CARTEL
Communication Systems Inc.

USC

UARM SYSTEM CONTROLLER

User Manual

This document describes the operation and running of the Uarm System Controller (USC).

Hardware and software mentioned in this document is subject to on going development and improvement. Consequently there may be minor discrepancies between the information in this document and the performance and design of the hardware and software.

Introduction

The UARM System Controller (USC) is a software package designed to run under Windows NT 4.X and Windows 2000.

The USC is part monitoring system for cellular sites installed in the field. The USC is installed in the Network Operations and Control Center (NOCC) and operates together with field installed UARM devices designed to monitor up to four cellular repeaters, or other peripheral devices.

The following are the primary USC functions:

To process unsolicited alarms reported by UARM devices, as collected from cellular sites, and present these in SNMP-compatible form to the NOCC local area network so they can be viewed by industry standard Simple Network Management Protocol (SNMP) compliant management software, such as HP's OpenView

To access UARM device(s) in one of two modes:
Automatic mode in which the USC will sequentially poll UARMs in the field and register their status responses
Manual mode which will allow NOCC personnel to manually access a specific UARM for various purposes such as viewing or possibly changing its configuration, uploading a new version of software, etc.

The USC consists of PC-based software package designed to run under Windows NT 4.X and Windows 2000.
The software package while designed to operate with a modem pool adaptor such as a T1 ISDN-PRI circuit RAS module, can operate with any modem pool module device that offers multiple communication ports to the PC.

USC – UARM System Controller

The USC system is composed of a client application and a server application. The client can be run on any machine with network access to the server. The client program, shown below, is used to configure the server, and to watch the logs of the server.
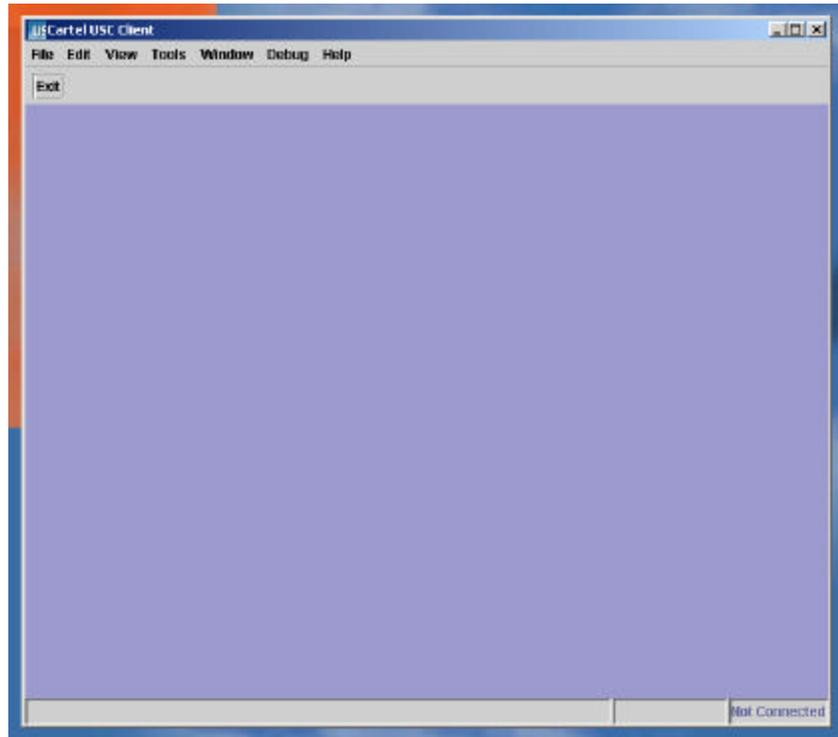
The server application runs as a separate console process (it does not have a user interface). See the 'Server Configuration' section for information on how to add users and modify the passwords of existing users.

Installation

To install the USC client and server, copy the cartelusc.exe to an appropriate temporary folder and double-click on the cartelusc.exe, and follow these instructions:

1. Click Next.

2. In the 'Choose Install Folder' panel, install the program to c:\usc Then click 'Next'.

3. In the 'Choose Shortcut Folder' panel, select the 'On the Desktop' radio button. Then click 'Next'.

4. Verify the settings are correct, and click 'Install'. Grab a quick coffee.

5. In the 'Install Complete' panel, make sure there are no errors, and click the 'Done' button.

6. At this point the client and server have been installed along with a Java 1.3.1_01 runtime in the c:\usc directory. Open explorer (WindowsKey-e) and follow these instructions to get the server running:

7. Navigate to the c:\usc\JBoss\bin directory, and you will see a run.bat file probably showing the little yellow gear icon.

8. Double-click the run icon to run the server.

9. Alternatively you can click and hold the right-mouse button and drag the run program to your desktop. Select 'Create shortcut(s) here.' to create a shortcut for the server startup batch file on your desktop. Rename it to something like 'USC Server', and double click it.

10. Wait for a few moments until the server goes through all of its initial startup. Wait until the server has stopped outputting messages.

11. Now you are ready to run the USC Client application to connect to the server:

12. Double Click the 'USC Client P4' icon on the desktop.

13. The splash-screen should appear briefly followed by the application.

14. Go to 'File|Connect...' to get the Login window.

15. In the Login window, click the '...' button next to the 'Server:' dropdown list. This will pop up a modal dialog 'Edit Server List'.

16. In the dialog, click the 'Add' button to add a new server to the table.

17. Double click the 'New Server' cell in the table to edit the field. Name the server 'Local' or anything you like. Press 'Enter' after changing the name.

18. Double click the 'Hostname' column and put 'localhost' into the field. Press enter after doing so.

19. The port, 1099, shouldn't be touched. So press 'OK' in the dialog to close it, and go back to logging in. The server settings will be remembered as user

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preferences, so this setup is a one-time thing. You can easily see that you'll be able to log into any number of USC servers with this.

20. Select the server you just created in the 'Server' drop down list.

21. Enter 'admin' for the username, and 'admin' for the password. You can either press enter after entering the password, or hit the 'Log In' button to log in.

22. The message 'Login was successful' will appear in the status bar, and the Connected indicator in the right side of the status bar will change to 'Connected: Local' or whatever you named the server.

Initial Setup

Once the client application is connected to the server some initial setup is needed to get the server in a fully operational state.

When logged in as 'admin' open the 'Tools|System Configuration' tool. The default settings should be enough to get started but you will need to obtain a correct SNMP OID and SNMP host name to allow SNMP traps to be accepted. When your changes have been made, hit the 'Save' button. See the 'Configuring the System' sub-section of the 'Administrator Operations' section below for more information on the 'System Configuration' tool.

Next, open the 'Modem' tool. In the panel on the left-hand side of the window you will be able to right click with the mouse to get the operation menu. You will be able to add modems, copy one modem configuration to create a new one, or delete modems that are no longer configured.

Adding a Modem
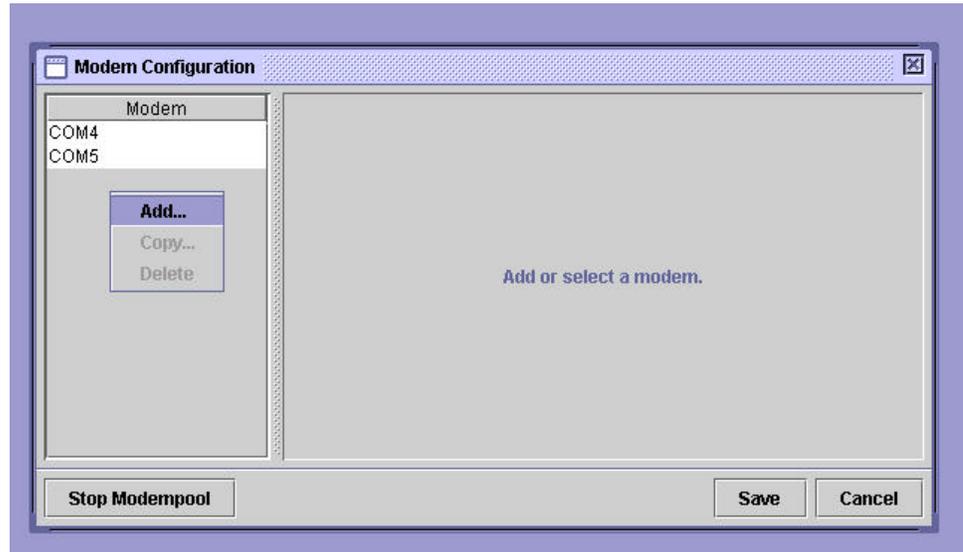
1. Right click the Modem list on the left hand side of the Modem tool select 'Add…'
2. In the 'Create Modem' pop-up box, type the name of the serial port the modem is connected to. On windows serial ports are named with 'COM#' where # represents the port number. Enter the name and press 'Enter', or the 'Ok' button.
3. The port name you entered should now appear in the list, and all of the defaults should be filled in. Modify any of the parameters to better suit the modem. See below on 'Configuring a Modem'.
4. After you have modified the modem configuration be sure to hit the 'Save' button to save those changes to the database. The tool will not let you navigate to other modems without saving changes first.

Configuring a Modem
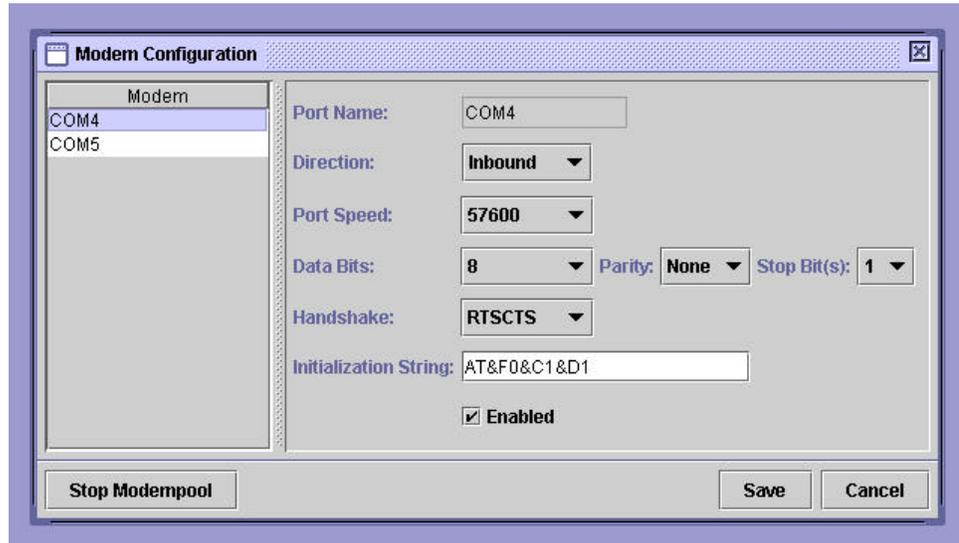
1. Select the modem in the modem list.
2. Modify the direction of the modem. Select Inbound for modems you want to configure to accept incoming calls; select outbound for modems you want to reserve to handle outbound calls.
3. Select a port speed, data bits, parity, stop bits, and handshake as required.
4. Type in a valid modem command used for initialization of the modem. The default has been set up to handle modems on Digiboard products but may also work for other modems.
5. Select whether you want the modem to be enabled, or disabled. Only enabled modems will actively participate in the modem pool.
6. Hit the 'Save' button to commit your changes to the database. Hit 'Cancel' to forget any changes and reload the values from the database.

Copying a Modem

1. Select the modem that has the configuration you want to duplicate. Right-click on it to produce the Action menu, select 'Copy…'
2. Type the serial port name for the new modem and press 'Enter' or 'Ok'
3. The new modem will have all of the same values as the original modem.
4. Hit 'Save' to store the configuration to the database.

Deleting a Modem

1. Select the modem in the list.
2. Right click for the Action menu, and select 'Delete'.
3. The modem will be removed as long as there are not any outstanding changes to the data in the editing pane.

Starting and Stopping the Modem Pool

At the bottom of the Modem tool, there is a button that can be used to start and stop the modem pool. The text displayed in the button is based on the current state of the modem pool and is queried every 15 seconds. When configuring the server for the first time, as soon as a modem is enabled, the modem pool will automatically start.

If you make changes to the modem pool, those changes do not take effect until the modem pool is shut down and restarted. When the modem pool is shut down, by pressing the button when its text reads 'Stop Modempool', the server will attempt to take all of the modems offline immediately. If a modem is busy, it will be allowed to complete its work first. As soon as all activity ceases the button will change to read 'Start Modempool'. The button greys out to avoid clicking it more than once and putting the pool into an unknown state. Once the modem pool is stopped a message will appear in the 'Modem' log stating 'Modem pool torn down.'

Remember the state of the server is only queried in 15 second intervals, so it may take a while for the state of the server to be known.

When you are finished configuring the pool, start the pool by pressing the button when its text reads 'Start Modempool'. The server will immediately start initializing the modems and will send a message to the 'Modem' log stating 'Modem pool created.'

Adding a UARM
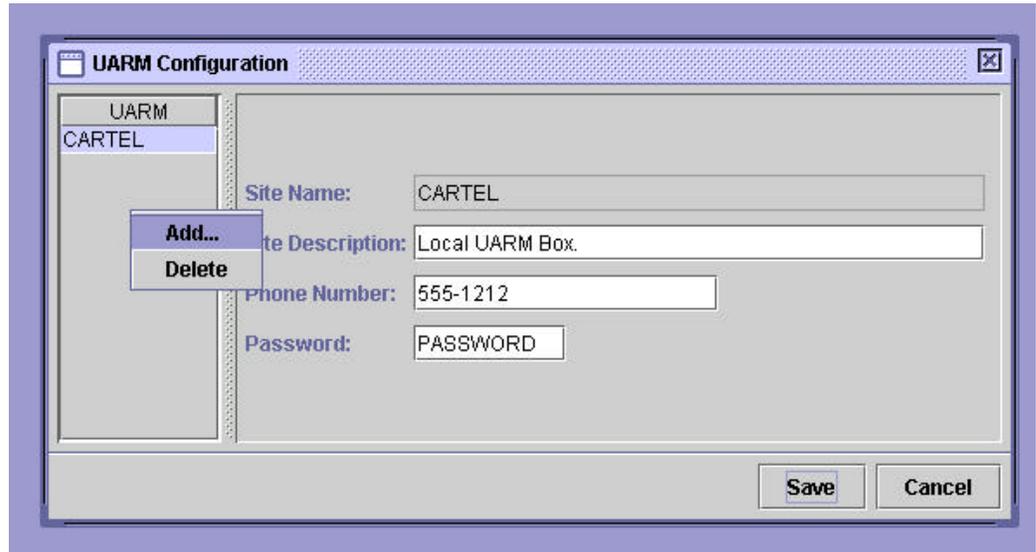
1. Open the 'UARM' tool.
2. In the left hand 'UARM' panel, right click to get the Action Menu.
3. Select 'Add…'
4. Type a unique name for the UARM. Be aware that this name must also be the name the UARM has configured in its NVRAM. Press 'Enter' or the 'Ok' button.
5. The UARM will appear in the list.

Editing a UARM

1. Select the UARM in the UARM list.
2. Edit the site description.
3. Edit the phone number. Be aware that the phone number must include all digits that must be dialled to contact the UARM through the phone lines of the USC.
4. Edit the UARM password. This password must be the same password that the UARM has configured in its NVRAM.
5. Press the 'Save' button to commit the changes.

Deleting a UARM

1. Select the UARM in the UARM list.
2. Right click to show the Action menu.
3. Select 'Delete'.
4. If the UARM doesn't go away, it is possible that there are outstanding changes. Press 'Save' and then try the delete again.

Administrator Operations

The administrator is allowed access to the System Configuration tool, the Modem Tool, and the UARM tool, and is also allowed to delete log entries.

Configuring the System

1. System configuration changes take effect as soon as the 'Save' button is pressed. The server looks up the configuration information when it needs it, and doesn't cache the information, so the options can be changed during regular operation.
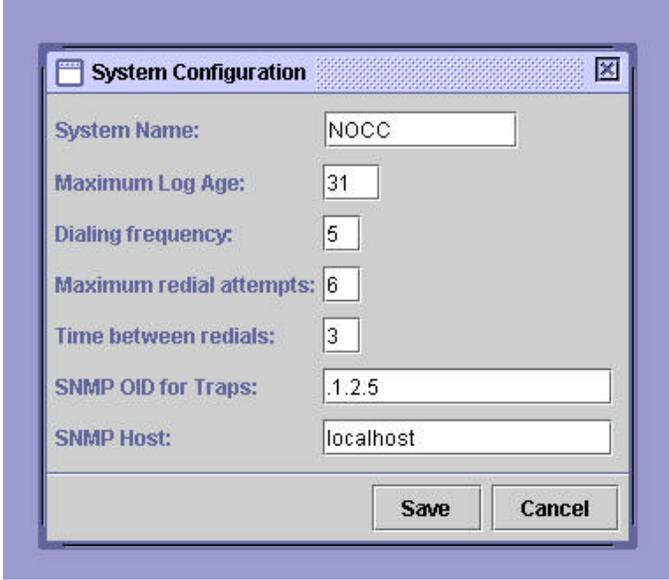
2. Open the 'System Configuration' tool.
3. Edit the System Name. This can be any ASCII string uniquely identifying the server. This string is passed to UARMs when an outbound call is established.
4. Edit the Maximum Log Age. This is the number of days logs will be kept in the system before being purged.
5. Edit the Dialing Frequency. This is the number of minutes since a UARM was last contacted that the server will attempt to call into it to obtain its current status.
6. Edit the Maximum redial attempts. This is the number of times a UARM will be called before the server will send a critical no-contact SNMP trap to the SNMP manager.
7. Edit the Time between redials. This is the number of minutes between each redial attempt.
8. Edit the SNMP OID for Traps. This string must be a valid SNMP OID, and should be configured in the SNMP Manager system. This OID is what all SNMP traps will carry along with it to identify them as having come from the USC server.
9. Edit the SNMP Host. This is a valid IP address, or DNS hostname reachable from the USC server. Currently the standard UDP SNMP port 169 is used to send SNMP traps.

Deleting Log Entries

1. Open the Log Browser tool.
2. Select log entries and right click see the Action menu.
3. Select 'Delete' from the action menu to remove the log entry.

User Operations

Regular users can only access the Log Browser tool. Regular users are not allowed to delete logs.

Using the Log Browser Tool
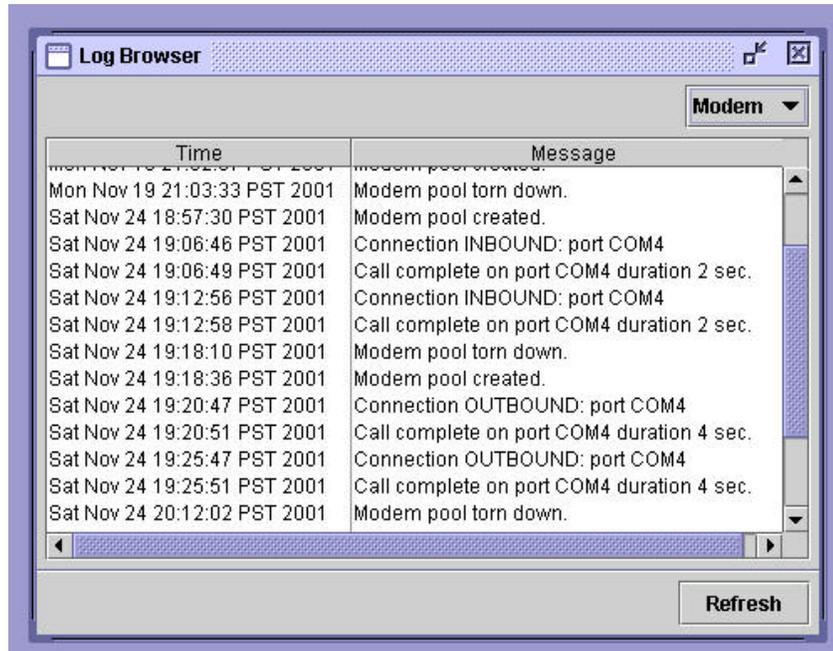
The Log Browser Tool allows the system logs to be viewed. Select a log category from the drop-down list in the upper-right corner of the window. Currently the categories are:

- User – Shows logs of the user logins, logouts and startup and shutdown of the client application.
- Alarm – Shows recently collected alarms from UARM devices.
- Monitor – Currently unused.
- Modem – Shows the operational logs of the modem pool consisting of modem pool creation, tear down, connection inbound or outbound, and call completion logs including the duration of the connections.
- Other – Currently unused.

The logs listed in the window reflect the logs that were available when the query was done. To refresh the table, press the 'Refresh' button.

Administrators can delete log entries. See the section 'Deleting Log Entries' above. The server will automatically delete logs older than the configure 'Maximum Log Age' in the System Configuration window.

Server Configuration

The server software is an Enterprise Java server running JBoss 2.4.3. The only thing that should need configuration is the User and Roles properties files to allow users to be added or the administrator password to be changed. At this time, any configuration of the users will require the server to be restarted for the changes to be applied.

Adding a User

1. Open the JBoss\conf\default\users.properties file with Wordpad, or Notepad.
2. Add an entry for the new username and password 'username=password'.
3. Save the file.
4. Open the JBoss\conf\default\roles.properties file.
5. Add the roles the user will have by adding a line 'username=role,role…' where the valid roles are 'admin' and 'user'.
6. Restart the server.

Note: Do not remove the 'nobody=user' line from the roles.properties file as it is required for correct operation of the server.

Changing a User's Password

1. Open the JBoss\conf\default\users.properties file.
2. Locate the user whose password you want to change.
3. Edit the line so that it reads 'username=newpassword'.
4. Restart the server.

Restarting the Server

To restart the server, locate its window and close the window with the 'X' icon in the upper right, or press 'CTRL-C' in the window and answer 'Y' to the message asking to 'Terminate the Batch file'.

Be patient; hit 'Cancel' if Windows asks you to terminate the application now. The server may be currently processing an incoming request and will attempt to finish before allowing the server to exit.

Client Configuration

The client application is a Java application. It remembers its location and screen window size and restores itself to that location the next time it is invoked. The client program has some minimal user-interface preferences that can be modified from the 'Edit|Preferences…' menu item shown below:
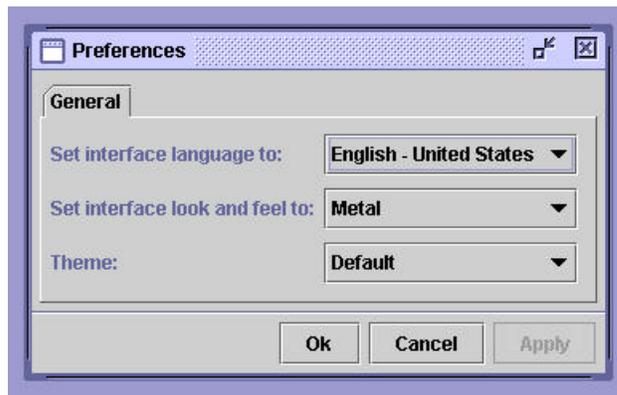
The Look and Feel can be set to 'Windows' to approximate the look of a Windows application. The preferences for the application are remembered for future sessions.