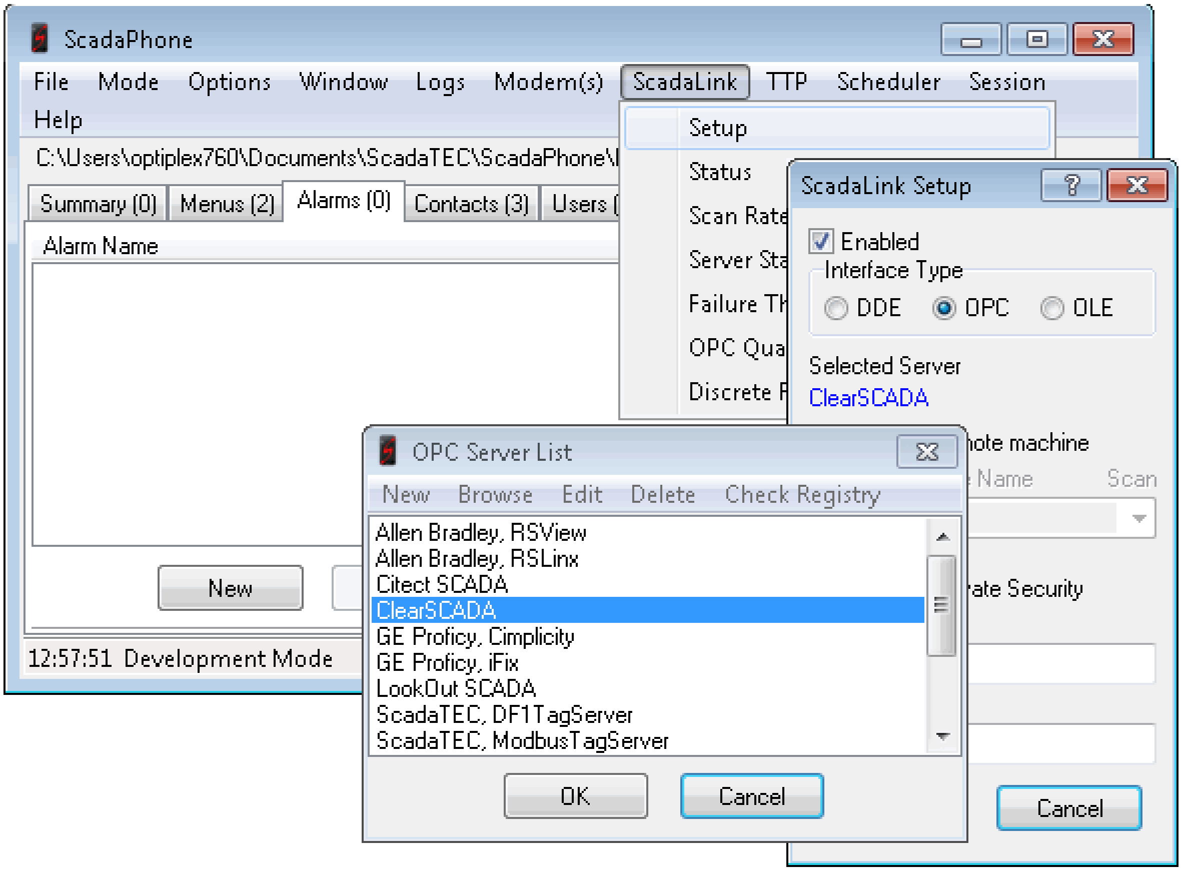
ScadaPhone Application Note: ClearSCADA Alarm Browser

To facilitate project configuration, **ScadaPhone** implements a **ClearSCADA Alarm Browser**.

This browser can reduce ScadaPhone project-configuration time from hours down to minutes when ScadaPhone is to be used in conjunction with **ClearSCADA**. The **ClearSCADA Alarm Browser** uses the standard **OPC-DA** interface to obtain a list of all alarms configured in the ClearSCADA project and then facilitate the selection and configuration of alarms to be serviced by ScadaPhone.

To access the **ClearSCADA Alarm Browser**, you must first configure ScadaPhone's **ScadaLink** interface to communicate with **ClearSCADA**.

To do this, launch ScadaPhone, create a new project, configure the **ScadaLink Setup** as **OPC** and click the blue label to select **ClearSCADA**:



C:\Users\optiplex760\Documents\ScadaTEC\ScadaPhone\

12:57:51 Development Mode

☑ Enabled

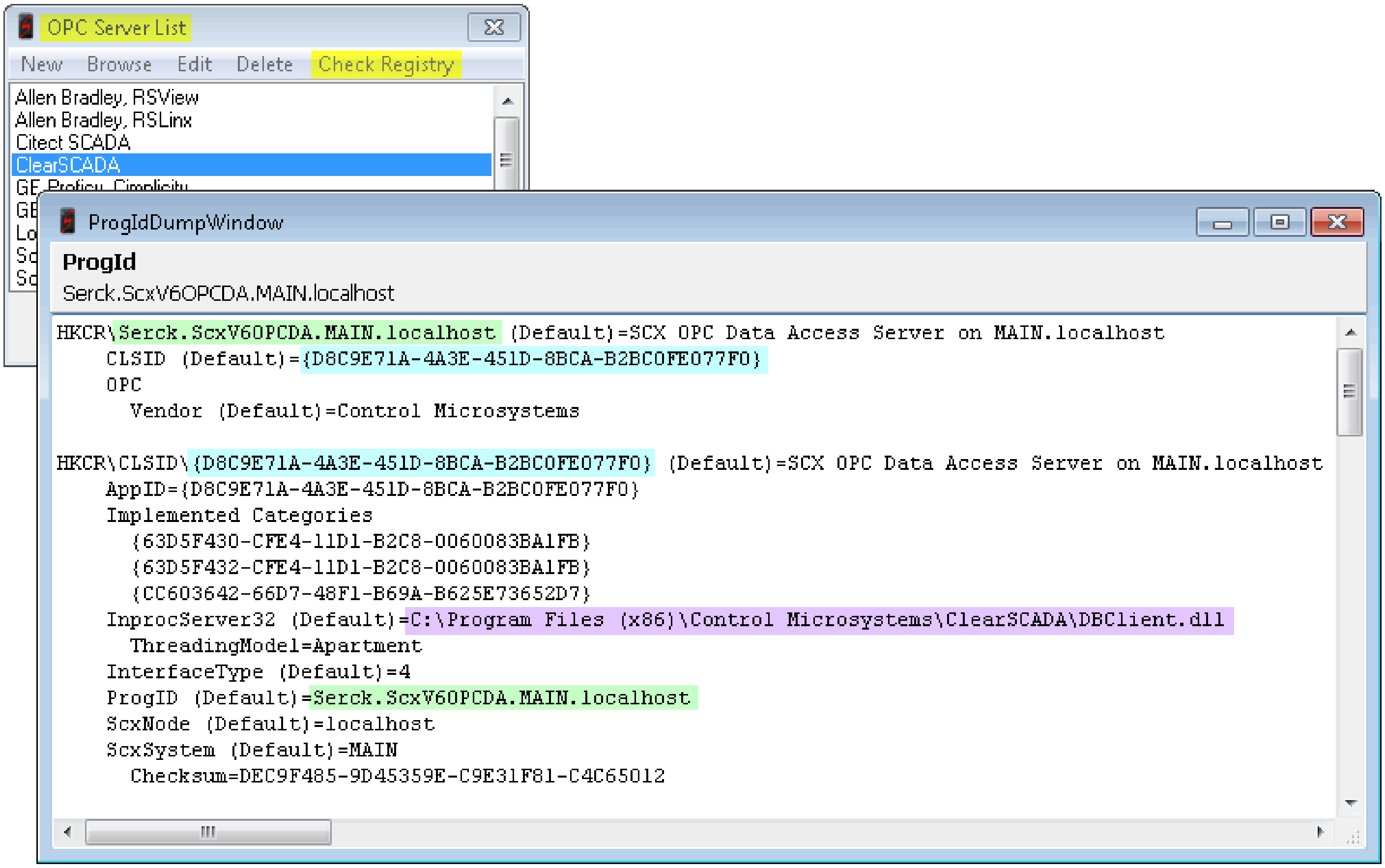
Interface Type: ○ DDE ● OPC ○ OLE

Selected Server: ClearSCADA

Allen Bradley, RSView
Allen Bradley, RSLinx
Citect SCADA
ClearSCADA
GE Proficy, Cimplicity
GE Proficy, iFix
LookOut SCADA
ScadaTEC, DF1TagServer
ScadaTEC, ModbusTagServer

Depending upon which version of ClearSCADA you are using, ScadaPhone's default **Program ID** for the **ClearSCADA connection** may or may not be valid. To see if the **ProgId** is valid on your system, click the **Check Registry** menu item at the top of the **OPC Server List** window...

If all is well with the ClearSCADA connection setup, the **Check Registry** operation should display results similar to the following:



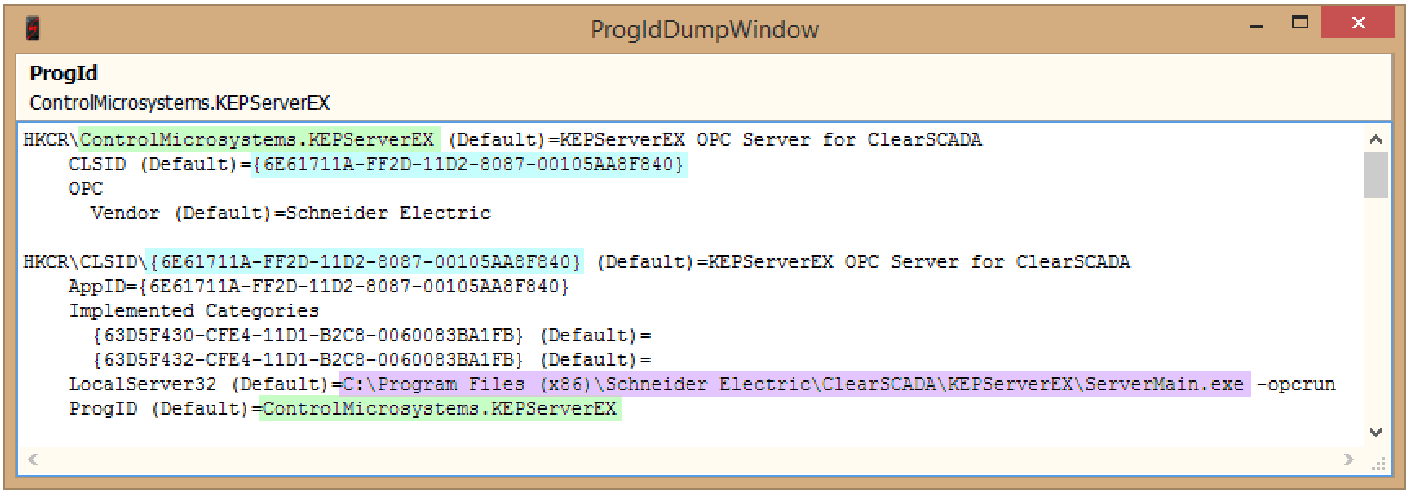
ProgId

Serck.ScxV6OPCDA.MAIN.localhost

```
HKCR\Serck.ScxV6OPCDA.MAIN.localhost (Default)=SCX OPC Data Access Server on MAIN.localhost
    CLSID (Default)={D8C9E71A-4A3E-451D-8BCA-B2BC0FE077F0}
    OPC
      Vendor (Default)=Control Microsystems

HKCR\CLSID\{D8C9E71A-4A3E-451D-8BCA-B2BC0FE077F0} (Default)=SCX OPC Data Access Server on MAIN.localhost
    AppID={D8C9E71A-4A3E-451D-8BCA-B2BC0FE077F0}
    Implemented Categories
      {63D5F430-CFE4-11D1-B2C8-0060083BA1FB}
      {63D5F432-CFE4-11D1-B2C8-0060083BA1FB}
      {CC603642-66D7-48F1-B69A-B625E73652D7}
    InprocServer32 (Default)=C:\Program Files (x86)\Control Microsystems\ClearSCADA\DBClient.dll
      ThreadingModel=Apartment
    InterfaceType (Default)=4
    ProgID (Default)=Serck.ScxV6OPCDA.MAIN.localhost
    ScxNode (Default)=localhost
    ScxSystem (Default)=MAIN
      Checksum=DEC9F485-9D45359E-C9E31F81-C4C65012
```

The image above shows the results of doing the **Check Registry** operation on a computer where **ClearSCADA version 6** is installed. Older versions of ClearSCADA used the **Serck.ScxV6OPCDA.... ProgID**, but newer versions of ClearSCADA require a different **ProgID**: **ControlMicrosystems.KEPServerEX**



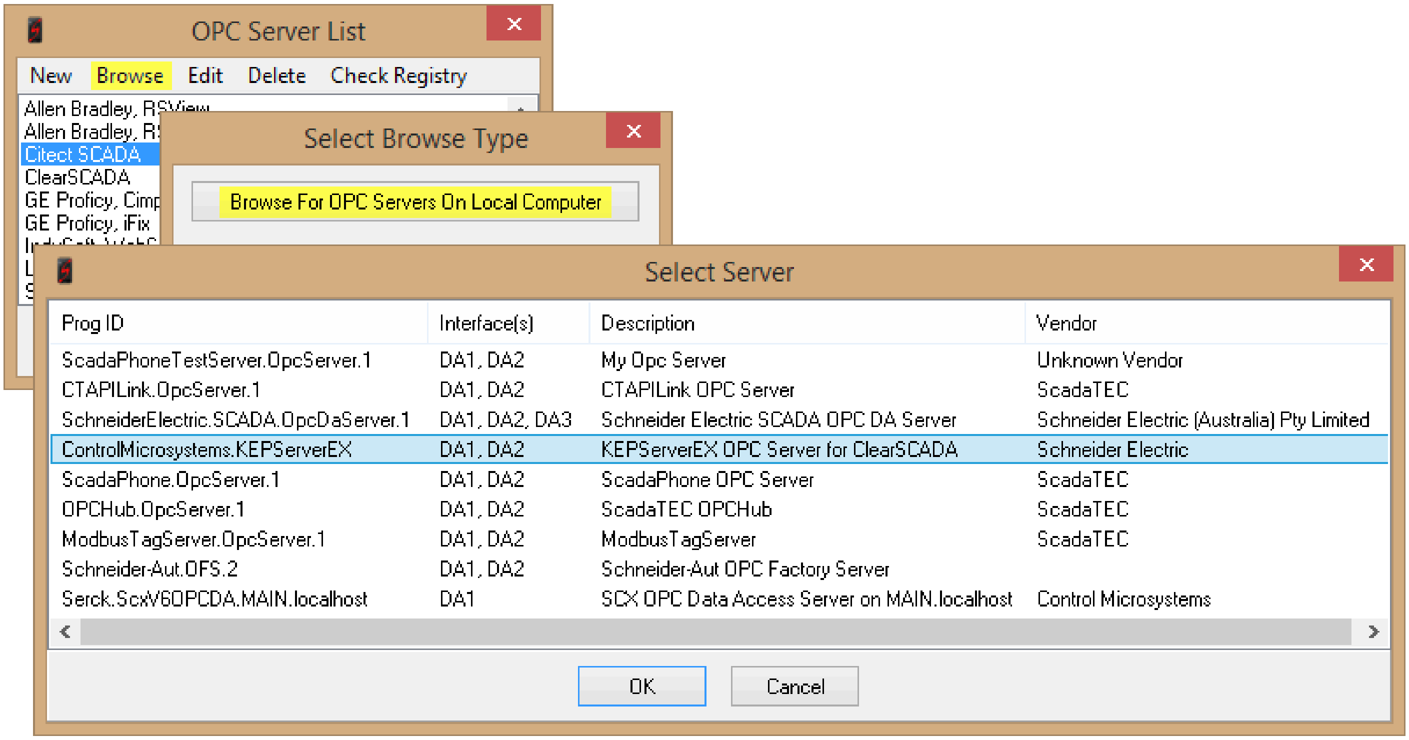
ProgId

ControlMicrosystems.KEPServerEX

```
HKCR\ControlMicrosystems.KEPServerEX (Default)=KEPServerEX OPC Server for ClearSCADA
    CLSID (Default)={6E61711A-FF2D-11D2-8087-00105AA8F840}
    OPC
      Vendor (Default)=Schneider Electric

HKCR\CLSID\{6E61711A-FF2D-11D2-8087-00105AA8F840} (Default)=KEPServerEX OPC Server for ClearSCADA
    AppID={6E61711A-FF2D-11D2-8087-00105AA8F840}
    Implemented Categories
      {63D5F430-CFE4-11D1-B2C8-0060083BA1FB} (Default)=
      {63D5F432-CFE4-11D1-B2C8-0060083BA1FB} (Default)=
    LocalServer32 (Default)=C:\Program Files (x86)\Schneider Electric\ClearSCADA\KEPServerEX\ServerMain.exe -opcrun
    ProgID (Default)=ControlMicrosystems.KEPServerEX
```

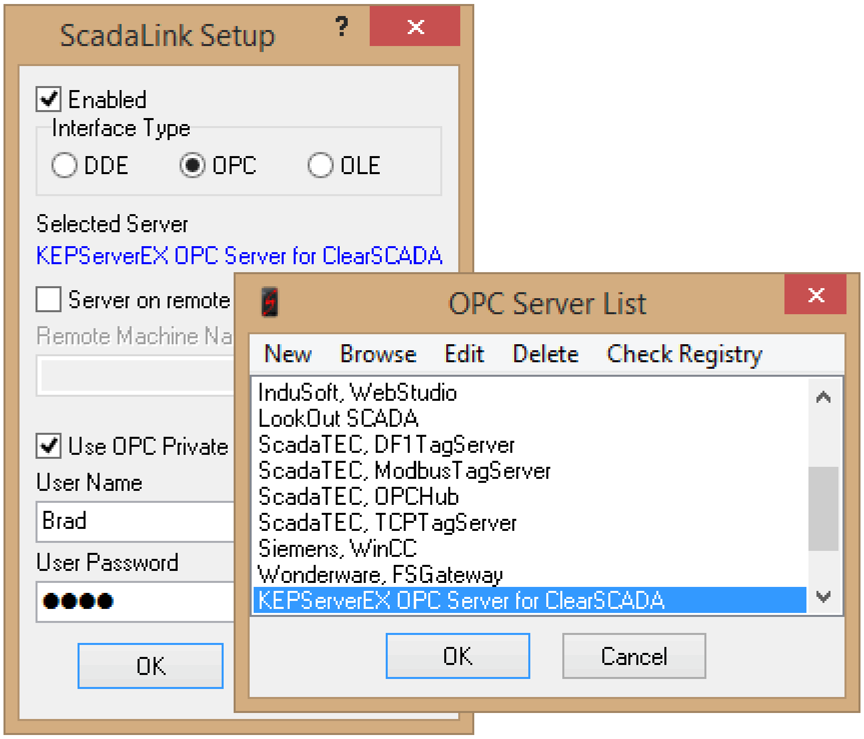
If you are running a newer version of ClearSCADA, and the old (default) connection string is specified in the **ClearSCADA ScadaLink** entry, the contents of the **ProgIdDumpWindow** will be *blank*. In this case, you will need to either **Edit** the **ClearSCADA** entry in the **OPC Server List** or do a **Browse** from the top menu on the **OPC Server List** window:


OPC Server List
New Browse Edit Delete Check Registry
Select Browse Type
Browse For OPC Servers On Local Computer
Select Server
OK
Cancel

Allen Bradley, RSView
Allen Bradley, RS
Citect SCADA
ClearSCADA
GE Proficy, Cimp
GE Proficy, iFix

Prog ID	Interface(s)	Description	Vendor
ScadaPhoneTestServer.OpcServer.1	DA1, DA2	My Opc Server	Unknown Vendor
CTAPILink.OpcServer.1	DA1, DA2	CTAPILink OPC Server	ScadaTEC
SchneiderElectric.SCADA.OpcDaServer.1	DA1, DA2, DA3	Schneider Electric SCADA OPC DA Server	Schneider Electric (Australia) Pty Limited
ControlMicrosystems.KEPServerEX	DA1, DA2	KEPServerEX OPC Server for ClearSCADA	Schneider Electric
ScadaPhone.OpcServer.1	DA1, DA2	ScadaPhone OPC Server	ScadaTEC
OPCHub.OpcServer.1	DA1, DA2	ScadaTEC OPCHub	ScadaTEC
ModbusTagServer.OpcServer.1	DA1, DA2	ModbusTagServer	ScadaTEC
Schneider-Aut.OFS.2	DA1, DA2	Schneider-Aut OPC Factory Server	
Serck.ScxV6OPCDA.MAIN.localhost	DA1	SCX OPC Data Access Server on MAIN.localhost	Control Microsystems

After selecting the new **KEPServerEX Prog ID**, ScadaPhone's **ScadaLink Setup** should look like this:



☑ Enabled

Interface Type

○ DDE ● OPC ○ OLE

Selected Server

KEPServerEX OPC Server for ClearSCADA

□ Server on remote

Remote Machine Na

☑ Use OPC Private

User Name

Brad

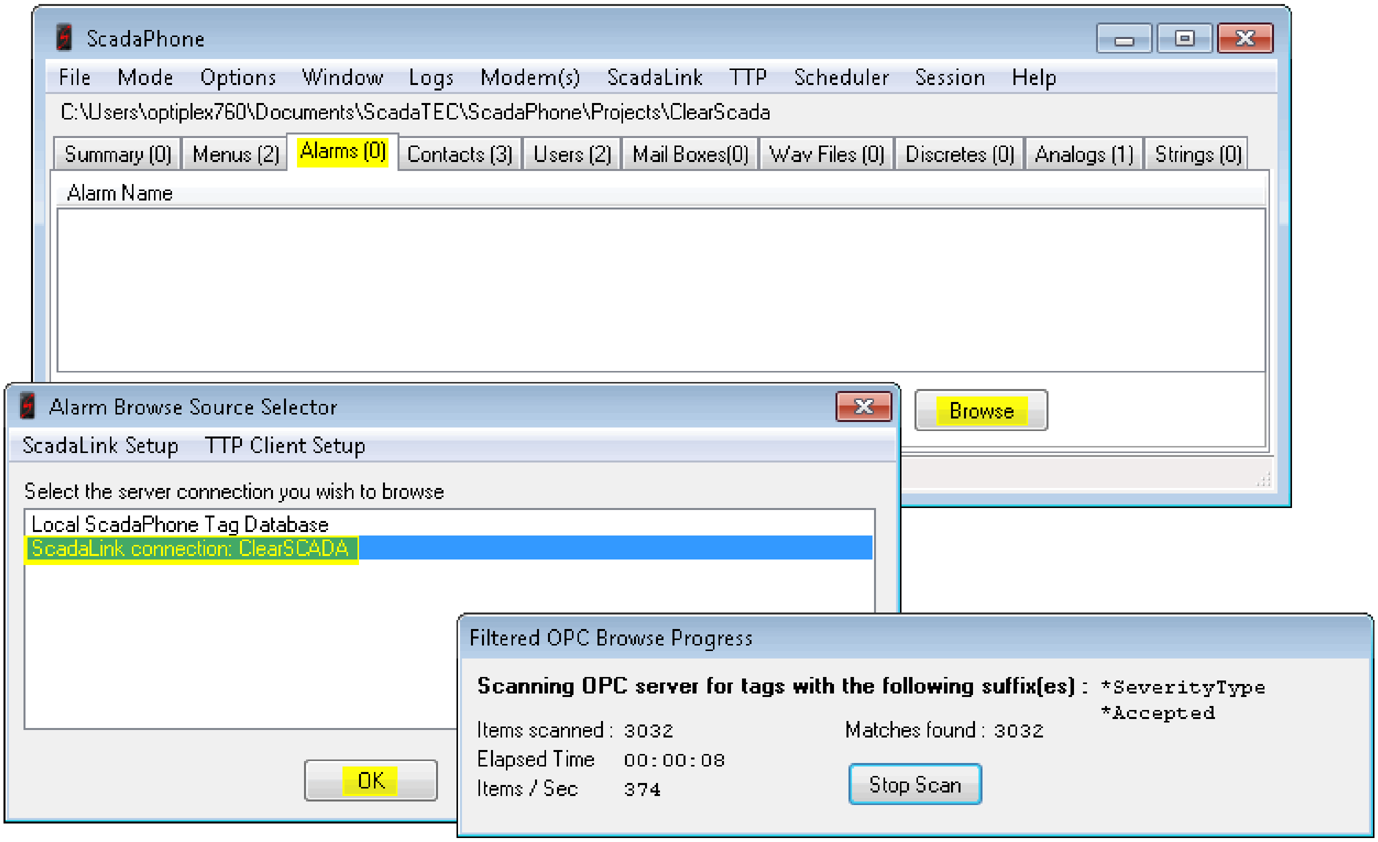
User Password

●●●●

InduSoft, WebStudio
LookOut SCADA
ScadaTEC, DF1TagServer
ScadaTEC, ModbusTagServer
ScadaTEC, OPCHub
ScadaTEC, TCPTagServer
Siemens, WinCC
Wonderware, FSGateway
KEPServerEX OPC Server for ClearSCADA

At this point, you will be able to proceed with the **ClearSCADA Alarm Browser**, *with one caveat*: If using the **KEPServerEX**, the browser *can be* ***extremely slow*** due to a flaw in at least *some versions* of the **KEPServerEX for ClearSCADA:** The tag-name-browse filter provided by ScadaPhone is ignored by **KEPServerEX**, so instead of getting a narrowed-down list of tags (having either the *.SeverityType or *.Accepted ClearSCADA tag suffix), **ALL** of the tags are returned to the browsing client (ScadaPhone); this can result in millions of tag-name permutations being returned; this has been reported to take **hours**).

Next, select the **Alarms** tab on ScadaPhone's main window, click the **Browse** button, and select the **ScadaLink connection** in the **Alarm Browse Source Selector**; if the connection is successful, you will see the **Filtered OPC Browse Progress** window:



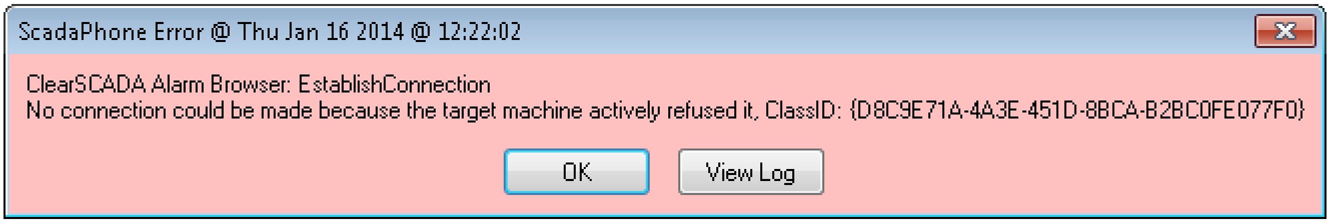
C:\Users\optiplex760\Documents\ScadaTEC\ScadaPhone\Projects\ClearScada

Select the server connection you wish to browse

Local ScadaPhone Tag Database
ScadaLink connection: ClearSCADA

```
Scanning OPC server for tags with the following suffix(es) :  *SeverityType
                                                              *Accepted
Items scanned :  3032                    Matches found :  3032
Elapsed Time     00:00:08
Items / Sec      374
```

If the ClearSCADA server is not running, you will see the following window:

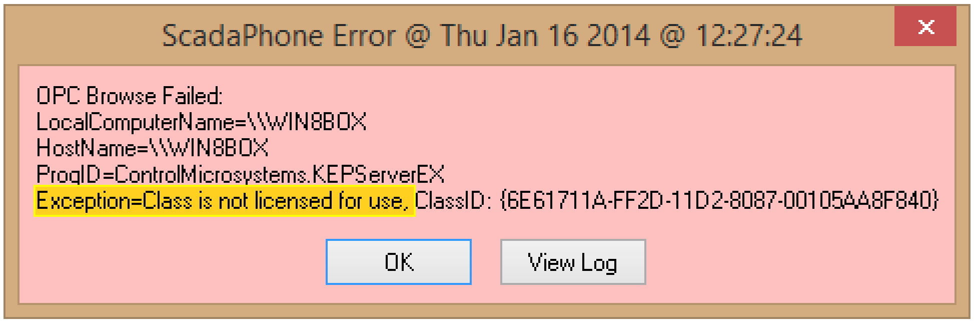


ScadaPhone Error @ Thu Jan 16 2014 @ 12:22:02

ClearSCADA Alarm Browser: EstablishConnection
No connection could be made because the target machine actively refused it, ClassID: {D8C9E71A-4A3E-451D-8BCA-B2BC0FE077F0}

If this happens, simply start the ClearSCADA server and retry the **Browse**.

Another possible result is that the following message may be presented:



ScadaPhone Error @ Thu Jan 16 2014 @ 12:27:24

OPC Browse Failed:
LocalComputerName=\\WIN8BOX
HostName=\\WIN8BOX
ProgID=ControlMicrosystems.KEPServerEX
Exception=Class is not licensed for use, ClassID: {6E61711A-FF2D-11D2-8087-00105AA8F840}

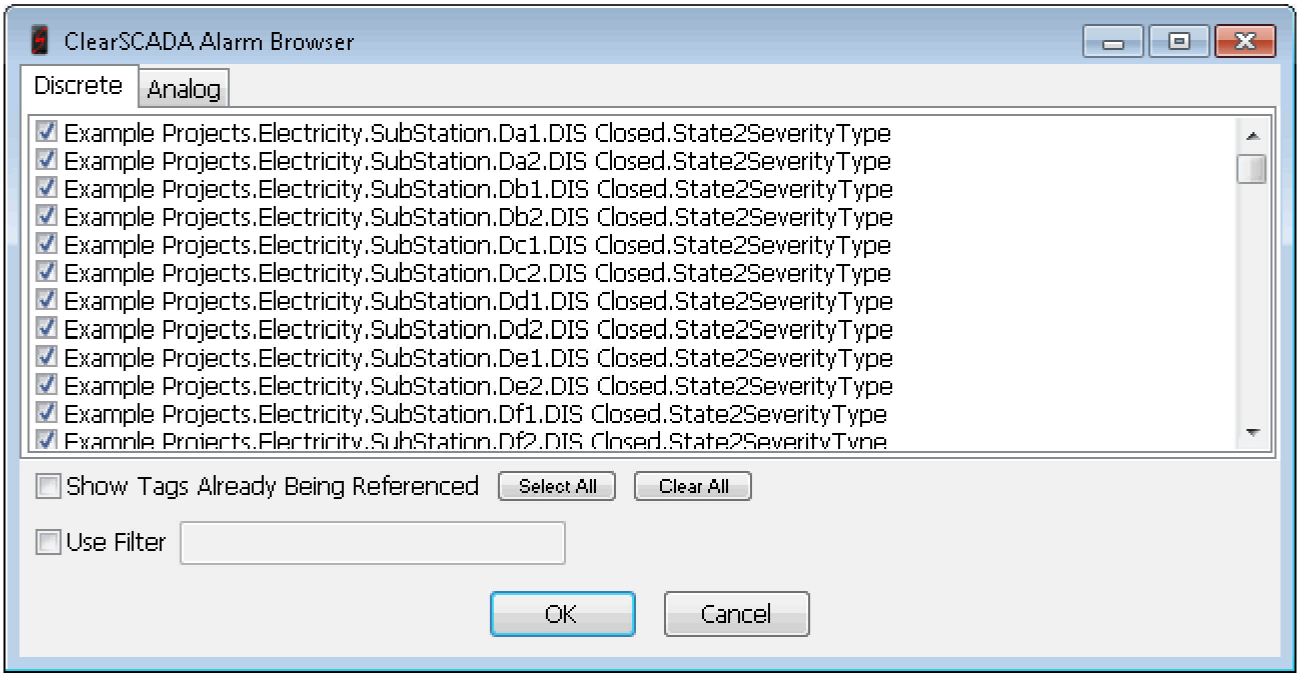
If this happens, check to see if **KEPServerEX** is enabled in your **ClearSCADA** license.

The Browse process scans the entire ClearSCADA OPC name-space for tags with **SeverityType** and **Accepted** suffixes. If your version of ClearSCADA is afflicted with the bug which ignores ScadaPhone's request to do a filtered browse, ClearSCADA will return ALL fields defined in ALL of the project tags. Due to the large number of tags produced by permuting all of tags in the ClearSCADA project with all of the available tag fields (suffixes), the scan can take a long time (even when scanning 1,000 items per second). For example, the example projects that comes with ClearSCADA produces more than 300,000 tag-name-plus-field name-space permutations (300,000 items at 1,000 items per second requires five minutes to scan).

As ScadaPhone scans through the name space, tags having a **SeverityType** or **Accepted** suffix are placed into a filtered list. When the initial filtering scan is complete, ScadaPhone reads the values of all tags ending with the **SeverityType** suffix; when a **SeverityType** tag having a value of '**2**' is found (in ClearSCADA, **SeverityType 2** is considered to be an alarm) it is placed into a second filtered list.

After filtering out all of the non-alarm **SeverityType** tags, the list of **Accepted** suffix tags is also filtered to match the list of alarms; the **Accepted** suffix is preceded by information necessary to decipher what type of alarm is defined by the tag name associated with the **SeverityType 2** tag.

After the scanning and filtering is complete, ScadaPhone's **ClearSCADA Alarm Browser** window will appear:

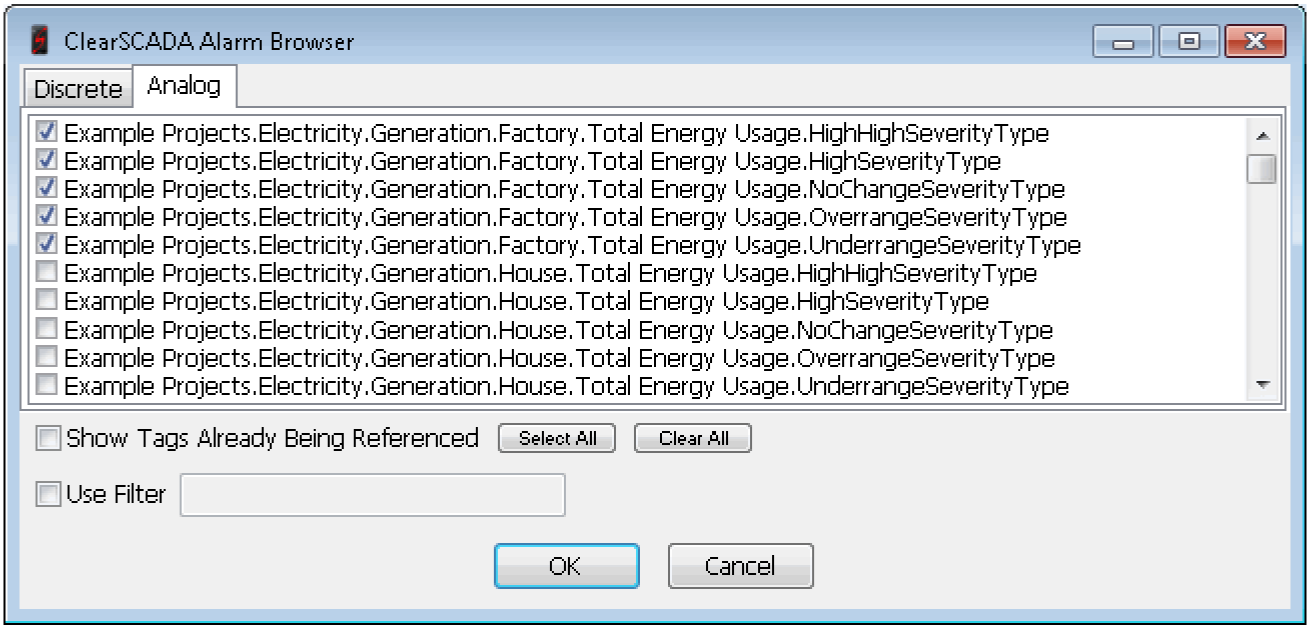


☑ Example Projects.Electricity.SubStation.Da1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Da2.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Db1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Db2.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Dc1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Dc2.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Dd1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Dd2.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.De1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.De2.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Df1.DIS Closed.State2SeverityType
☑ Example Projects.Electricity.SubStation.Df2.DIS Closed.State2SeverityType

□ Show Tags Already Being Referenced

□ Use Filter

Note that there are separate tabs for **Discrete** and **Analog** alarms; clicking the tabs switches the contents of the check list box which is used to select alarms to be added to the ScadaPhone project.

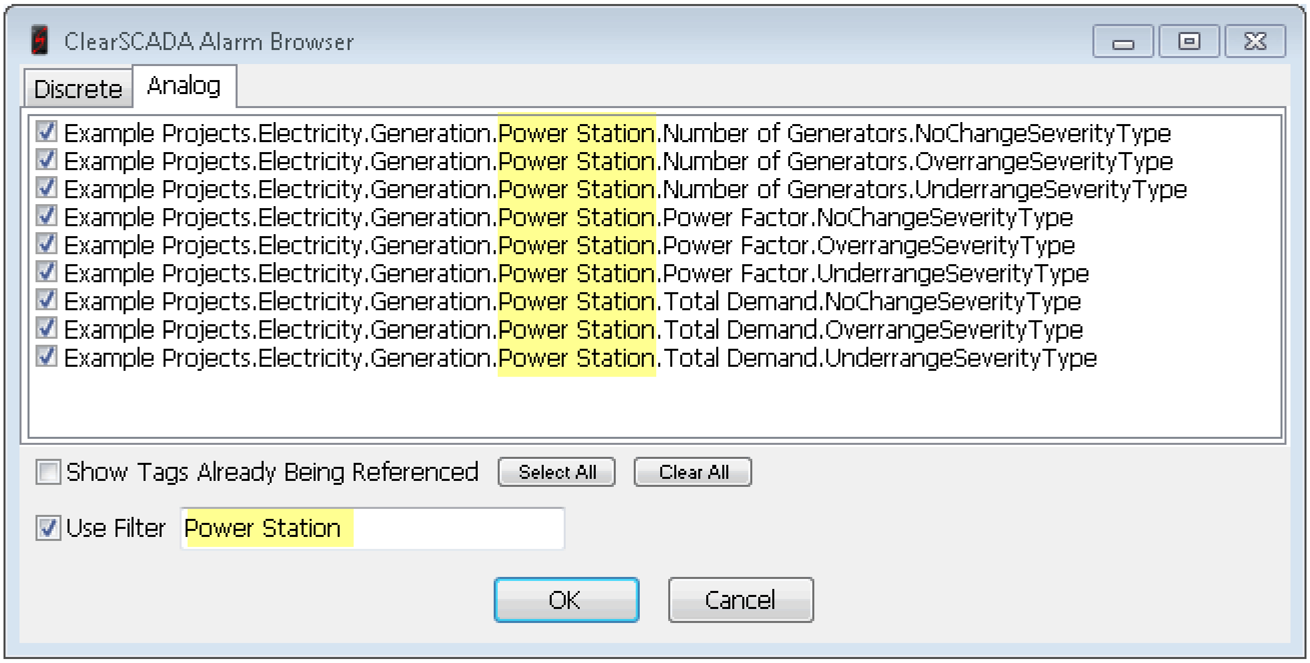


☑ Example Projects.Electricity.Generation.Factory.Total Energy Usage.HighHighSeverityType
☑ Example Projects.Electricity.Generation.Factory.Total Energy Usage.HighSeverityType
☑ Example Projects.Electricity.Generation.Factory.Total Energy Usage.NoChangeSeverityType
☑ Example Projects.Electricity.Generation.Factory.Total Energy Usage.OverrangeSeverityType
☑ Example Projects.Electricity.Generation.Factory.Total Energy Usage.UnderrangeSeverityType
☐ Example Projects.Electricity.Generation.House.Total Energy Usage.HighHighSeverityType
☐ Example Projects.Electricity.Generation.House.Total Energy Usage.HighSeverityType
☐ Example Projects.Electricity.Generation.House.Total Energy Usage.NoChangeSeverityType
☐ Example Projects.Electricity.Generation.House.Total Energy Usage.OverrangeSeverityType
☐ Example Projects.Electricity.Generation.House.Total Energy Usage.UnderrangeSeverityType

☐ Show Tags Already Being Referenced

☐ Use Filter

The selection process can be done manually (i.e. by clicking individual check boxes to select alarms) or by using the **Filter** in conjunction with the **Select All** and **Clear All** buttons:



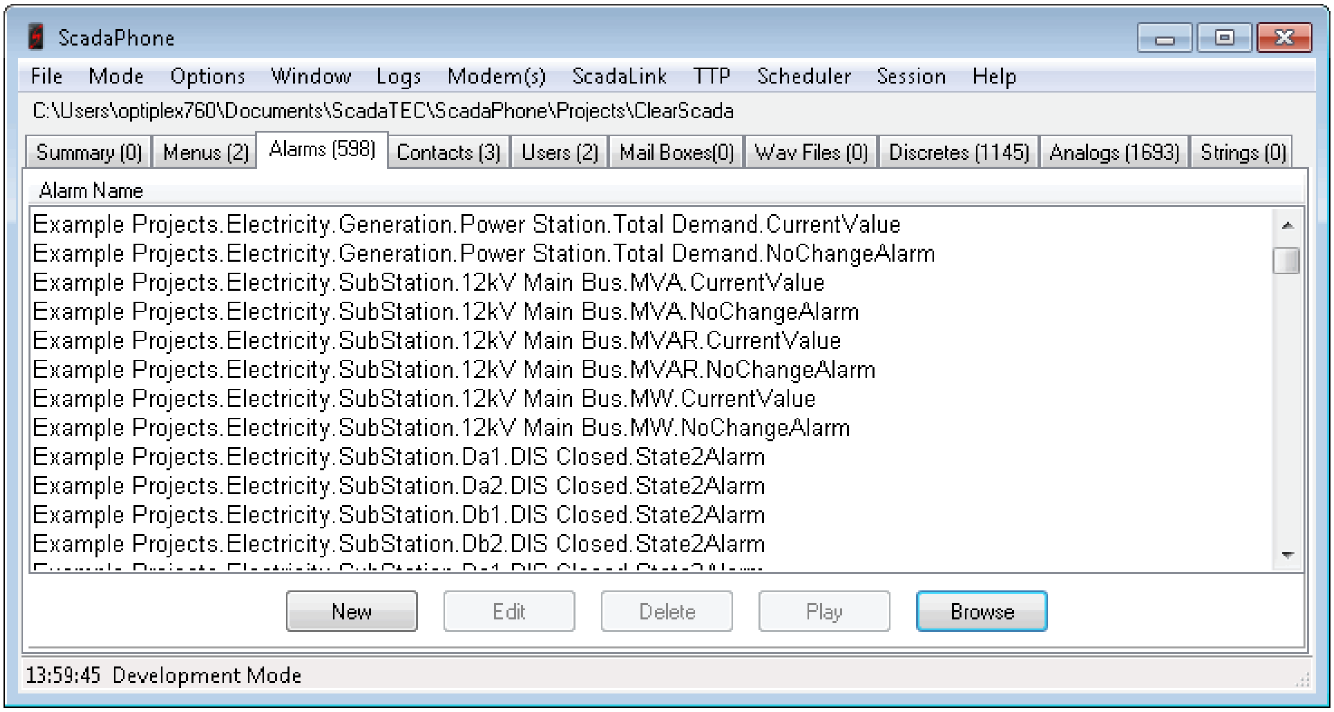
☑ Example Projects.Electricity.Generation.Power Station.Number of Generators.NoChangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Number of Generators.OverrangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Number of Generators.UnderrangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Power Factor.NoChangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Power Factor.OverrangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Power Factor.UnderrangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Total Demand.NoChangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Total Demand.OverrangeSeverityType
☑ Example Projects.Electricity.Generation.Power Station.Total Demand.UnderrangeSeverityType

☐ Show Tags Already Being Referenced

☑ Use Filter Power Station

Note that only alarms containing "**Power Station**" are shown in the **Analog** selection list; once the list has been narrowed down by the filter, clicking the **Select All** and **Clear All** buttons modifies only the check marks visible in the selection list. If you want to change the filter to select another group of alarms, the "**Power Station**" alarms may disappear from the list; however, the selected alarms are stored in an internal list so that when the selection process is finished and the user clicks **OK**, all of the selected alarms will be generated into the ScadaPhone project (even if they are not visible when **OK** is clicked).

After selecting all of the desired alarms and clicking **OK**, the newly generated alarms will be visible on the **Alarms** tab on ScadaPhone's main window:


ScadaPhone
File Mode Options Window Logs Modem(s) ScadaLink TTP Scheduler Session Help
Summary (0) Menus (2) Alarms (598) Contacts (3) Users (2) Mail Boxes(0) Wav Files (0) Discretes (1145) Analogs (1693) Strings (0)
New Edit Delete Play Browse

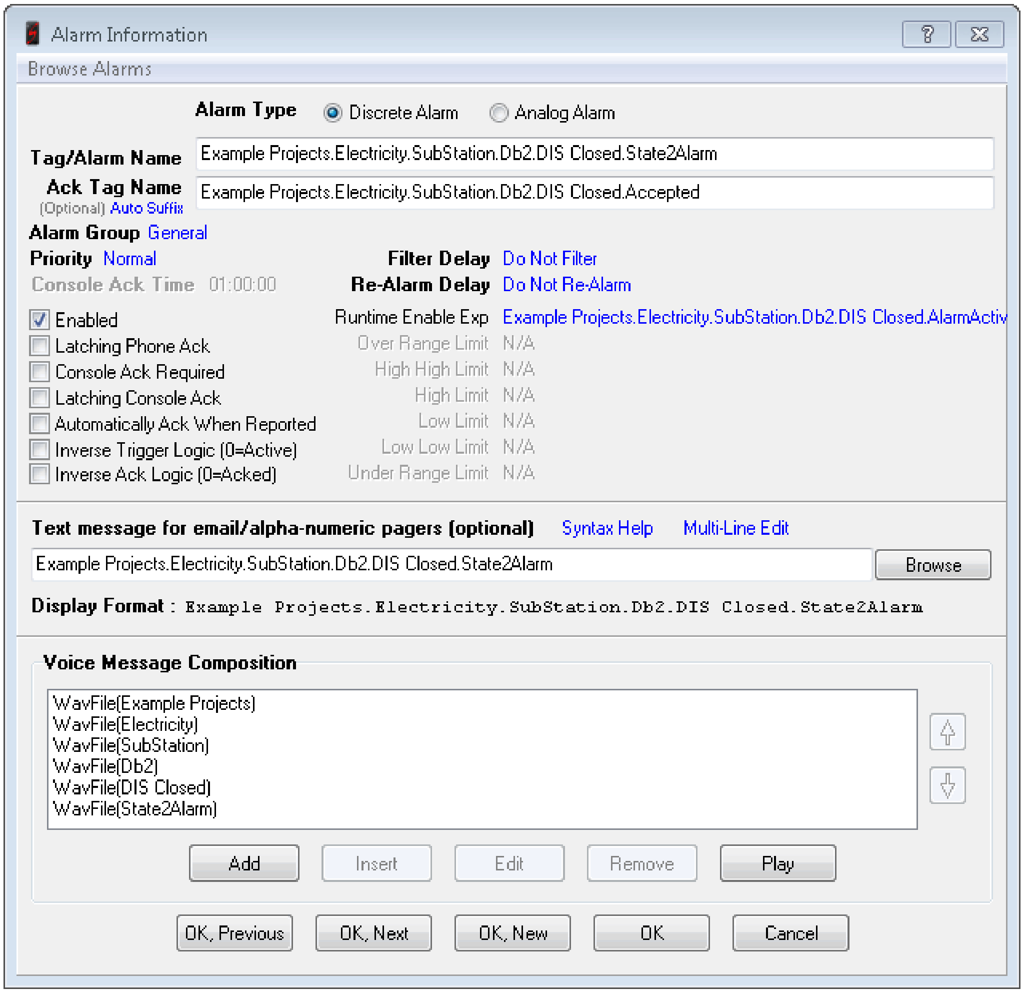
C:\Users\optiplex760\Documents\ScadaTEC\ScadaPhone\Projects\ClearScada

Alarm Name

```
Example Projects.Electricity.Generation.Power Station.Total Demand.CurrentValue
Example Projects.Electricity.Generation.Power Station.Total Demand.NoChangeAlarm
Example Projects.Electricity.SubStation.12kV Main Bus.MVA.CurrentValue
Example Projects.Electricity.SubStation.12kV Main Bus.MVA.NoChangeAlarm
Example Projects.Electricity.SubStation.12kV Main Bus.MVAR.CurrentValue
Example Projects.Electricity.SubStation.12kV Main Bus.MVAR.NoChangeAlarm
Example Projects.Electricity.SubStation.12kV Main Bus.MW.CurrentValue
Example Projects.Electricity.SubStation.12kV Main Bus.MW.NoChangeAlarm
Example Projects.Electricity.SubStation.Da1.DIS Closed.State2Alarm
Example Projects.Electricity.SubStation.Da2.DIS Closed.State2Alarm
Example Projects.Electricity.SubStation.Db1.DIS Closed.State2Alarm
Example Projects.Electricity.SubStation.Db2.DIS Closed.State2Alarm
```

13:59:45 Development Mode

If you double-click one of the alarms in this list, you will see the results of ScadaPhone's alarm generation:


Alarm Information
Browse Alarms
Syntax Help
Multi-Line Edit
Browse
Add Insert Edit Remove Play
OK, Previous OK, Next OK, New OK Cancel

Alarm Type ● Discrete Alarm ○ Analog Alarm

Tag/Alarm Name Example Projects.Electricity.SubStation.Db2.DIS Closed.State2Alarm

Ack Tag Name (Optional) Auto Suffix Example Projects.Electricity.SubStation.Db2.DIS Closed.Accepted

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 Example Projects.Electricity.SubStation.Db2.DIS Closed.AlarmActiv
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)

Example Projects.Electricity.SubStation.Db2.DIS Closed.State2Alarm

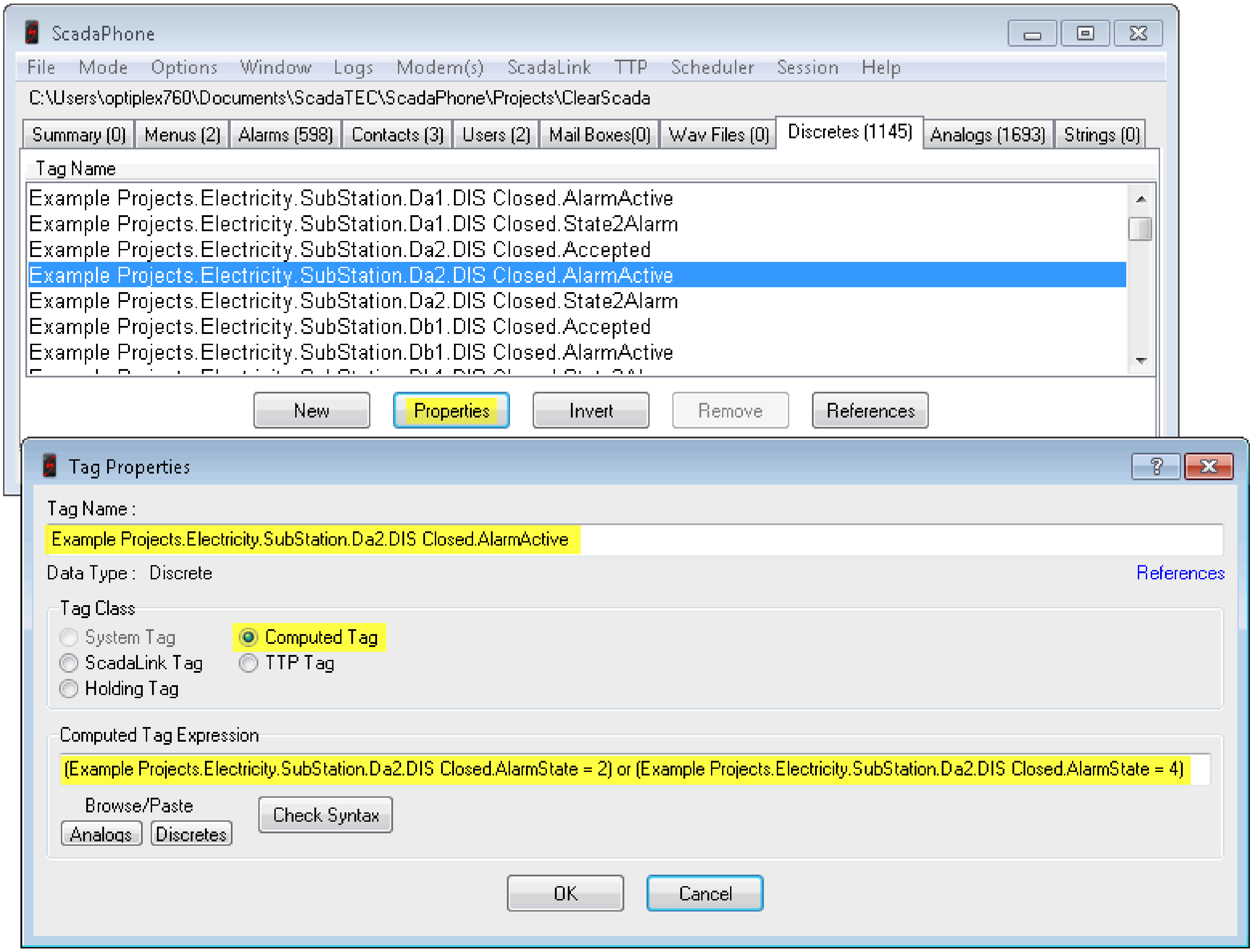
Display Format : `Example Projects.Electricity.SubStation.Db2.DIS Closed.State2Alarm`

Voice Message Composition

```
WavFile(Example Projects)
WavFile(Electricity)
WavFile(SubStation)
WavFile(Db2)
WavFile(DIS Closed)
WavFile(State2Alarm)
```

Notice how the alarm generator has broken up the alarm name into separate WAV files in the **Voice Message Composition**; this reduces the number of WAV files needed to announce the alarms. The **Text message for email/alpha-numeric pagers** simply uses the tag name. All other fields in the alarm have been left to their default value with the exception of the **Runtime Enable Expression** (which, due to the lengthy tag name, extends past the right edge of this window; the full expression can be seen in a yellow hint box by positioning the mouse over the blue hyperlink).

ScadaPhone's alarm generator uses this optional alarm field is used in conjunction with ClearSCADA alarms so that when an alarm is disabled in ClearSCADA, it is also disabled in ScadaPhone; in this alarm, the **Runtime Enable Expression** is simply a single tag (**Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmActive**); however, this single tag is not read directly from ClearScada, it is a ScadaPhone **Computed Tag** which is defined in ScadaPhone's **Discretes** tag database:



C:\Users\optiplex760\Documents\ScadaTEC\ScadaPhone\Projects\ClearScada

Example Projects.Electricity.SubStation.Da1.DIS Closed.AlarmActive
Example Projects.Electricity.SubStation.Da1.DIS Closed.State2Alarm
Example Projects.Electricity.SubStation.Da2.DIS Closed.Accepted
Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmActive
Example Projects.Electricity.SubStation.Da2.DIS Closed.State2Alarm
Example Projects.Electricity.SubStation.Db1.DIS Closed.Accepted
Example Projects.Electricity.SubStation.Db1.DIS Closed.AlarmActive

Tag Name : Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmActive

Data Type : Discrete

○ System Tag
○ ScadaLink Tag
○ Holding Tag
● Computed Tag
○ TTP Tag

Computed Tag Expression

(Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmState = 2) or (Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmState = 4)

The **Computed Tag Expression** is defined as:

(Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmState = 2) OR
(Example Projects.Electricity.SubStation.Da2.DIS Closed.AlarmState = 4)

In english, this means that the ***.AlarmActive** computed tag is TRUE when ***.AlarmState** is either

2 or **4**. In ClearSCADA, **AlarmState 2** indicates that the alarm is active but has been acknowledged, **AlarmState 4** indicates that the alarm is active and has not been acknowledged.

A similar configuration is also used to derive the the discrete tag that drives the alarm itself; the alarm shown in the previous example is named:

Example Projects.Electricity.SubStation.Db1.DIS Closed.State2Alarm

Once again, this is not a tag defined in the ClearSCADA project, but a computed tag defined in ScadaPhone's **Discretes** tag database with the following expression:

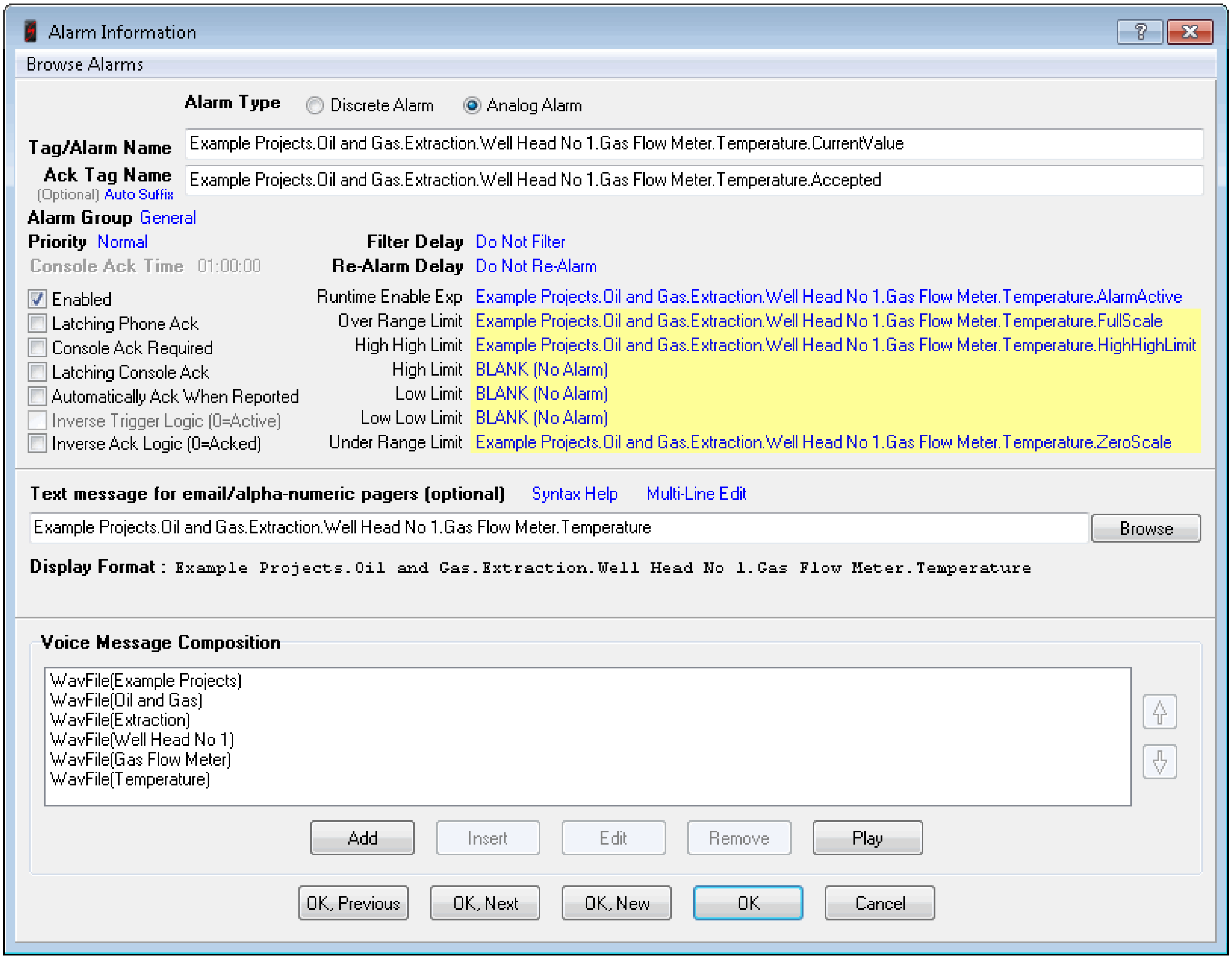
Example Projects.Electricity.SubStation.Db1.DIS Closed.CurrentValue = 2

The last item of note in the Alarm Information window is the optional **Ack Tag**: In the alarm shown above, the acknowledgment status is stored in the following tag name:

Example Projects.Electricity.SubStation.Da2.DIS Closed.Digital.Accepted

This is a valid tag name in the ClearSCADA project, so in ScadaPhone it is classed as a **ScadaLink** tag which is directly read and written via the ScadaLink OPC interface. The ability to write values to this tag is important because alarms acknowledged in ScadaPhone prompt a **'1'** to be written to the ***.Accepted** tag, thereby making it unnecessary to also acknowledge the alarm from the SCADA console (and vice versa).

Analog alarms are implemented in a similar fashion:



Alarm Type ○ Discrete Alarm ● Analog Alarm

Tag/Alarm Name: Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.CurrentValue

Ack Tag Name (Optional) Auto Suffix Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.Accepted

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	Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.AlarmActive
Over Range Limit	Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.FullScale
High High Limit	Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.HighHighLimit
High Limit	BLANK (No Alarm)
Low Limit	BLANK (No Alarm)
Low Low Limit	BLANK (No Alarm)
Under Range Limit	Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.ZeroScale

Text message for email/alpha-numeric pagers (optional)

Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature

Display Format : `Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature`

Voice Message Composition

```
WavFile(Example Projects)
WavFile(Oil and Gas)
WavFile(Extraction)
WavFile(Well Head No 1)
WavFile(Gas Flow Meter)
WavFile(Temperature)
```

Note that 6 **Limit** fields (which were grayed out in the previous **Discrete** alarm example) are now filled in. These **Limit** thresholds are configured if the corresponding **SeverityType 2** value was detected during the browse filtering.

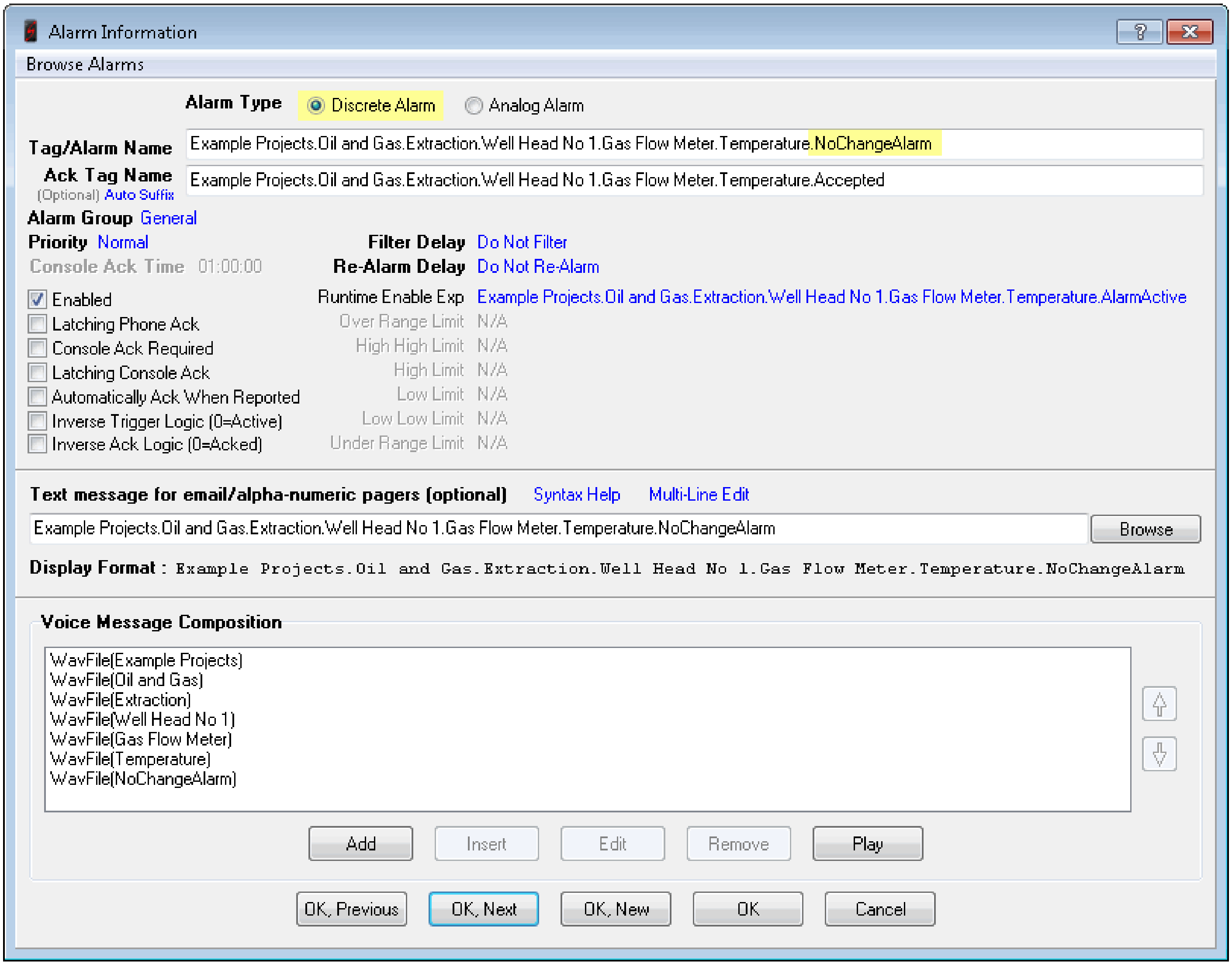
If equal to 2...	Configure this alarm limit
UnderrangeSeverityType	ZeroScale
LowLowSeverityType	LowLowLimit
LowSeverityType	LowLimit
HighSeverityType	HighLimit
HighHighSeverityType	HighHighLimit
OverrangeSeverityType	FullScale

ClearSCADA also implements **Analog** alarms capable of differentiating between **8** thresholds;

however ScadaPhone only directly supports the 6 thresholds shown in the table above. To accomodate this, ClearSCADA's 8 level analog alarms are implemented as 8 *individual* **Discrete** alarms using computed tags to check the **CurrentValue** against the configured thresholds.

If equal to 2...	**Define ComputedTag for Discrete alarm using...**
OverrangeSeverityType	*.CurrentValue > *.FullScale
High4SeverityType	*.CurrentValue > *.High4Limit
High3SeverityType	*.CurrentValue > *.High3Limit
High2SeverityType	*.CurrentValue > *.High2Limit
High1SeverityType	*.CurrentValue > *.High1Limit
Low1SeverityType	*.CurrentValue < *.Low1Limt
Low2SeverityType	*.CurrentValue < *.Low2Limit
Low3SeverityType	*.CurrentValue < *.Low3Limit
Low4SeverityType	*.CurrentValue < *.Low4Limit
UnderrangeSeverityType	*.CurrentValue < *.ZeroScale

ClearSCADA's Analog **NoChangeAlarm**s are also supported by ScadaPhone using computed tags (and the process of elimination). ScadaPhone implements the **NoChange** alarm by watching the **AlarmState** and comparing the **CurrentValue** to the normal range bracketed by either the **LowLimit** & **HighLimit** tags or the **Low1Limit** & **High1Limit** tags (depending upon the context). If the **AlarmState** is either **2** or **4** (active), and the **CurrentValue** is within the normal range, ScadaPhone deduces that the only reason for the active status must be due to the presence of a **NoChange** alarm.



Alarm Type ● Discrete Alarm ○ Analog Alarm

Tag/Alarm Name Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.NoChangeAlarm

Ack Tag Name (Optional) Auto Suffix Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.Accepted

Alarm Group General

Priority Normal

Filter Delay Do Not Filter

Console Ack Time 01:00:00

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 Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.AlarmActive

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

Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.NoChangeAlarm

Display Format : `Example Projects.Oil and Gas.Extraction.Well Head No 1.Gas Flow Meter.Temperature.NoChangeAlarm`

Voice Message Composition

```
WavFile(Example Projects)
WavFile(Oil and Gas)
WavFile(Extraction)
WavFile(Well Head No 1)
WavFile(Gas Flow Meter)
WavFile(Temperature)
WavFile(NoChangeAlarm)
```