

ScadaPhone Alarm Browser for iFix

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ScadaPhone Alarm Browser for iFix

Introduction:

When **ScadaPhone** is used with **iFix HMI/SCADA**, the **ScadaPhone's iFix Alarm Browser** can be used to configure a project.

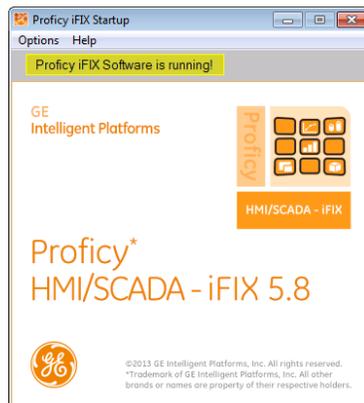
The alarm browser utilizes the industry-standard **OPC-DA** interface to obtain a filtered list of **iFix** data blocks which are configured as alarms (i.e. blocks which contain fields having the **A_NALM** (in alarm) tag suffix). After the list of **A_NALM** tags has been obtained, the alarm browser conducts additional scans to determine additional alarm attributes.

Browse iFix for Alarms:

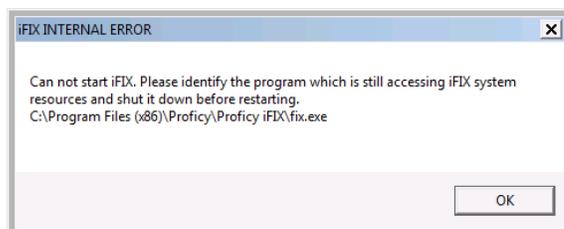
Follow these steps to **Browse Alarms in iFix**

Step 1: Launch iFix

It is important that **iFix** is allowed to complete its start-up process. The ScadaPhone can proceed to establish the OPC connection when you see the message, "**Proficy iFix Software is running**" on the **iFix Startup** window:



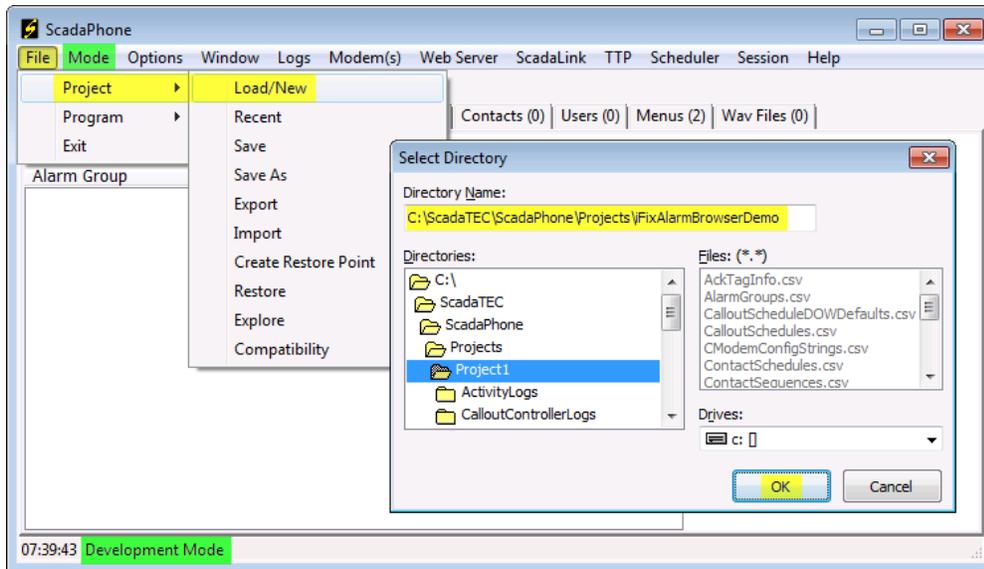
CAUTION: If ScadaPhone (or any other **OPC client**) attempts to establish an OPC connection to the **iFix OPC Server** before iFix has fully loaded, the connection attempt will fail and the following error message will be displayed:



This error can be difficult to resolve and may require a system reboot.

Step 2: Launch ScadaPhone, select Development Mode, create new project

After clicking the **ScadaPhone** desktop icon, ScadaPhone's main window will appear; to determine ScadaPhone's current **Mode**, examine the status bar at the bottom of the window:



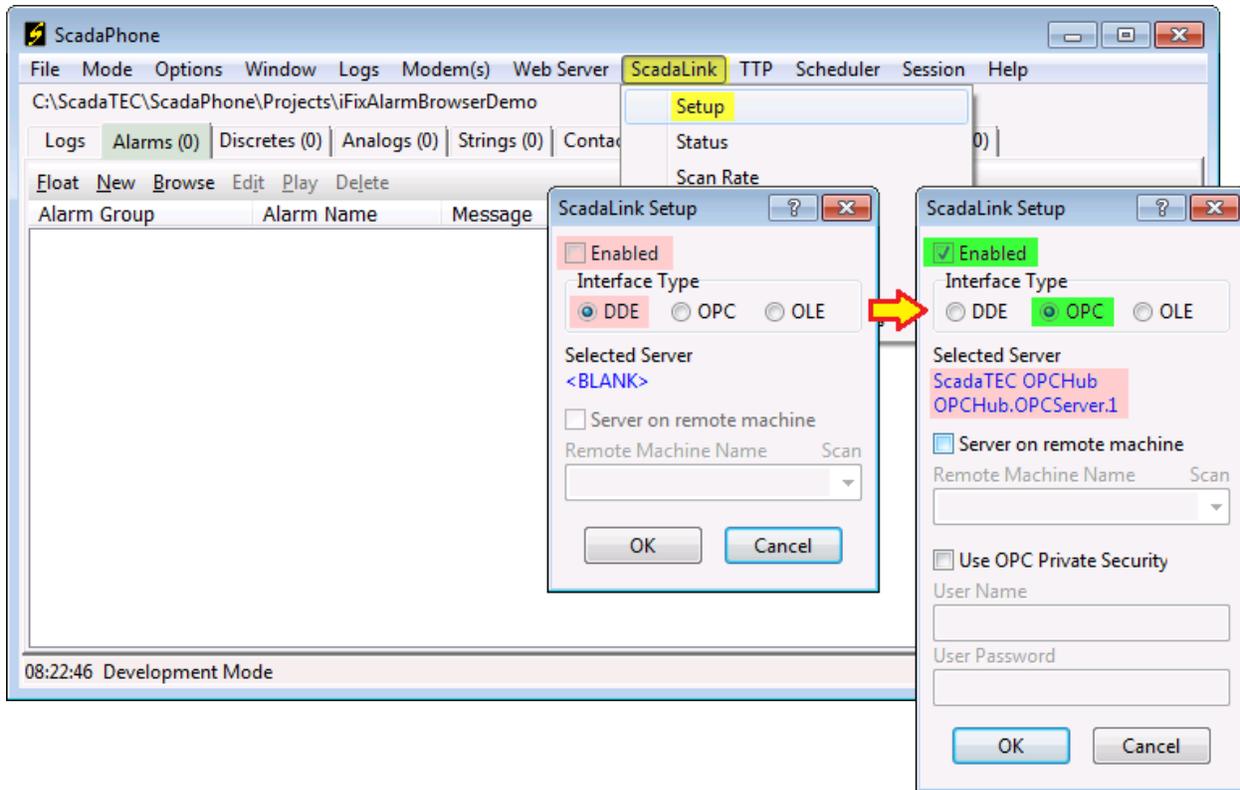
If ScadaPhone is not in **Development Mode**, click the **Mode** menu item and select **Development Mode** from the drop-down menu.

Initially, ScadaPhone installs with either **SampleProject** or **Project1** selected; it is recommended that a more meaningful and descriptive project name be selected. For this example, the project name will be set to **iFixAlarmBrowserDemo**. To set the project name click **File | Project | Load/New** to open the **Select Directory** window (ScadaPhone projects are collections of files encapsulated within directories). Next, set the **Directory Name** to the desired location and click **OK**.

If the selected directory does not yet exist, a prompt to **Create Directory** will be displayed; click **Yes**. If any changes to the currently loaded project are detected, a prompt to **Save Changes** will be displayed; again, click **Yes**.

Step 3: Link ScadaPhone to the iFix HMI/SCADA OPC-DA Server

ScadaPhone's linkage to **DDE**, **OLE** or **OPC** data servers is handled under the **ScadaLink** menu item on ScadaPhone's main window:



The initial values from the new (empty) project will cause the ScadaLink Setup window to display

- **Enabled:** Unchecked
- **Interface Type:** DDE
- **Selected Server:** <BLANK>

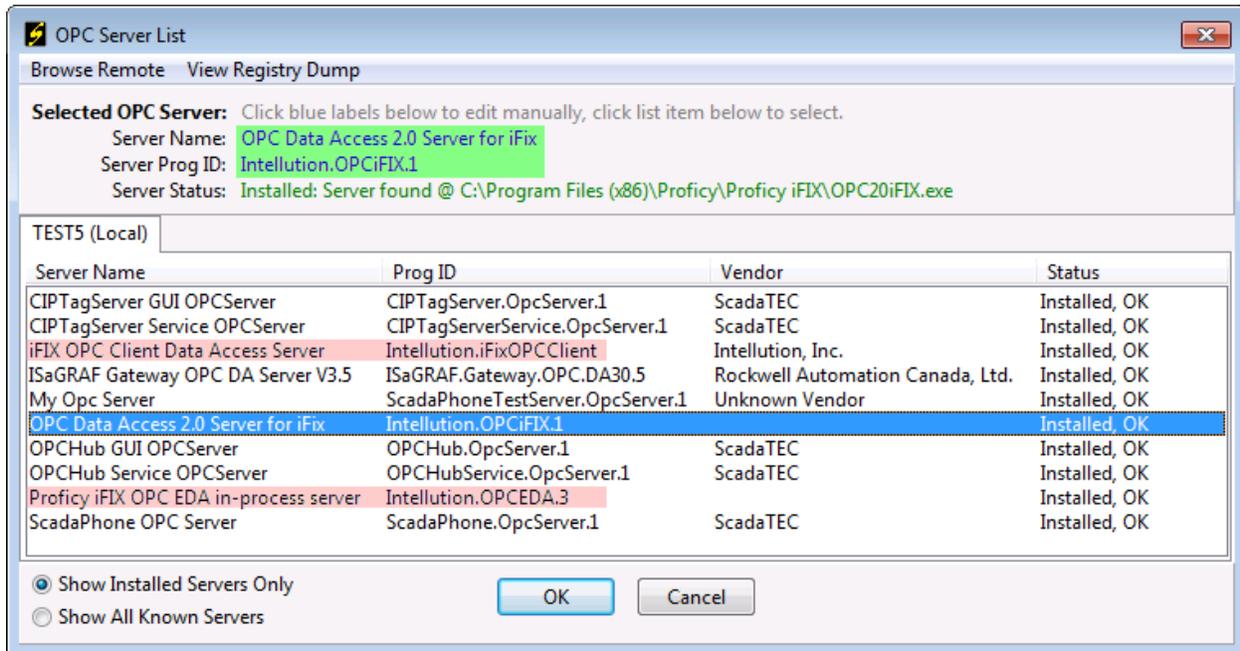
To proceed, place a check mark in **Enabled** box and select the **OPC** Interface Type; when **OPC** is selected, the **Selected Server** [blue-hyperlink](#) text will change to a default value; to specify the **iFix HMI/Scada** server, click the [blue-hyperlink](#) text. This will open ScadaPhone's **OPC Server List** window.

Note: ScadaPhone's **OPC Server List** window uses **OPC Server Enumeration (OpcEnum)** which is implemented via the **OPC Core Components**. The OPC Core Components must be installed on the host computer for ScadaPhone to browse OPC Server for tags. An installer for the **OPC Core Components** can be downloaded from:

<https://opcfoundation.org/developer-tools/samples-and-tools-classic/core-components/>

Step 4: Selecting the iFix OPC Server

Clicking the **Selected Server** [blue-hyperlink](#) label on the **ScadaLink Setup** window opens the **OPC Server List** window. This window uses **OpEnum** to build a list of all available **OPC-DA Servers** installed on the host computer. If the **iFix OPC Server** is correctly installed, there should be at least one item containing “iFix” in the **OPC Server List**:



Depending upon the iFix version installation history of the host computer, various versions of the **iFix OPC Server** may be present in this list.

On the host computer used to create the preceding screen capture, there are varying browse results depending upon which server is selected:

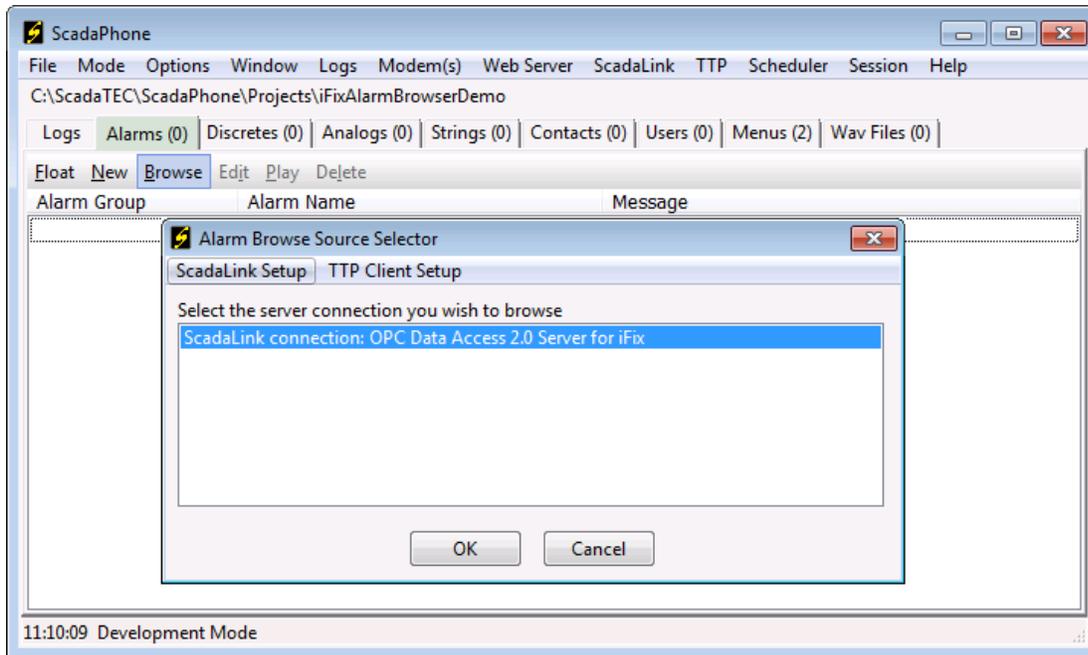
- **Intellution.OPCiFix.1** (recommended) worked perfectly.
- **Intellution.iFix.OPCClient** (not recommended) returned no results.
- **Intellution.OPCEDA.3** (not recommended) took an *extremely* long time to scan.

The list of available servers on your computer may vary. If a selected server does not work properly, try choosing another.

Click on the desired server connection to select it, then click **OK** to exit the **OPC Server List** window. Focus will return to the **ScadaLink Setup** window. The **Selected Server** will be displayed. Click **OK** to save this option and exit the **ScadaLink Setup** window.

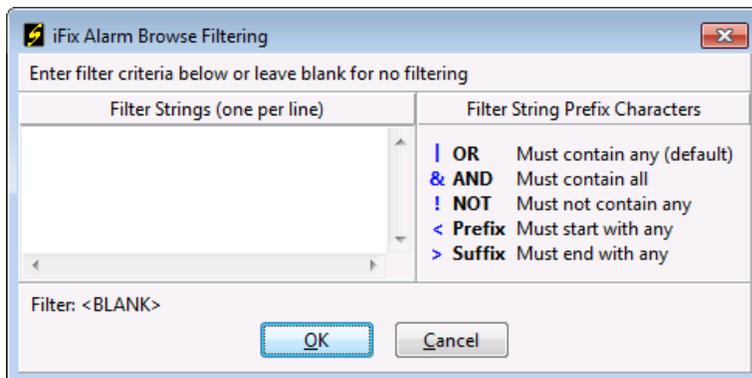
Step 5: Initiate the Alarm Browse

Once the **ScadaLink** has been correctly configured the **Alarms** tab can be used to browse for **Alarms**. The **Alarm Browse Source Selector** window will display:



If the current ScadaPhone project has no tags defined or no other server connections configured, there will only be one option for a browsing source (the **ScadaLink OPC** connection to **iFix**); select the list item and click **OK**.

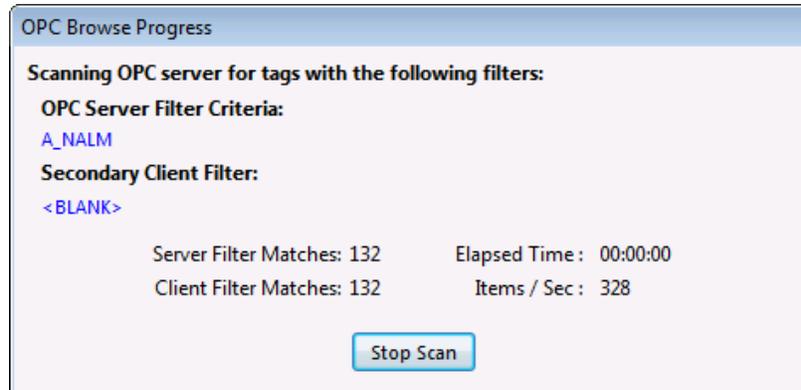
At this point in the browse process, the user will be presented with an opportunity to narrow the search results by imposing the **iFix Alarm Browse Filter**:



This filter is **optional**, and for most users, can be left **blank**. This filter is useful if the **iFix project** being browsed contains tens-of-thousands of tags and the system designer only wants to select from tags from specific system nodes (SITE1, SITE2, SITE3...). In that case, the user can enter the node name (e.g. **SITE1**) in the **Filter Strings** box and click **OK** to proceed. If the specified filter does not match any tags in the iFix project, the browse results will be empty.

Step 6: Select Browse Results

After clicking the **OK** button on the **iFix Alarm Browse Filtering** window, the browse operation will start. If the iFix project has a small number of Tags, the **OPC Browse Progress** window may not be displayed:

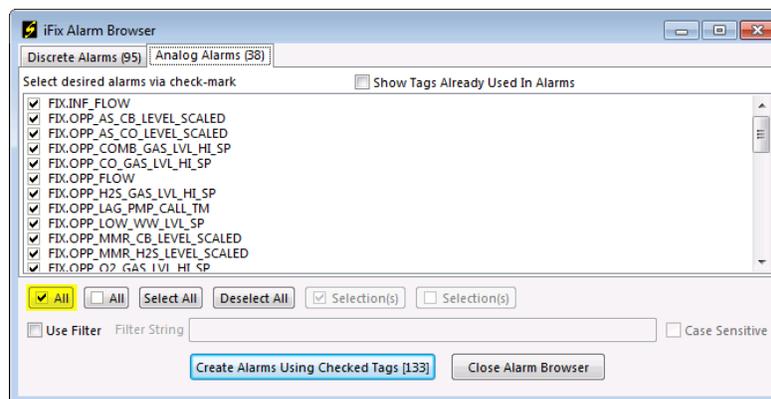


For large projects, it may take a minute or more to completely scan the iFix namespace. This window shows the user the browse status during long scans.

The **Secondary Client Filter** will display whatever has been entered as a filtering string in the previous step (in this case: **<BLANK>** for no filtering). Also note that there is an **OPC Server Filter Criteria** value specified as **A_NALM** (the **iFix block field** which denotes the “**In Alarm**” condition). By narrowing the search in this way, ScadaPhone can select only **iFix blocks** which have **alarm conditions** defined.

After the list of **A_NALM** tag list has been obtained, ScadaPhone performs a series of additional scans for tags having similar **block** names to the items in the **A_NALM** list, but ending with associated known **suffixes** such as **F_CV**, **A_NAME**, **A_INV**, **F_HI**, **F_LO**, etc.

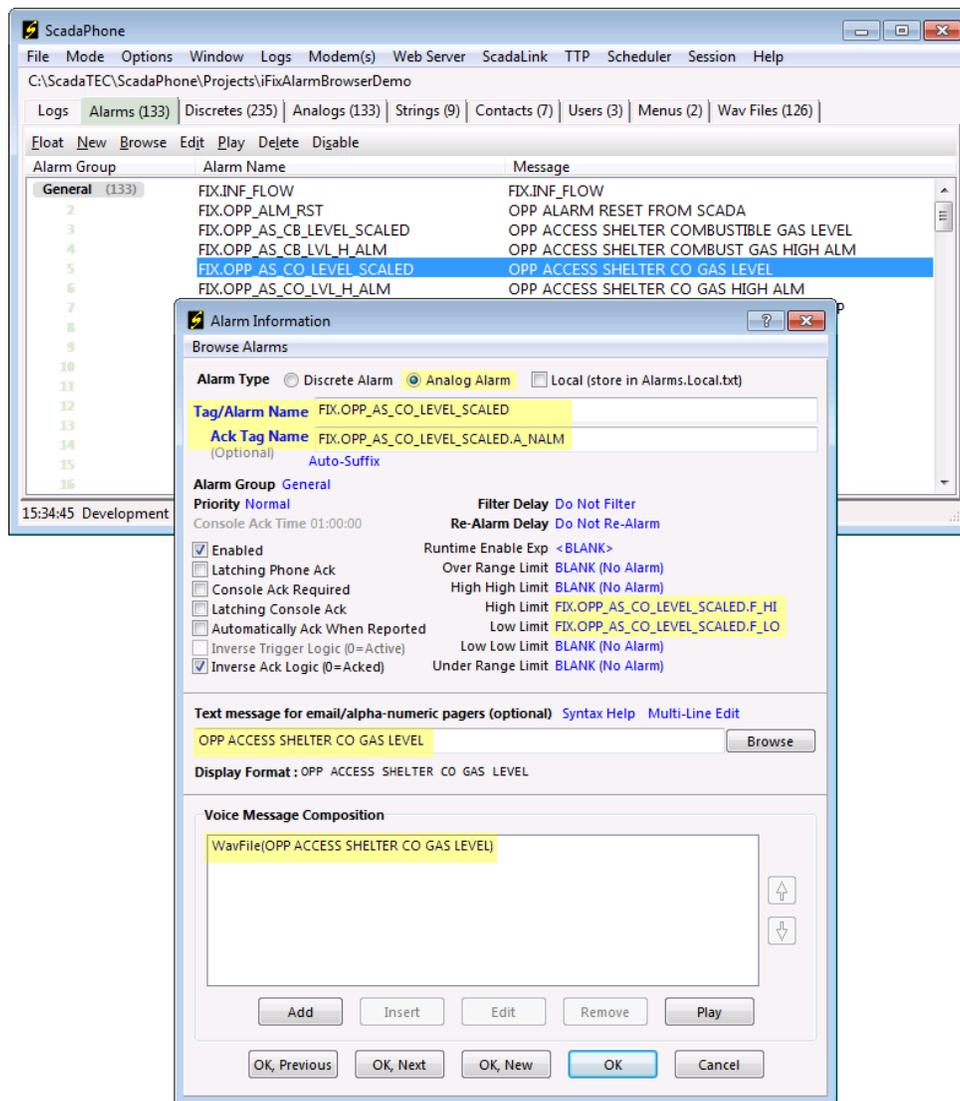
After performing the additional scans, the **iFix Alarm Browser** window is displayed:



The **iFix Alarm Browser** window shows **iFix block names** detected to have alarm conditions defined (**A_NALM** tags). To create corresponding alarms in the ScadaPhone project, put a check-mark next to all desired blocks (or click the **All** button). Do this for both **Discrete** and **Analog Alarms**.

Step 7: Inspect Browse Results:

After selecting the desired iFix blocks and clicking the **Create Alarms Using Checked Tags** button, ScadaPhone will define alarms into the ScadaPhone project. Any alarm can be inspected by double-clicking an alarm name in the **Alarms** tab:



Note that ScadaPhone's **Alarm Browser** has used the **iFix Block name** as the **Tag/Alarm Name**. This value is actually obtained from the **Block.F_CV** value without the **F_CV** suffix (this is done by defining a **ScadaLink alias**). Also note that the **Ack Tag Name** alarm field has been set to **Block.A_NALM**; this allows ScadaPhone to monitor and control the alarm's acknowledgement status.

Other iFix **Block** fields are obtained during the browse, and their values are used as appropriate:

- The **Block.A_DESC** field is polled during the browse, and the values obtained are used to configure the ScadaPhone alarm **Text** and **Voice Message** fields (highlighted in previous image).
- For **Analog** alarms, the appropriate **Block.F_HI** and **Block.F_LO** fields are added to ScadaPhone's **Analog Alarm Limit** fields (highlighted in previous image).
- **Discrete** alarms are also filled-in with the appropriate values: The **Block.A_INV** values are polled, and the ScadaPhone **Inverse Trigger Logic** alarm fields are set accordingly. (highlighted below)
- **All iFix alarms** are configured with **Inverse Ack Logic**; this reflects the behavior of the **Block.A_NALM** tag.

Alarm Information

Browse Alarms

Alarm Type Discrete Alarm Analog Alarm Local (store in Alarms.Local.txt)

Tag/Alarm Name FIX.OPP_AS_CO_LVL_H_ALM

Ack Tag Name FIX.OPP_AS_CO_LVL_H_ALM.A_NALM
(Optional) Auto-Suffix

Alarm Group General

Priority Normal

Console Ack Time 01:00:00

Filter Delay Do Not Filter

Re-Alarm Delay Do Not Re-Alarm

Enabled

Latching Phone Ack

Console Ack Required

Latching Console Ack

Automatically Ack When Reported

Inverse Trigger Logic (0=Active)

Inverse Ack Logic (0=Acked)

Runtime Enable Exp <BLANK>

Over Range Limit N/A

High High Limit N/A

High Limit N/A

Low Limit N/A

Low Low Limit N/A

Under Range Limit N/A

Text message for email/alpha-numeric pagers (optional) [Syntax Help](#) [Multi-Line Edit](#)

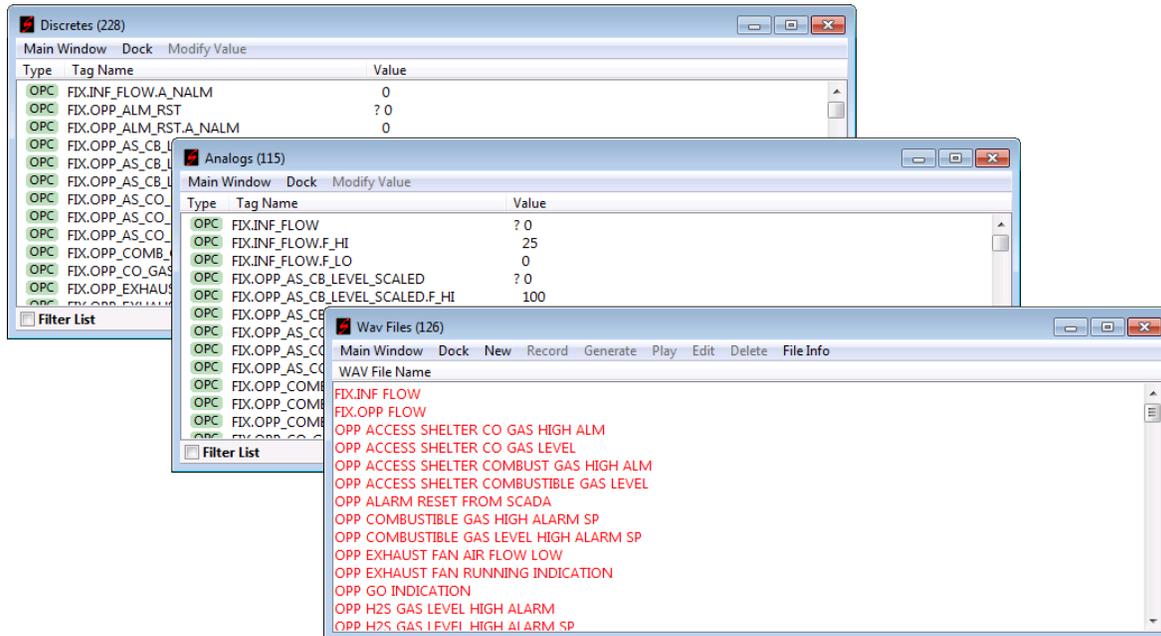
OPP ACCESS SHELTER CO GAS HIGH ALM

Display Format : OPP ACCESS SHELTER CO GAS HIGH ALM

Voice Message Composition

WavFile(OPP ACCESS SHELTER CO GAS HIGH ALM)

In addition to adding items to the ScadaPhone Alarms list, the alarm browse also populates the **Analog Tag**, **Discrete Tag** and **Wav File** lists of the ScadaPhone project:

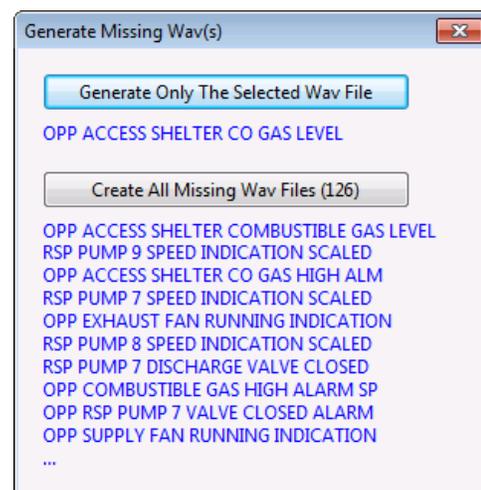


Note that the entire list of **WAV Files** is initially displayed in red font; this indicates that the WAV files do not yet exist. This is not a problem, ScadaPhone will use the **Windows Text To Speech** interface to create any missing WAV files; however, since the text-to-speech engine will be asked to render whatever text was read from the **A_DESC** fields during the browse, some of the speech audio may be difficult to understand if the alarm messages contain names and abbreviations which the text-to-speech engine may not recognize.

See **ScadaPhone WAV Phrase Organizer** documentation for instructions to optimize the text-to-speech alarm messages.

To generate all of the necessary WAV files at once:

- Highlight any **WAV File Name** in the **WAV Files** list (this will enable the **Generate** menu item).
- Click the **Generate** menu item to open the **Generate Missing Wav(s)** window.
- Click the **Create All Missing Wav Files** button.
- When the generation process is finished, all items will change from red font to black; this indicates that the files exist.

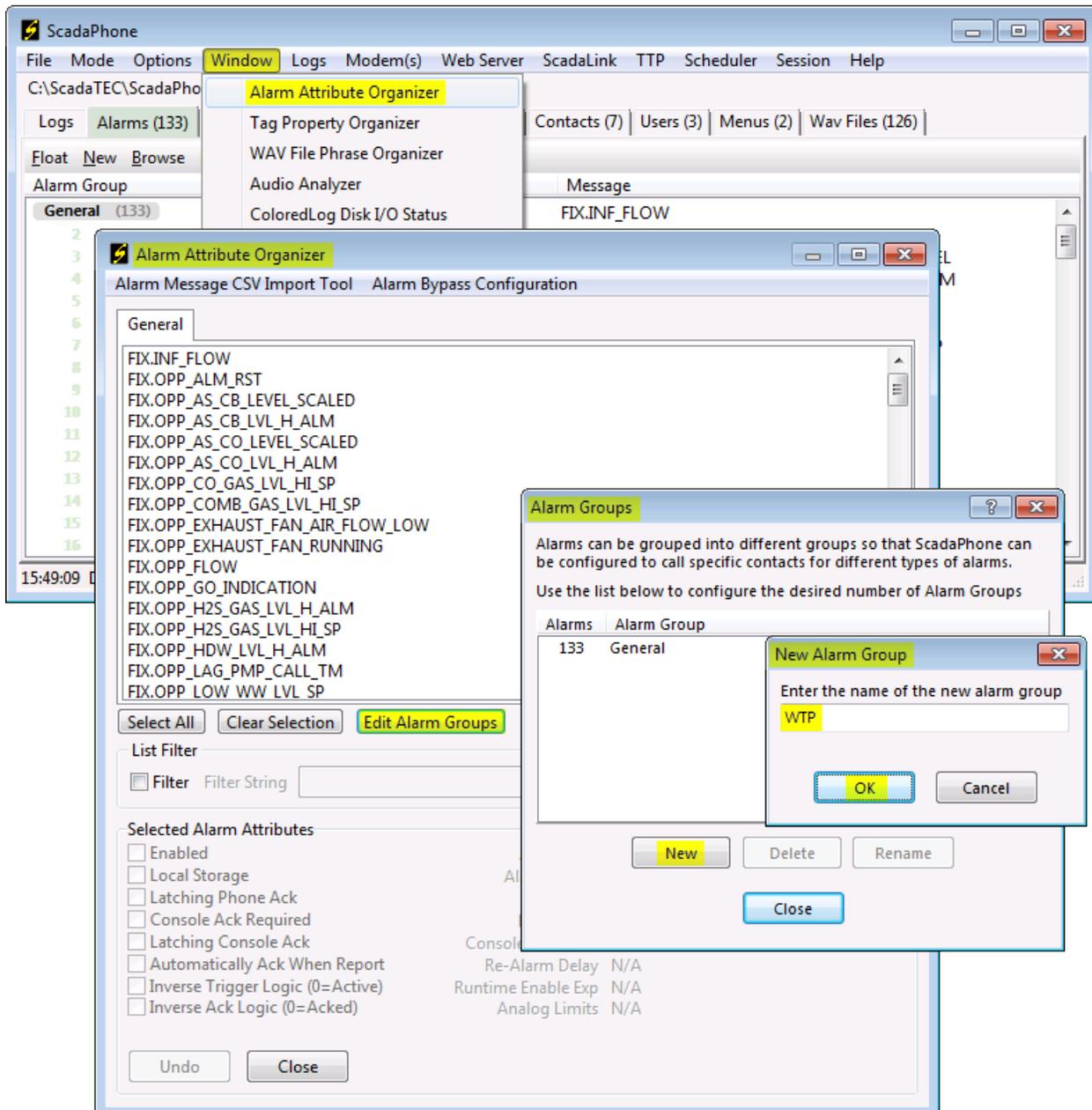


Step 8: Record WAV Audio (optional)

WAV files can be recorded manually by using a microphone connected to either the system sound-card or a voice modem.

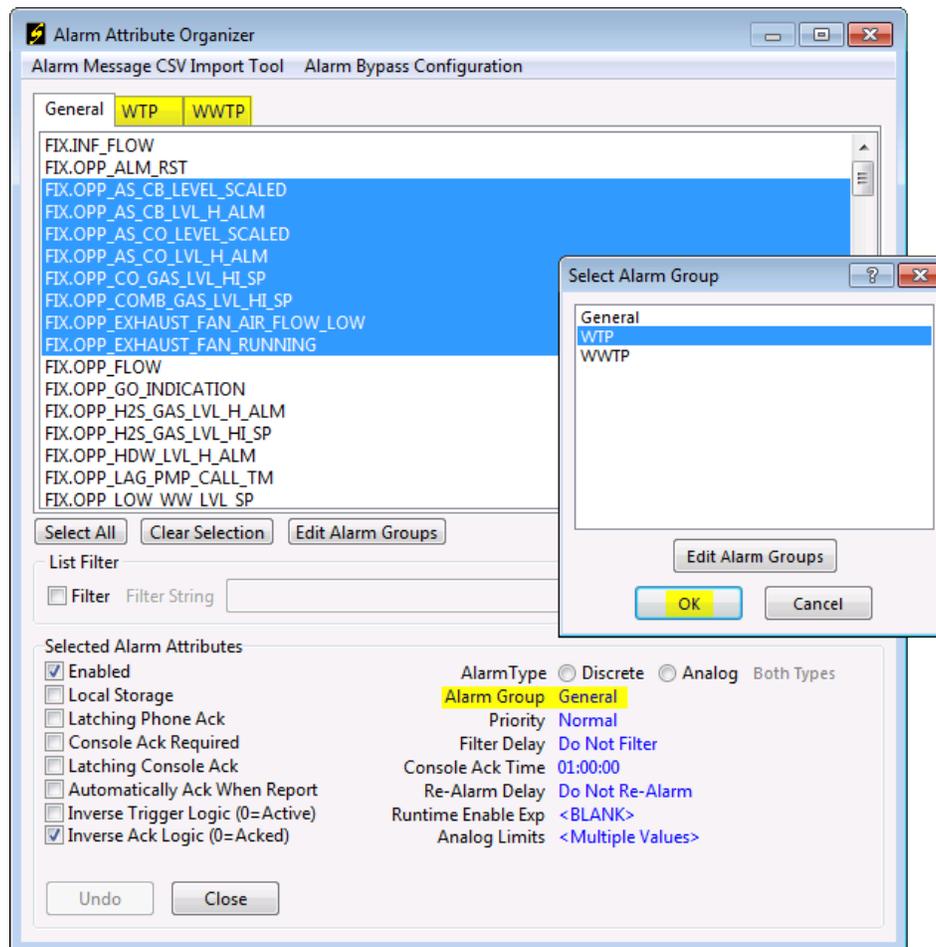
Step 9: Alarm Group Assignment (optional)

ScadaPhone's **iFix Alarm Browser** simply places all alarms into the default **General** Alarm Group. In many systems it is desirable to separate alarms into logical groups. Each group has its own lists of contacts. ScadaPhone's **Alarm Attribute Organizer** facilitates this process:



Click the **Edit Alarm Groups** button to open the **Alarm Groups** window. Use the **New** button to create as many **Alarm Groups** as needed. When the list of **Alarm Groups** is complete, the **Alarm Attribute Organizer** can be used to assign each alarm into its appropriate group.

Note that any alarm groups added during the **Edit Alarm Groups** step will appear as tabs in the **Alarm Attribute Organizer** (see **WTP** and **WWTP** tabs highlighted below):



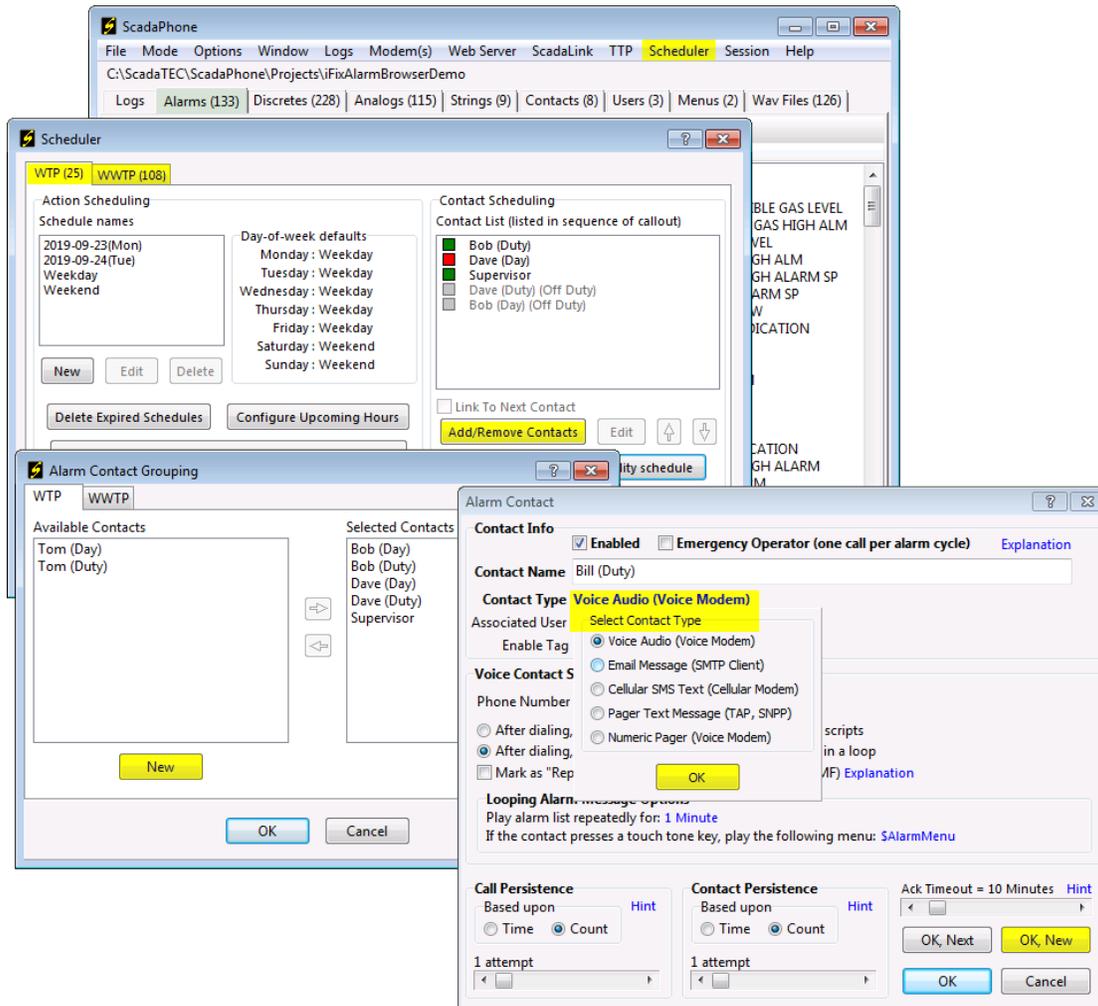
To move alarms from one group to another: Highlight them (using the standard windows *left-click*, *control-left-click* and *shift-left-click* actions) and then click the blue **Alarm Group** label to open the **Select Alarm Group** window. Selecting a new **Alarm Group** then clicking **OK** will move all of the selected alarms to the selected group.

Other alarm fields (such as **Priority**, **Filter Delay**, etc.) can also be manipulated in the **Alarm Attribute Organizer**. After making all desired changes, click the **Close** button to return to ScadaPhone's main window.

Step 10: Assigning Contacts to Alarm Groups

Before any alarm-report testing can be done, **Contact Sequences** must be configured for each **Alarm Group**. The first step in defining **Contact Sequences** is to define the **Contacts** which will be called.

Contacts are normally created and configured from the **Contacts** tab of ScadaPhone's main window; however, Contacts can also be created from within ScadaPhone's **Scheduler**:



Note that the **Scheduler** uses a tabbed page control to select the **Alarm Group** to be configured; after selecting the desired **Alarm Group** tab, the **Add Remove Contacts** button opens the **Alarm Contact Grouping** window. This window lists all **Contacts** defined in the ScadaPhone project, separated into two lists: **Available Contacts** and **Selected Contacts**. If there are no **Contacts** defined, both lists will be blank.

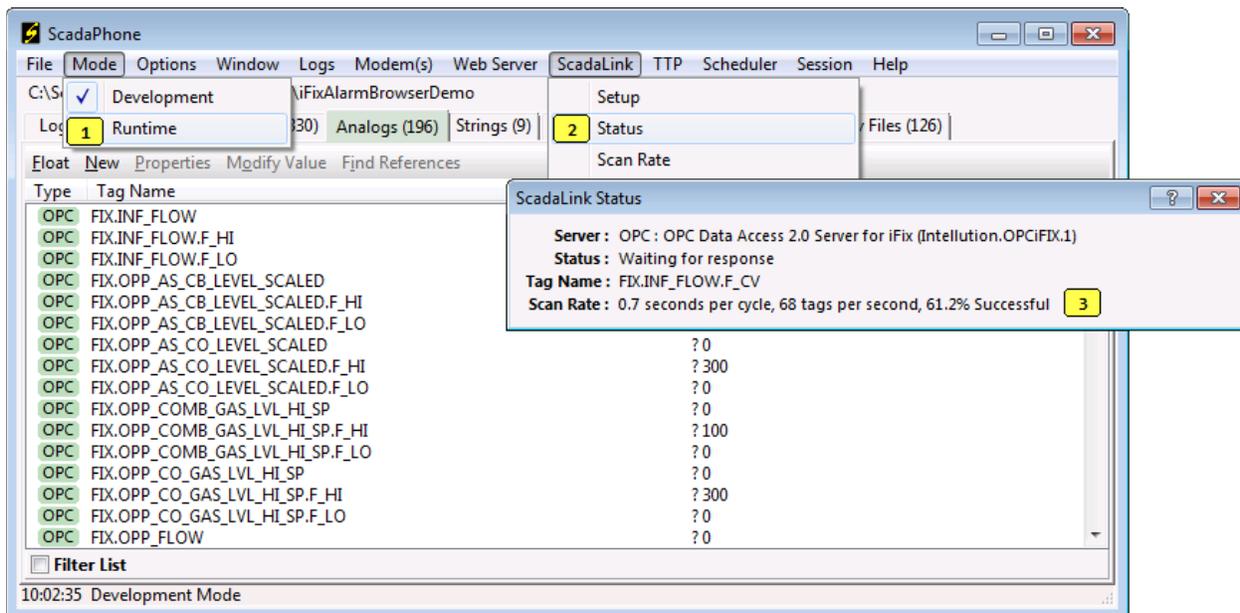
To create **Contacts**, click the **New** button under the **Available Contacts** list box; this opens the **Alarm Contact** window. The selection of **Contact Type** depends upon the type of devices being utilized to report alarms (i.e. **Voice Modem**, **Cell Modem/Router**, **Email**, etc.). To create numerous contacts, use the **OK, New** button until all desired **Contacts** have been defined.

Step 11: Run Mode Testing

After completing the previous steps, the ScadaPhone project is ready to be tested. This first thing to test is the **ScadaLink** (OPC) connection between ScadaPhone and iFix.

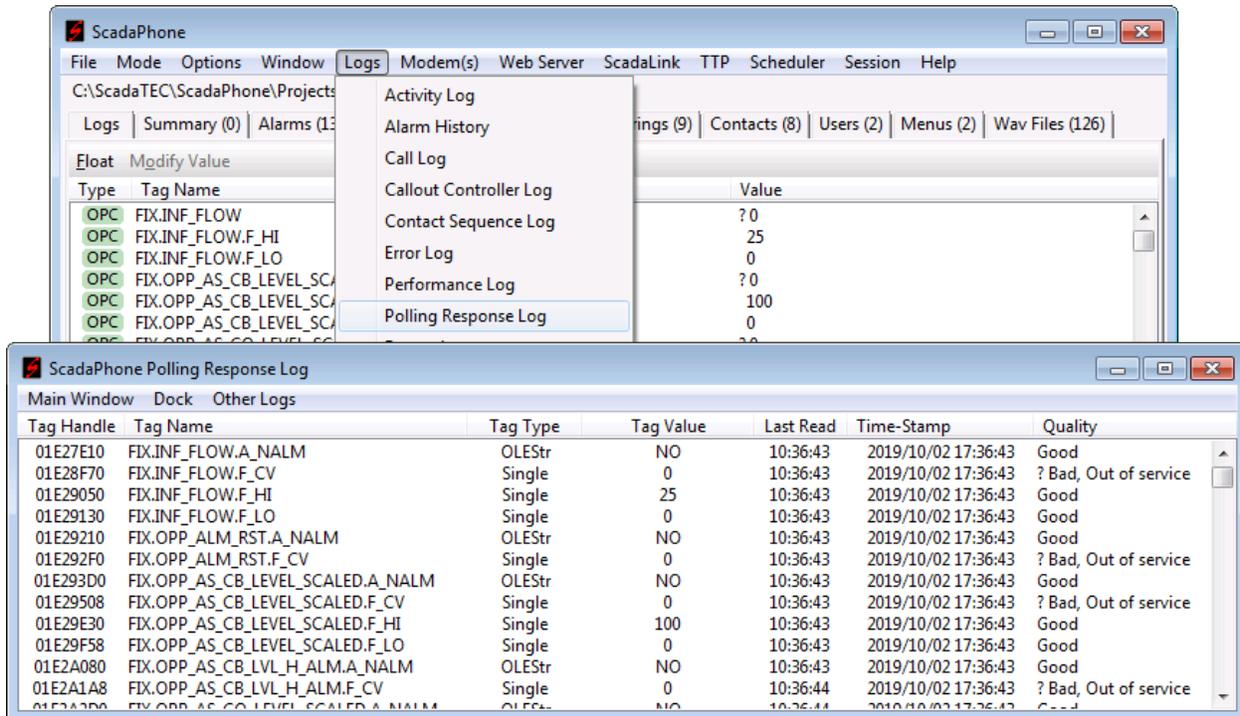
Important: If **iFix** is not running, *launch it before attempting to establish an OPC connection from ScadaPhone*; otherwise, the iFix error described in **Step 1** of this document will occur (resolving this error may require a reboot). After confirming that the **iFix HMI** is running, do the following:

1. Put ScadaPhone into **Run Mode** by clicking **Mode | Runtime**
2. Open the **ScadaLink Status** window by clicking **ScadaLink | Status**
3. Check the **Scan Rate** label and adjust its polling rate so that there are pauses between scans.



The **ScadaLink Status** window gives a summary overview of the polling status. If the polling **Success** rate is less than 100%, a more detailed view of the polling status can be found in the **Polling Response Log**. Question mark (?) by a Tag indicates that this Tag is not available in the OPC Server.

The **ScadaPhone Polling Response Log** can be opened by clicking the **Logs | Polling Response Log** menu item:



This log lists all of the tags being polled by the ScadaLink interface and gives the results of the most recent polling attempt for each tag.

Note that the Quality column of the image above explains why the ScadaLink Status window was only indicating a 61.2% Success rate. All of the F_CV tag reads are returning a **Quality** value of **Bad, Out of service**; this is to be expected if the iFix communications are not active. Turning on the iFix communications should cause the success rate to rise to 100%.

This concludes the process of utilizing the **ScadaPhone iFix Alarm Browser**.