



IP Office Technical Tip

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Using SNMP to troubleshoot an IP Office with IP phones Installed

Information provided by SNMP

SNMP can provide useful information about the system, including:-

- The total number of IP phones registered to the system.
- The total number of extensions configured but not registered on the system.
- Notification that an IP phone has registered or unregistered.
- The version of firmware running on the IP phones.

Traps

While the system is running, the ipoPhonesChangeEvent trap will be generated when IP phones register and unregister. Each trap contains the following information:-

Info	Object name	Detail
Severity	ipoGTEventSeverity	Always minor for this trap type
Timestamp	ipoGTEventDateTime	-
Extension ID	ipoPhonesExtID	-
Type of phone	ipoPhonesType	'noPhone' when IP phone unregisters
Port number	ipoPhonesPort	Always 0 for IP phone

Traps can be used to monitor the status of IP phones. It will take up to 3 minutes for a trap to be generated when an IP phone unregisters. Traps will not be sent after a reboot if the status of the phones changes during the reboot.

Which phones are registered on the system?

The phone table in SNMP has the following information in each entry:

Info	Object name	Detail
Index to the table	ipoPhonesIndex	-
Extension ID	ipoPhonesExtID	-
Extension Number	ipoPhonesExtNumber	-
User Name	ipoPhonesUserShort	-
Full Name	ipoPhonesUserLong	-
Type of phone	ipoPhonesType	'noPhone' if no phone is present
Port number	ipoPhonesPort	Always 0 for IP phone

Performing a get all on ipoPhonesType will give a list, referenced by the index (a system generated line number for the list), of all phone types on the system.

This can be done when the system is up and stable to show how many phones are registered and to provide a reference. After a reboot this can be done to find out if anything has changed by comparing the result with the reference file.

Using HP Openview (one of many possible SNMP client packages, used here for example), the following procedure can be followed to achieve this:-

To create the reference file use Steps 1 to 4 below. Once the file is created it can be used until the IP Office extension list is changed (due to the addition or deletion of an extension).

Step	Detail
1. Open the MIB Browser window	On the menu bar in HPOV go to Tools -> SNMP MIB Browser
2. Enter IP Office IP Address	Top left window: 'Name or Address'
3. Get all the entries for the object ipoPhonesType	This object is located in:- private->enterprises->Avaya->mibs->ipoMIB->ipoGeneric->ipoGenMibs->ipoPhonesMIB->ipoPhonesMibObjects-> ipoPhones->ipoPhonesTable->ipoPhonesEntry->ipoPhonesType Partial results are shown here:- 35. noPhone 36. a4612ip 37. a4602ip
4. Save the output	File -> Save As on the menu bar on completion of the query
5. Check the number of IP Phones registered to the system	Using a text editor application open the file from step 4 above and count the number of 'noPhone' entries. Subtract this from the number of entries in the table and that is the total number of phones registered on the IP Office
6 Check which phone extensions are configured but not registered	For every 'noPhone' entry, note the table index. Using the MIB browser get ipoPhonesExtNumber for each of the indices – enter the index in 'MIB instance'

IP Phone firmware

The version of application & boot software that an IP phone is running can be obtained using SNMP as they are values stored in the Phone's MIB. The relevant objects are:-

endptBOOTNAME
endptAPPNAME

Using HP Openview, the following steps are necessary to extract this information:-

Step	Detail
1. Open the MIB Browser window	On the menu bar in HPOV go to Tools -> SNMP MIB Browser
2. Enter IP Phone IP Address	Top left window: 'Name or Address'
3. Get the objects endptBOOTNAME & endptAPPNAME	These objects are located in:- private->enterprises->Avaya->mibs->ipEndpointMIBs->endpointMIB->endptID->

For all IP phones on the system

In order to get the software version from all phones on a system, a batch file can be run such as the following:-

```
$start=2
$stop=140
For $i=$start to $stop
    $addr="192.168.45." + $i
    shell "snmpget " + $addr + " .1.3.6.1.4.1.6889.2.69.1.4.9.0"
    shell "snmpget " + $addr + " .1.3.6.1.4.1.6889.2.69.1.1.21.0"
    shell "snmpget " + $addr + " .1.3.6.1.4.1.6889.2.69.1.1.22.0"
```

This will return extension number, boot software version & application software version for all phones with IP addresses 192.168.45.2 – 192.168.45.140 in the form:-

```
avaya.mibs.ipEndpointMIBs.endpointMIB.endptDEFINITY.endptNVPHONEXT.0 :
DISPLAY STRING- (ascii): 2217
avaya.mibs.ipEndpointMIBs.endpointMIB.endptID.endptAPPNAME.0 : DISPLAY
STRING- (ascii): 4602sape1_82.bin
avaya.mibs.ipEndpointMIBs.endpointMIB.endptID.endptBOOTNAME.0 : DISPLAY
STRING- (ascii): 4602sbte1_82.bin
avaya.mibs.ipEndpointMIBs.endpointMIB.endptDEFINITY.endptNVPHONEXT.0 :
DISPLAY STRING- (ascii): 2243
avaya.mibs.ipEndpointMIBs.endpointMIB.endptID.endptAPPNAME.0 : DISPLAY
STRING- (ascii): a10d01b2_1_3.bin
avaya.mibs.ipEndpointMIBs.endpointMIB.endptID.endptBOOTNAME.0 : DISPLAY
STRING- (ascii): b10d01b2_1_3.bin
```

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