MSTP MIB – mstpVlanTable
SNMP get-next

- snmp get-next returns the next MIB object and its value in the OID tree of the agent.
- Mostly used when all instance indices are not known to SNMP Manager
- #get-next sysUpTime
- system. sysUpTime.0 = Timeticks: (1199126817)
Closer look at OID tree

→ system.sysObjectID.0 = OID: enterprises.Cisco.5.45
→ system.sysUpTime.0 = Timeticks: (1199126817) 138 days, 18:54:28
→ system.sysContact.0 = "admin"

- Where is OID for “sysUpTime” in the above tree?
- Inference – Non existent OID can be used with get-next to fetch the next object in the OID tree in lexicographical order.
Proposed MIB structure

+-- mstpVlanTable (<tbd>)
  |
  | +-- mstpVlanEntry(1)
  |    | Index: mstpMaxVlan, mstpMinVlan
  |
  | +-- ---- INTEGER mstpMaxVlan(1)
  |    | Textual Convention: VlanId
  |    | Range: 1..4094
  | +-- ---- INTEGER mstpMinVlan(2)
  |    | Textual Convention: VlanId
  |    | Range: 1..4094
  | +-- -R-- Integer32 mstpVlanInstance(3)
  |    | Textual Convention: MstiOrCistInstanceId
  |    | Range: 0..64
Sample MSTP mappings

<table>
<thead>
<tr>
<th>Instance</th>
<th>VLAN mappings</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5-10,21</td>
</tr>
<tr>
<td>1</td>
<td>15-20</td>
</tr>
<tr>
<td>2</td>
<td>1-4</td>
</tr>
<tr>
<td>3</td>
<td>11-14</td>
</tr>
</tbody>
</table>
### mstpVlanTable

**INDEX (max-vlan, min-vlan)**

<table>
<thead>
<tr>
<th>Instance</th>
<th>VLAN mappings</th>
<th>Max-VLANs</th>
<th>Min-VLANs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5-10,21</td>
<td>10 and 21</td>
<td>5 and 21</td>
</tr>
<tr>
<td>1</td>
<td>15-20</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>1-4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>11-14</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Ordering by INDEX ie max-vlan, min-vlan : 4.1,10.5,14.11,20.15 and 21.21
OID sub-tree

→ mstpVlanEntry.mstpVlanInstance.4.1 =2
→ mstpVlanEntry.mstpVlanInstance.10.5 =0
→ mstpVlanEntry.mstpVlanInstance.14.11 =3
→ mstpVlanEntry.mstpVlanInstance.20.15 =1
→ mstpVlanEntry.mstpVlanInstance.21.21 =0

where mstpVlanInstance provides VLAN range to MSTI mapping

• Suitable only for continuous ranges
• More entries for discontinuous VLAN ranges – not compact and more tree elements
• Suitable for finding MSTI given VLAN id
get-next on mstpVlanTable –(1)

→ mstpVlanEntry.mstpVlanInstance.4.1 =2
→ mstpVlanEntry.mstpVlanInstance.10.5 =0
→ mstpVlanEntry.mstpVlanInstance.14.11 =3
→ mstpVlanEntry.mstpVlanInstance.20.15 =1
→ mstpVlanEntry.mstpVlanInstance.21.21 =0

• Task : Given VLAN 15 find mstpVlanTable
#get-next mstpVlanEntry.mstpVlanInstance.15
get-next on mstpVlanTable – (2)

→ mstpVlanEntry.mstpVlanInstance.4.1 = 2
→ mstpVlanEntry.mstpVlanInstance.10.5 = 0
→ mstpVlanEntry.mstpVlanInstance.14.11 = 3

←←----mstpVlanEntry.mstpVlanInstance.15

→ mstpVlanEntry.mstpVlanInstance.20.15 = 1
→ mstpVlanEntry.mstpVlanInstance.21.21 = 0

• get-next retrieves the following entry
  mstpVlanEntry.mstpVlanInstance.20.15 = 1

• The result entry provides info about the VLAN range ie 15-20 and the corresponding MSTI ie 1