
    collect counter packets drop (not applicable to routers)
```

```
flow monitor type performance-monitor APIC_EM-FLOW_ANALYSIS_PERFMON_MONITOR
    description APIC_EM flow-analysis request monitor
    record APIC_EM-FLOW_ANALYSIS_PERFMON_RECORD

ip access-list extended APIC_EM-FLOW_ANALYSIS_ACL
    class-map APIC_EM-FLOW_ANALYSIS_PERFMON_CLASSMAP
    match access-group name APIC_EM-FLOW_ANALYSIS_ACL
policy-map type performance-monitor APIC_EM-FLOW_ANALYSIS_PERFMON_POLICYMAP
    class APIC_EM-FLOW_ANALYSIS_PERFMON_CLASSMAP
    flow monitor APIC_EM-FLOW_ANALYSIS_PERFMON_MONITOR
interface GigabitEthernet x/y
    service-policy type performance-monitor input APIC_EM-FLOW_ANALYSIS_PERFMON_POLICYMAP

ip access-list extended APIC_EM-FLOW_ANALYSIS_ACL
    permit ip host aa.bb.cc.dd host ww.xx.yy.zz
```
[1]

[1] aa.bb.cc.dd is source ip and ww.xx.yy.zz is destination ip.