

## InfraStruXure Manager Server Appliance v4.x and Your Network

### Abstract

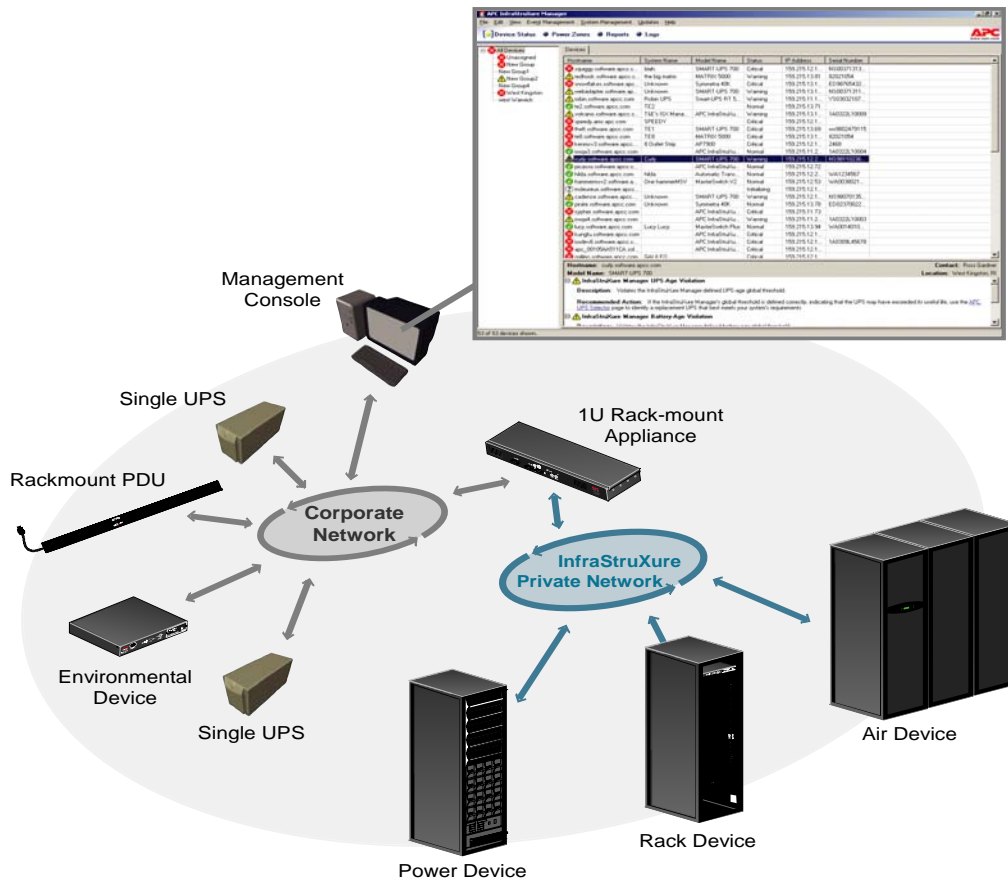
This Application Note explains how APC's InfraStruXure™ Manager Server Appliance v4.x relates to your network, provides information on the discovery process, and how the operations relate to your network.

## Introduction

### Corporate Network and APC Private Network

InfraStruXure Manager is a server appliance that is accessed remotely from client workstations/servers via Microsoft Internet Explorer. An ActiveX control is used to provide a Web-based distribution mechanism for InfraStruXure Manager's user interface.

**Note:** If you do not have the ActiveX control installed on your client workstation/server, InfraStruXure Manager will automatically download the application for you.



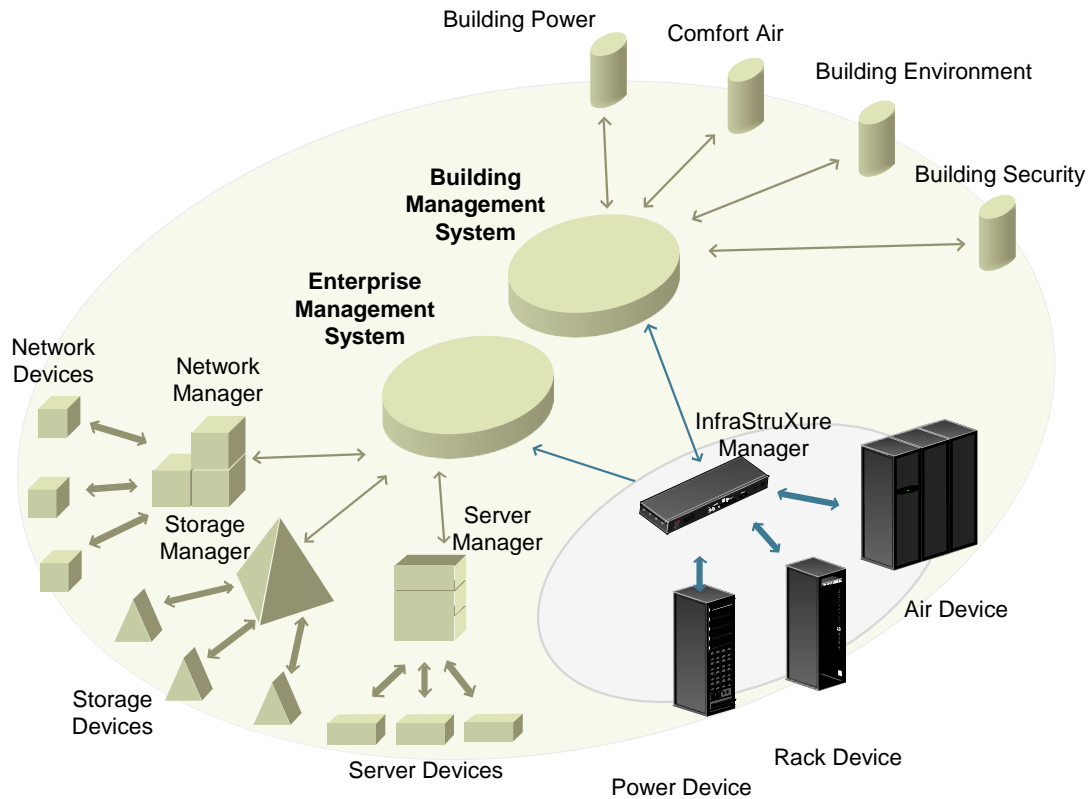
InfraStruXure Manager enables centralized management of up to a maximum of one thousand APC devices residing either on your corporate network and/or the APC private network. The APC private network monitors APC devices connected through a switch to InfraStruXure Manager's "APC LAN" port. The maximum of devices on this private network is one thousand. InfraStruXure Manager also connects to the corporate network via its "User LAN" port. The "User LAN" connection allows management of APC devices on your corporate network.

### APC Private Network Segment Address

The APC private network has two network schemas, 192.168.\*.\* or 10.0.\*.\*. These available settings give address ranges which allow InfraStruXure Manager to monitor up to 1000 devices on the "APC LAN". For example, the default settings (**192.168** as the network and **0** as the segment) select **192.168.0.2** through **192.168.3.254** as the network address range to manage 1000 devices. This ability to select a different **192.168.\*.\*** or **10.0.\*.\*** network address range increases your flexibility to manage devices, when the default network address range might conflict with another network segment on the corporate network.

## Centralized Management

An individual InfraStruXure Manager not only has the ability to centrally manage up to a thousand APC devices but also has the ability to send data from the devices that it monitors to an Enterprise Management Systems (SNMP) and a Building Management Systems (Modbus RTU). SNMP Trap forwarding is used to send data to any MIB II compliant, Enterprise Management System and the Modbus RTU protocol is supported to enable integration with Building Management Systems.



## Discovery

### Device Licenses

The maximum number of APC devices that an individual InfraStruXure Manager discovers is dependent upon the device license installed. Should you attempt to add devices that exceed the license limit, the InfraStruXure Manager discovery process will fail. However you can choose which devices to monitor by removing non-essential devices and adding more critical ones. Licenses for 25, 100, 500 and 1000 devices are available both with InfraStruXure Manager Appliance as well as to purchase separately. Additional device licenses can be added at any time up to the maximum of 1000 devices.

### Device Discovery

On the corporate network, InfraStruXure Manager discovers APC devices in a number of ways: a single IP address, a specified network segment, a number of different IP address ranges or the ability to import a list of IP addresses can be used to discover APC devices. InfraStruXure Manager uses SNMP to communicate with the APC devices on the corporate network. Therefore if you have modified the SNMP read and write community names for any APC device, you will need to enter the modified read and write community names in InfraStruXure Manager for the devices to be discovered. This information can be updated in the "Device Access" selection on the "System Management" menu.

The user name and password for an APC device must match the information in InfraStruXure Manager's "System Management" menu under "Device Access". By default, InfraStruXure Manager uses APC's default user name (apc) and password (apc) to discover APC devices. If you have modified the device user name and password, the modified user name and password must be updated in the "Device Access" selection on the "System Management" menu.

### Network Traffic

Testing has shown the initial discovery process increases network utilization by .4 to 3%, regardless of the number of devices being discovered by InfraStruXure Manager. Because there are a set number of threads allocated for SNMP communications, InfraStruXure Manager only allows so many communication transmissions on the network at any one time. As requests are sent out, InfraStruXure Manager waits for a response for that request and then it proceeds on to the next request until all the devices are discovered.

Testing has also shown that the steady state network utilization increase (with 80 + devices tested) is also within a range of from .4 to 3%. InfraStruXure Manager gathers data from devices on a configured polling basis. InfraStruXure Manager has two poll cycles: a fast poll cycle and a slow poll cycle. The fast poll cycle takes no longer than a minute to capture the dynamic data from each device the InfraStruXure Manager is monitoring. Some examples of dynamic data are temperature, humidity, or input voltage. The slow poll cycle occurs every 10 minutes to capture static data. Some examples of static data are model name, part number, or serial number.

**Note:** APC's Power Distribution Units (PDU) and Rack Power Distribution Units (rPDU) communicate asynchronously with the InfraStruXure Manager. As a result, they are not dependent upon the fast or slow poll cycles to reflect updated information. Instead, APC PDUs and rPDUs instantly reflect any changes to their dynamic or static information.

## Network Time Protocol

### Device System Clock Synchronization

InfraStruXure Manager serves as a NTP server to devices on the private APC LAN as well as APC devices on the corporate LAN. Devices discovered on the private APC LAN will automatically synchronize their system clock to the server time stored on InfraStruXure Manager. By default, each device will send a time synchronization request to InfraStruXure Manager for the time and date every two hours. Managed devices which reside of the corporate network will not automatically synchronize their system clock to the server time stored on InfraStruXure Manager upon discovery. These devices will require the IP address of InfraStruXure Manager to be entered under the "System Menu "date and time".

## Conclusion

InfraStruXure Manager automatically discovers APC networked devices via a single IP address, a specified network segment, or a number of different IP address ranges up to the number of device licenses available. Since InfraStruXure Manager uses SNMP to communicate, read/write community names for individual devices must match the information in "Device Access" information, which is found on the "System Management" menu. The device user name and password must also match the "Device Access" information. Testing has shown that both the steady state and the discovery process increase network utilization by 0.4 to 3%. InfraStruXure Manager functions as an NTP server to managed APC devices