Setup Examples

Redundant Alarm Monitoring Configuration

Redundant Alarm Configuration Examples

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Redundant Alarm Monitoring Configuration

This document presents two Alarm Monitoring configurations. The first involves two computers connected to the host network; one computer is configured as the primary alarm server and one is configured as the secondary alarm server. The second example adds a third computer running RTPView, which is configured as an alarm client.

These examples require three computers and one 3000 Series target node, all connected on the same local network. Computer #1 functions as the primary Project Tag Database server and the primary alarm server. Computer #2, which functions as the backup Project Tag Database server and the secondary alarm server. Computer #3, which functions as the RTPView HMI workstation. It is important to understand that the computer names used in these examples will not be the same as the computer names on your network that you will use for Computer #1, Computer #2, and Computer #3. You must substitute actual names within your network for the three computer names given in these examples.

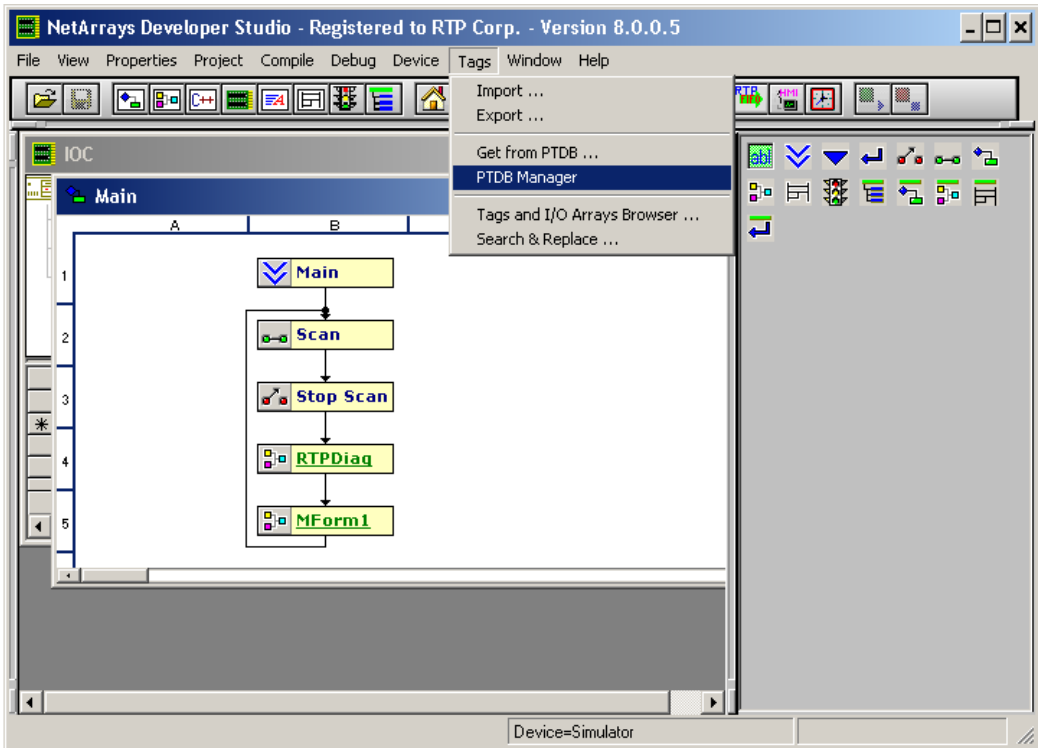
Example 1

In this example, two computers will be running RTPADA. Computer #1 will be configured as the primary; Computer #2 will be configured as the secondary. Remember that these names are of no importance.

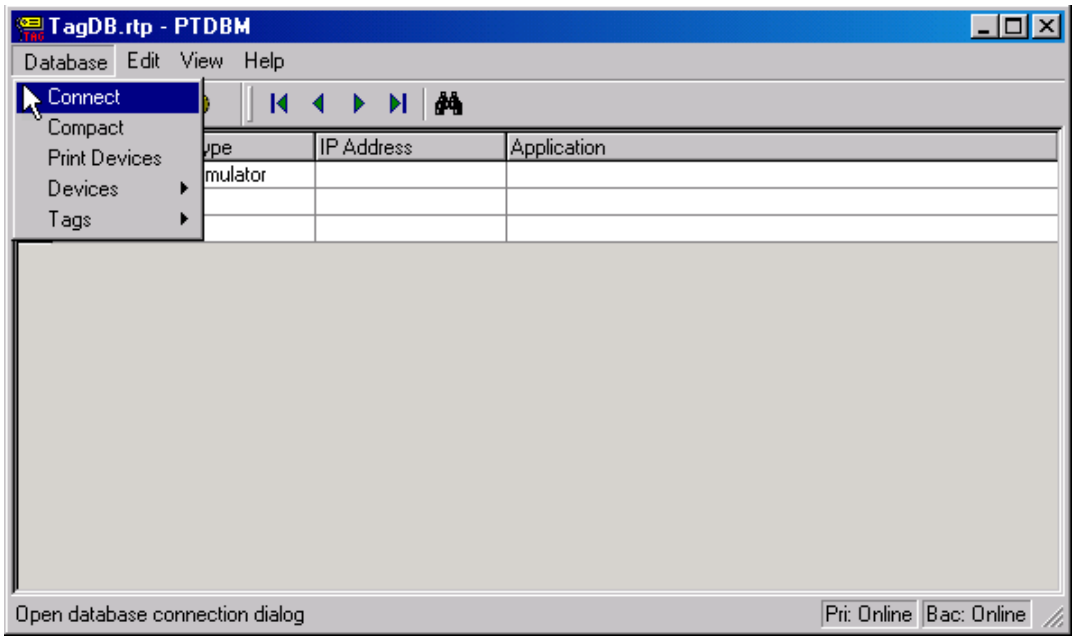
Project Tag Database – Computer #1

The first step is to create a new Project Tag Database on Computer #1, and configure this computer for the Primary Project Tag Database.

- On Computer #1, press **Start** and select **Programs ▸ RTP NetSuite ▸ NetArrays**.
- From the NetArrays **Tags** menu, select **PTDB Manager** to display the Project Tag Database Manager window.

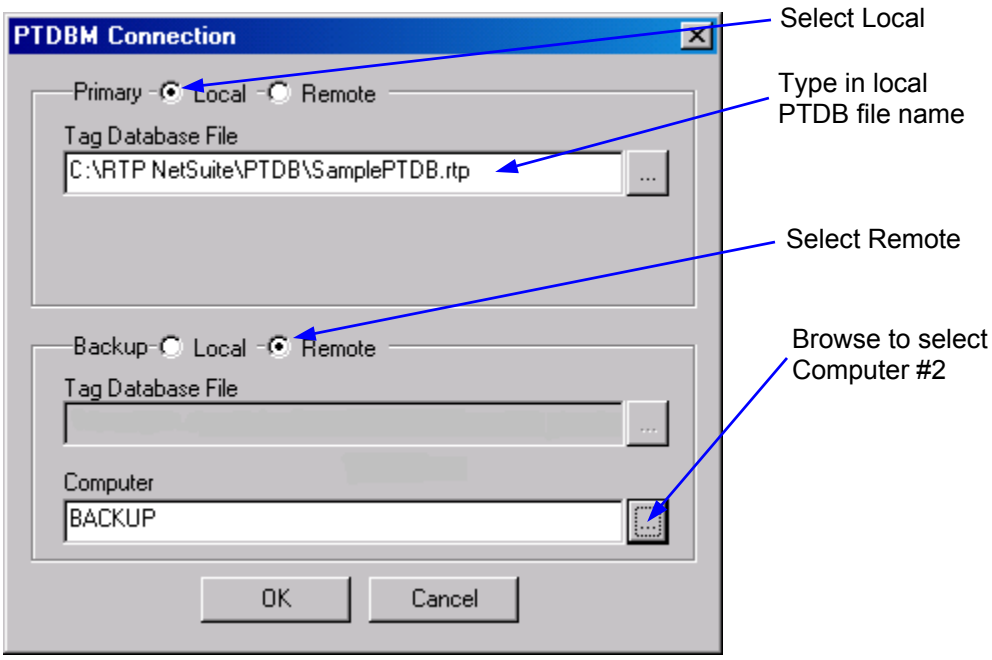


- In the PTDB Manager **Database** menu, select **Connect**. The PTDBM Connection dialog will appear.



- Click on the Primary **Local** radio button. Type in the path and file name "SamplePTDB.rtp" (followed by a Return) in the Primary Tag Database File field to create a new Project Tag Database for this example.

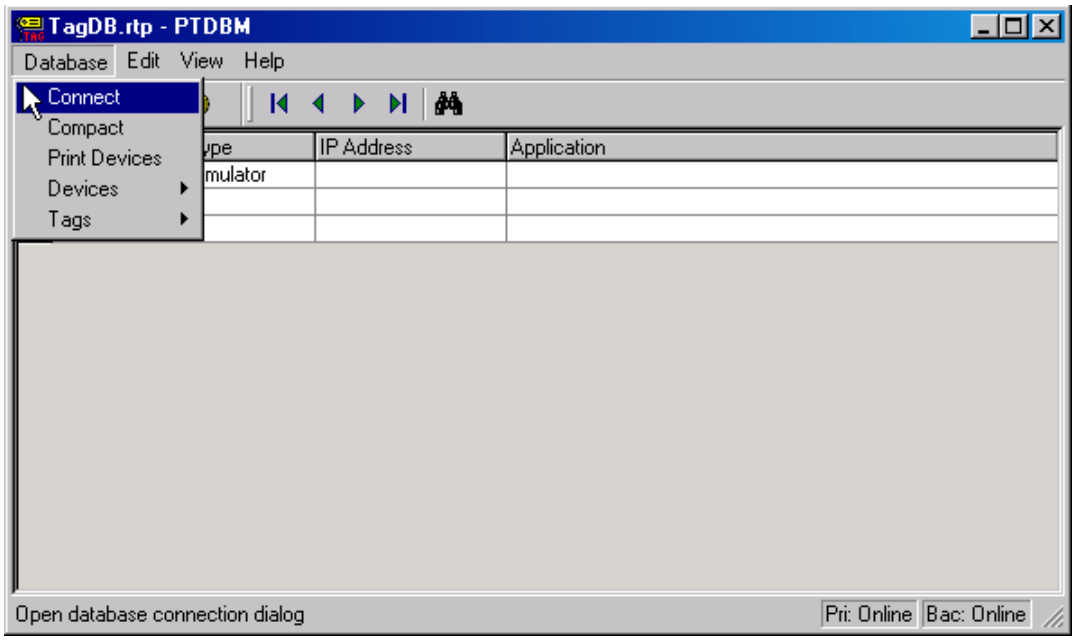
- Click on the Backup **Remote** radio button. Click on the browse button to the right of the Computer field. In the Computer Name Selector dialog, select the name of Computer #2. Click **OK** to close the Computer Name Selector dialog.



Backup Project Tag Database – Computer #2

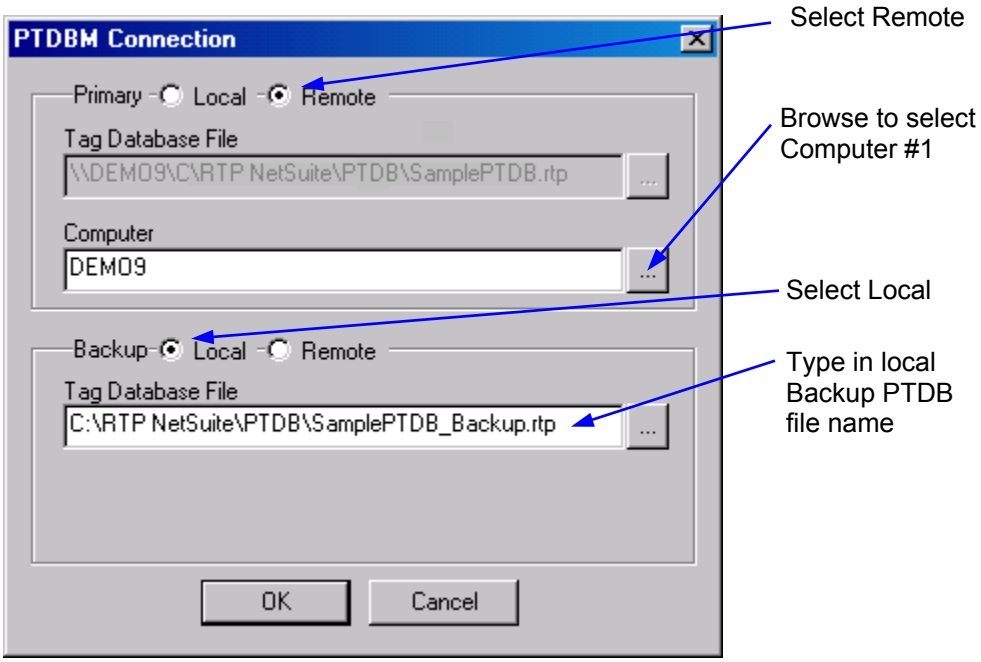
Now, move over to Computer #2 and configure it as the backup for the Project Tag Database.

- On Computer #2, press **Start** and select **Programs** ▸ **RTP NetSuite** ▸ **PTDBM**.



- In the PTDB Manager **Database** menu, select **Connect**. The PTDBM Connection dialog will appear.

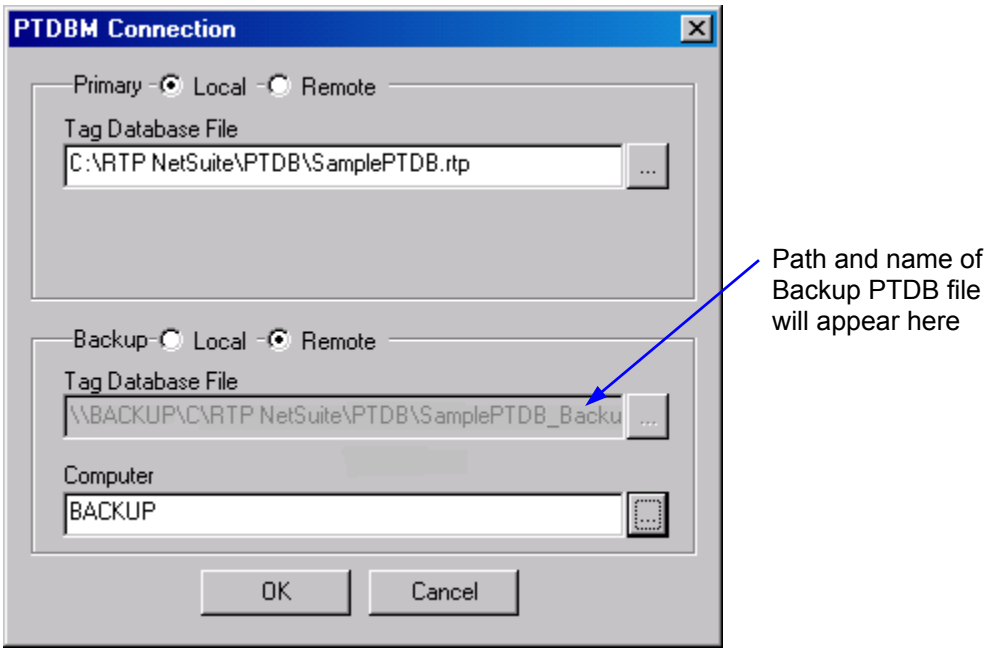
- Click on the Primary **Remote** radio button. Click on the browse button to the right of the Computer field. In the Computer Name Selector dialog, select the name of Computer #1. Click **OK** to close the Computer Name Selector dialog.
- Click on the Backup **Local** radio button. Type in the path and file name "SamplePTDB_Backup.rtp" (followed by a Return) in the Backup Tag Database File field to create a new Backup Project Tag Database for this example.
- Click on the **OK** button to close the PTDBM Connection dialog. Close the PTDB Manager window.



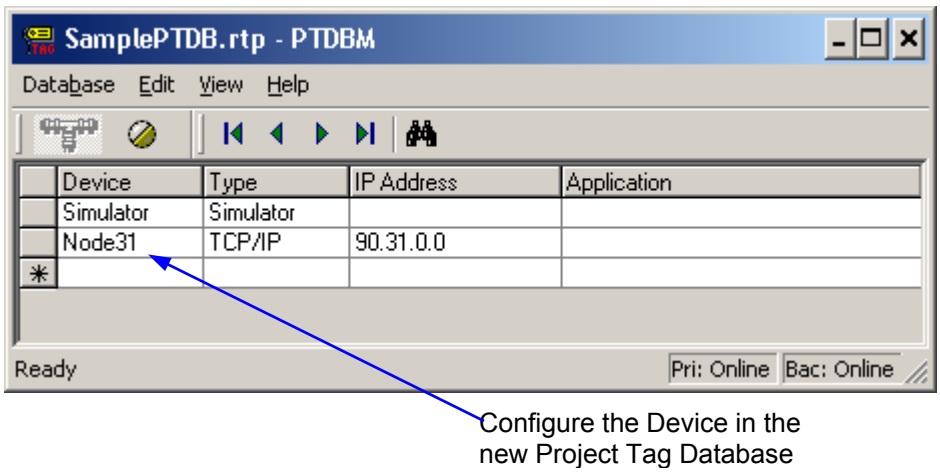
Project Tag Database Continued – Computer #1

Return to Computer #1. Now that the Primary and Backup Project Tag Databases have been created, we will use the project program "My_first.dbn" to enter all the tag names into the Project Tag Database. "My_first" was created in the Setup Example "NetArrays Project Program Development". This will then be the source of the tag names picked in the Alarm and Data Archive (RTPADA) system and in RTPView.

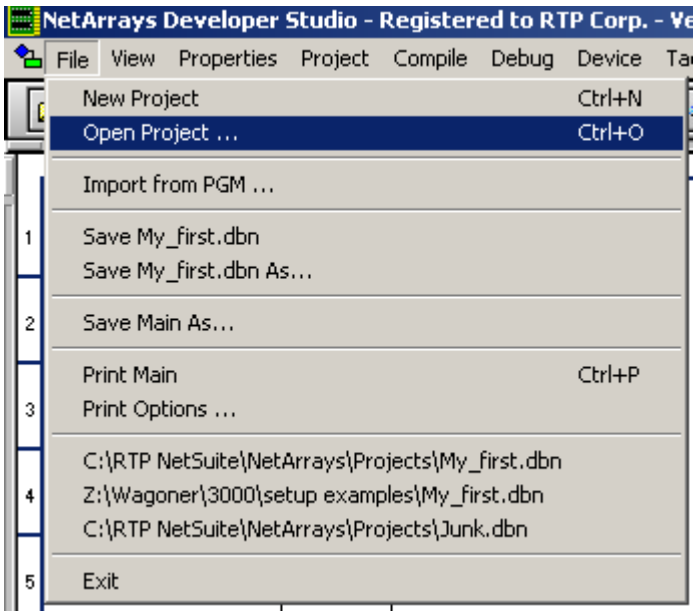
- The PTDBM Connection dialog should now look like the one pictured below. Click **OK** to close the PTDBM Connection dialog.

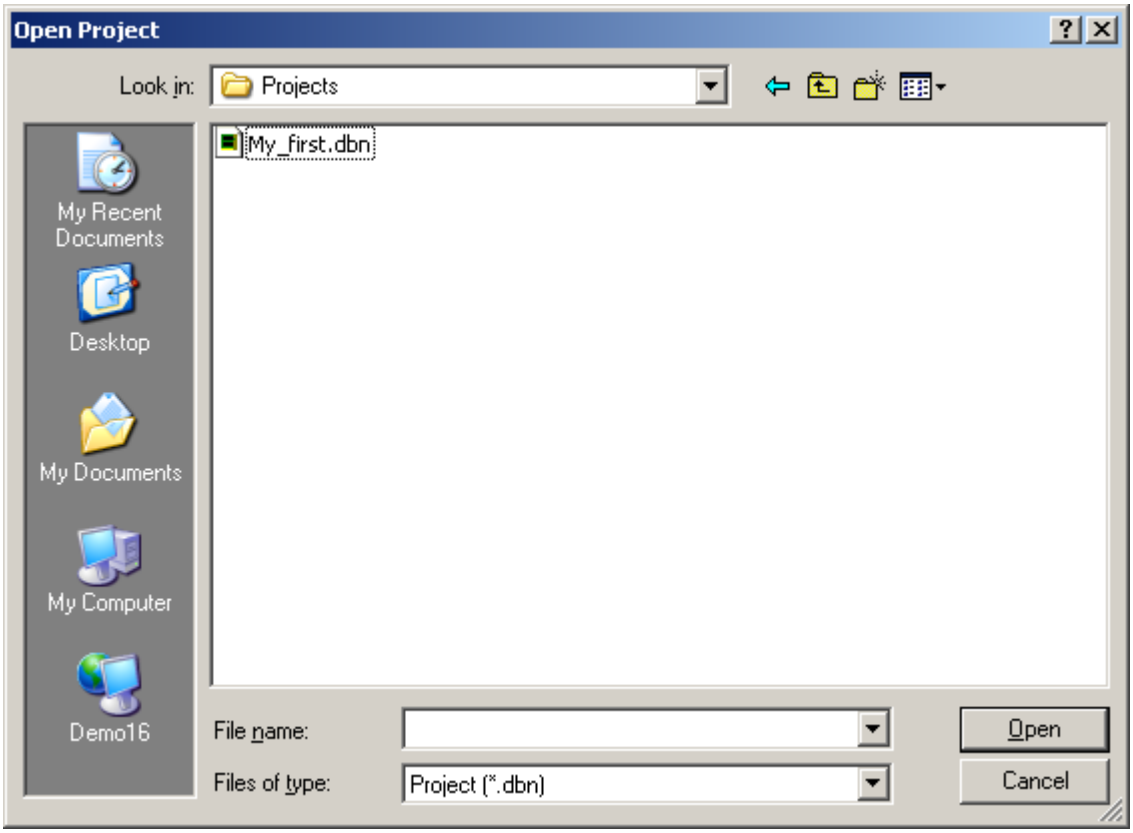


- Configure the node that will run the project program. Enter the name in the **Device** column, select **TCP/IP** in the **Type** column, and enter the assigned "IP address" in the **IP Address** column. (Note that for this example we are using Node31 as the device name, the name of your device and its IP address may be different.) Click in the empty cell below the device just created. Close the PTDB Manager window. Note that the Application name does not appear until the program is downloaded.

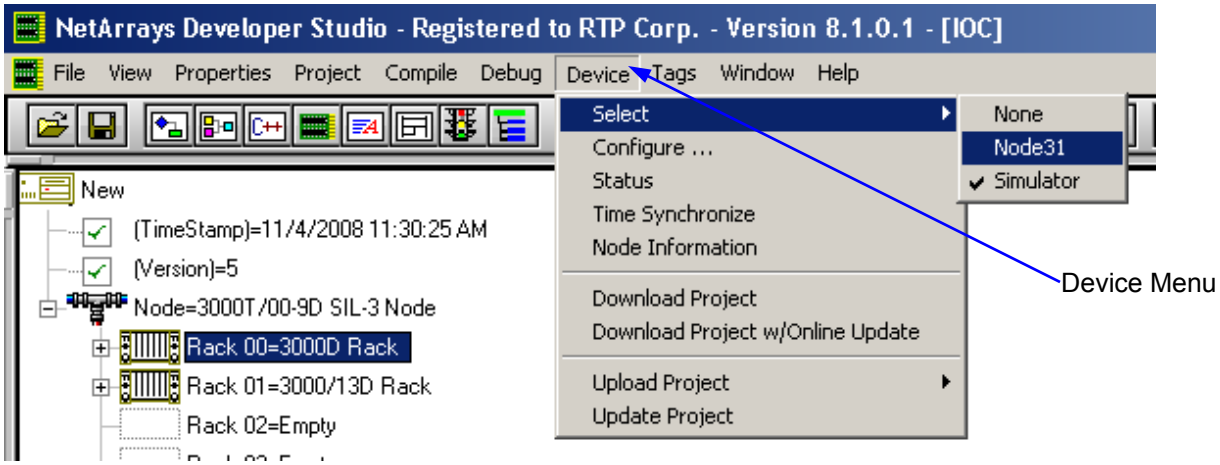


- In the NetArrays **File** menu, select **Open Project…** and select the project file **My_first.dbn** that was created in the Setup Example "NetArrays Project Program Development". Click on **Open**. If you have not previously created this program, do so now.

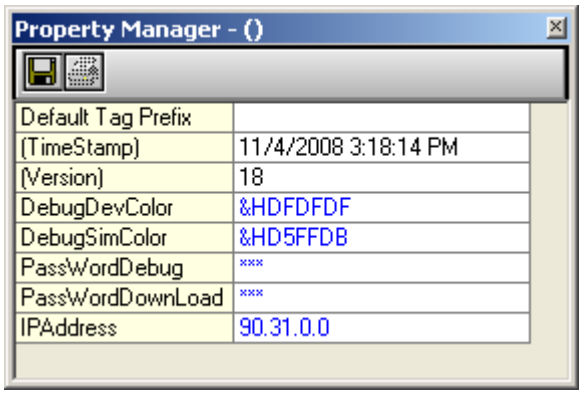

NetArrays Developer Studio - Registered to RTP Corp. - Ve
File
View
Properties
Project
Compile
Debug
Device
New Project Ctrl+N
Open Project ... Ctrl+O
Import from PGM ...
Save My_first.dbn
Save My_first.dbn As...
Save Main As...
Print Main Ctrl+P
Print Options ...
C:\RTP NetSuite\NetArrays\Projects\My_first.dbn
Z:\Wagoner\3000\setup examples\My_first.dbn
C:\RTP NetSuite\NetArrays\Projects\Junk.dbn
Exit


Open Project
Look in:
Projects
My_first.dbn
My Recent Documents
Desktop
My Documents
My Computer
Demo16
File name:
Files of type:
Project (*.dbn)
Open
Cancel

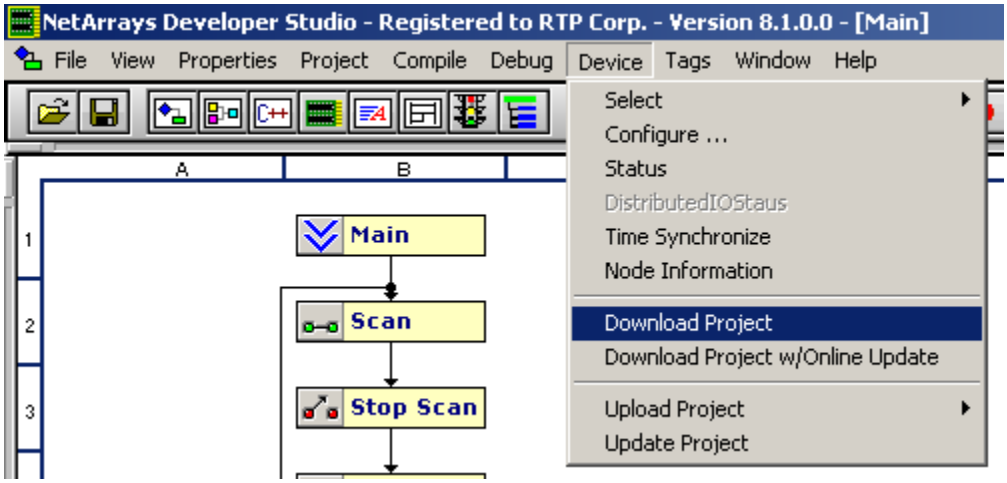
- In the NetArrays **Device** menu, select **Select ▸ Node31** (or the name of the target node you are going to use to run the My_first project program created in the Setup Example “NetArrays Project Program Development”).



- Open the **Property Manager** by left clicking on **Properties** and select **project My_first.dbn Properties…** Change **IPAddress** to match your system. For this example we used **90.31.0.0**.

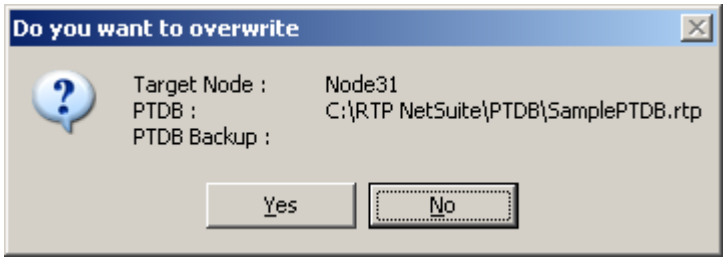


- From the **Device** menu select **Download Project**.



- When prompted type in the password “rtp” (or the password assigned to your node. Then click **OK**.

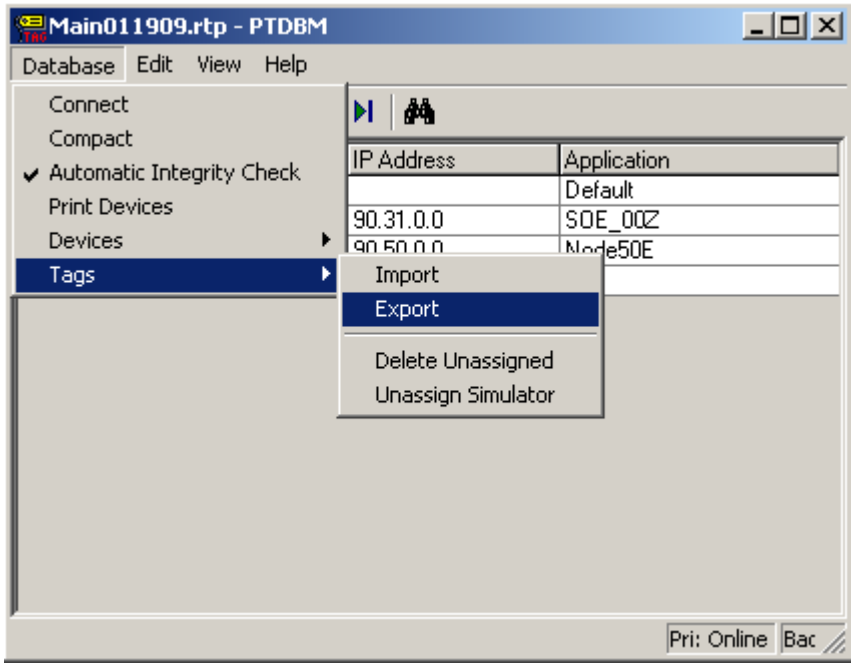
- When prompted, “Do You Want to Overwrite”, select **Yes**. Download should complete with no errors.



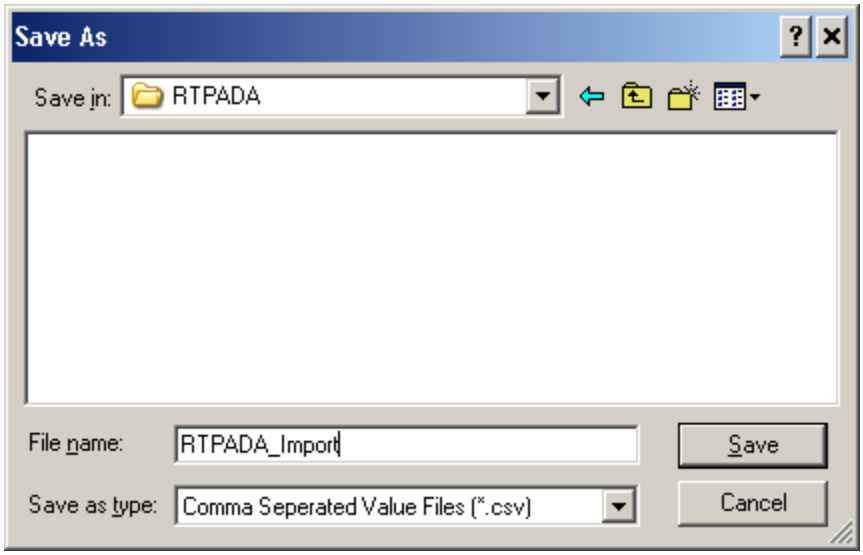
RTPADA Alarm Configuration – Computer #1

Now that we have created a new Project Tag Database, we will now create a very simple alarm configuration file. We will be monitoring two variables for alarm conditions, one analog and one digital. The output of the Waveform Generator object **CV_Output** will be considered in a High High alarm condition if it rises above 95, and a High alarm condition if it rises above 75. A Low alarm will be signaled if it drops below 25, and a Low Low alarm if it drops below 5. The digital (Boolean) variable **CDO_00** will be in an alarm condition if it is True.

- Open the **PTDB Manager**. Select **Database**, **Tags**, and **Export**.



- Select a target *directory* (we used "RTPADA") and type the *file name* (we used "RTPADA_Import") into the **File Name:** and select **Save**.



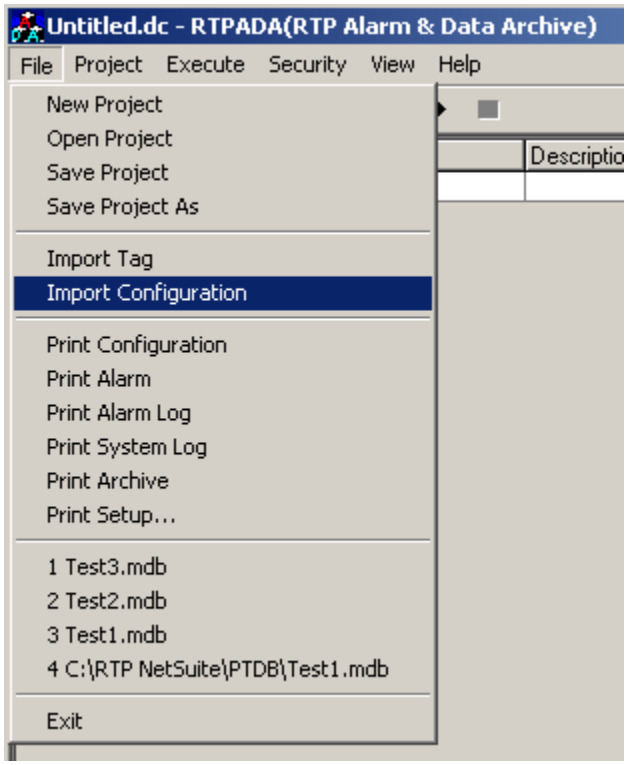
- This will create the file "RTPADA_Import.csv" in the **RTP NetSuite\RTPADA** directory. If this file already exists, delete it or rename/move it if you want to save it.

- Open this file with Excel. We will then define the alarm conditions and import the modified file into RTPADA. Navigate to the rows **CDO_00** and **CV_Output**. Modify the file as shown below. Save the file by overwriting the current file.

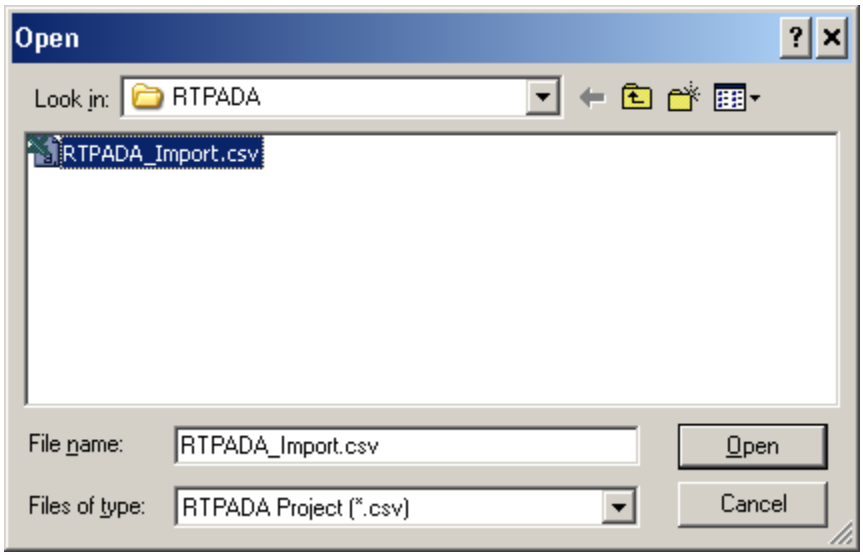
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1	Tag	Group	Name	Priority	Engine	Hardware	Digital_Trig	LowLow	Low	High	HighHigh	DevSet	DevAlarm	Deadband	Cor
207	AI2_FI31_B														
208	AI2_FI31_C														
209	AI2_IE_A														
210	AI2_IE_B														
211	AI2_IE_C														
212	CD0_00	1	Wave Output	1			1							0.1	
213	Celsius														
214	counter														
215	CV_Output	1	Boolean Value	1				5	25	75	95			0.1	
216	DI1_BI00_A														
217	DI1_BI01_A														

*Note that only part of the file is shown for clarity.

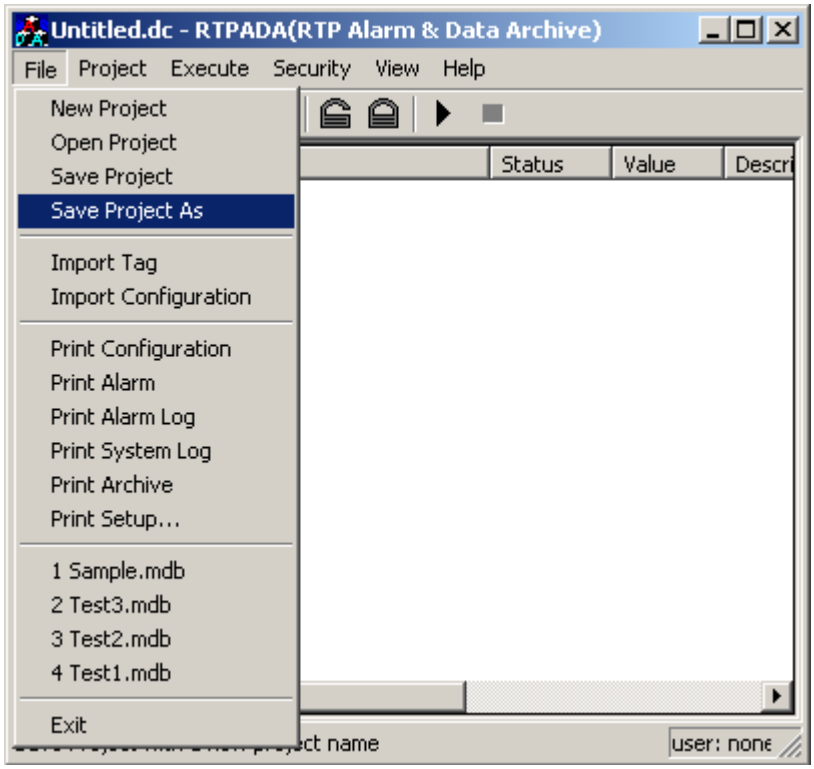
- Press **Start** and select **Programs** ▸ **RTP NetSuite** ▸ **RTPADA**. The RTPADA window will appear on your screen.
- Left click on **File** and select **Import Configuration**.

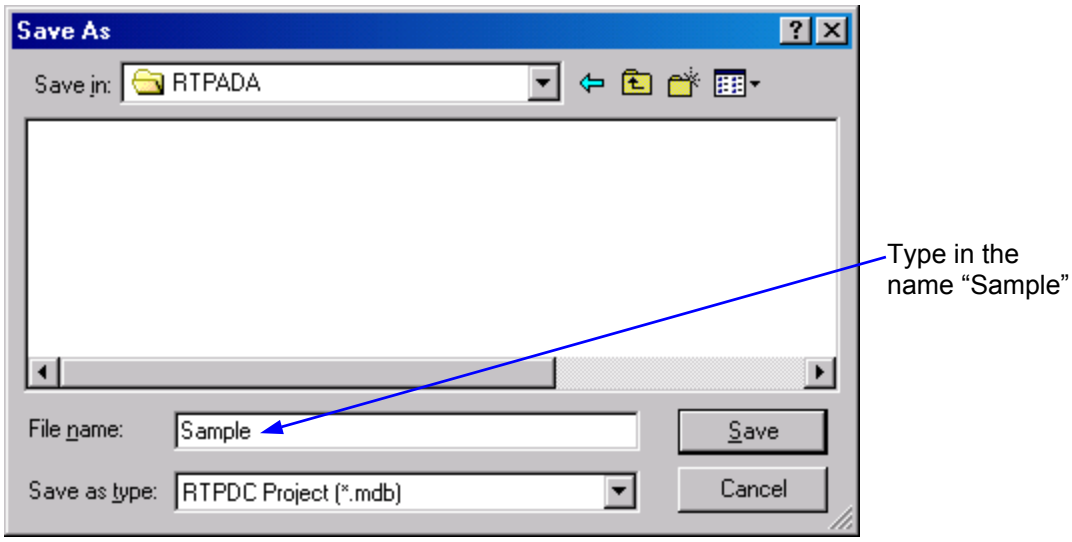


- Navigate to the RTP **NetSuite\RTPADA** directory and select **RTPADA_Import.csv** and click **Open**. This will import the alarm definitions into RTPADA.



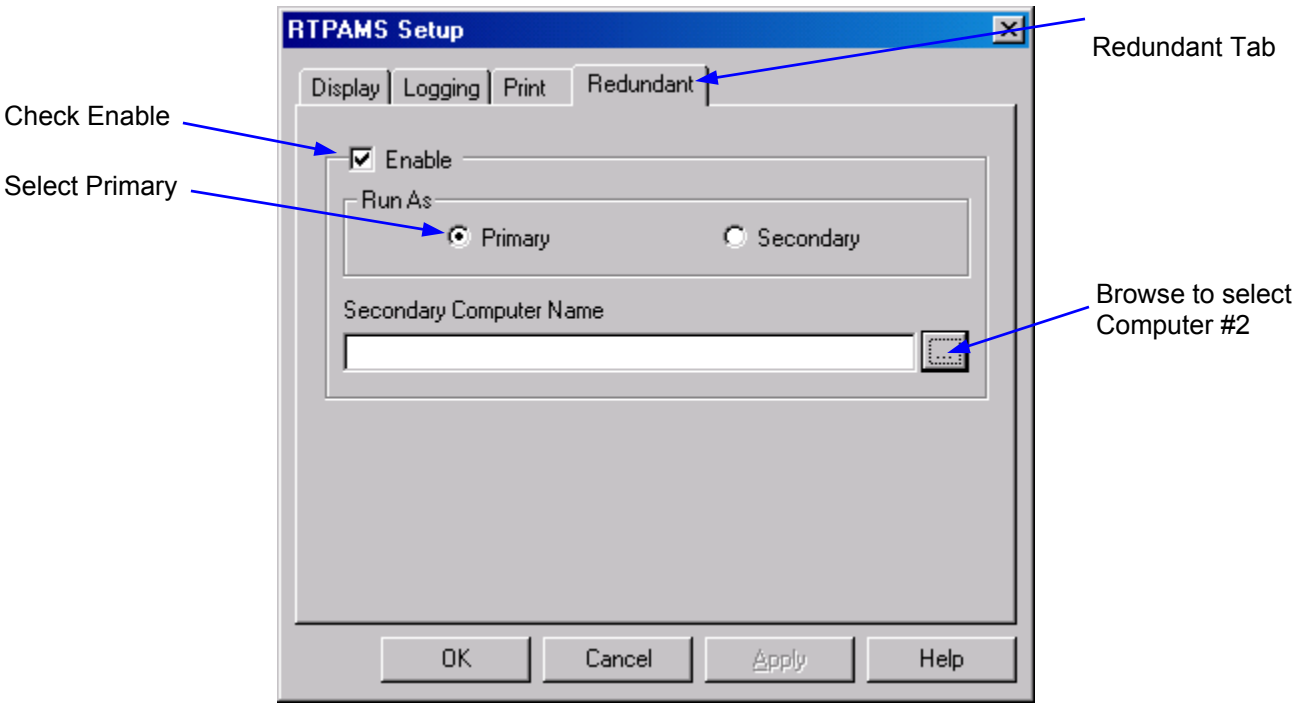
- Open the RTPADA File menu and select **Save Project As**. In the Save As dialog type in the file name “Sample” and then click the **Save** button. This concludes the configuration of the two alarms.



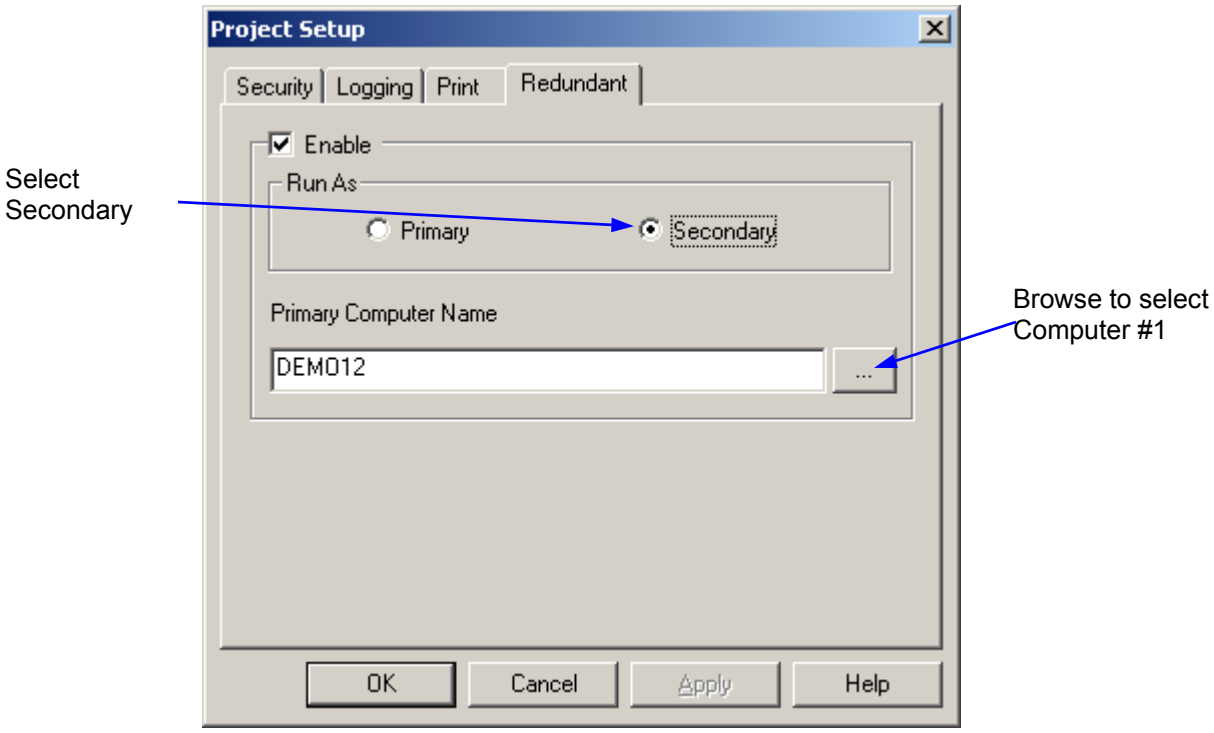


- Now we will configure the RTPADA setup parameters. From the RTPADA **Project** menu, select **Setup**.

- In the RTPADA Setup dialog, click on the **Redundant** Tab. Then, check the **Enable** checkbox.
- In the **Run As** field, click the **Primary** radio button to define this computer as the primary alarm server. Click on the **browse** button to the right of the **Secondary Computer Name** field to display the **Computer Name Selector** dialog.



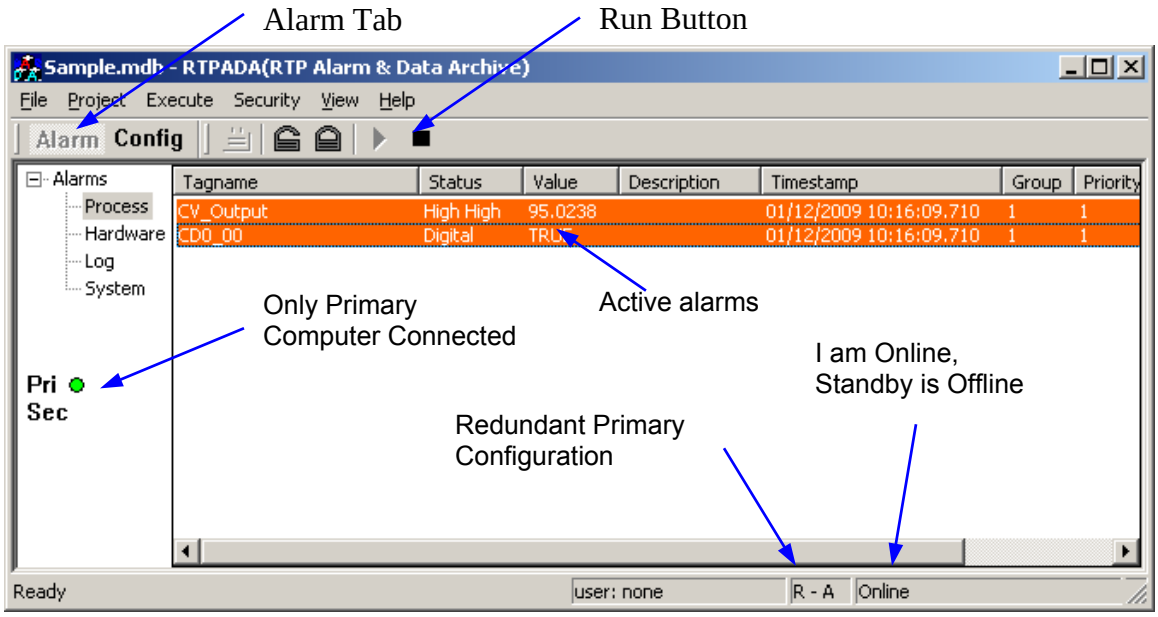
- In the **Computer Name Selector** dialog, select the name of Computer #2 and click the **OK** button to define Computer #2 as the secondary alarm server.
- Move to Computer #2 and configure it as the Secondary Alarm Server.
- Click the **Secondary** radio button to define this computer as the secondary alarm server. Click on the **browse** button to the right of the **Primary Computer Name** field to display the **Computer Name Selector** dialog.



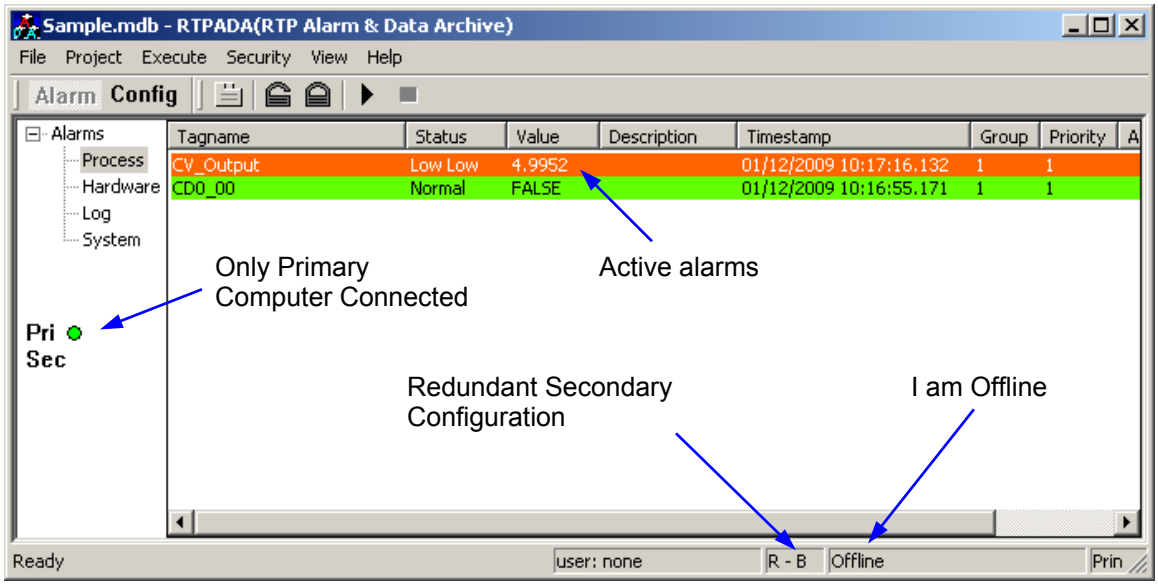
- In the **Computer Name Selector** dialog, select the name of Computer #1 and click the **OK** button to define Computer #1 as the primary alarm server. Click **OK** to close the RTPADA Setup dialog.
- In the RTPADA **File** menu, select **Save Project**.

Verification

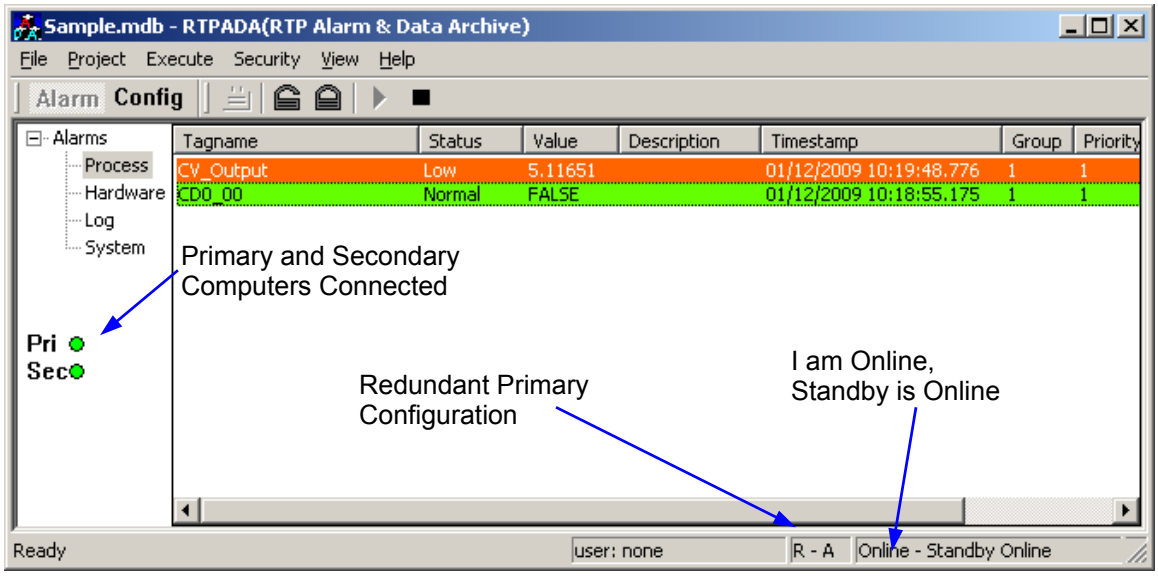
- At Computer #1, click on the ▶ (Run) button. Then click on the **Alarm** Tab to view alarms. Observe CV_Output and CDO_00 going into and out of alarm conditions as determined by My_first.dbn. The **Status** Bar should indicate "R-A" for primary redundant alarm configuration, and "Online" for the RTPADA status.



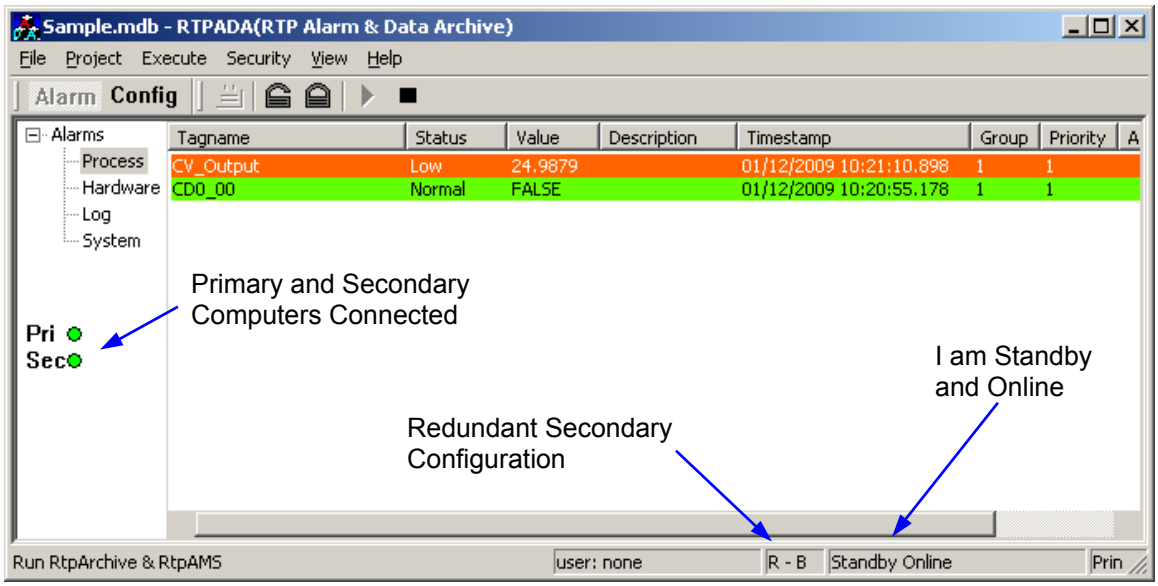
- At Computer #2, click Alarm and observe CV_Output and CDO_00 going into and out of alarm conditions. The Status Bar should indicate "R-B" for secondary redundant alarm configuration and "Offline" for the RTPADA status. At this point, this computer is just displaying the alarm status received from Computer #1.



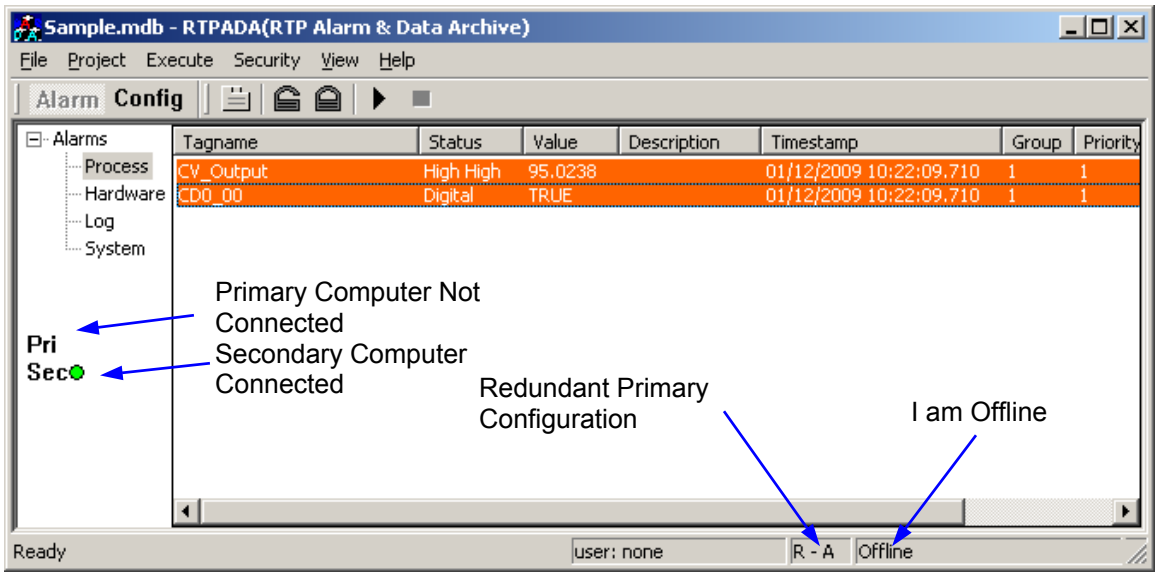
- Click on the (Run) button in the RTPADA Toolbar to start alarm server functions on Computer #2.
- At Computer #1, observe that the indication in the Status Bar changes from “Online” to “Online - Standby Startup” and then to “Online - Standby Online”. Both computers are now connected and active.



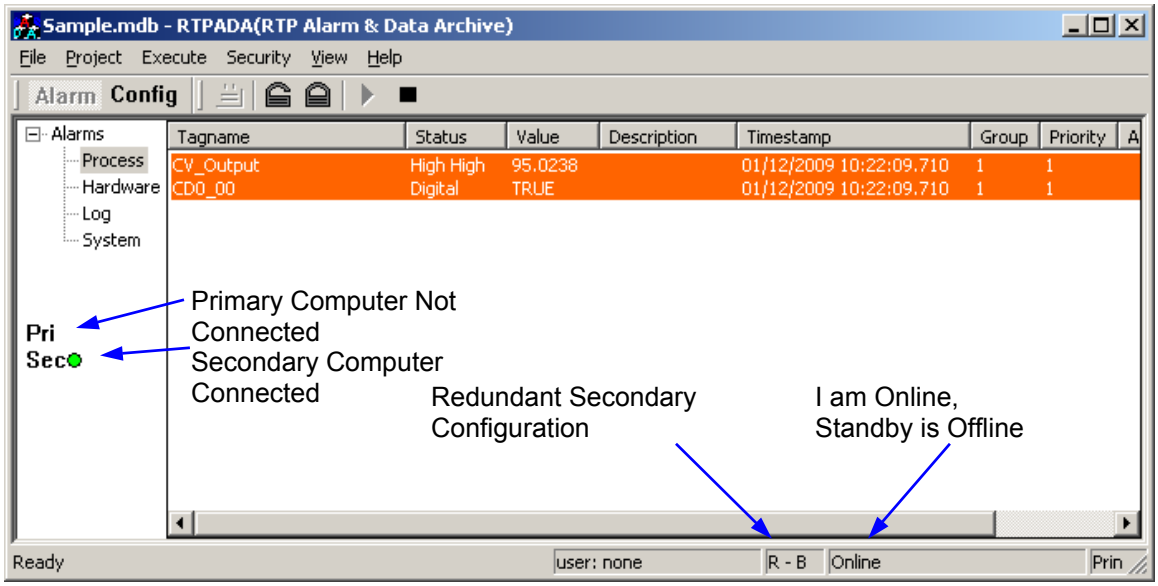
- At Computer #2, observe that the indication in the Status Bar changes from “Offline” to “Standby Startup” and then to “Standby Online”.



- Move over to Computer #1 and click on the ■ (Stop) button in the RTPADA Toolbar to stop alarm server functions.
- At Computer #1, observe that the indication in the Status Bar changes from “Online - Standby Online” to “Offline”. Only the Secondary computer is connected and active. At this point, this Computer #1 is just displaying the alarm status received from Computer #2.



- At Computer #2, observe that the indication in the Status Bar changes from “Standby Online” to “Online”. Only the Secondary computer is connected and active. Computer #2 has taken over as the primary alarm server.



- Move back the Computer #1 and click on the ▶ (Run) button in the RTPADA Toolbar.

Congratulations! You have created a new Project Tag Database and configured two computers for redundant RTPADA alarm monitoring.

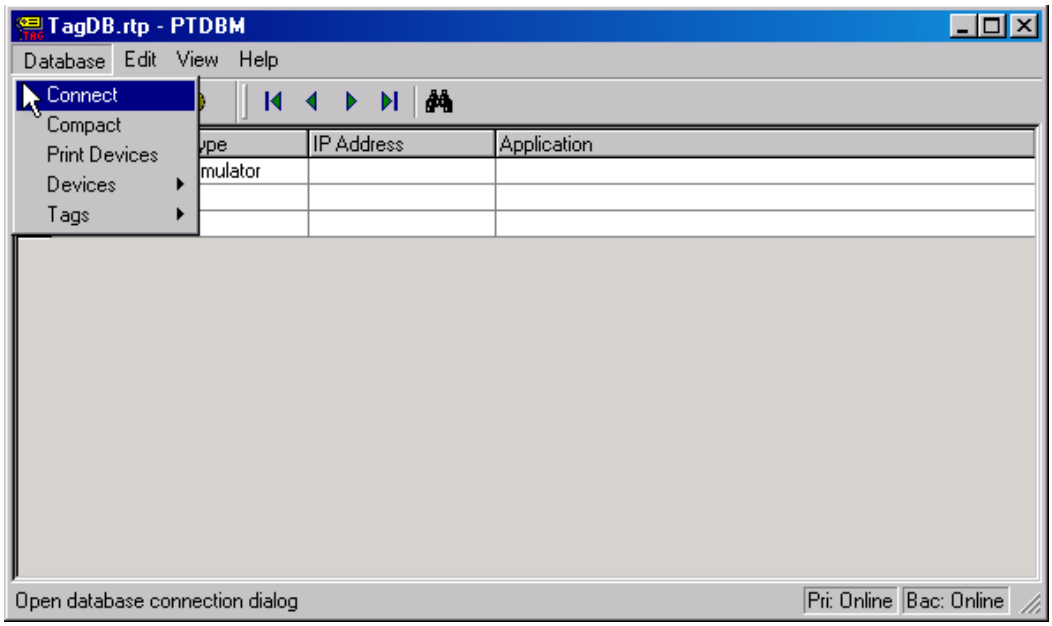
Example 2

In this example, Computer #3 is running RTPView. The first two computers will remain configured and running as they were in the previous example. Computer #1 is the primary and Computer #2 is the secondary. Move over to Computer #3.

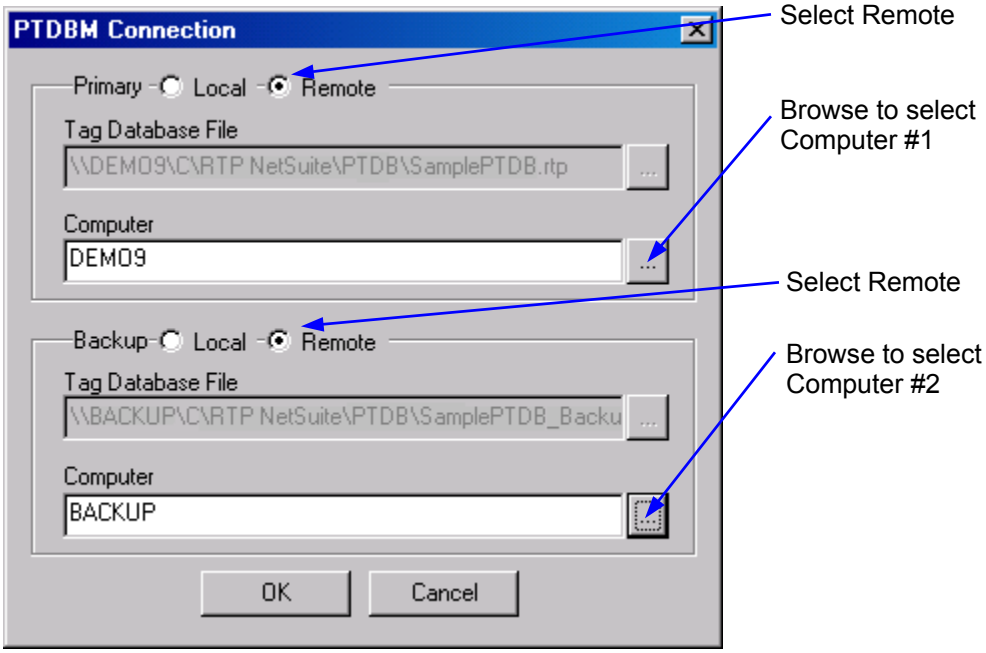
PTDB Manager – Computer #3

The first step is to connect to the Project Tag Database as a client. This allows RTPView to access the data from the project program running in the target node.

- On Computer #3, press **Start** and select **Programs** ▸ **RTP NetSuite** ▸ **PTDBM**.
- In the PTDB Manager **Database** menu, select **Connect**. The PTDBM Connection dialog will appear.

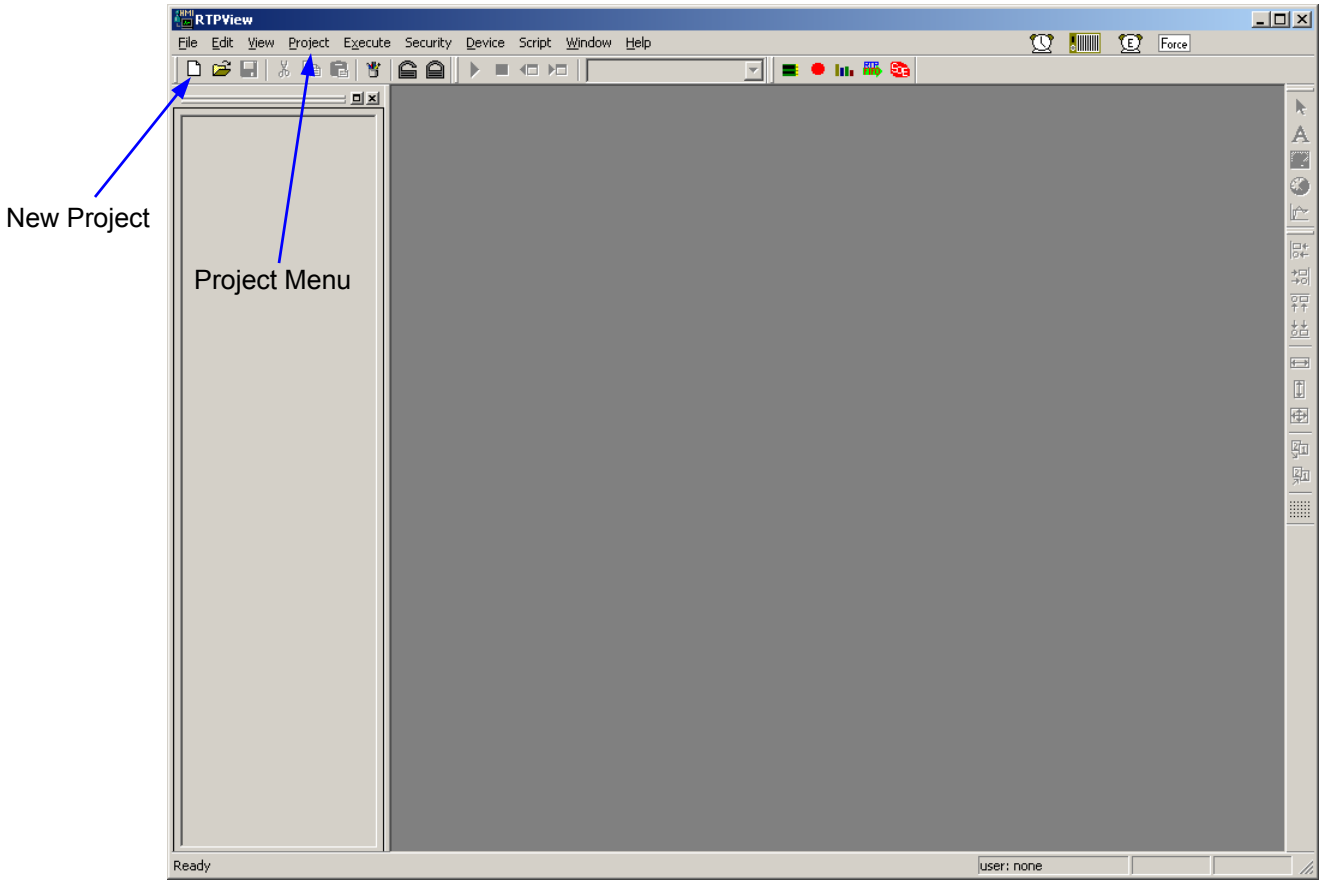


- Click on the Primary **Remote** radio button. Click on the browse button to the right of the Computer field. In the Computer Name Selector dialog, select the name of Computer #1. Click on the **OK** button to close the Computer Name Selector dialog.
- Click on the Backup **Remote** radio button. Click on the browse button to the right of the Computer field. In the Computer Name Selector dialog, select the name of Computer #2. Click on the **OK** button to close the Computer Name Selector dialog.
- Click on the **OK** button to close the PTDBM Connection dialog. Close the PTDB Manager window.

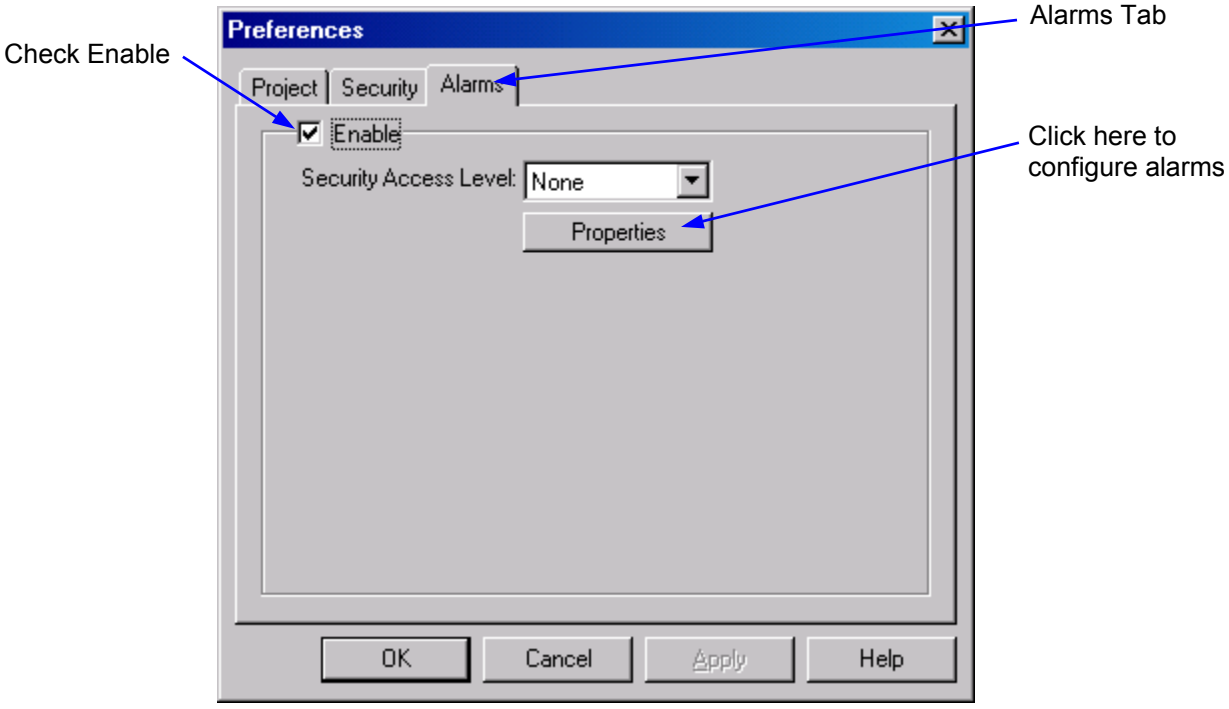


RTPView – Computer #3
We will now run RTPView on Computer #3, configure RTPView for alarm monitoring, and create a very simple HMI project.

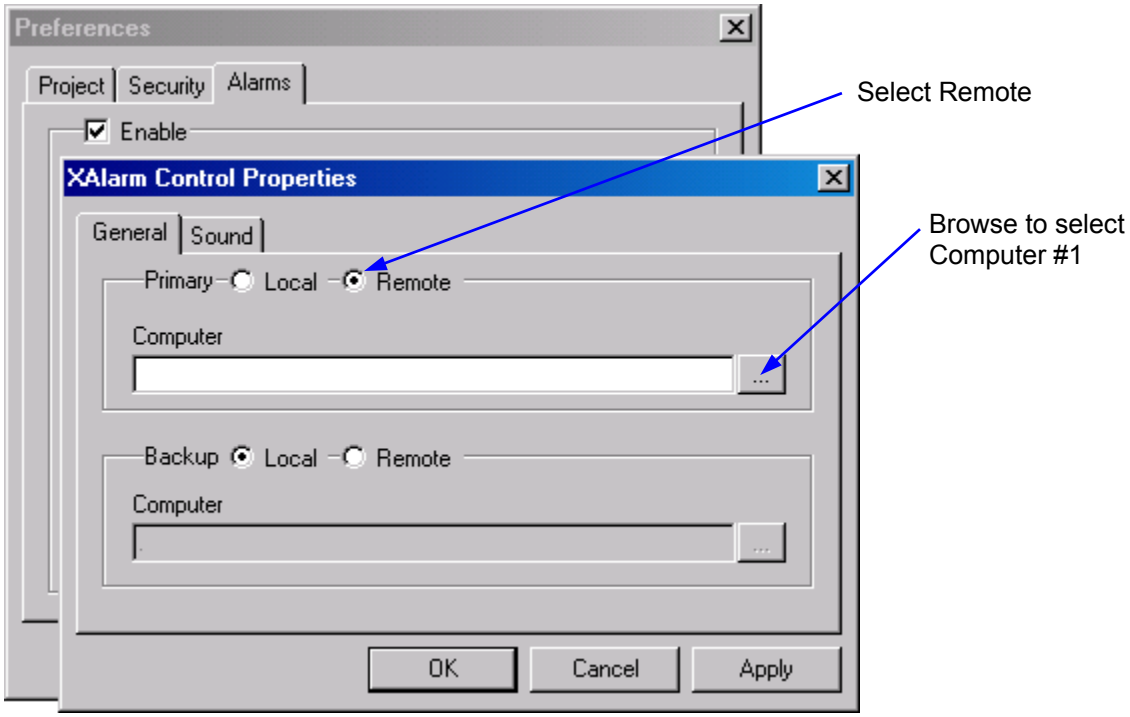
- On Computer #3, press **Start** and select **Programs ▸ RTP NetSuite ▸ RTPView**.
- In the RTPView main toolbar, click on (New Project) to start a new project.
- From the RTPView **Project** menu, select **Preferences**.



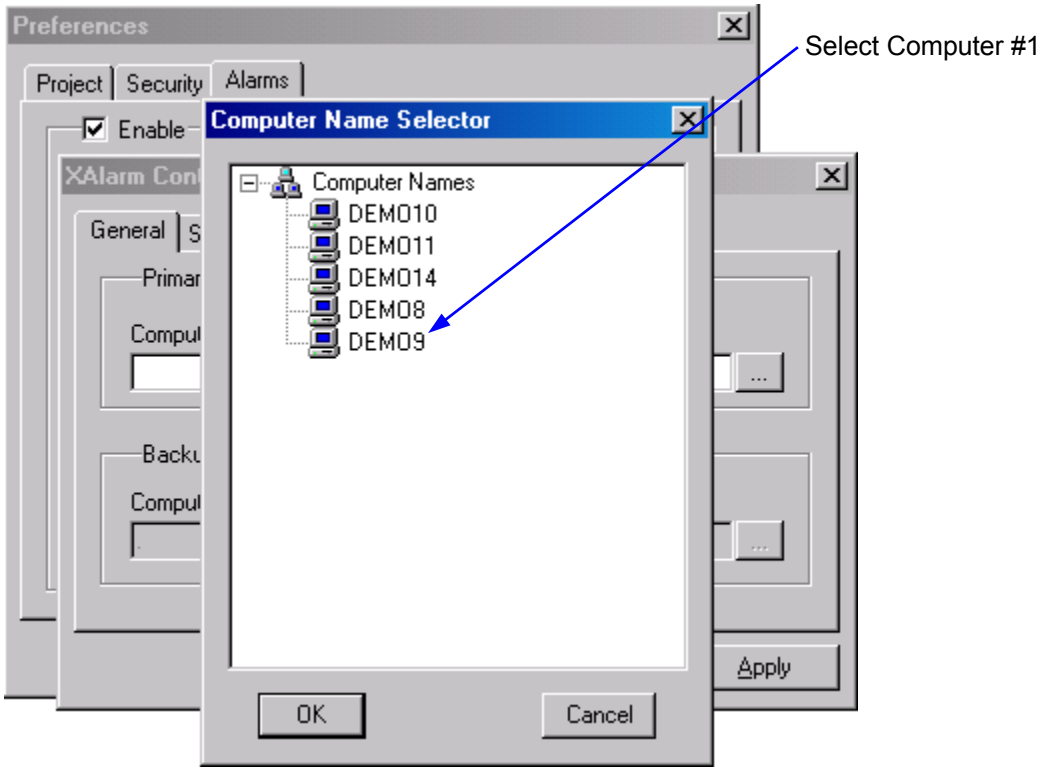
- In the Preferences dialog, click on the Alarms Tab. Then, check the **Enable** checkbox.
- Click the **Properties** button. This will display the XAlarm Control Properties dialog.



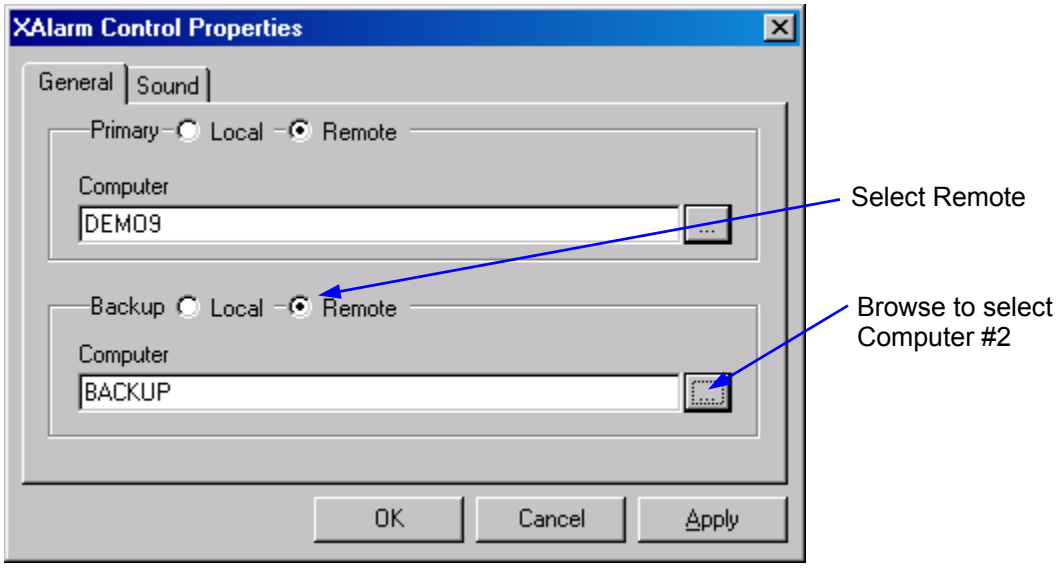
- In the Primary field, click the **Remote** radio button. Click on the browse button to the right of the Computer field to display the Computer Name Selector dialog.



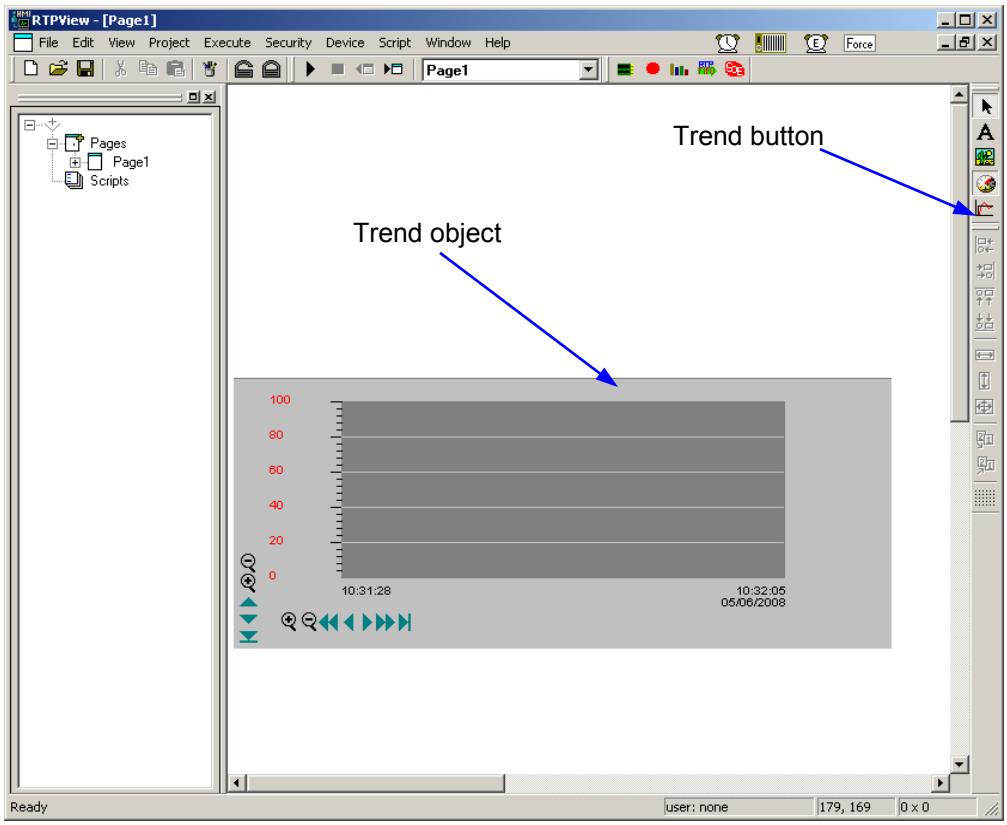
- In the Computer Name Selector dialog, select Computer #1 and click the **OK** button to define Computer #1 as the primary alarm server.



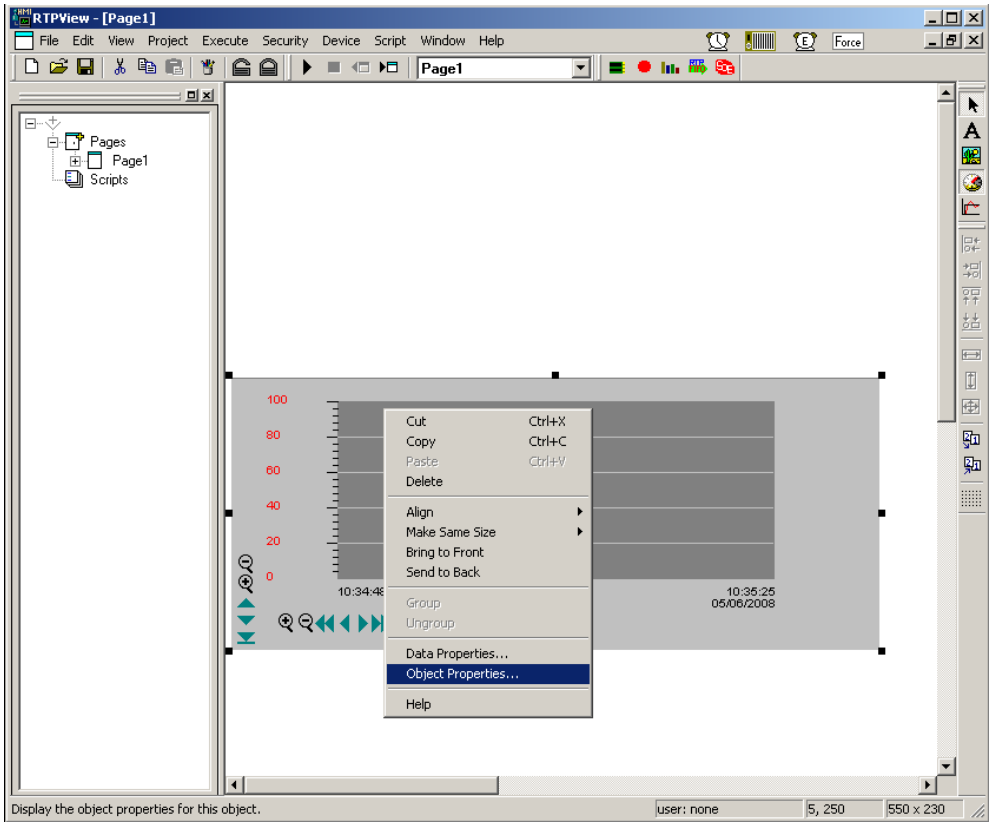
- In the Backup field, click the **Remote** radio button. Click on the browse button to the right of the Computer field to display the Computer Name Selector dialog.
- In the Computer Name Selector dialog, select Computer #2 and click the **OK** button to define Computer #2 as the secondary alarm server.



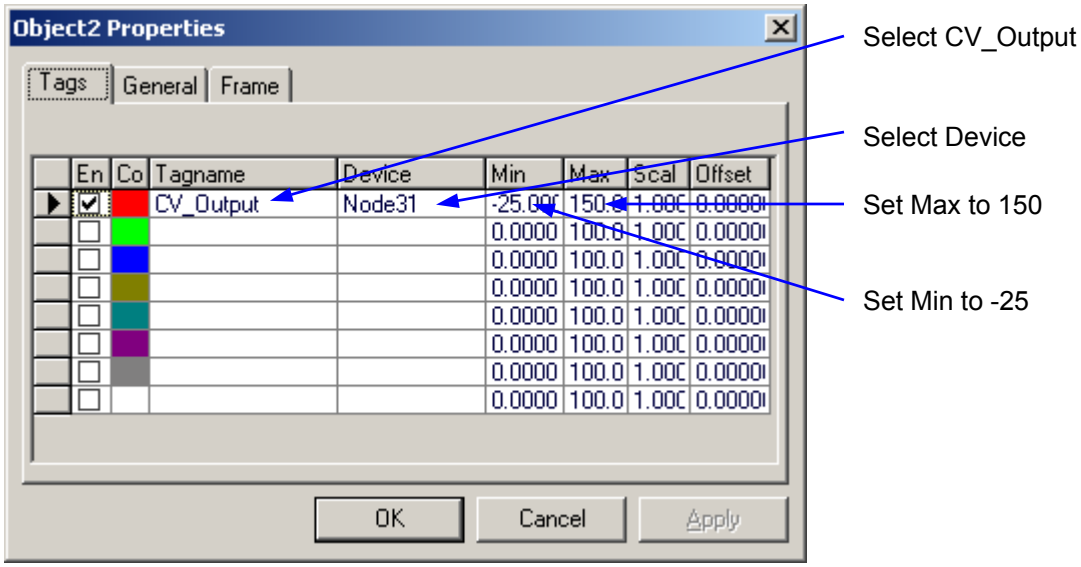
- Click on the **OK** button to close the XAlarm Control Properties dialog and then click on the **OK** button the close the Preferences dialog and save the configuration.
- Click on the  (Trend) button in the Palette toolbar. Move the curser onto the work area and click the mouse button to place the Trend object onto the page.



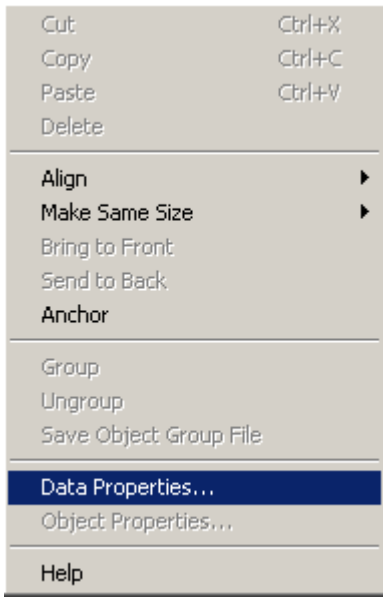
- Right-click on the Trend object and select **Object Properties** from the popup menu.



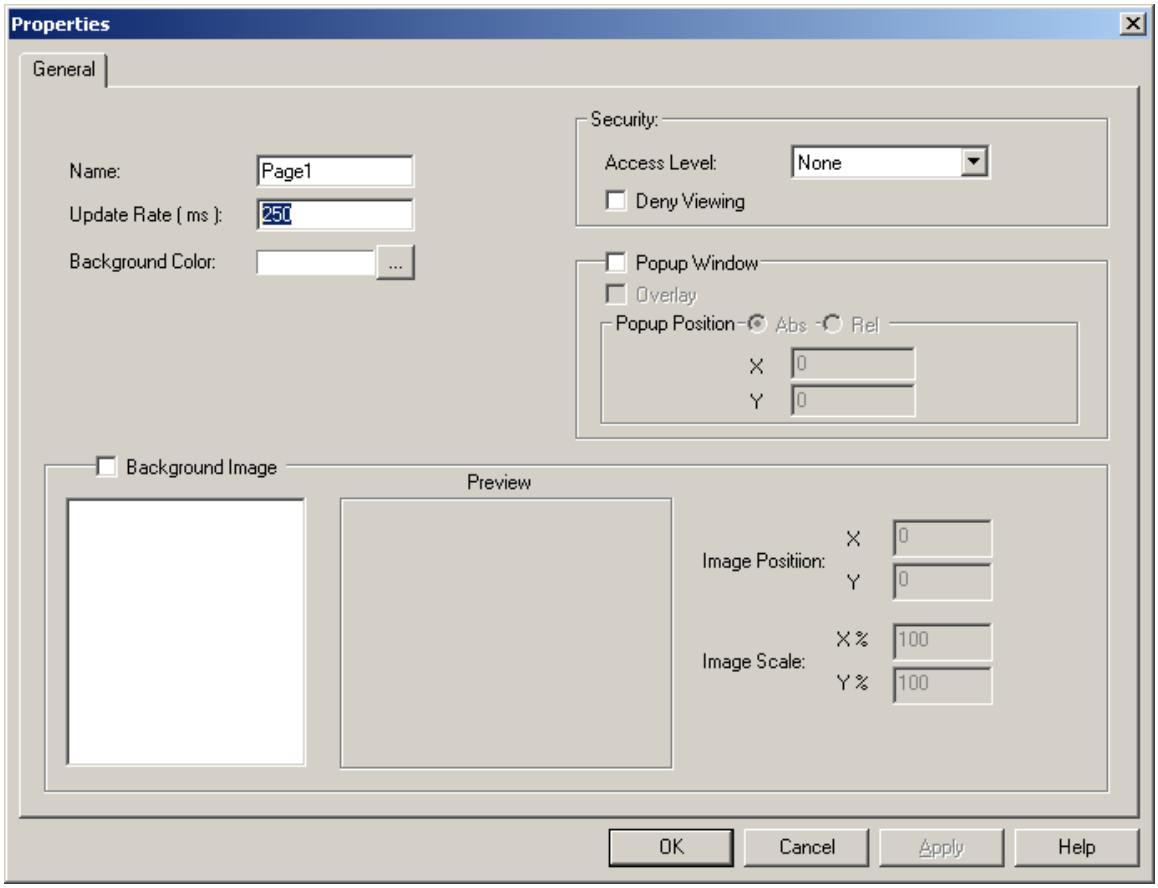
- In the Trend object's Properties dialog, select "CV_Output" from the list of Tag names to link the Trend plot to the NetArrays variable. Ensure that the Device corresponds to the device running My_first.dbn. Set **Min** to –25 and **Max** to 150. Leave the other properties at the default values. Click **OK** to close the Properties display.



- Right click on a blank part of the screen and select **Data Properties**.



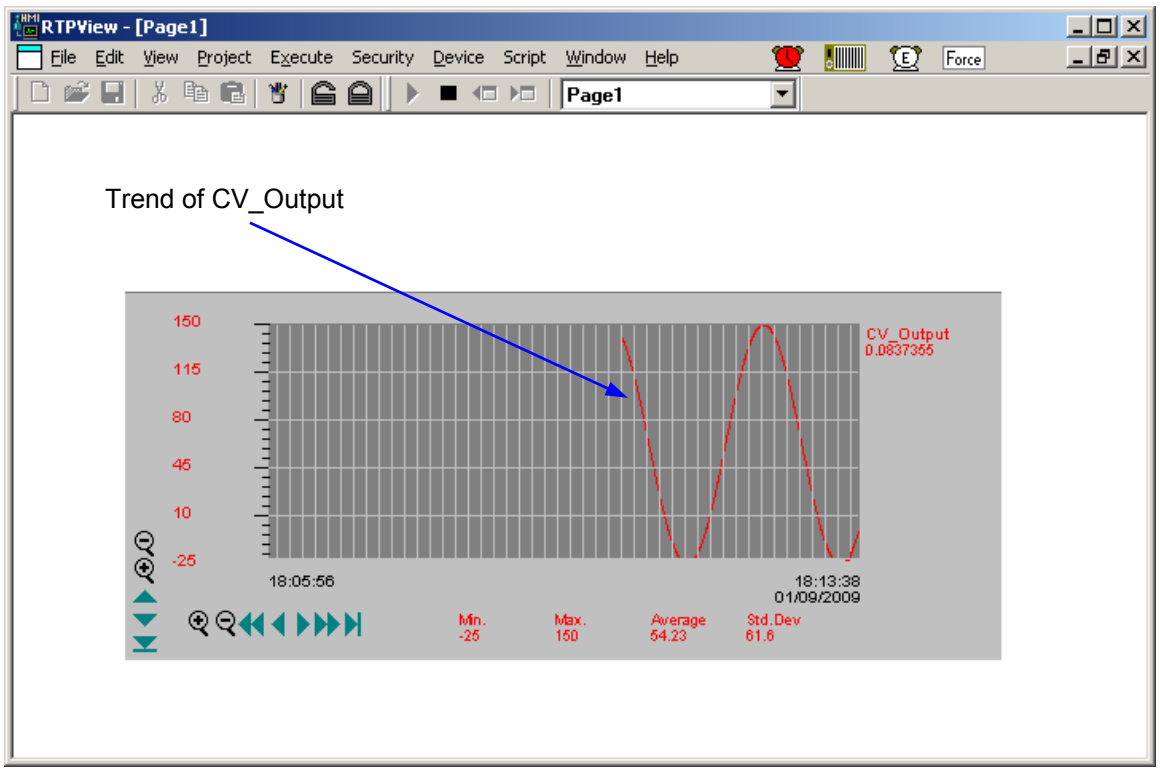
- **Change Update Rate (ms):** to 250. Click **OK**.



- Save the project by selecting **Save Project** in the **File** menu. In the Save As dialog enter the name “Sample” for the project and click the **Save** button.

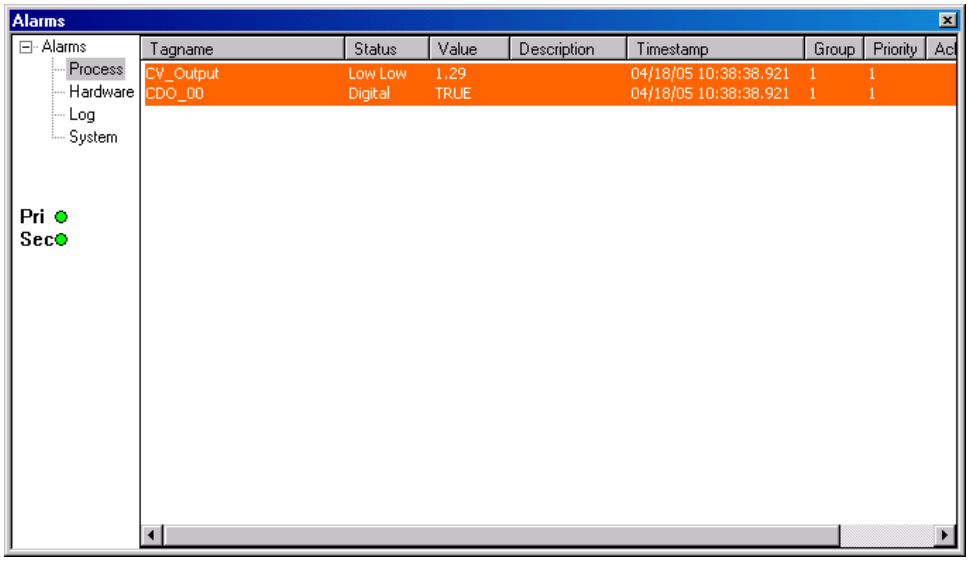
Verification

- Click on the (Run) button in the RTPView Toolbar to run the HMI project. The Trend object will begin to plot the values from the CV_Output variable. You can click on the icons to see a longer or shorter time view of the variable.



- The Process Alarm icon will start flashing to indicate the occurrence of an alarm condition.
- Click on an Alarm icon in the Main Menu Bar to view the Process Alarms page.

- In the Process Alarms page, observe CV_Output and CDO_00 going into and out of alarm conditions



Congratulations! You have created an RTPView HMI project and configured it to monitor alarm conditions of variables in a NetArrays project program running in the target node.