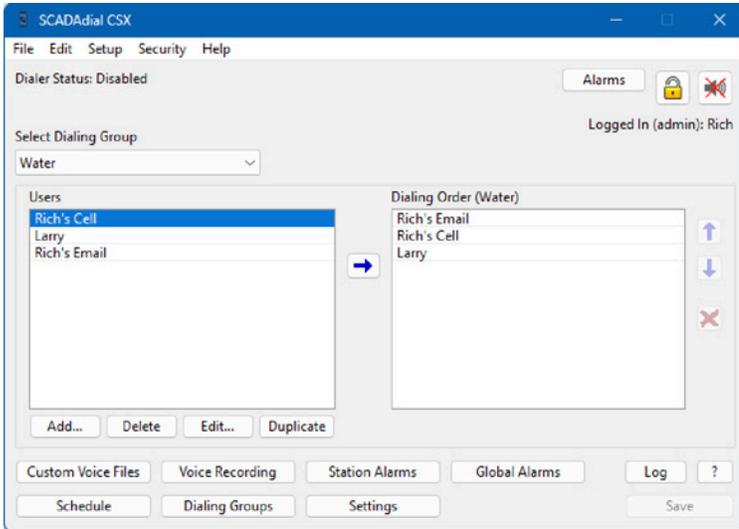


Micro-Comm SCADAview® CSX
SCADA Dial CSX Setup Manual

Updated: October 4, 2023

SCADAAdial CSX is an optional add-on component that gives SCADAview CSX voice dialing and email/text messaging capability. When installed, the dialer program is launched automatically with SCADAview CSX and is configured with the following setup screens:



Dialing Group Selection

This is used to select which dialing group to edit. Multiple groups are available so that different lists of users can be called based on which station causes an alarm. Note: Group 1 is always used for dialing any global alarms such as "CTU Communications Failure". Also, if alarms are active for multiple groups the lowest numbered group will be used for dialing.

Add...

Click the Add... button to enter a new user into the global users list using the dialog box shown above. Users will each have a phone number and possibly a pager message if the number is for their numeric pager. The user could also have an email address. The PIN (Personal Identification Number) is only needed for HOA control.

Delete

Highlight a user and click Delete to remove the user from the list.

Edit...

Click Edit or double-click the user name to edit the user's name, phone number and pager options. (as shown)

Duplicate

Click to duplicate the selected user.

Right Arrow Icon

The right arrow adds the selected user to the dialing group list on the right as selected.

Up Arrow Icon

Moves the selected user up a row in the dialing order.

Down Arrow Icon

Moves the selected user down a row in the dialing order.

X Icon Button

Deletes the selected user from the dialing group list.

Log Button

Shows the event log for the dialer - show what and when alarms were dialed.

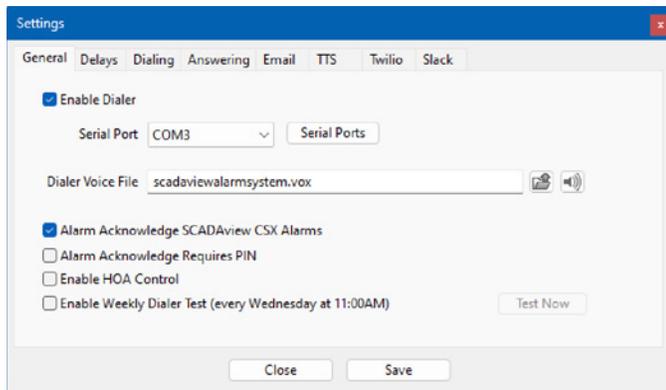
? Button

Brings up a quick help window.

Save Button

After any dialing list or dialing order changes are made, click this to save.

Settings



General

Enable Dialer

This option should be checked to enable the phone dialer alarm system.

Serial Port

COM Port that the modem is attached to. Note: Special modem drivers are NOT required. Just hook up the modem to the specified port. A TCP/IP socket can also be used.

Dialer Voice File

Normally the dialer will say "SCADAView Alarm System" when connected. If a different announcement is required, select a .vox file here (recorded with the Voice Modem Tool).

Alarm Acknowledge SCADAView CSX Alarms

If this is enabled and dialer alarms are acknowledged then SCADAView CSX will be told to acknowledge alarms (even ones that do not dial out). This may not be desired if you want other operators to still get these alarms locally on SCADAView CSX.

Alarm Acknowledge Requires PIN

If this is enabled and dialer alarms are acknowledged then the user will first be required to enter their PIN.

Enable HOA Control

This will enable Touch-Tone Menu option "8" shown below. With this option turned on the operator can make changes to a station's Hand-Off-Auto controls. Note: This is not available when using Twilio Voice dialing.

Enable Weekly Dialer Test (every Wednesday at 11:00AM)

This will generate a pseudo alarm every week and dial the group 1 users. It will stop the test automatically after 15 minutes if not acknowledged by someone first.

Delays

Dialing Delay

The amount of time in minutes that the dialer will wait before dialing the first user in the dialing group list after an alarm has occurred.

Next Number Delay

The amount of time in minutes that the dialer will wait before dialing the next user after the current user has disconnected without acknowledging the alarms.

Call Again If Still Active

If a number greater than 0 is entered, the dialer will call again after that many hours if there are still active phone dialer alarms. The dialer will call even if all the alarms have been acknowledged (using the touch-tone "4" option). If the "2nd Ack Cancels Call Again" option is used then the call again will be canceled if the user acknowledges more than once. Note: The "Call Again" option will not be used if the alarms are acknowledged by other methods such as from SCADAView or SCADAweb web page. Also make sure the "Hang Up After Alarm Acknowledge" is not checked since it will hang up before the user can hit Ack twice.

LOS Dialing Delay

Loss of Signal alarms can sometimes be intermittent depending on the radio path, time of year, radio interference etc. For this reason, LOS alarms can have a different delay before there are dialed. SCADAView will also stop dialing if all the LOS alarms clear (and there are no other alarms).

Numeric Pager Delay

The amount of time in seconds the dialer will wait after dialing and detecting a pick-up, and before it sends the touch-tone codes to the pager system.

Menu Timeout (hangup)

After dialing or answering a call, the dialer will wait for this long before hanging up and going on. Operator menu interaction will reset the timer.

Menu Repeat

This selects how often the system will say "Press * to hear menu" while a user is connected.

Dialing

Quick Connect and Play Alarms

If checked, the dialer will not wait for a person to answer but will immediately start repeating all unacknowledged alarms.

Wait for Connect and Play Alarms

If checked, the dialer will wait for a person to answer and then will immediately start repeating all the unacknowledged alarms.

Disable Menu Prompt

The dialer will normally say "Press * for Menu" at regular intervals when connected. This can be disabled by checking this box.

Stop Dialing if Alarms Clear

Normally SCADAdial will keep dialing the alarms even if they clear on their own. When checked, this option will make SCADAdial stop dialing if all the alarms clear before being acknowledged.

Hang Up After Alarm ACK

This will tell the dialer to automatically hang up the phone whenever the user pressed "4" to acknowledge the alarms.

Disable Hang Up Menu Option

This disables the touch-tone menu option "5" that tells the dialer to hang up the phone.

Answering

Answer Calls - # of Rings

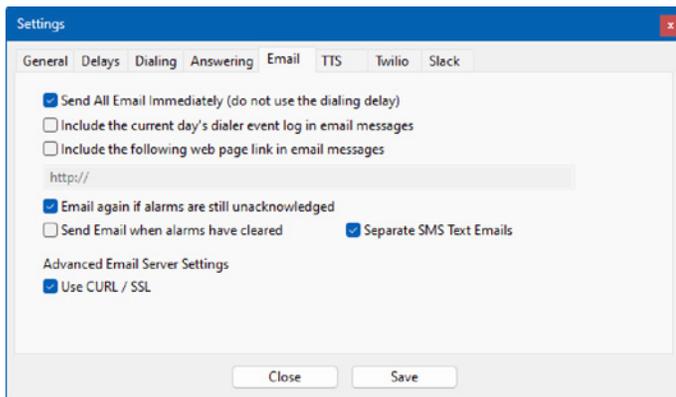
Allows the user to dial in to the system to hear alarms and status given a number of rings that must occur before the dialer will answer.

Answer Only During Alarms

If checked, the dialer will only answer if there is an unacknowledged phone-dialer alarm. This option could be used if the phone line is being shared with PcAnywhere so that it could answer the phone when there are no alarms.

Answer Requires PIN

If checked, SCADAdial will ask the user for his PIN (personal identification number) before allowing access to the main menu.



Email

Send Email Immediately (do not use the dialing delay)

When checked, all users with an email address will be sent the alarm before voice dialing starts.

Include the current day's dialer event log in email messages

Normally email messages contain just the active dialer alarms. Selecting this option will add a full day's worth of the dialer event log.

Include the following web page link in email messages

Selecting this option will add a web page link to the bottom of the email messages.

Email again if alarms are still active

Normally the email message for new alarms is sent only once to each user. Selecting this option will cause the dialer to keep sending the emails until alarms are acknowledged (in normal rotation just like dialing).

Send Email when alarms have cleared

This will send an "All Cleared" email message whenever all the active alarms have cleared.

Separate SMS Text Emails

When sending text messages this option will send each alarm separately in case the alarm list is too long for the SMS service to handle.

Advanced Email Server Settings

This will select a different method of sending email. This is normally not used unless email is not working with the default method.

TTS (Text-To-Speech)

Use Text-To-Speech

If this is enabled the dialer will generate voice data "on the fly" for anything that does not have a recorded custom Vox or built-in Vox file. The computer's native text-to-speech engine is used with the default voice. Use the operating system's control panel to select voices or change the speech rate.

Boost TTS Volume

This will increase the volume of all automatically generated Text-To-Speech files. A good value to try would be around 60 percent. If the value is set too large, clipping will occur.

User Information

The screenshot shows a 'User Options' dialog box with the following fields and controls:

- Name:** Rich's Cell
- PIN:** 3212
- Weekly Schedule (On Call):** Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday (all checked)
- Twilio SMS Text Message:**
- Slack Message:**
- Email:**
- Email To Address:** [Text field]
- Email From Address:** [Text field]
- Send email only if dialing failed:**
- Numeric Pager:**
- Pager Message:** [Text field]
- Email Server:** [Dropdown menu]
- Username:** [Text field]
- Password:** [Text field]
- Use TLS/SSL:**
- Port:** 587
- Buttons:** Test Dial, Test Email, Close, Save

Name

Full name of the user being dialed.

PIN

Personal Identification Number (only needed for HOA control or when answering requires a PIN)

Phone Number

Voice or numeric pager phone number to dial. Numbers can include commas as needed to delay the dialing. For example, a number of "9,,555-5555" would wait a second after getting an outside line on phone systems that require this. Also, if the number begins with an "I" the modem will ignore the dialtone and start dialing immediately (normally the modem waits up to 10 seconds to see a dialtone).

Weekly Schedule (On Call)

Select the days of the week that the user is available to be called (or emailed).

Twilio SMS Text Message

When using the Twilio service this will send a text message to the phone number given above (instead of voice dialing)

Slack Message

If selected and the Slack service has been set up, this will send a Slack notification message (like a text message) to the channel selected for the dialing group. If no dialing group channels are use it will send to the channel selected in the Slack settings window.

Email

Checked if an email message needs to be sent. Email messages will include a list of all current dialer alarms.

Email To Address

The user's email address i.e. "sombody@somewhere.com"

Notes on using SMS Text Messaging - cell phones that have text can be "emailed" using the following based on your provider:

ATT: phonenumber@txt.att.net

Verizon: phonenumber@vtext.com

T-Mobile: phonenumber@tmomail.net

Virgin Mobile: phonenumber@vmobl.com

Sprint: phonenumber@messaging.sprintpcs.com

Nextel: phonenumber@messaging.nextel.com

Email From Address

Tells the email server where the message is coming from. Some servers require that this is a known user in it's list. If this is left blank, the From Address will be a bogus "SCADAdialCSX@scadaview.com".

Email Server and Username/Password

The address of the email server used to relay the message. This could be a local email server or the server (mail exchange) where the user has an account. i.e. "smtp.somewhere.com" or "smtp-mx.mac.com" etc. Some email servers will also require a user name and password.

Use TLS/SSL

Some email servers may require you to use this option for sending email. They may also require a special port number other than 587.

Send email only if dialing failed

Normally SCADA dial will send the email and dial (if both are set up). If this option is checked it will only send the email message when dialing has failed (no picket detected, no dialtone or line busy)

Test Dial/Test Email

This will dial the current user or send an sample email message to the user.

Numeric Pager

Checked if the above number is a numeric pager. These pagers are old and not used much any more.

Pager Message

Numeric message or special codes for the alarm types. Normally this message should end with a # sign.

Special Numeric Pager Messages and Station Information Codes

The following codes can be embedded in the pager message to send data about the first unacknowledged alarm to the numeric pager:

STN

Station Number (1-total #of stations in order of setup)

INT

Input Type (as shown below)

INP

Input Number (1-8 analogs, 1-16 discretets, 1-32 IEMs, 1 or 2 flow rate/total)

ALM

Alarm Code (as shown below)

Alarm Input Types

1 = Analog Input

2 = Discrete Input

3 = Expansion Input

4 = Flow Input - Flow Rate / Flow Total

Alarm Codes

1 = LOS

2 = Pump Fail

3 = Discrete Input Alarm

4 = Expansion Input Alarm (IEM)

5 = High Level

6 = Low Level

7 = Rate of Change

8 = High-High Level

9 = Low-Low Level

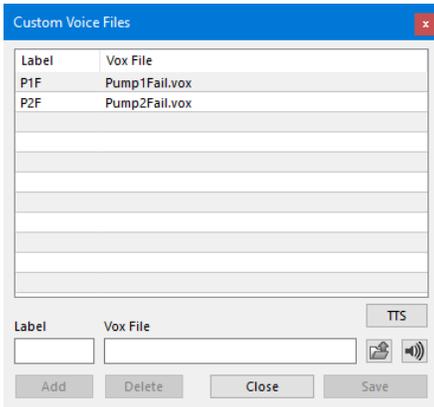
Example: A pager message of STNINTINPALM# would send the following if Station #4 has a high alarm on analog input #3:

004001003005 (Most pagers use the # sign to signal the end of a message) Some pagers allow the use of the * to send a dash. For these, the example above could be changed to: STN*INT*INP*ALM# so that the message would read: 004-001-003-005

Note: These same code values for station number, input type and input number are used when requesting station information using touch-tone option "3".

Custom Voice Files

This setup screen allows the user to set up a list of Label/Voice files that will be played for the input name whenever a particular label is used.



Label

Enter a one to three character label for the input type that will be associated with the recorded voice file.

Vox File / Select...

The filename of the voice file to be played - it can be chosen and copied to the setup folder using the "Select" button.

Add

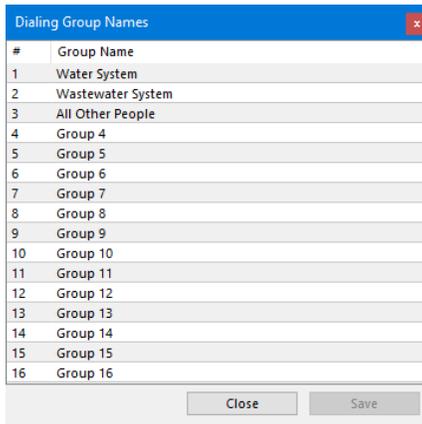
Adds the newly entered label/vox file combination to the list.

Delete

Removes the selected label/vox file combination from the list.

Dialing Groups

The “Dialing Groups” button will bring up the Dialing Group Names setup screen which lets the groups be renamed as shown below:

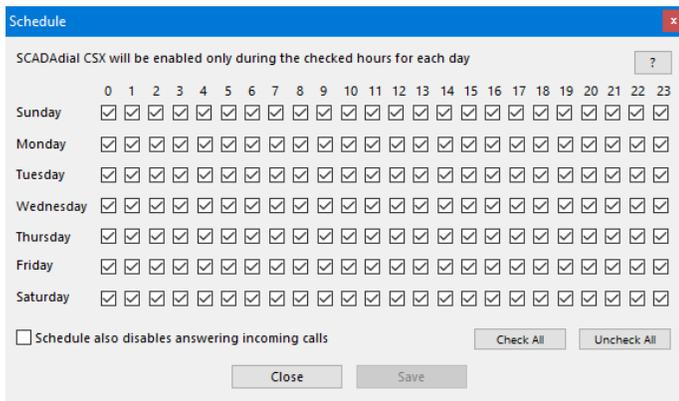


#	Group Name
1	Water System
2	Wastewater System
3	All Other People
4	Group 4
5	Group 5
6	Group 6
7	Group 7
8	Group 8
9	Group 9
10	Group 10
11	Group 11
12	Group 12
13	Group 13
14	Group 14
15	Group 15
16	Group 16

Close Save

Schedule

Using the “Schedule” button, a weekly schedule for enabling / disabling the dialer can be set up with the following window:



SCADAAdial CSX will be enabled only during the checked hours for each day

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Sunday	<input checked="" type="checkbox"/>																							
Monday	<input checked="" type="checkbox"/>																							
Tuesday	<input checked="" type="checkbox"/>																							
Wednesday	<input checked="" type="checkbox"/>																							
Thursday	<input checked="" type="checkbox"/>																							
Friday	<input checked="" type="checkbox"/>																							
Saturday	<input checked="" type="checkbox"/>																							

Schedule also disables answering incoming calls

Check All Uncheck All

Close Save

Hours that are un-checked will be the time periods where the dialer will not dial out (or send email).

The checkbox at the bottom will also disable the voice modem from answering incoming calls during the un-checked times.

Station Alarms

This screen is use to select the station alarms that will be dialed:

Input	Name	Label	Dial	Current Value
LOS	Remote Loss Of Signal		<input checked="" type="checkbox"/>	
PLCLOS	PLC/NET Loss Of Signal		<input type="checkbox"/>	
AI1	Discharge Pressure	DP	<input type="checkbox"/>	
AI2	Suction Pressure	SP	<input checked="" type="checkbox"/>	
AI3	Discharge If Greater than 50	P1	<input type="checkbox"/>	
AI4	TIME(0)	T1	<input type="checkbox"/>	
AI5	Test Pulse Rate	BV	<input type="checkbox"/>	
AI6	PLC Temperature	TMP	<input type="checkbox"/>	
AI7	Restarts	A7	<input type="checkbox"/>	
AI8	Runtime (msec)	A8	<input type="checkbox"/>	
AI10	Fast Counter	FC	<input type="checkbox"/>	

Station Name

Selects which station to pick the alarms from.

Dialing Group

Selects which dialing group this station should belong to. All alarms for the station will then dial the corresponding group.

Station Vox File

A custom vox file recorded for the selected station. If none is selected the dialer will read the station's two character address or will use the station name if text-to-speech is enabled.

Alarm Selection

Any labeled alarm input can be selected for dialing. This includes analog inputs, discrete input alarms (mode A1 or A0), pump fails and expansion input alarms. Check the "Dial" checkbox to have the corresponding alarm input dial out. Analog inputs will dial out on any status alarm (high, low, hi-hi, lo-lo, rising/falling rate alarms).

Current Setpoints

Click this tab to show a list of the station's current analog level setpoints (high, low, rate and deadband settings).

Global Alarms

This global alarms setup screen is use to select a handful of non-station related items to be dialed.

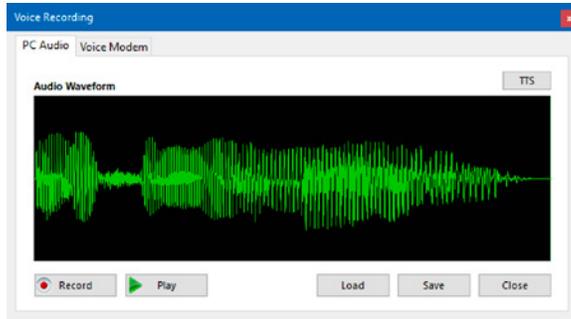
Select "Global Alarms..." from the Setup menu.

CTU Communication Failure
 Server Communication Failure
 SCADAview Communication Failure
 PLC Fault
 Modem Failure
 Phone Line Failure

Note: The alarms enabled above will be assigned to dialing group 1.

Voice Recording

Opens the following window used to record the voice files.



Also with this utility you can load previously recorded vox files or audio files.

Adjustments can be made to the sound by clicking and dragging a selection box and right-clicking.

The red record button will use the computer's audio input and the green play button uses the computer's audio output.

If your modem has an audio input, click the "Voice Modem" tab to use then voice modem to record.

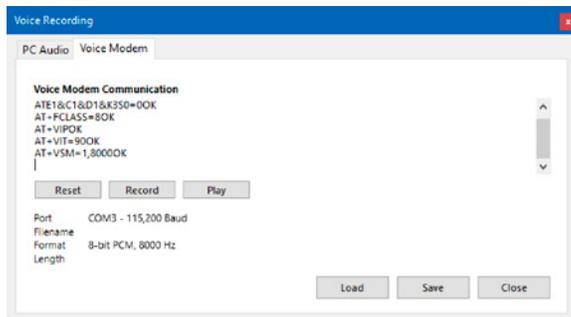
This is also a good way to test whether or not your voice modem is installed correctly.

Click "Reset" and the voice modem will be connected and set up for recording and you should see it reply with some data.

Click "Record" and start speaking after you see the "Connect" message.

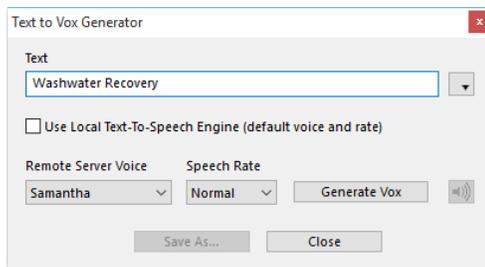
Click "Stop" when you are finished speaking.

Click "Play" to listen to the recording and then click "Save" to save the file.



Text to Vox Generator

Select this option under the Setup menu to create voice files using a Text-To-Speech engine.



If the "Use Local Text-To-Speech" option is left un-checked then Micro-Comm's server is used (over the Internet) to generate the data using the selected speech voice. Otherwise it can use the computer's native text-to-speech engine to generate the sound.

Type in some text and click "Generate Vox" and it will download the sound data and display the data length. The sound can then be played for testing and/or saved to a Vox file.

The menu to the right of the text lists all the station names and input names so they can easily be selected.

Twilio Integration

Settings

General Delays Dialing Answering Email TTS Twilio Slack

Account SID *****
Auth Token *****
From Phone Number +15551231234

Add web page link to the end of each text message
https://

Voice Dialing Disable Web Page Test SCADAweb enabled only for Twilio
Web URL https://scadaviewdemo.scadaweb.net/
Greeting SCADAvie Alarm System

Validate Twilio Requests

Close Save

Twilio (<https://www.twilio.com>) services can be used to send SMS text messages and make Voice Calls.

When configured for SMS text you will just have to enter the phone number and select SMS and your alarms will go out via SMS. When configured for Voice Dialing, all phone numbers will be called using Twilio, just select "None" for the voice modem in settings.

Below is the procedure for setting up your Twilio Account. This assumes you have a Web page. If you do not have a web page skip steps 4 – 6.

1. Set up a Twilio account, a credit card is required (there is a free trial to start but once it is used up it is a \$.0075 charge per text)
2. Assign/pick a phone number for the account
3. Go to the main page my first Twilio project and make a note of the following
 - a. Account SID
 - b. Auth Token
 - c. Twilio Phone Number
4. Configure the web hook by going to Phone Numbers>Manage>Active Numbers and click on the blue telephone number link (###) ###-###

5. Go to the Voice and Fax section
 - a. Copy/paste the link in the A CALL COMES IN box into the PRIMARY HANDLER FAILS box
 - b. In the A CALL COMES IN enter your web hook link.

Your webhook will be made up of the following:

`https://yourscadaweb-domain-name/nSDAnswerCall`

You can find your SCADAweb domain by looking at your SCADAweb address. The part after the "HTTPS://" but before "/System.php" is your domain name.

6. Go to the Messaging Service section and do the same steps as you did in Voice and Fax

This web hook will allow recipients to Acknowledge the alarm through a text by sending back an A, ACK, any word that starts with A, or the number 4. For this to work you will need to add this webhook:

`https://yourscadaweb-domain-name/nSDAck`

7. Enter the Account SID, Auth Token and From phone number into the Twilio settings in SCADAdial CSX and set other options.