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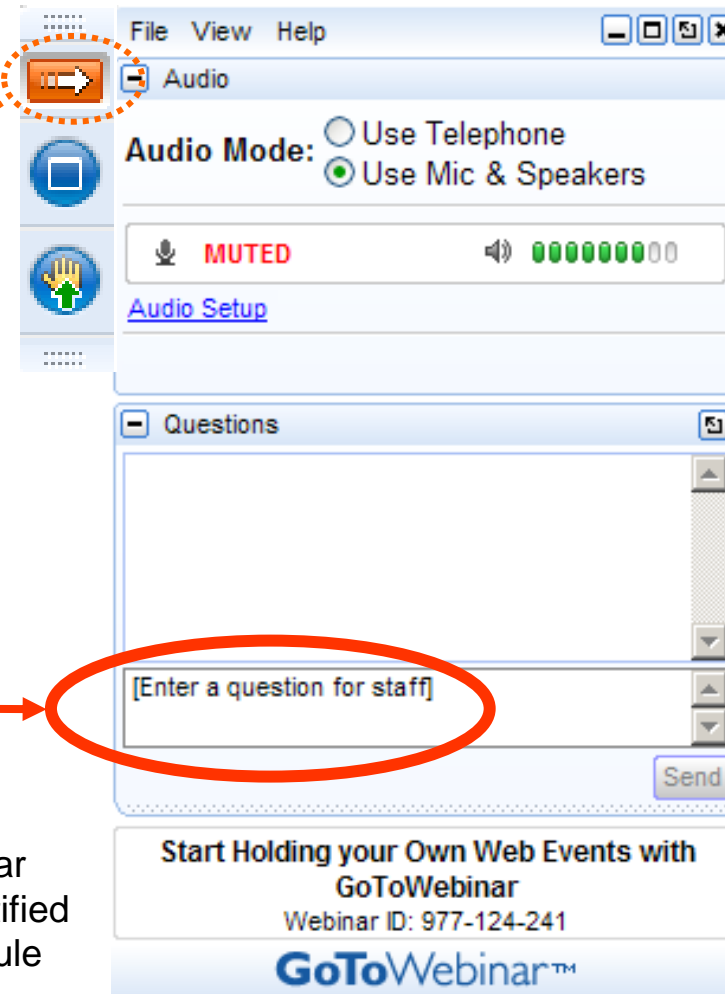
SNMP

How and Why

Your questions please?

(if you don't see the control panel, click on the orange arrow icon to expand it)

Please enter your questions in the text box of the webinar control panel (remember to press send)



The screenshot shows a GoToWebinar control panel window. At the top, there is a menu bar with 'File', 'View', and 'Help'. Below the menu bar, there is a section for 'Audio' settings. An orange arrow icon is circled in red and has a dotted line pointing to it. The audio settings include 'Audio Mode' with two radio buttons: 'Use Telephone' and 'Use Mic & Speakers'. Below this, there is a 'MUTED' indicator with a microphone icon and a volume level indicator. A link for 'Audio Setup' is also visible. Below the audio settings, there is a 'Questions' section. A text box in the 'Questions' section contains the placeholder text '[Enter a question for staff]' and is circled in red. A 'Send' button is located to the right of the text box. At the bottom of the control panel, there is a promotional banner for GoToWebinar with the text 'Start Holding your Own Web Events with GoToWebinar' and 'Webinar ID: 977-124-241'.

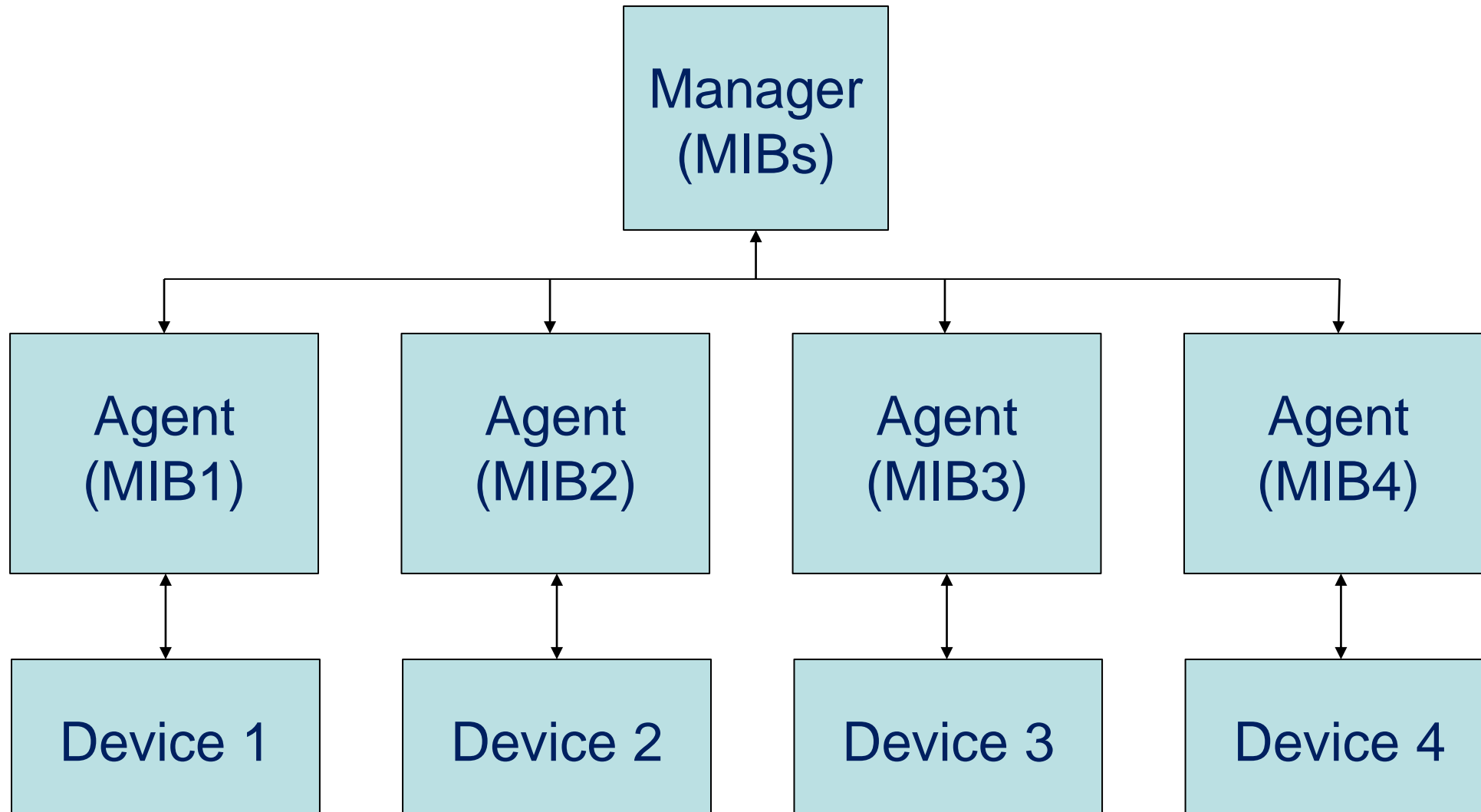


Remember: The completion of a Nautel webinar qualifies for $\frac{1}{2}$ SBE re-certification credit, identified under Category I of the Re-certification Schedule for SBE Certifications.

Ideas for things to discuss

- **What is the structure?**
 - What do the acronyms mean and how to read the MIB.
- **What are the “must haves”?**
 - The items that are essential for a successful SNMP implementation
 - What are the ‘gotchas’?
- **Roll your own or pre-made?**
 - Which fits your requirement better and what are the cost implications of each.
 - Integrating with existing managers
- **Other thoughts?**
 - What can it do that most people don’t think of?

What is the structure?



So, how does it work?

- Two types of SNMP devices

- SNMP Managers



- SNMP Agents



What is the structure?

- Managers – poll the agents to retrieve status, or push (SET) commands
- Agents/Clients – retrieve information from the devices to send to managers, or take commands from managers and send to devices
- Browsers – a visual tool to view the overall activity, to monitor status for each device, or to provide a simple way to send commands to the devices.

What is the structure?

- OID: .1.3.6.1.4.1.28142.1.300.256.329.0
 - 1.3.6.1 = iso.org.dod.internet (this will be the same for all devices)
 - 4 = private (1 – directory, 2 – management, 3 – experimental, 5 – security, 6 – SNMPv2, 7 – mail, 8 – features)
 - 1 = enterprise
 - 28142 = manufacturer code (Nautel is 28142)
 - 1 = FM transmitters
 - 300 = product identifier (in this case, VS300 transmitter)
 - 256 = section of the agent as defined by manufacturer (i.e. controller)
 - 329 = menu item (in this case, the bias voltage for PA 3)
 - 0 = result as defined by manufacturer (this one is measuring mV)

```
vsControllerPaBias3 OBJECT-TYPE
    SYNTAX Thousandths
    UNITS "V"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "PA 3 Bias"
    ::= { vsController 329 }
```


What are the commands?

Get

Get Response

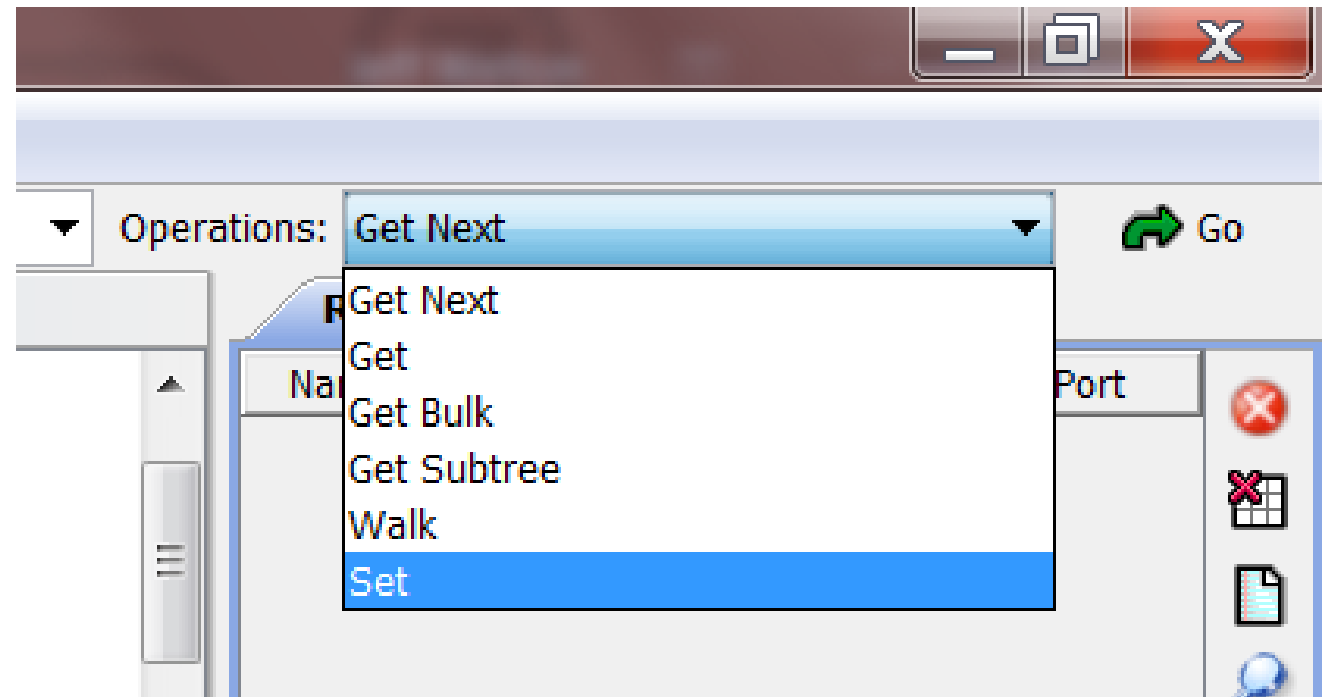
Get Next

Walk

Set


Trap

Inform



How do we make it work?

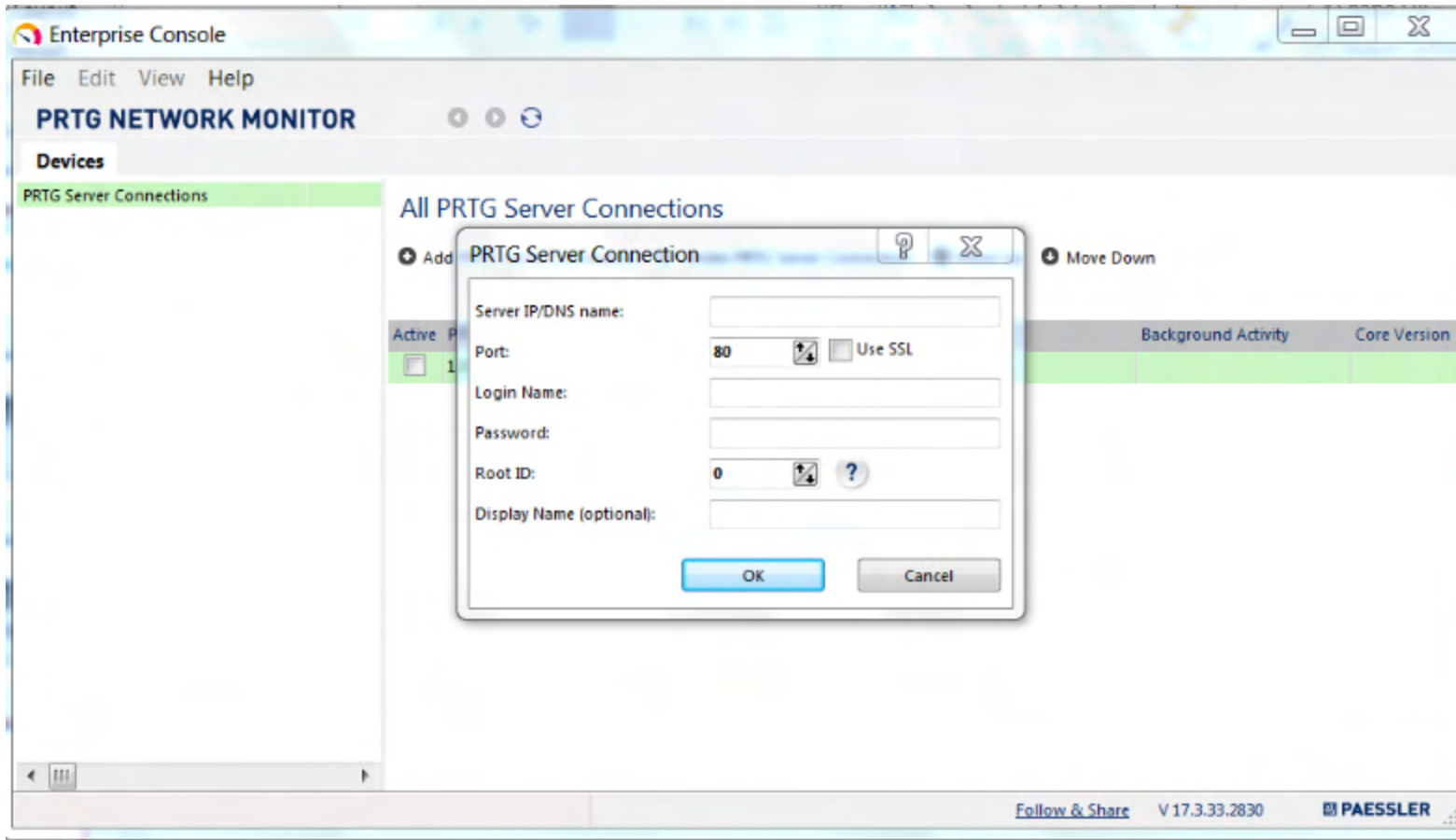
- Configure devices
 - Set Community PWs
 - Enable Traps
 - Set IP of Manager for receiving Traps



The screenshot shows a 'User Settings' dialog box with a close button (red X) in the top right corner. On the left is a vertical menu with the following items: Network Setup, Email Configuration, Notifications, SNMP Configuration (highlighted), Critical Parameters, External 10MHz Spectrum Mask, Time Setup, NTP Servers, Nautel Phone Home, Call Sign/ID, and Audio Low Thresholds. The main area is titled 'SNMP Configuration' and has two tabs: 'Agent' and 'Traps'. The 'Traps' tab is active, showing the following fields: Agent Port (161), Read Community (*****), Confirm (*****), Write Community (*****), Confirm (*****), Enable Traps, Trap Receiver IP (0.0.0.0), and Trap Receiver Port (162). At the bottom right are 'Apply' and 'Cancel' buttons.

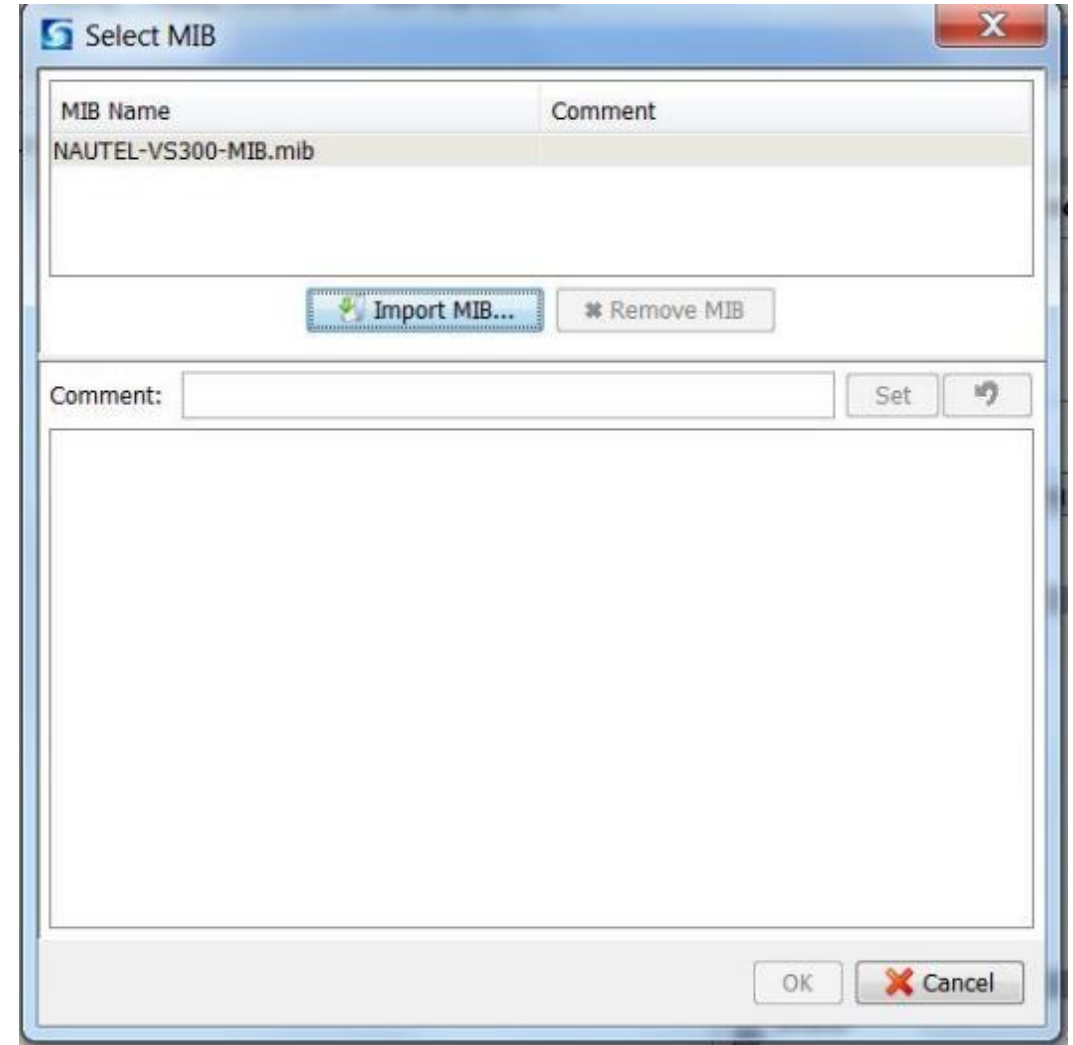
How do we make it work?

- Configure Manager
 - Set Server (Agent) IP address and login info.
 - Note that some managers will require a password (leaving blank may not be an option!)



How do we make it work?

- Configure Manager
 - Import (load) MIBs for all client devices



How do we make it work?

The screenshot displays the AutoLoad Plus software interface. The main window shows a menu bar (File, Edit, View, Tools, Help) and a toolbar. Below the toolbar is a grid of configuration options for Meter Channels and Status Channels. The 'Meter Channels' section includes columns for Command Type, Duration (ms), Raise Label, Lower Label, Raise Button Backlight Color, Lower Button Backlight Color, and Source. A table below this section lists configuration details for various channels, including 'Main' and 'N+1 Aux'.

An 'SNMP Devices' dialog box is open, showing a table of device configurations. The table has columns for Name, IP Address, Port, SNMP Version, Read String, and Write String. The 'N+1 Aux' device is highlighted in blue.

A smaller 'SNMP Device' dialog box is also open, showing the configuration for the selected device. It includes fields for Name, IP Address, Port, SNMP Version, Read String, Write String, and MIB File.

At the bottom of the main window, there is a 'Poll Rate' field set to 2 seconds and 'OK' and 'Cancel' buttons.

Command Type	Duration (ms)	Raise Label	Lower Label	Raise Button Backlight Color	Lower Button Backlight Color	Source	
1	Momentary	600	MAIN ON	MAIN OFF	Green	Red	Set by SNMP
25	Momentary	600	MAIN ExcA TS1	MAIN ExcA TS1	Green	Red	Set by SNMP
26	Momentary	600	MAIN ExcB TS1	MAIN ExcB TS1	Green	Red	Set by SNMP
27	Momentary	600	Raise Ch 27	Lower Ch 27	Green	Red	(Not used)
28	Momentary	600	Raise Ch 28	Lower Ch 28	Green	Red	(Not used)

Name	IP Address	Port	SNMP ...	Read	Write
Main	10.103.7.180	161	v2c	auxwrit3	auxwrit3
Main	10.103.7.181	161	v2c	public	public
N+1 Aux	10.103.7.182	161	v2c	auxwrit3	auxwrit3

Name	IP Address	Port	SNMP ...	Read	Write
N+1 Aux	10.103.7.182	161	v2c	auxwrit3	auxwrit3

How do we make it work?

Source

Not Used PlusBus Plus-X Macro SNMP Timer

Raise On: 1.3.6.1.4.1.2566.127.1.2.216.3.1.1.2.1.2.1 Integer: 1 ...

Raise Off: ...

Lower On: 1.3.6.1.4.1.2566.127.1.2.216.3.1.1.2.1.2.1 Integer: 2 ...

Lower Off: ...

Reset this channel to its default settings

OK Cancel

SNMP Command Binder

Device: N+1 Aux

OID: 1.3.6.1.4.1.2566.127.1.2.216.3.1.1.2.1.2.1 Browse...

Name:

Data Type:

Integer 1

IP Address . . .

Counter 0

String

Meter Channel

Status Value

Unsigned 0

OK Cancel

How do we make it work?

Source

Not Used PlusBus Plus-X Virtual Channel Set by a Macro Set by SNMP

Device:

OID:

Name:

Description:

Data Type: Match to a String
 Match to a Value

Raw Value: 5

MnCoolOutTempOK

Reset this channel to its default settings

How do we make it work?

Source

Not Used PlusBus Plus-X Virtual Channel Set by a Macro Set by SNMP

Device: ▼

OID:

Name:

Description:

Data Type: Integer: Multiply By ▼
 IEEE Float

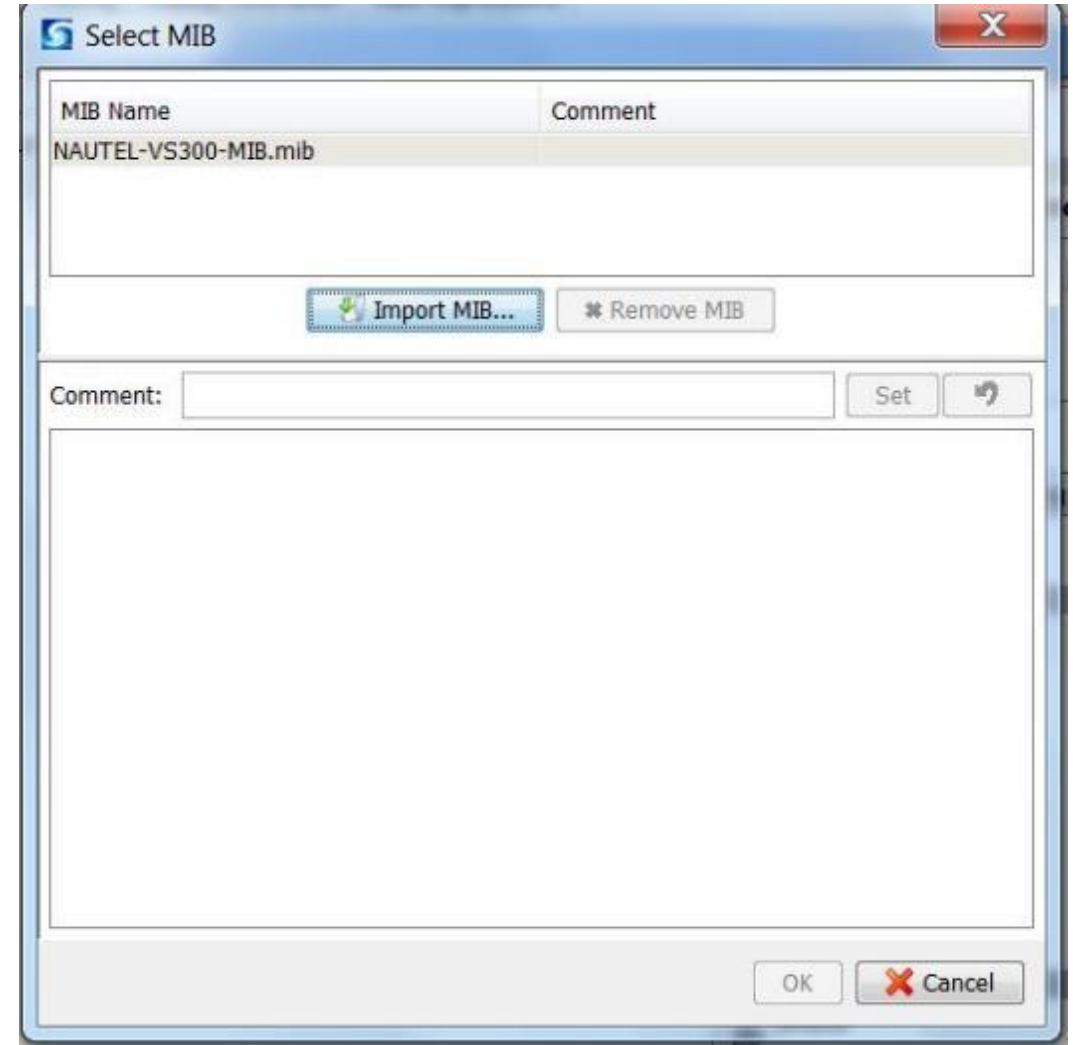
Raw Value: 42364266

42.36427

Reset this channel to its default settings

How do we make it work?

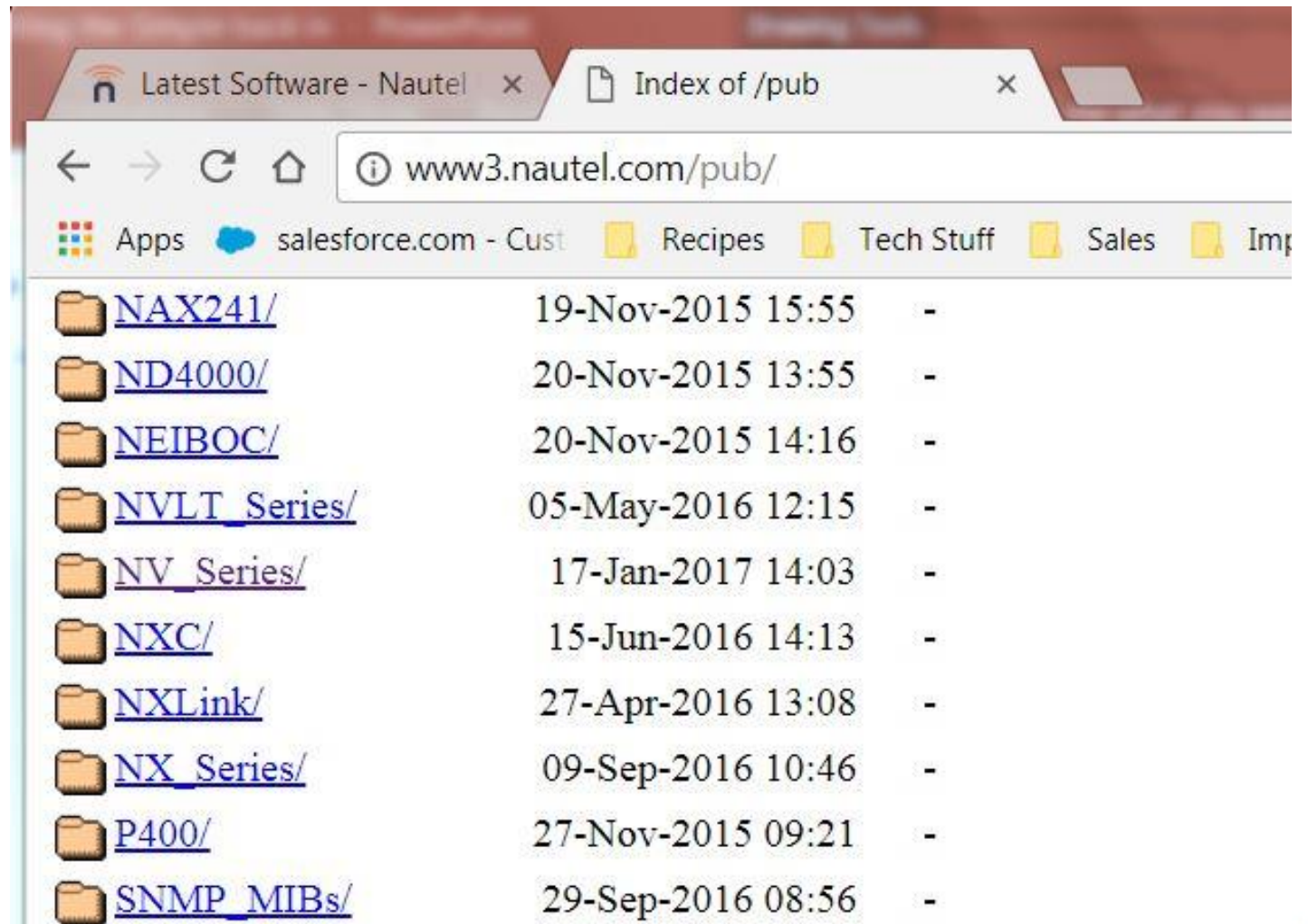
- Configure Manager
 - Import (load) MIBs for all client devices



How do we make it work?

- Configure Manager
 - Nautel provides MIBs in FTP site

http://www3.nautel.com/pub/SNMP_MIBs/



How do we make it work?

- Reporting can be as simple (or complex) as you make it



Can anyone on the network access my SNMP devices?



devices?
No!



- Security is based on the SNMP Community String.
- The community string is a user ID or password that is sent along with a GET request.
- As with any device, you'll want to change your devices default community string.

The Gotchas

- There are always gotchas. 😊
 - SNMP requires ports 161 and 162 be open (161 for messages from the manager to the agent, 162 for messages going the other way).
 - Different managers will require different amounts of configuration
 - A simple MIB browser needs very little config – but offers little organization
 - A more complex manager can be configured all the way to putting analog meters up.

Summary

- Make a plan
 - Spreadsheet, checklist, whatever – a flowchart of what you need to control/monitor
- Remember the acronyms
 - MIB and OID... with those, you rule the world!
- Don't forget the details
 - IP connectivity is kind of important
 - Current files for MIBs... sometimes equipment software updates can change these.

Online Information



Webinars

<https://www.nautel.com/resources/webinars/>



Nautel Waves Newsletter

<https://www.nautel.com/newsletters/>



YouTube

<http://www.youtube.com/user/NautelLtd>



THANK YOU!

