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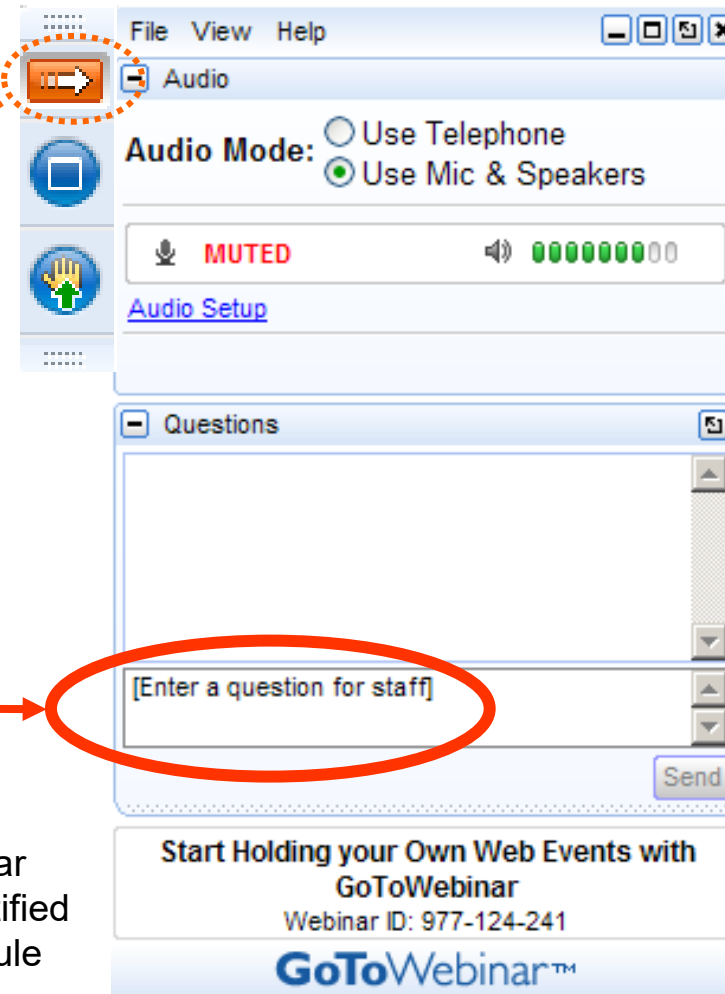
**SNMP**

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 orange line pointing to it. The 'Audio Mode' section has two radio buttons: 'Use Telephone' (unselected) and 'Use Mic & Speakers' (selected). Below this, there is a 'MUTED' indicator with a microphone icon and a volume level indicator showing 00. A link for 'Audio Setup' is visible. Below the audio settings, there is a 'Questions' section. A text box with the placeholder text '[Enter a question for staff]' is circled in red, and a solid red arrow points to it from the left. A 'Send' button is located to the right of the text box. At the bottom of the window, there is a promotional banner for 'Start Holding your Own Web Events with GoToWebinar' with the Webinar ID: 977-124-241 and the GoToWebinar logo.

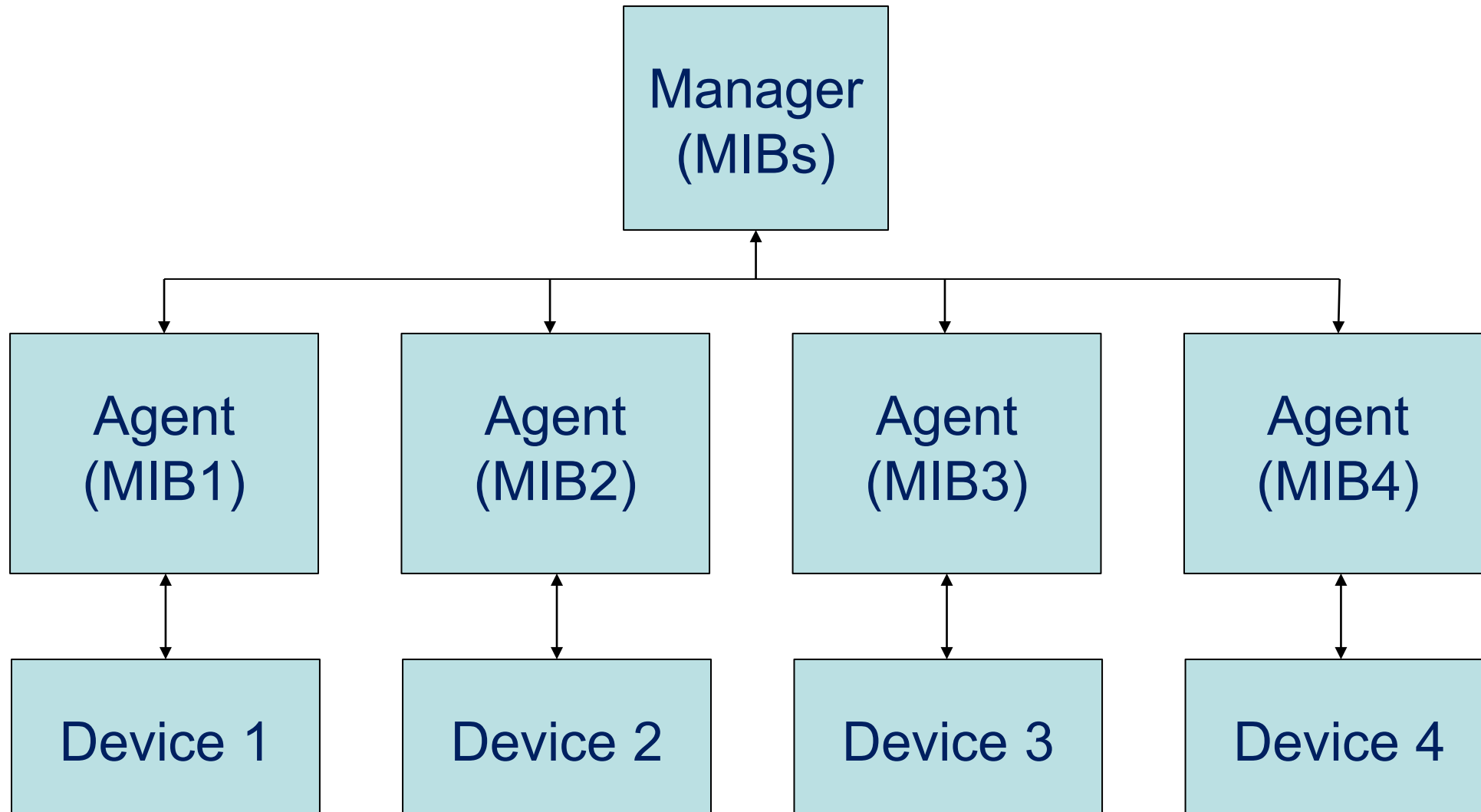


Remember: The completion of a Nautel webinar qualifies for  $\frac{1}{2}$  SBE re-certification credit, identified under Category I of the Re-certification Schedule for SBE Certifications.

# 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

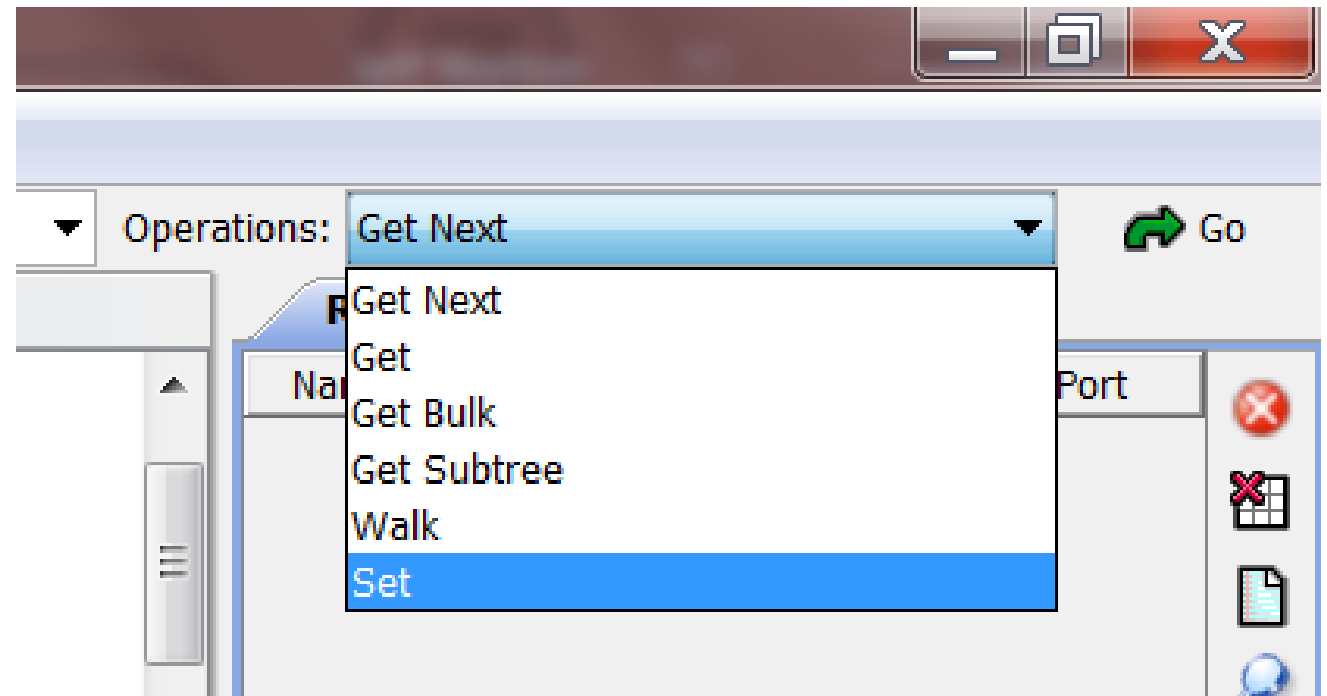
Get Next

Walk

Set

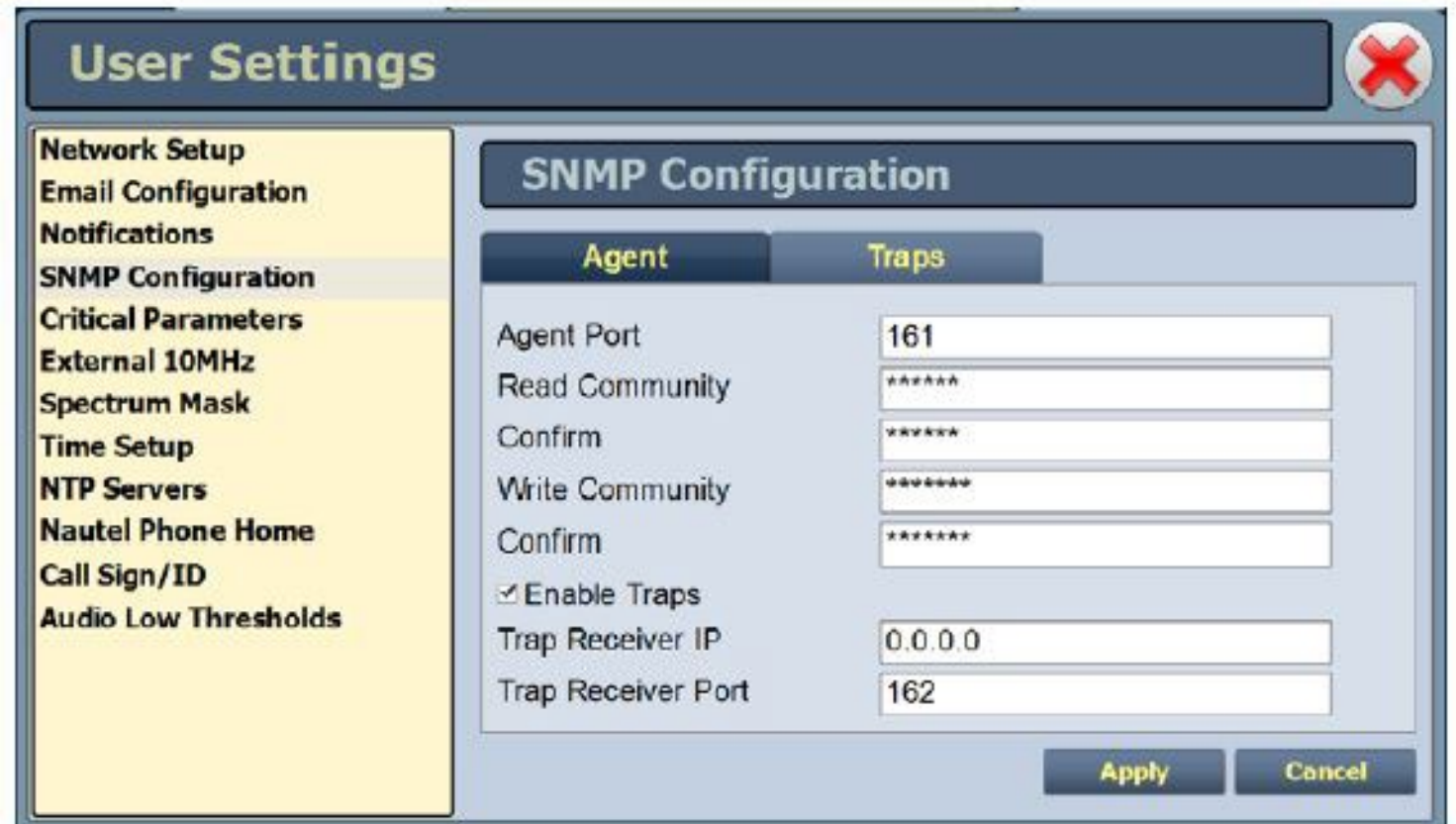
Trap

Inform



# How do we make it work?

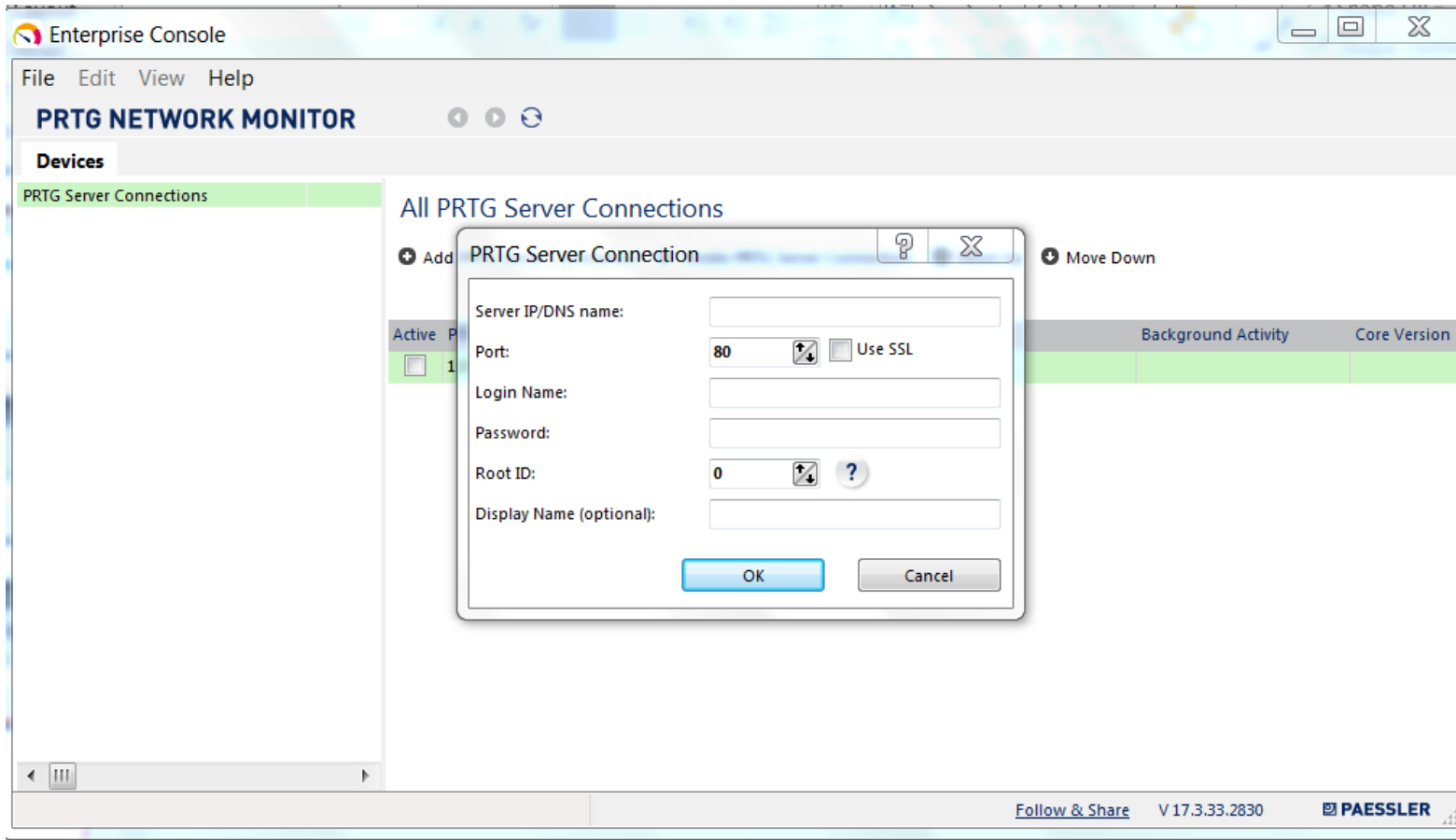
- Configure devices
  - Set Community PWs
  - Enable Traps
  - Set IP of Manager for receiving Traps



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.

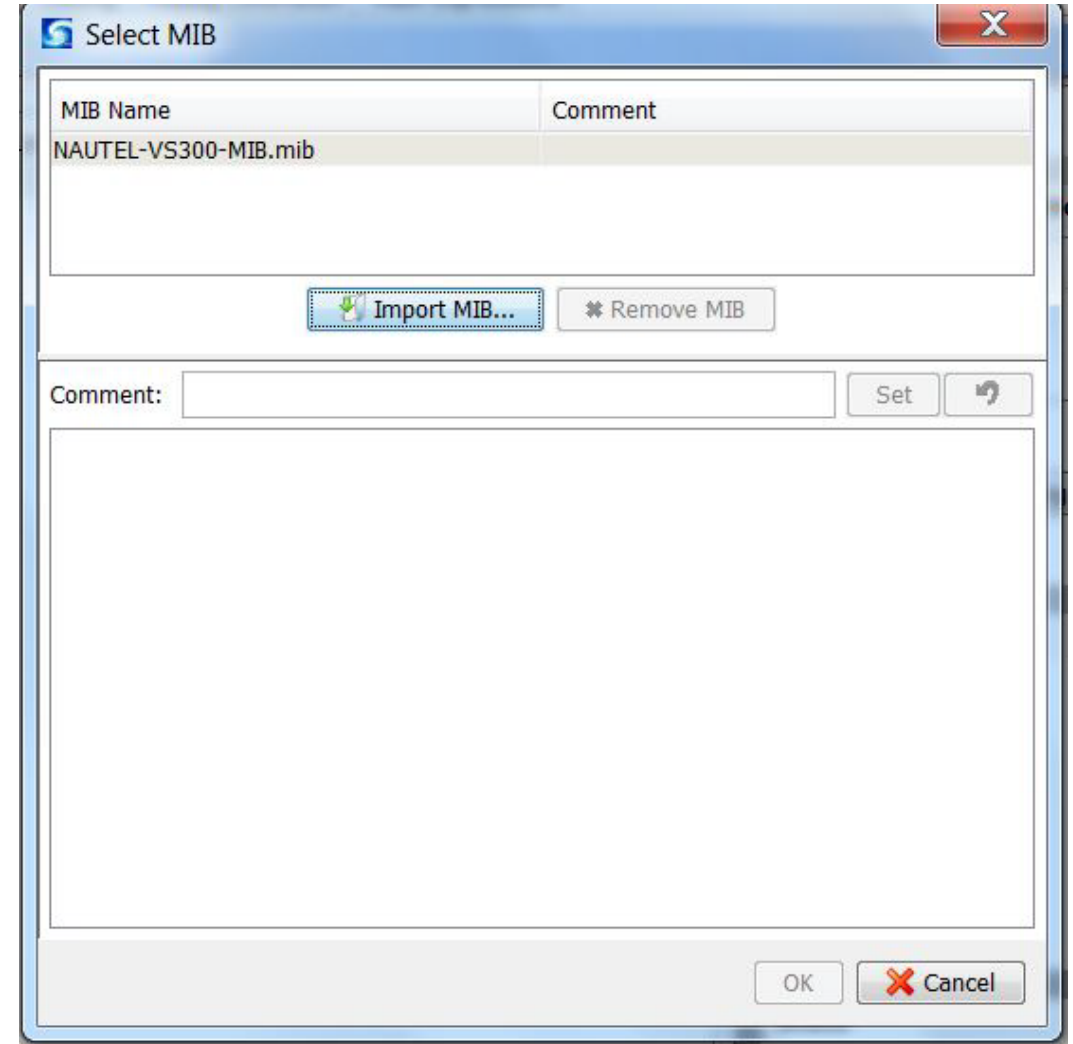
# How do we make it work?

- 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?

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

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

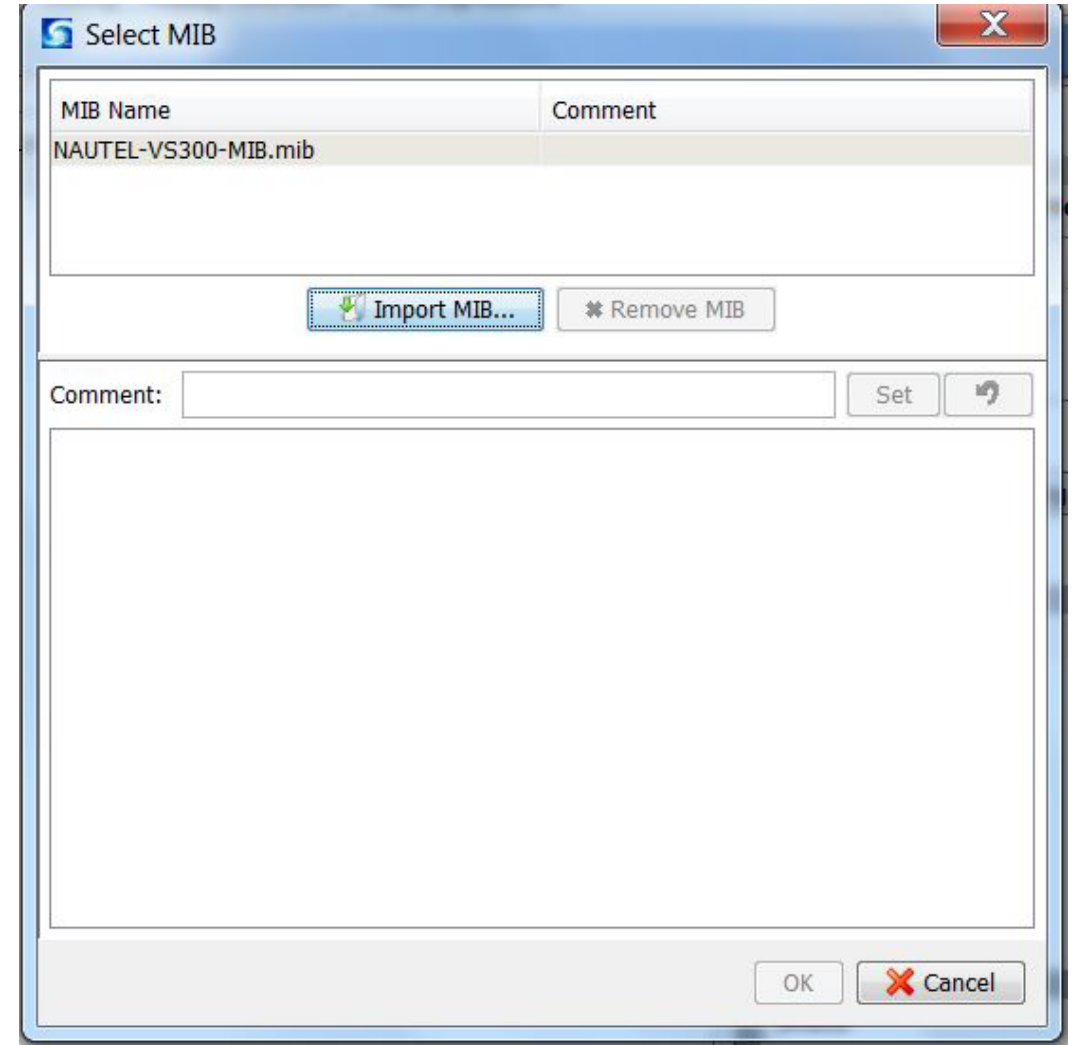
Raw Value: 42364266

42.36427

Reset this channel to its default settings

# How do we make it work?

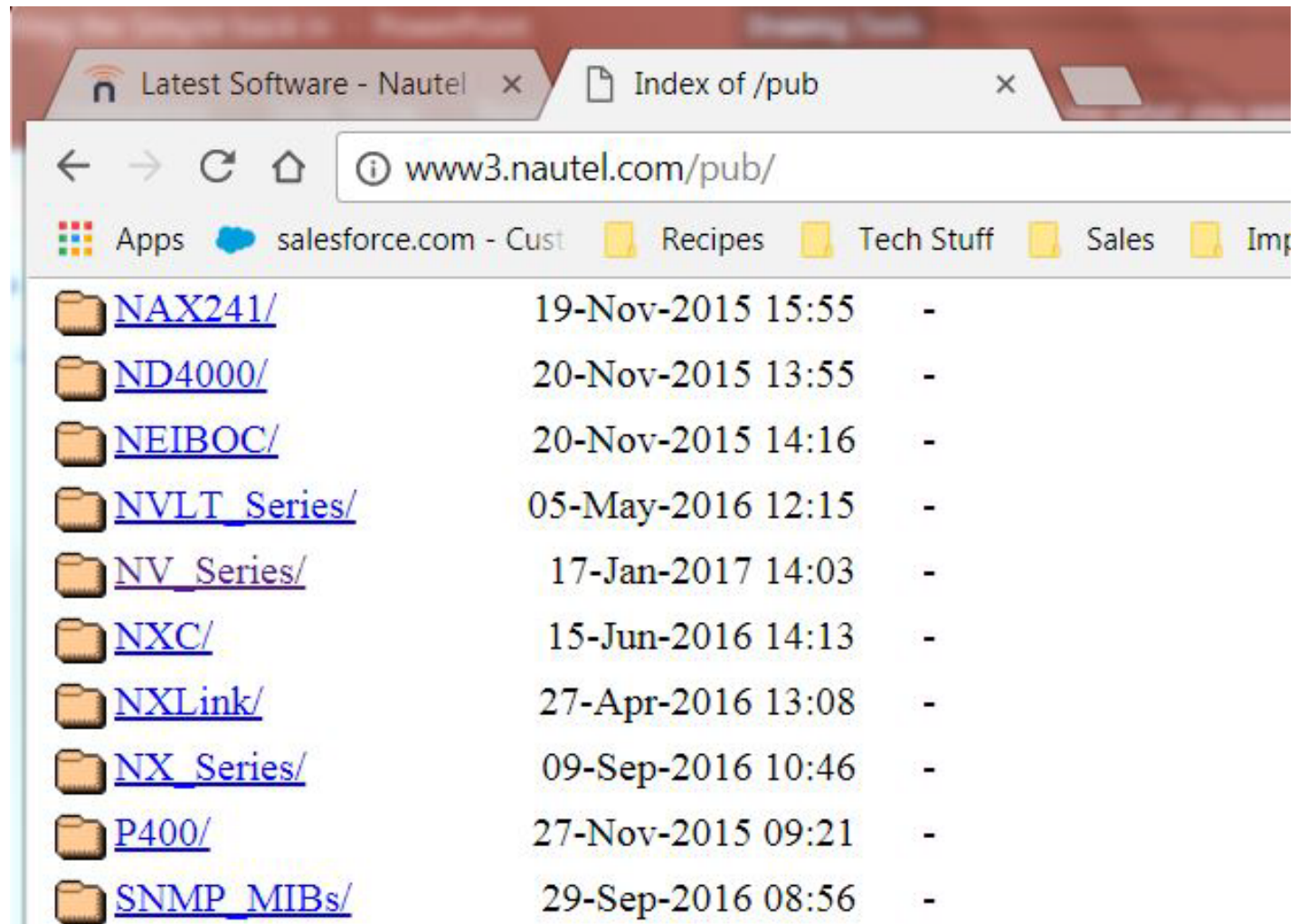
- Configure Manager
  - Import (load) MIBs for all client devices



# How do we make it work?

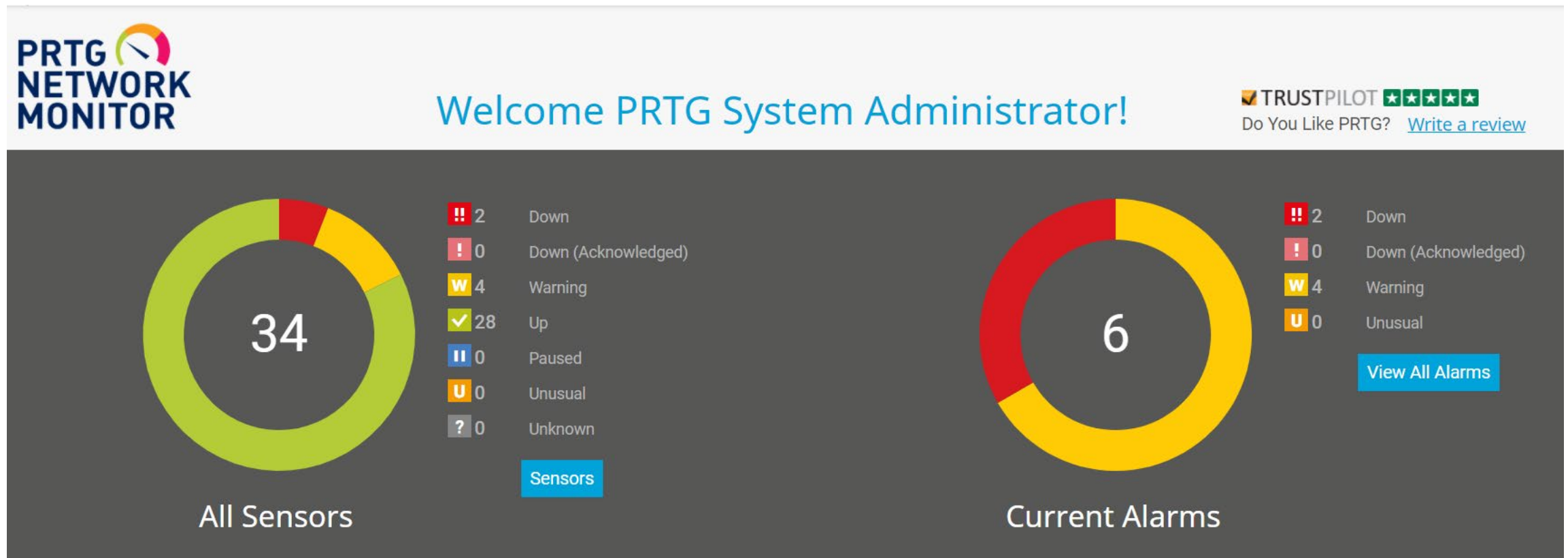
- Configure Manager
  - Nautel provides MIBs in FTP site

[http://www3.nautel.com/pub/SNMP\\_MIBs/](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!

