LIBERTY®
PC Programmer
User's Manual

Doc No.: 84404 Rev G
DECEMBER 2013

NOTE

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RECORD OF CHANGES

Revision	Date	Description of Change	Author
Rev 1- 4	Oct ‘08 thru Oct 09	Prototype Releases	SJA
Rev A	Sept 2010	Initial Release	SJA
Rev B	Oct 2010	ECN 38308 Update to reflect PCP Ver 01.00.07.232	SJA
Rev C	Aug 2011	ECN 38725 Updated manual to reflect PCP Ver 5.05.01.0148	SJA
Rev D	Mar 2012	ECN 39015 Updated manual to reflect PCP Ver 06.00.02.0051	SJA
Rev E	Nov 2012	ECR/ECN 13231 Update manual to reflect PCP Ver 6.10	SJA
Rev F	Jan 2013	ECR 13285 Update manual to reflect PCP Ver 6.20	SJA
Rev G	Dec 2013	ECR 13752 Update manual to reflect PCP Ver 6.30	SJA

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LIST OF FIGURES

LIST OF TABLES

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Section 1. INTRODUCTION

NOTE

This version of the Liberty® PC Programmer (PCP) reflects PCP Software Version 6.30.

MANUAL ORGANIZATION

This manual is intended to provide the user with the information required to configure a Liberty® Radio using the Liberty® PCP. This manual has six (6) sections:

Section 1 – Introduction -- Provides information needed before installing the package

Section 2 - Running the Program -- Contains instructions on starting the program, basic operating instructions needed to program a radio's channel, banks, zones parameters, and definitions of menu bar and speed menu commands.

Section 3 – Liberty® Radio Firmware Upgrade Instructions -- Provides instructions on how to flash download the radio using the PC Programmer (PCP).

Section 4 – Troubleshooting -- Provides information relating to troubleshooting if a problem occurs

Section 5 – Glossary -- Provides definitions of programmable parameters listed in Section 3.

Appendix A - –Installation - Lists the contents of this package and the minimum system requirements for operating this package. Provides instruction for software and hardware installation.

Appendix B - Daughter Keys – Provides information relating to Daughter Keys using a Trunking System Master Key

INTRODUCTION

The Liberty® PC Programmer (PCP) is a Windows-based program that allows quick and easy programming of the Liberty® Radio using a standard PC. While the Liberty® Radio Human-Machine Interface (HMI) gives the radio operator the ability to configure some radio components using the built-in Liquid Crystal Display (LCD) and the keypad, the PCP significantly enhances this ability by enabling the use of a larger screen and a full keyboard. In addition, the Menu Components of the PCP allows the user to program "restricted radio parameters" that cannot be changed using the radio keypad and display.

This PCP also allows the user to:

- Upload an operational configuration file from a radio,
- Download an operational configuration file from external storage or the hard drive to a radio,
- View or modify channel, banks, and zone parameters,
- Control the programming menus available through the radio display,
- Save modified data to a file,
- Print the operational configuration file on a printer, and
- Enable upgradeable radio operating features / modes.
- Import / Export configuration files for easier conversion of other radio manufacturer files

After configuring the various radio parameters, the user can download the configuration parameters to the radio. The PCP performs error checking to ensure that the data entered do not violate any operational limits.

The user can also save and open radio parameters in a configuration file and upload radio parameters from a working Liberty® Radio to the Liberty® PCP.

Section 2. RUNNING THE PROGRAM

PROGRAM STARTUP

To start the program, there are several options:

- Double-click on the Liberty® PCP icon 

on the desktop or

- Select the RUN command line from the 

Command Menu. Use the BROWSE command to select the drive and directory containing PC Programmer (default location is Program Files\Thales Communications\ Thales Liberty PC Programmer) and double-click on the LIBERTY.EXE file.

- To start the PCP, simply double-click on the icon.

NOTE

To communicate with (upload data from or download data to) a Liberty® Radio:

- The radio must be ON,
- The USB cable is connected to the PC and USB Adapter
- USB Adapter is connected to the radio side connector.

USER INTERFACE

The initial opening screen includes the program name and version number (refer to Figure 2-1) the "Next Steps" will remain until for approximately 10 seconds, then initial programming screen (refer to Figure 2-2) will appear.

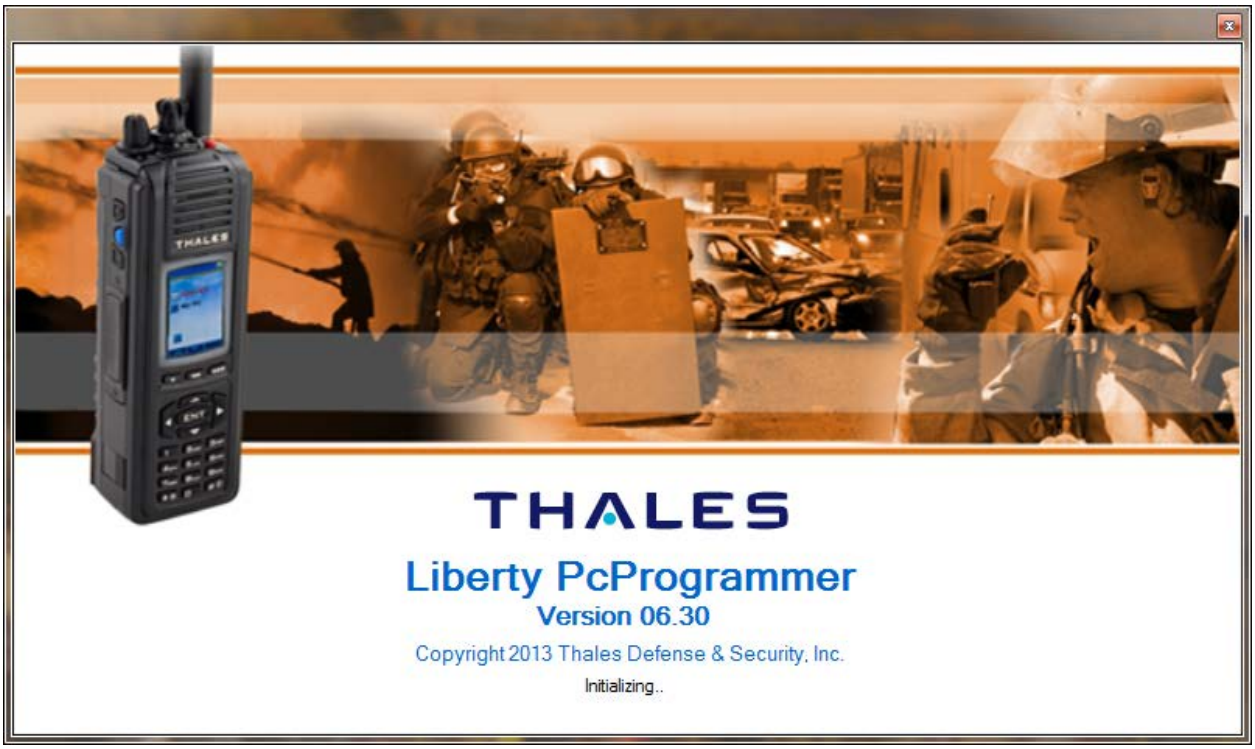


Figure 2-1 Liberty® PC Programmer Information Screen

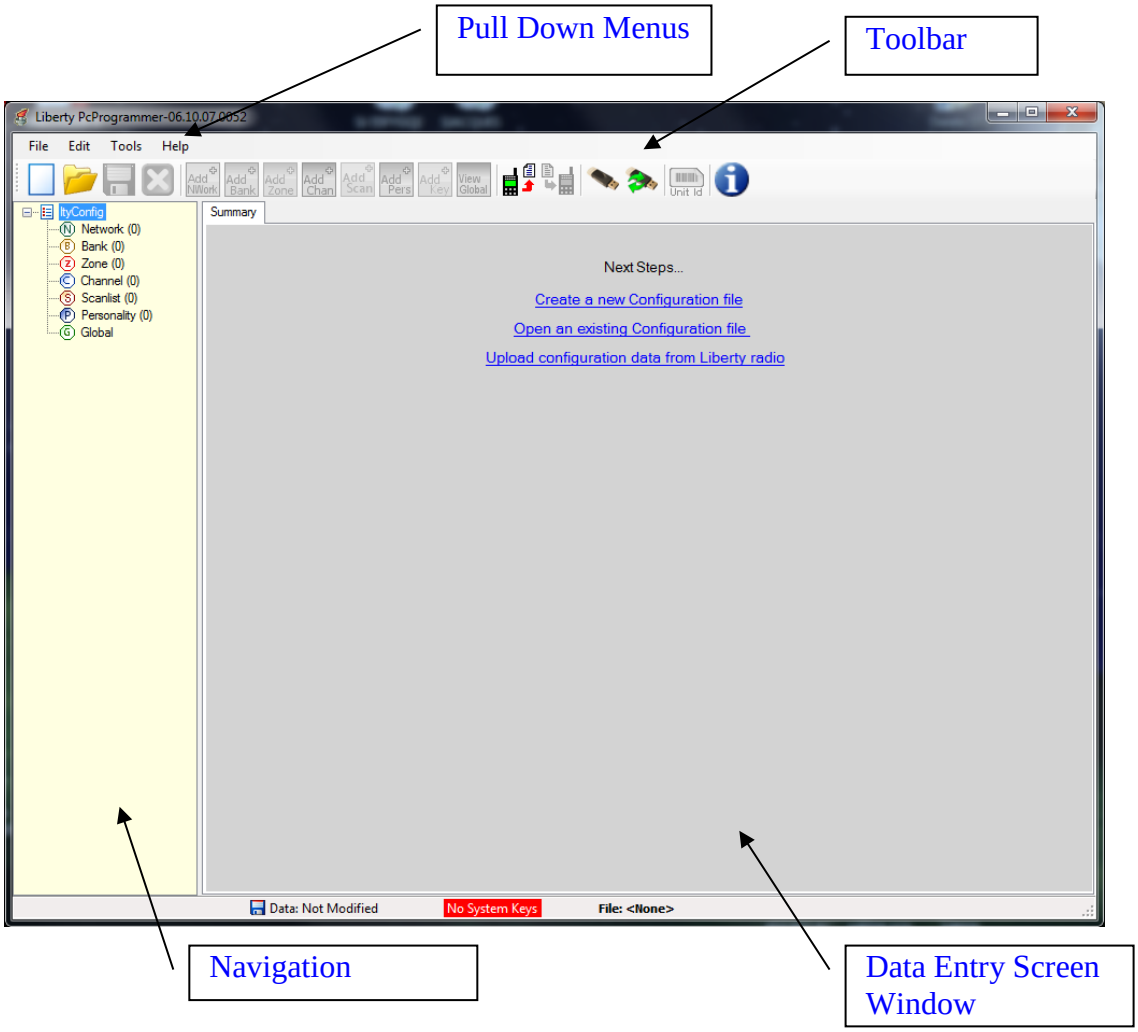


Figure 2-2 Liberty® PC Programmer Initial Screen

The main components of the interface are the pull-down Menu Bar, the Toolbar, the Navigation Window containing the tree; and the Data Entry Screen. At start-up, the pull-down menus or the toolbar can be used to load an operational data file from the hard drive, an external storage device, or from a radio into the PCP for editing.

PCP Startup Screen

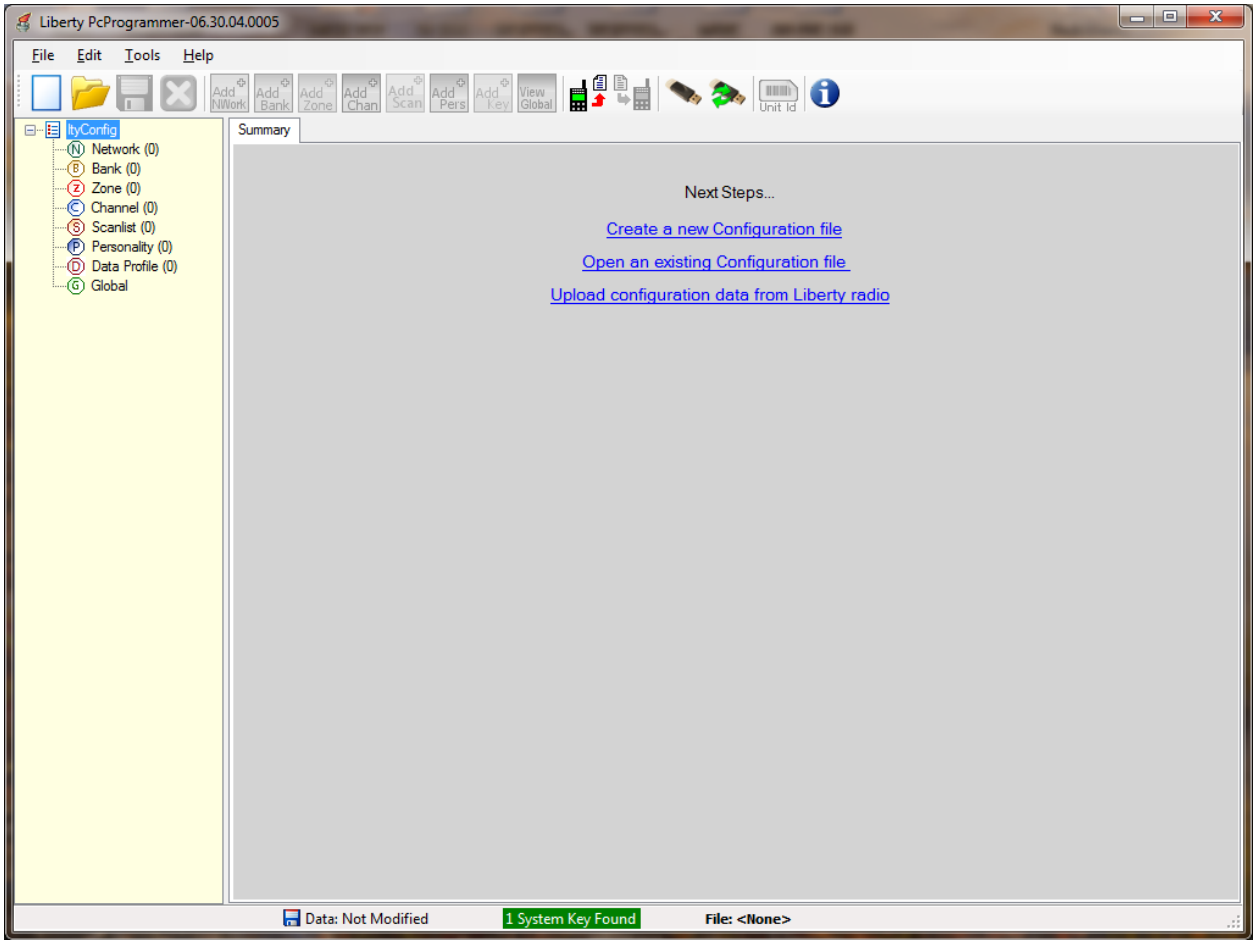
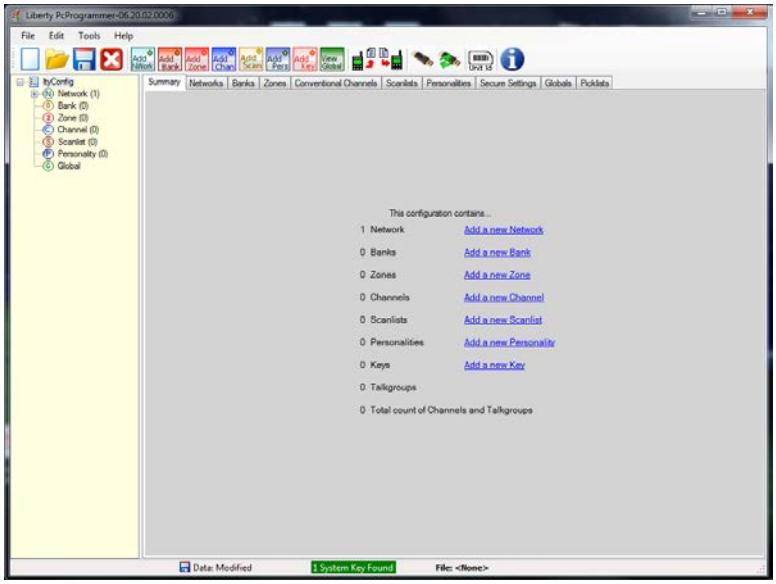
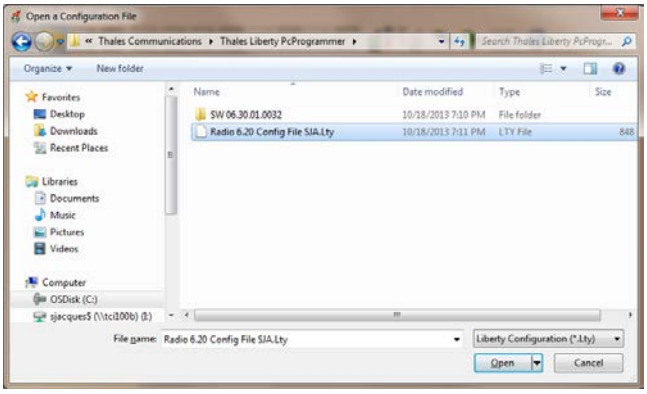


Figure 2-3 Liberty® PC Programmer – Start Up Screen

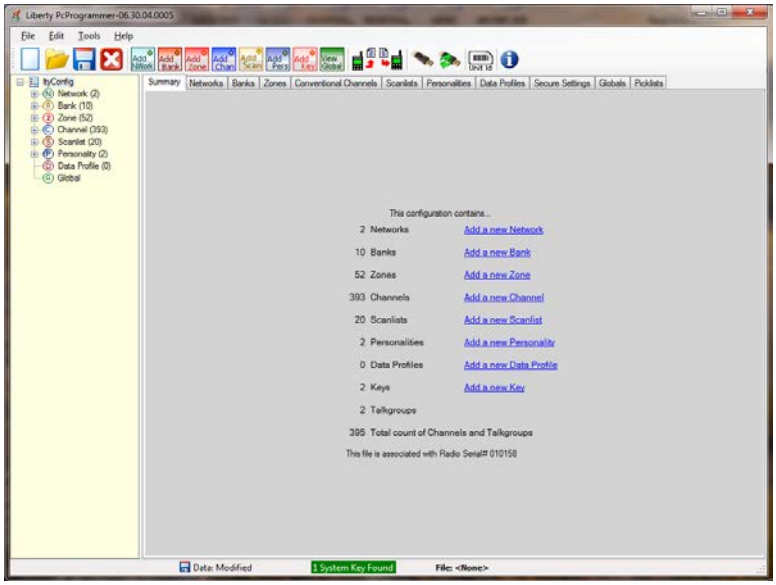
CREATE A NEW CONFIGURATION FILE (by clicking on the link) -- allows the user to create a new configuration file. or



OPEN AN EXISTING CONFIGURATION FILE (by clicking on the link) -- allows the user to open a previously saved configuration file.



UPLOAD CONFIGURATION DATA FROM LIBERTY® RADIO (by clicking on the link) - this function allows the user to upload configuration data from the Liberty® Radio..



Suggested Programming Flow

The Liberty® PCP allows the creations of channels to be assigned to zones, etc. To efficiently program the radio, the following sequence is recommended:

Table 3-1 Suggest Programming Sequence

Mode of Operation	Programming Sequence
Conventional	• Networks (Conventional, OTAR) • Set Security Settings (encryption keys), if any • Channels (prior to zones and banks) • Scanlists, if any (populate later) • Assign Channels to Scanlists • Zones (prior to Banks) • Banks (MUST have at least one) • Global • Picklist
Trunking	• Networks (Trunking) • Unit IDs • Set Security Settings • Personalities • Scanlists • Talkgroups • Zones (prior to Banks) • Banks (MUST have at least one) • Globals • Picklists

PC PROGRAMMER EDIT SCREENS

The PCP allows the operator to view and edit Conventional Channels, Banks, Zones, Networks, Scanlists, Personalities (used in Trunking only), Encryption, Global, and Picklist functions of an operational data file or radio.

General Information

- If an invalid frequency is entered, a pop-up box will appear providing a listing of the correct frequency ranges for both the RX and TX Frequencies. (Note, invalid frequencies will not be accepted and will default back to what was previously entered.)

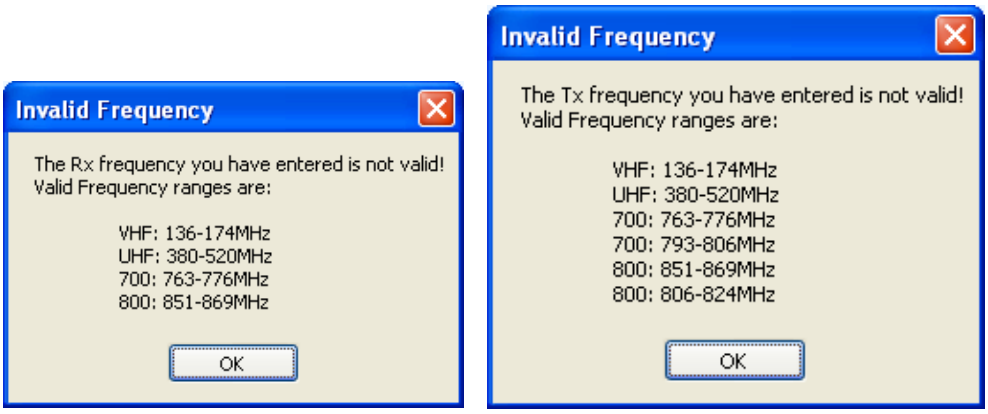
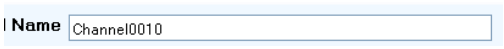
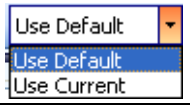


Figure 2-4 Rx and Tx Frequency Ranges

- Using the “Edit” Icons -- The EDIT toolbar is located at the top of the Channel, Zone, Bank, and Scanlist Screens. The following information is provided as a quick tool for this area.

Table 2-2 Common EDIT Tool ICONs

ICON/Symbol	Definition/Description
	
	The names / descriptions can be modified or edited, can be alphanumeric and can be up to: • 8 Characters for Tone Picklist • 16 Characters for SCANLISTS, Network, Personality, Site, and Announcement Talkgroup • 32 Characters for Channel, ZONE, BANK, Talkgroup and Traffic Key Name Note: For Multi-Mode Channels, these are assigned the same name as the Primary Channel.
	Go back to first object
	Go back one object
	Enter the desired preprogrammed object number
	Go to the next object
	Go to the last object
	Add a single object
	Add multiple objects
	Select whether to use factory default settings or current channel settings when adding a object (or objects)
	Delete an object
	Conventional Channel
	Multi-Mode Channel
	Trunking Talkgroup
	Dynamic Talkgroup

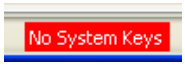
ICON/Symbol	Definition/Description
	The positions A, B, and C, designate the position that is used in the 3-position toggle switch, is defined as “Zone Select”.
	Indicates that there may be a problem with the data or additional information is required.
	Displays information related to the Liberty PC Programmer, the PC Operating System, and, if attached, the radio.

- The Master System Key is a security device that resembles a USB thumb drive. This device is programmed by Thales for specific Wide Area Communications Network (WACN) and System ID or a specific WACN only. A master key can only be ordered by system owner or their designee.

  The Network Trunking and Personality Edit screens require a Master or Daughter System Key in order to edit those screens.

NOTE

The Network Trunking and Personalities Edit Screens are only available when a valid System Key is inserted and acknowledged by the PCP.



Indicates that there is NO System Key

Indicates that one or more valid System Keys are available

Networks -- Conventional and Trunking

There are several ways to access the Networks Programming Screen.

(1) Click on the 

icon located on the toolbar.
(2) Click on NETWORK located in the navigation window.
(3) Click on the tab labeled NETWORK on the data entry screen.
(4) Click on the EDIT Drop-Down Menu and select ADD NETWORK.
(5) Click on the SUMMARY tab and select ADD A NEW NETWORK

Conventional Network

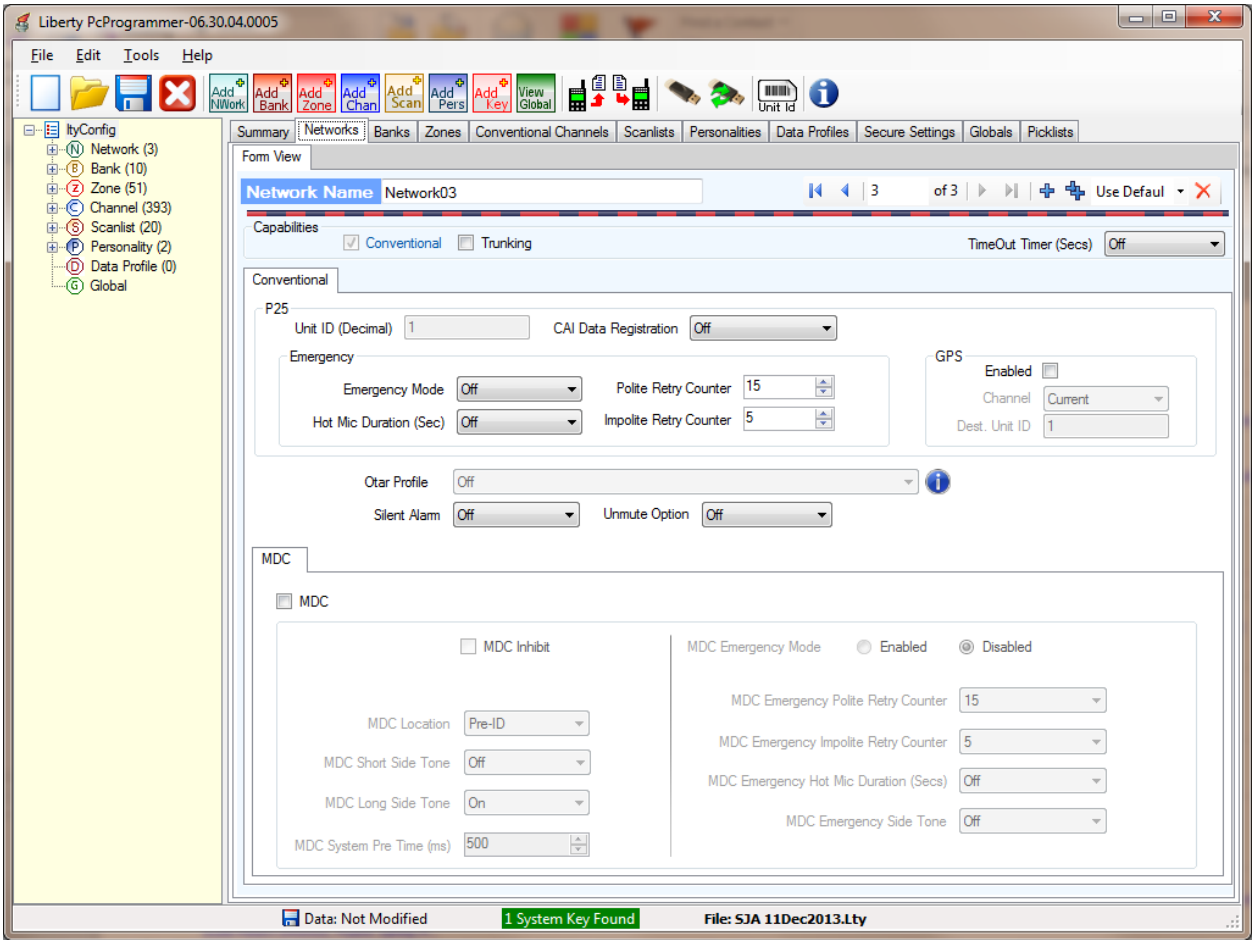


Figure 2-5 Conventional Networks Screen

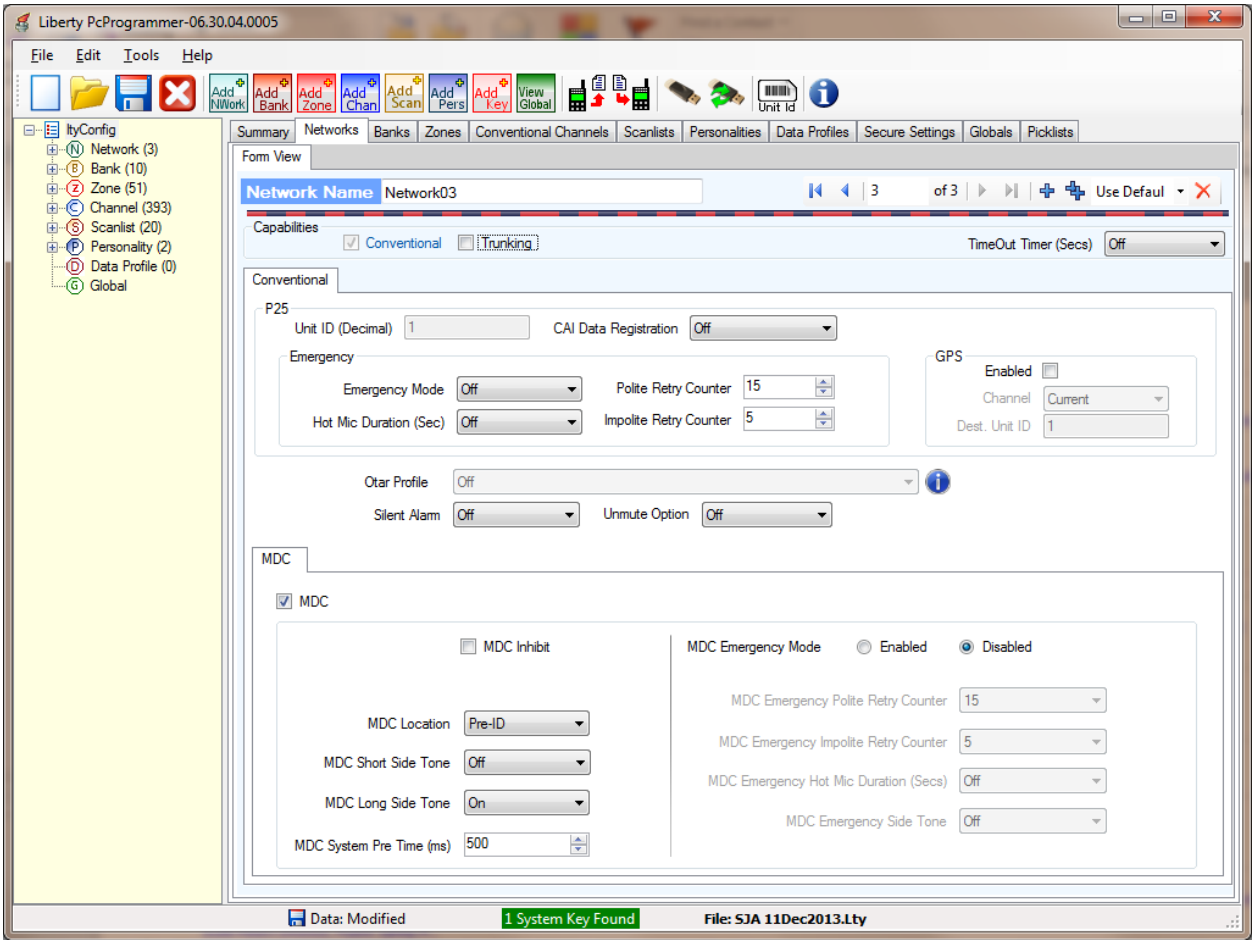


Figure 2-6 Conventional Networks Screen – MDC Enabled

Table 2-3 Conventional Networks Parameters

Parameter	Accepted Values
Network Name	Assign a 16-Character Network Name or use the default Network Name (Network01, Network02, etc.) **Note**: this is the same for Conventional and Trunking.
Network	Capabilities – Conventional -- (Maximum allowed 30 Networks)
	Time Out Time (Sec): **OFF**, 10 to 90 seconds (5 sec increments) (Default setting is OFF) If used, recommended is 60 sec, or per user specifications.
Parameters - Conventional	Unit ID-- Unit IDs are assigned by clicking on the UNIT ID icon located on the toolbar. See UNIT ID for information on how to assign UNIT IDs. (The UNIT ID is shown for informational purposes only on this screen)
	CAI Data Registration Select **OFF**, Standard, or Motorola (Default setting is **OFF**)
	Emergency Parameters

Parameter	Accepted Values
	Emergency Mode: **ON**/OFF (Default setting is **ON)**
	Hot Mic Duration (Sec): **OFF**, 5, 10, 15 (Default setting is **OFF**)
	Silent Alarm: **OFF** / ON (Default setting is **OFF**) (If set to ON, the radio will not sound any audible or display any emergency indications when the user transmits an emergency alarm.)
	Unmute Option: **OFF** / ON (Default setting is **OFF**) (Only applies if SILENT ALARM is set to ON) (Note: When ON, the radio will unmute on received calls while operating in silent alarm mode. When enabled the users must be careful NOT compromise the silent alarm (for example respond using code words)
	Polite Retry Counter: 1 to 15 (Default setting is 1)
	Impolite Retry Counter: 0 to 5 (Default setting is 0)
GPS	Enabled – GPS is enabled when checked
	Channel – Select either the CURRENT channel or a different channel number from the drop down menu for transmitting the GPS message. (Default setting is CURRENT)
	Destination Unit ID - Enter the P25 Unit ID of the radio that will be receiving the GPS Coordinates
OTAR Profile	OTAR Profiles points to existing OTAR Profile. If specified here, the OTAR Profile will also apply to the (optional) conventional side of the network as well.
Silent Alarm	Select either ON or OFF. When ON, the radio will not issue an audible or visual indication when transmitting an emergency alarm.
Unmute Option	Select ON or OFF. When ON, the radio will unmute on received calls while operating in SILENT ALARM Mode.
MDC	When selected, enables the MDC functionality for the selected conventional network. Note: MDC will only transmit on a Conventional Analog NarrowBand or Analog Wideband Channel (If WB Feature is enabled).
MDC Inhibit	Enable or disable MDC Inhibit for the selected network. When enabled, it allows the radio to respond to a MDC Inhibit command. (Default setting is DISABLED)

Parameter	Accepted Values
MDC Location	MDC-1200 ID Signaling Position can be set to: • **Pre-ID** (Default setting) – MDC PTT ID is transmitted each time the PTT is released • Post-ID – MDC PTT ID is transmitted when the PTT is released • Both (Pre-ID and Post-ID) – MDC PTT ID is transmitted both each time the PTT is pressed and when the PTT is released.
MDC Short Side Tone	Sets the MDC-1200 Short Side Tone to ON or OFF (Default setting is **OF**F). The tone is sounded immediately after the MDC PTT-ID is sent and indicates to the radio user that the microphone is open and voice transmission is now possible.
MDC Long Side Tone	Sets the MDC-1200 Long Side Tone to ON or OFF (Default setting is **ON**). The tone is sounded while the MDC PTT-ID is being sent. The tone ending indicates to the radio user that the microphone is open and voice transmission is now possible.
MDC System Pre-Time (ms)	Configures the time duration between a PTT press and the first transmission of the first MDC packet. (Acceptable range of 0 to 6350 in 50 msec increments) (Default setting is **500** msec). This time allows the receiving radio time to receive carrier and stabilize before receiving data.
MDC Emergency	Select Enable or **Disable** (Default Setting is **DISABLED**)
	MDC Emergency Impolite Retry Counter – Select between 0 and 15 (Default setting is **5** retries)
	MDC Emergency Polite Retry Counter -- Select between 1 and 15 (Default setting is **15** retries)
	MDC Emergency Hot Mic Duration (Secs) – Select OFF, 5, 10, or 15 seconds (Default setting is **OFF**)
	MDC Emergency Side Tone – Select ON or OFF (Default setting is **OFF**)

NOTE

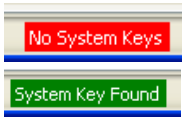
MDC Tones:

- The Long and Short Side-tones are automatically disabled when the MDC Location is set to Post-ID.
- The Radio will “play” the MDC Long side tone only when the MDC option is set to Pre-ID or Both (Pre-ID and Post-ID) and the MDC Long side tone control is set to ON .
- The Radio will “play” the MDC Short side tone only when the MDC option is set to Pre-ID or Both (Pre-ID and Post-ID) and the MDC Short side tone control is set to ON .

Trunking Network

NOTE

The Networks Menu shown below is only available when the Trunking Feature is AUTHORIZED. A valid master key or unrestricted daughter key MUST be inserted and acknowledged by the PCP.



Indicates that there is NO System Key

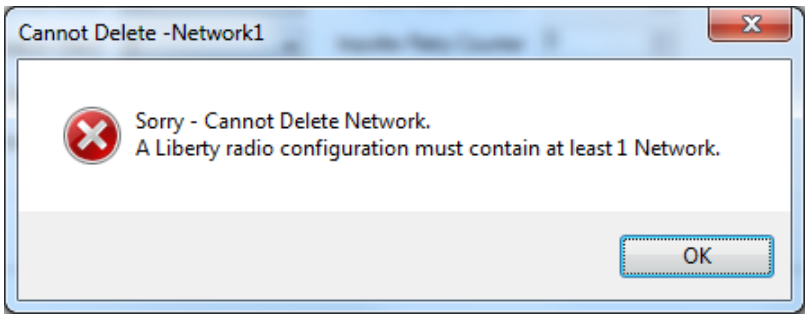
Indicates that one or more valid System Keys are available

NOTE

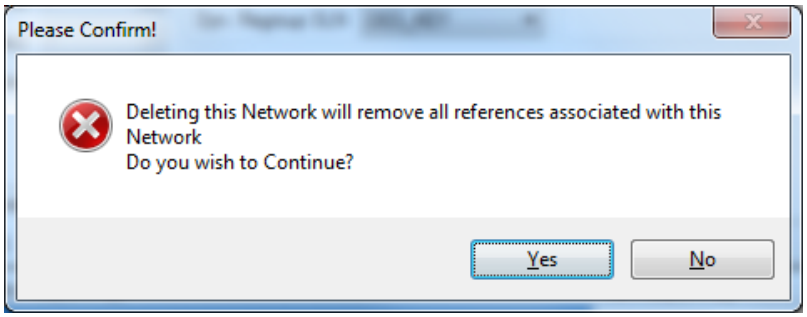
A valid master key or unrestricted daughter key is also required when assigning the Trunking UNIT IDs. Refer to page A- 1 for additional information.

Points to Remember – Trunking Network

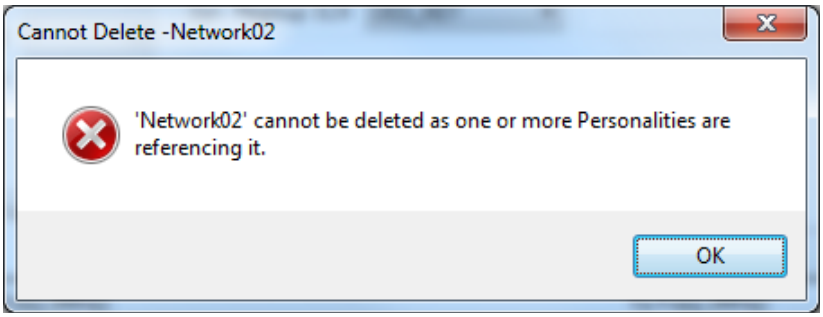
- A Trunking Network requires at least one (1) Channel Identifier and one (1) Full Spectrum Scan List.
- OTAR Profiles and Data Profiles are generic, and can be used on Networks for Conventional, Trunking, or both. Due to Trunking system security, if a profile is used on both, it must be changed from the Trunking Tab. This ensures you have the authority via a System Key that is required.
- A Liberty Radio must contain at least one (1) Network. If the user tries to DELETE the only network in the configuration file, the PCP will inform the user that this is not possible.



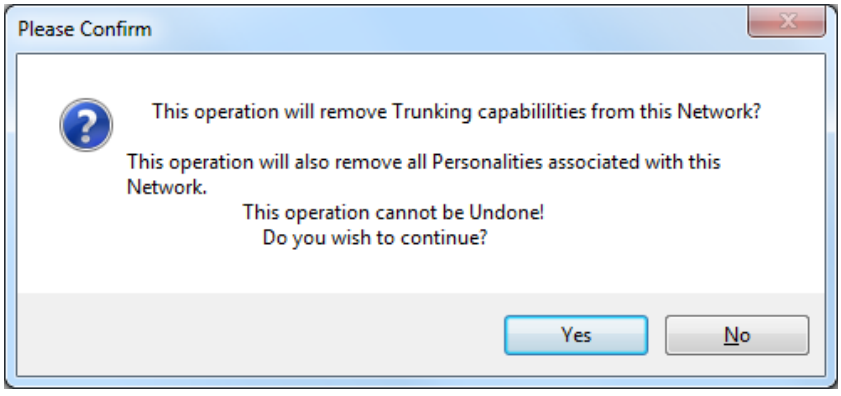
- If the configuration file has more than one network, and the user wants to delete a particular network with no associated Trunking personalities, the PCP will inform the user that this will remove all references associated with that particular network.



- If one or more personalities reference a network it cannot be deleted. The user must remove the association before deleting it.



- If Trunking capabilities are removed from a Network, the PCP will ask for confirmation, as ALL Personalities associated with the network will also be removed. .



Trunking Network – Control Channel List

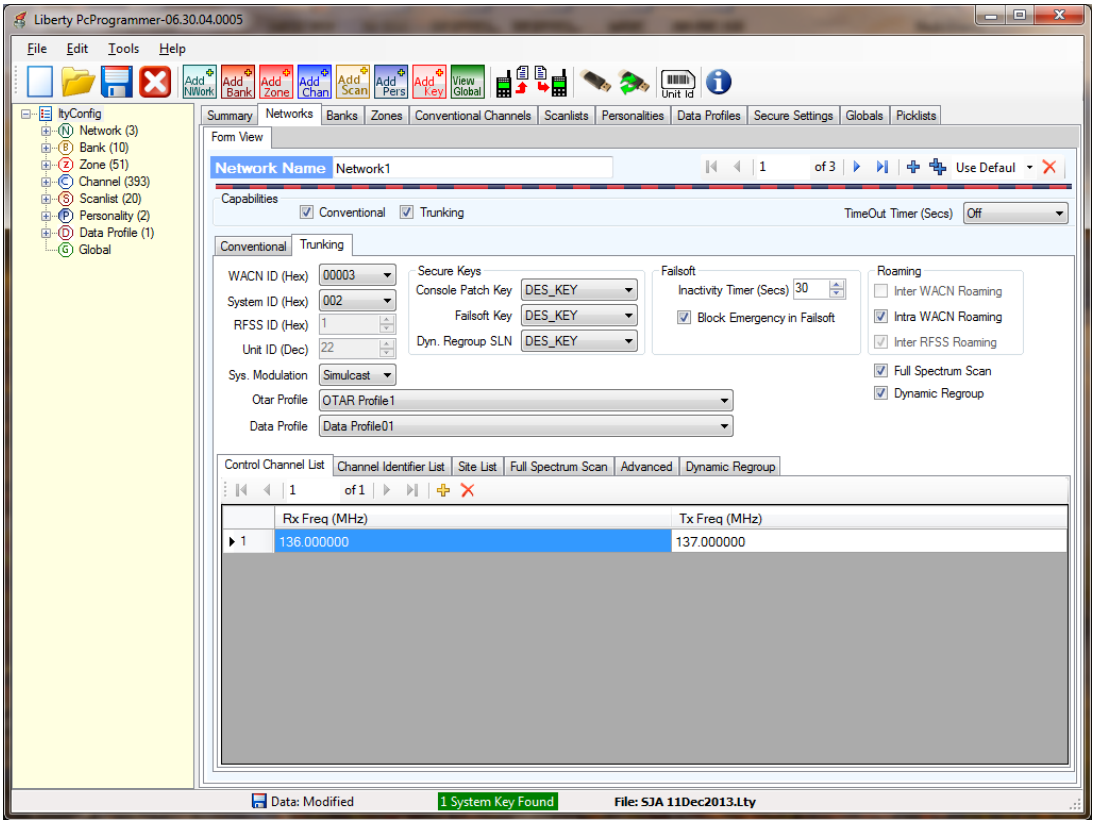


Figure 2-7 Trunking Networks Screen – Control Channel List

Table 2-4 Trunking Networks Parameters

Parameter	Accepted Values
Network Name	Assign a 16-Character Network Name or use the default Network Name (Network01, Network02, etc.) Note: this is the same for Conventional and Trunking.
Network	Capabilities – Conventional, Trunking, or OTAR In order to enable Trunking - a System Key should be inserted into the computer and acknowledged by the PCP -- System Key Found will be shown when a valid key is found.
	TimeOut: Time (Sec):Select from a drop down list consisting of: OFF, 10 to 90 seconds (5 sec increments)

Parameter	Accepted Values
Parameters – Trunking	WACN ID / SYS ID / RFSS ID – Identify the "HOME" network for roaming restrictions
	• WACN ID (Hex) – acceptable entry 0001 – FFFE (set by system key)
	• System ID (Hex) – acceptable entry of 001 – FFE (set by system key)
	• RFSS ID (Hex) – acceptable entry of 01 - FE
	• Unit ID -- Unit IDs are assigned by clicking on the UNIT ID icon located on the toolbar. Refer to Page 3-69 for information on how to assign UNIT IDs. (UNIT IDs are shown here for informational purpose only – no changes can be made from this screen.)
	• System Modulation – If on a Simulcast network, must be set correctly to allow RSSI measurements and frame synch to operate correctly. Select C4FM or Simulcast (LSM) (Default setting is C4FM)
Secure Keys	Console Patch Key – Select NONE, or select from the drop down list of configured TEK (or traffic key).
	FAILSOFT Key -- If the currently selected Talkgroup is using encrypted communications the radio will continue encrypted communications using the FAILSOFT key while on the FAILSOFT channel. Available selections are None, or a list of all Traffic Keys defined in the configuration.
	Dynamic Regroup SLN - Available selections are None, or a list of all Traffic Keys (SLNs) defined in the configuration.
FAILSOFT	Inactivity Timer (Secs) – 5 – 255 Seconds – This is the amount of time to remain on the Fail-Soft channel after any TX/RX activity, before resuming the control channel search. (Default setting is 30 seconds)
	Block Emergency in FAILSOFT: For emergency declaration in FAILSOFT – this must NOT be checked When checked emergency activation will be blocked if emergency is assigned to the top red button and the radio is on the FAILSOFT channel. (Default setting is checked)

Parameter	Accepted Values
Roaming	Inter-WACN Roaming – *not available this release*
	Intra WACN Roaming -- Intra-System Roaming includes roaming between sites within the same RFSS, (Intra-RFSS roaming), and roaming between RFSSs within the same system. When selected the user will be able to enter the System ID and RFSS Number for each site listed on the SITE LIST tab (Refer to Figure 3-10)
	Inter RFSS Roaming – • When enabled, allows roaming to sites with home WACN/SYS ID and any RFSS ID. When selected, the user will be able to enter the RFSS Number for each Site listed on the SITE LIST tab (Refer to Figure 3-9)
Full Spectrum Scan	When selected, Full Spectrum Control Channel Scan feature will be enabled. (Default Setting is **DISABLED**) (Refer to Figure 2-11)
Dynamic Regroup	When selected, Dynamic Regroup feature will be enabled (Default Setting is OFF) and the Dynamic Regroup Tab will be available for editing. (Refer to Figure 3-13)
OTAR Profile	OTAR Profiles points to existing OTAR Profile. If specified here, the OTAR Profile will also apply to the (optional) conventional side of the network as well.
DATA Profile	DATA Profiles points to existing DATA Profile. OTAR and DATA Profile MUST be used together in order for OTAR function to work correctly.
Control Channel List	Add/Delete Control Channels. Must contain at least 1 Control Channel, but can contain up to 256 channels.
	Enter the RxFreq and TxFreq NOTE: If an incorrect frequency is entered, the user will be notified by a pop-up screen providing the correct frequency ranges, no other entries can be made until this is either corrected or the editing is canceled.
Channel Identifier List	Channel characteristics identified for each channel – Channel ID, Base RF (MHz), Bandwidth (kHz) (6.25 and 12.5 kHz), TxOffset MHz, and Channel Spacing (kHz) The Channel ID number range can be from 1 to 16
	Add/Delete Channel Identifiers

Trunking Network – Control Identifier List

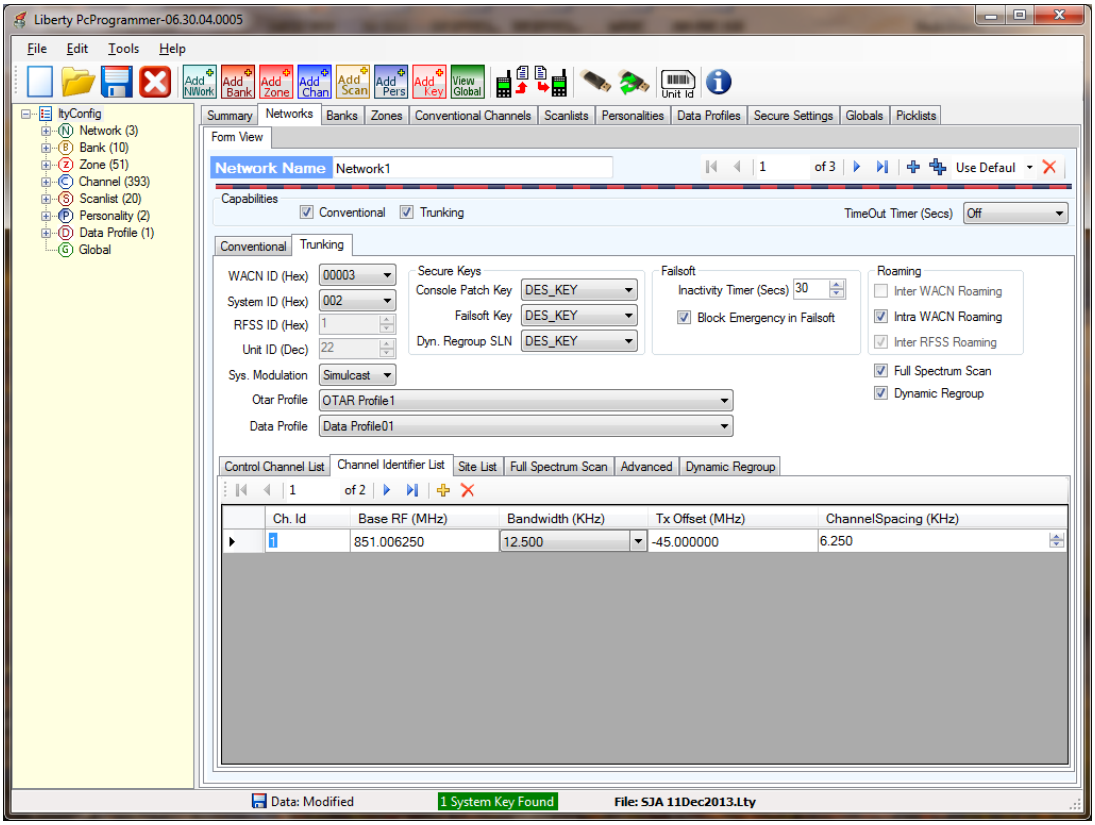


Figure 2-8 Trunking Networks Screen – Channel Identifier List

Table 2-5 Channel Identifier List Parameters

Parameter	Accepted Values
Channel Identifier List	Channel characteristics identified for each channel – Channel ID, Base RF (MHz), Bandwidth (kHz) (6.25 and 12.5 kHz), TxOffset MHz, and Channel Spacing (kHz) The Channel ID number range can be from 1 to 16
	Add/Delete Channel Identifiers

Points to Remember – Channel Identifier List:

- A Trunking Network requires at least one (1) Channel Identifier.

Trunking Network – Site List

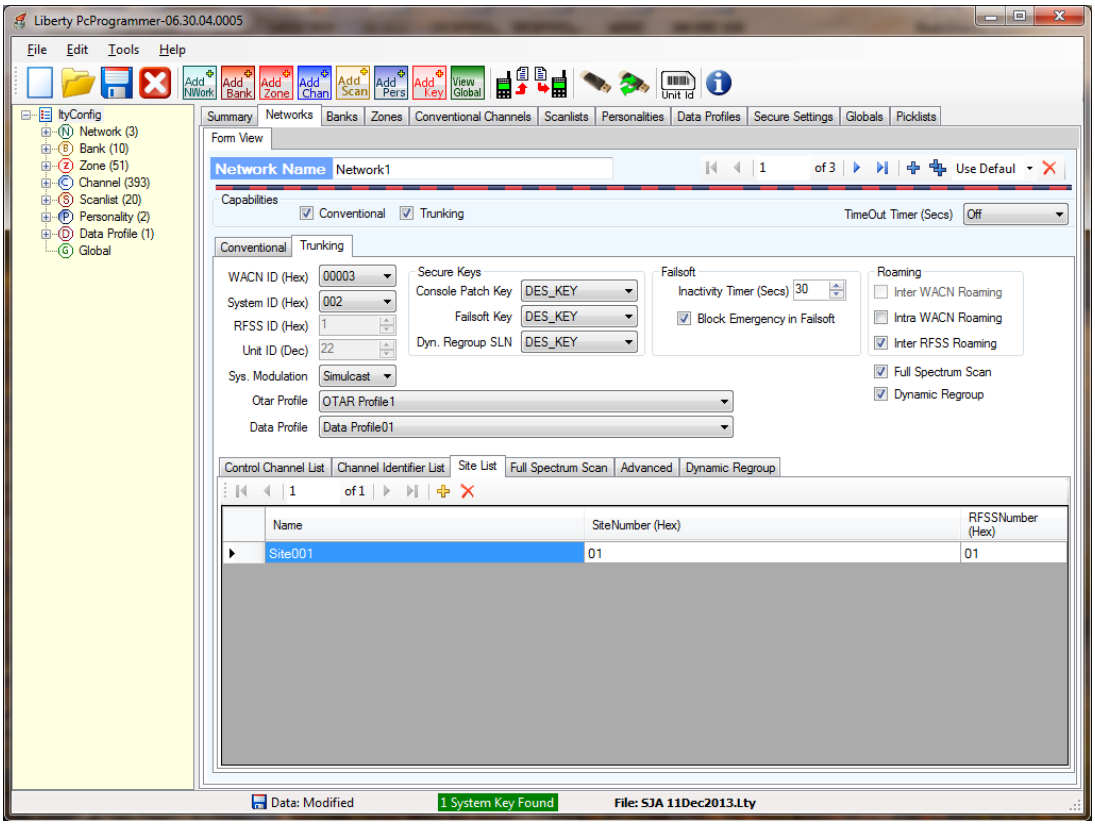


Figure 2-9 Trunking Networks Screen – Site List (with Inter RFSS Roaming Selected)

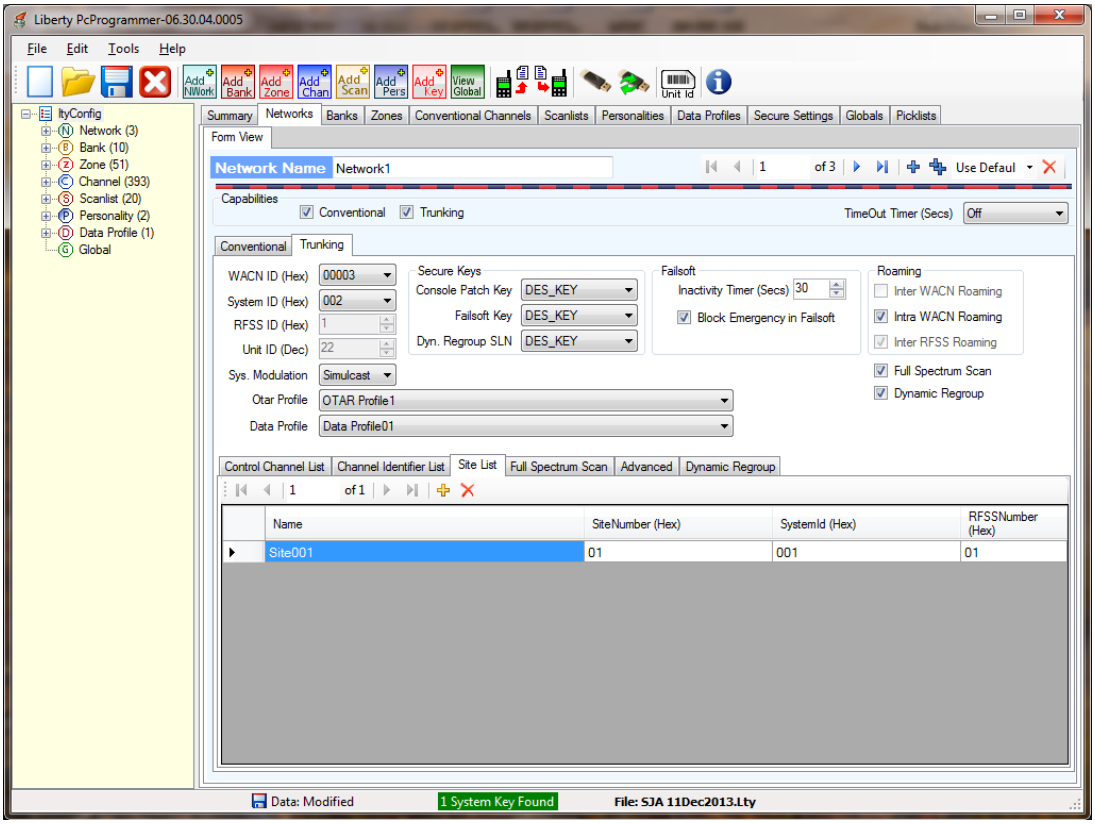


Figure 2-10 Trunking Networks Screen – Site List (with Intra-WACN Roaming Selected)

Table 2-6 Site List Parameters

Parameter	Accepted Values
Site List	Displays the Site Name and Site Number. There can be between 1 and 200 site lists for each P25 Trunking Network.

Trunking Network – Full Spectrum Scan

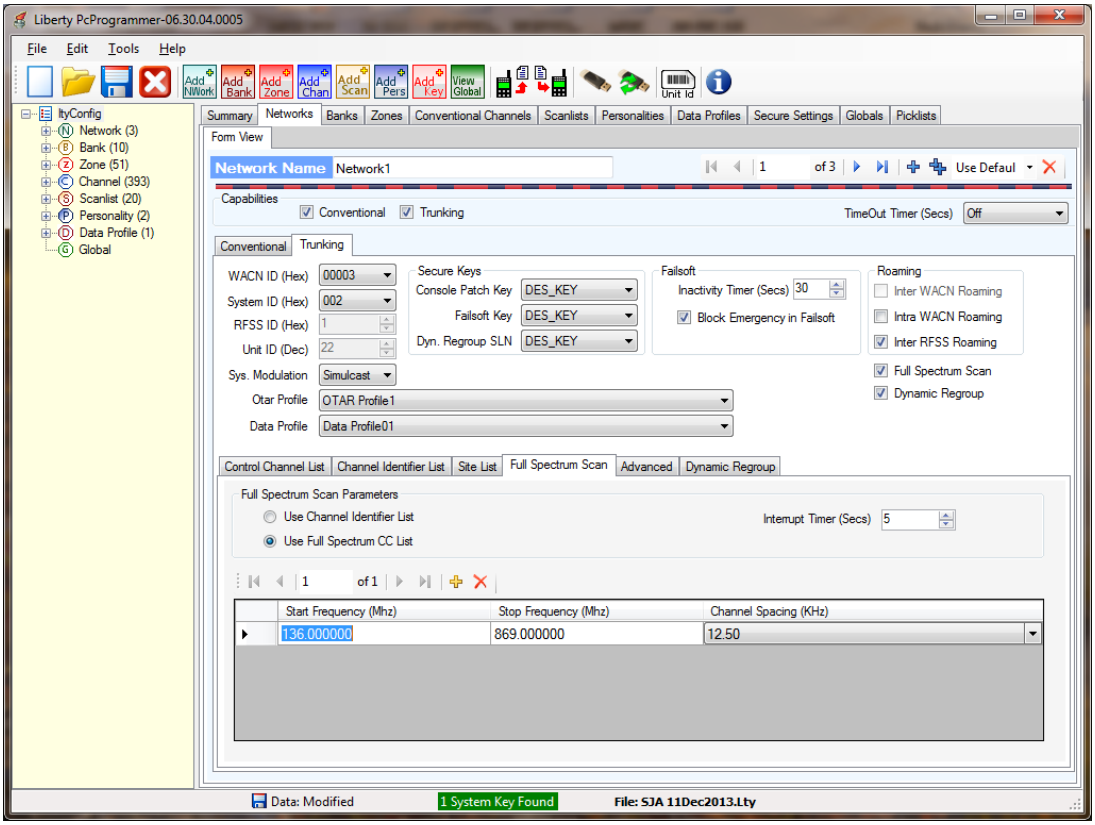


Figure 2-11 Trunking Networks Screen – Full Spectrum Scan

Table 2-7 Full Spectrum Scan List Parameters

Parameter	Accepted Values
Full Spectrum Scan	Select either Channel ID List or Full Spectrum CC List, when FSCCS is enabled (Default selection is FULL SPECTRUM CC LIST)
	Enter the Start and Stop Frequency (MHz) VHF: 136 - 174 MHz UHF: 380 - 520 MHz 700: 763 - 776 MHz 800: 851 - 869 MHz (Default setting is 136 MHz for START and 869 MHz for STOP) Note: A maximum of 5 FSCCS frequency ranges can be entered.
	Channel Spacing (kHz) -- Selectable spacing of 6.25, 7.5, 12.5, 15, 20, and 25 KHz (Default spacing is **12.5 kHz**)
	Interrupt Timer (Sec) – The PCP provides a Full Spectrum Scan Interrupt Timer with values between 5 and 31 seconds for each Trunking system that has Full Spectrum CC Scan enabled. This enables the radio to periodically exit Full Spectrum Scan and attempt a Short Hunt, an Extended Hunt, and FAILSOFT process, then return to the next FSCCS frequency if a CC is not found. (Default value is **10** SECONDS)

Points to remember on Full Spectrum Control Channel Scan (FSCCS):

- The user can select from the Channel ID List or the Full Spectrum CC List, but not both, with a default of Full Spectrum CC List when FSCCS is selected.

- When FSCCS is enabled, the networks Control Channel List can be empty, however, if FSCCS is disabled, the Control Channel List must have at least one (1) control channel.

Trunking Network – Advanced System / Roaming

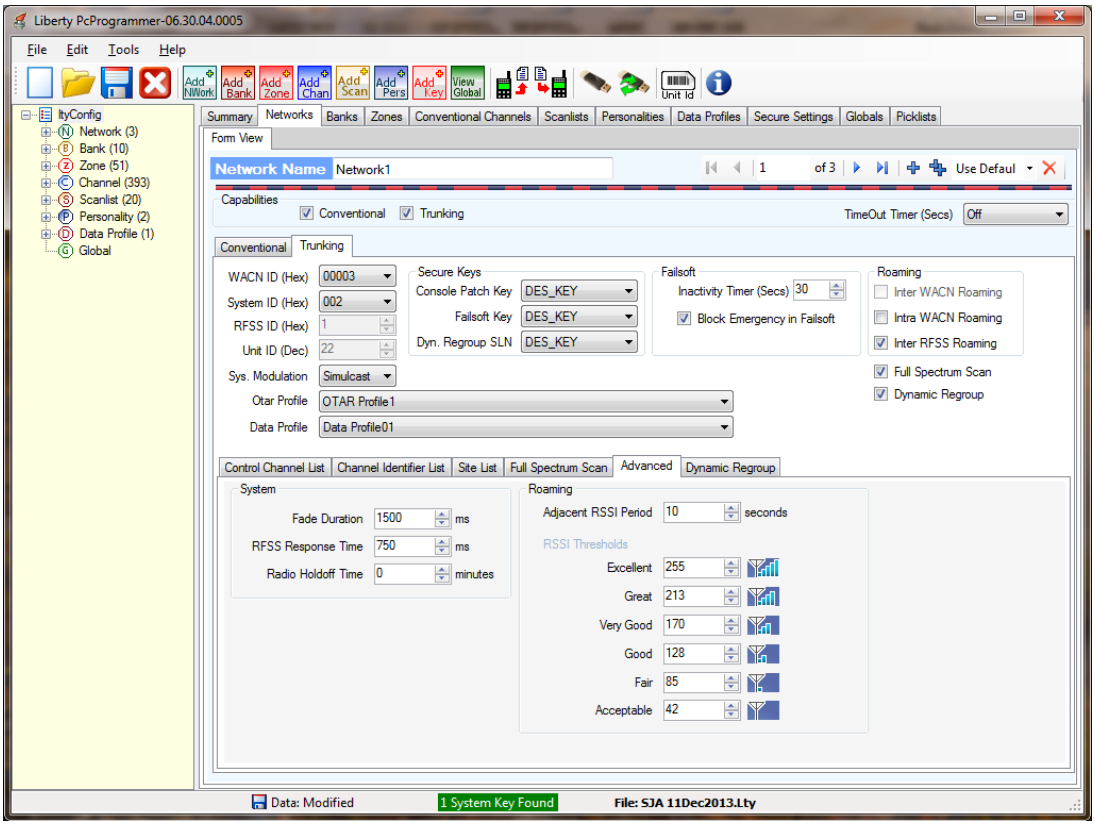


Figure 2-12 Trunking Networks Screen – Advanced System / Roaming

Table 2-8 Advanced System / Roaming Parameters

Parameter	Accepted Values
System	**Fade Duration** – Is the time the radio will have to be out of synch on the control channel before beginning a short hunt for another control channel. The range is 200 – 6375 ms (Default setting is **1500 ms**)
	RFSS Response Time – Is the time to allow FNE to respond before retrying (or failing) an ISP transmission. The range is 25 – 6375 ms (Default setting is **750 ms**)
	Radio Hold-Off Time – The radio will wait a "random time" before registering on a site that has recovered from a failure. The range is between 0 and 60 minutes. (Default settings is **0 minutes**)

Parameter	Accepted Values
Roaming	**Adjacent RSSI Period**: Time between adjacent site RSSI measurements The range is between 0 and 30 seconds. (Default settings is 1**0 seconds**)
	RSSI Threshold  Excellent Threshold - Range between 0 – 255 (Default is 255)  Great Threshold - Range between 0 – 255 (Default is 213)  Very Good Threshold – Range between 0 – 255 (Default is 170)  Good Threshold – Range between 0 – 255 (Default is 128)  Fair Threshold – Range between 0 – 255 (Default is 85)  Acceptable Threshold – Range between 0 and 255 (Default is 42)

Points to Remember – Advanced System / Roaming::

- Each entry box is a decimal digit and all integer values are allowed within the range.
- Each item shows the current value
- The items are only editable if is a (any) system key for the network, otherwise they are greyed out
- Tab navigation will be through the system parameters first, then the roaming parameters.

Trunking Network – Dynamic Regroup

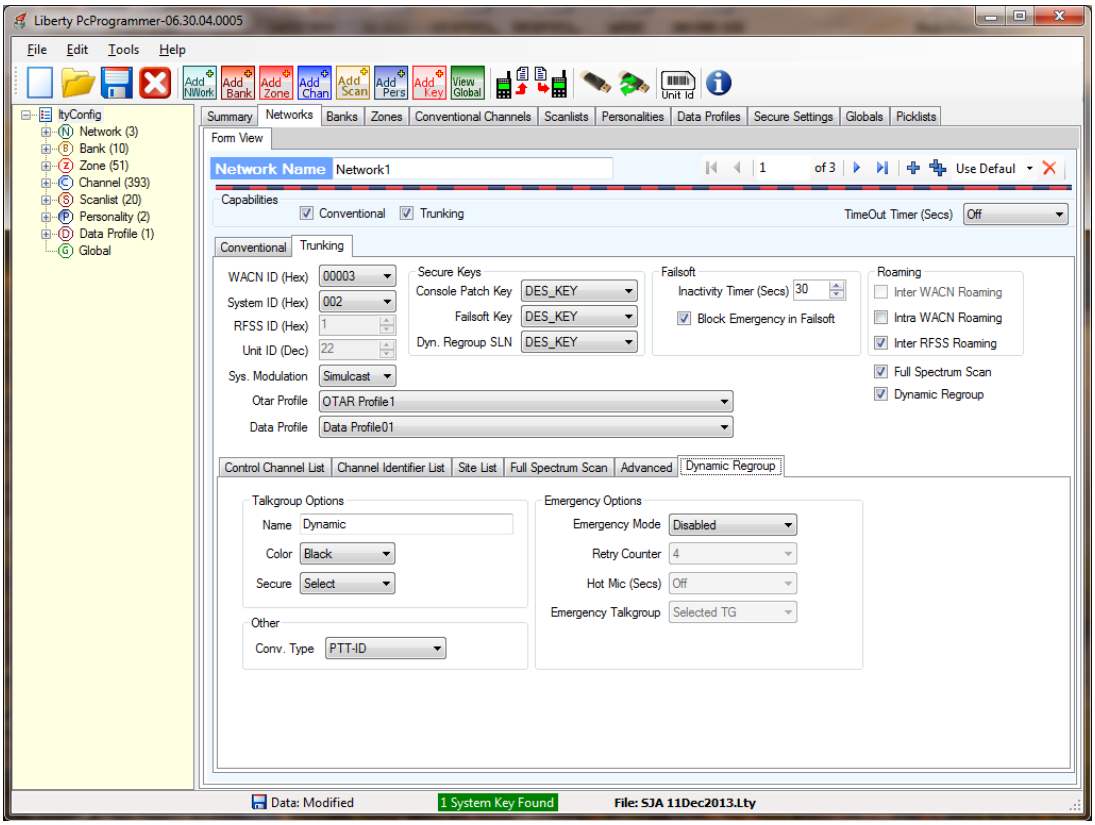


Figure 2-13 Trunking Networks Screen – Dynamic Regroup

Table 2-9 Dynamic Regroup Parameters

Parameter	Accepted Values
Dynamic Talkgroup Options	Name – Enter the NAME of the Dynamic Talkgroup – typically this the DYNAMIC REGROUP which may be assigned to the desired BANK / ZONE to establish a channel position.
	Color – Select the color (Red, Orange, Brown, Green, Blue, Indigo, Violet, and Black). assigned to the Dynamic Talkgroup
	Secure – Selected the communication settings – CLEAR, SECURE, or ENCRYPTED
Dynamic Talkgroup Conversation Type	Select from the drop down menu -- PTT-ID, Transmission, or Message.

Parameter	Accepted Values
Dynamic Talkgroup Emergency Options	Emergency Mode – Select **Disabled**, Alarm, Call, or Alarm and Call (The default setting is DISABLED)
	Retry Counter – Set the retry counter to None, 1 through 15 times (Default setting is **4**)
	Hot Mic (Sec) – **OFF**, 5, 10, or 15 seconds (Default setting is **OFF**)
	Emergency Talkgroup (TG)– Using the drop down menu, select the emergency Talkgroup (Selected TG or list of emergency enabled talkgroups on the network). • **Selected TG** (Default setting) • TG Name (select from the list of emergency enabled talkgroup list)

Points to Remember – Dynamic Regroup**:**

- The dynamic regroup does not need to be assigned to a zone / position. It can be selected from the menu in this case, like any other talkgroup.

- When assigned to a zone/channel position the dynamic regroup can be selected by the knobs. If a dynamic regroup is not active this position will be an invalid talkgroup.

- When dynamically regrouped the radio is "selected" to the dynamic regroup – the knobs do not matter. If selector is not locked, the user may then use the knobs to navigate away from and back to the dynamic regroup. The zone is not changed automatically (just like a HMI talkgroup select, or Home channel selection)

- If there is NO System Key with a license for the desired network -- the PCP operator can view but cannot modify the dynamic regroup settings. The operator can modify the BANK /ZONE / CHANNEL position.

- If there is a Daughter Key with Talkgroup Restrictions – No Impact. The Dynamic Regroup is not subject to Talkgroup ID restrictions, as the Talkgroup ID is assigned by the system (not the PC Programmer operator).

- If there is a Daughter Key with Personality Add / Delete Restrictions – No impact – the Dynamic Regroup has the same settings (subset) as personalities, but is not subject to personality restrictions. These settings apply only to the dynamic regroup and allowed as long as the system key allows network setting modifications.

- If the PCP User does not assign the Dynamic Regroup Talkgroup to any ZONE / Position, the radio user must select the Dynamic Talkgroup from the Select Menu in order to manually select the dynamic Talkgroup position.

Points to Remember about Networks:

- The creation, editing, or viewing of Trunking Data is dependent upon the System Keys Type (Master Key or Daughter Key) licenses that are attached to the PCP.

  Licenses are defined as a "valid" WACN / System ID pair of the system's that the license covers.

Table 2-10 System Key Authorization Matrix

<table>
<tr><th>System Key Type</th><th>No System Key Attached to the PCP</th><th>Master Key attached to the PCP</th><th>Daughter Key Attached to PCP</th></tr>
<tr><td>Create New Configuration in the PCP</td><td colspan="2"><table><tr><th></th><th>Create</th><th>Read</th><th>Update</th><th>Delete</th></tr><tr><td>Conventional Data</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td></tr><tr><td>Trunking Data</td><td>No</td><td>N/A</td><td>N/A</td><td>Yes</td></tr></table></td><td colspan="2"><table><tr><th></th><th>Create</th><th>Read</th><th>Update</th><th>Delete</th></tr><tr><td>Conventional Data</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td></tr><tr><td>Trunking Data</td><td>With Valid License</td><td>Yes</td><td>Yes</td><td>Yes</td></tr></table></td></tr>
<tr><td>Open an Existing File using the PCP</td><td colspan="2"><table><tr><th></th><th>Create</th><th>Read</th><th>Update</th><th>Delete</th></tr><tr><td>Conventional Data</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td></tr><tr><td>Trunking Data</td><td>Yes</td><td>Yes</td><td>No</td><td>Yes</td></tr></table></td><td colspan="2"><table><tr><th></th><th>Create</th><th>Read</th><th>Update</th><th>Delete</th></tr><tr><td>Conventional Data</td><td>Yes</td><td>Yes</td><td>Yes</td><td>Yes</td></tr><tr><td>Trunking Data</td><td>With Valid License</td><td>Yes</td><td>With Valid License</td><td>Yes</td></tr></table></td></tr>
<tr><td rowspan="2">Download a configuration to Radio</td><td colspan="2">Conventional Data – OK to download</td><td colspan="2">Conventional Data – OK to download</td></tr>
<tr><td colspan="2">Trunking Data – If configuration file originated from radio (i.e., the RSN matches), then OK to download Conventional and Trunking data. If not, the download will not be permitted</td><td colspan="2">Trunking Data – If Network License if valid, then it is OK download Conventional and Trunking data. If not, the download will not be permitted</td></tr>
<tr><td rowspan="2">Upload a configuration from Radio</td><td colspan="4">Conventional Data – All conventional data will be uploaded.</td></tr>
<tr><td colspan="4">Trunking Data – All Trunking Data will be uploaded and appropriate restrictions will be applied depending on the System Key / Daughter Key (Refer to Attachment A for additional information).</td></tr>
</table>

Secure Settings

There are several ways to access the Secure Settings Programming Screen.

1. Click on the 

icon located on the toolbar.
2. Click on the tab labeled SECURE SETTINGS on the data entry screen.
3. Click on the EDIT Drop Down Menu and select ADD KEY.

From the SECURE SETTINGS tab:

- TRAFFIC KEY is used to assign Key Parameters SLN (Decimal).
- Secure Controls is used to turn ON/OFF the following items:
  - Tx Clear Alert Tone
  - Rx Clear Alert Tone,
  - Key Fail Alert Tone,
  - Traffic Key Display,
  - Enable Keyset Selection, and
  - Set the Conventional Rx TEK Selection.
- OTAR PROFILE screen is used to assign a profile name to a network.

Traffic Keys

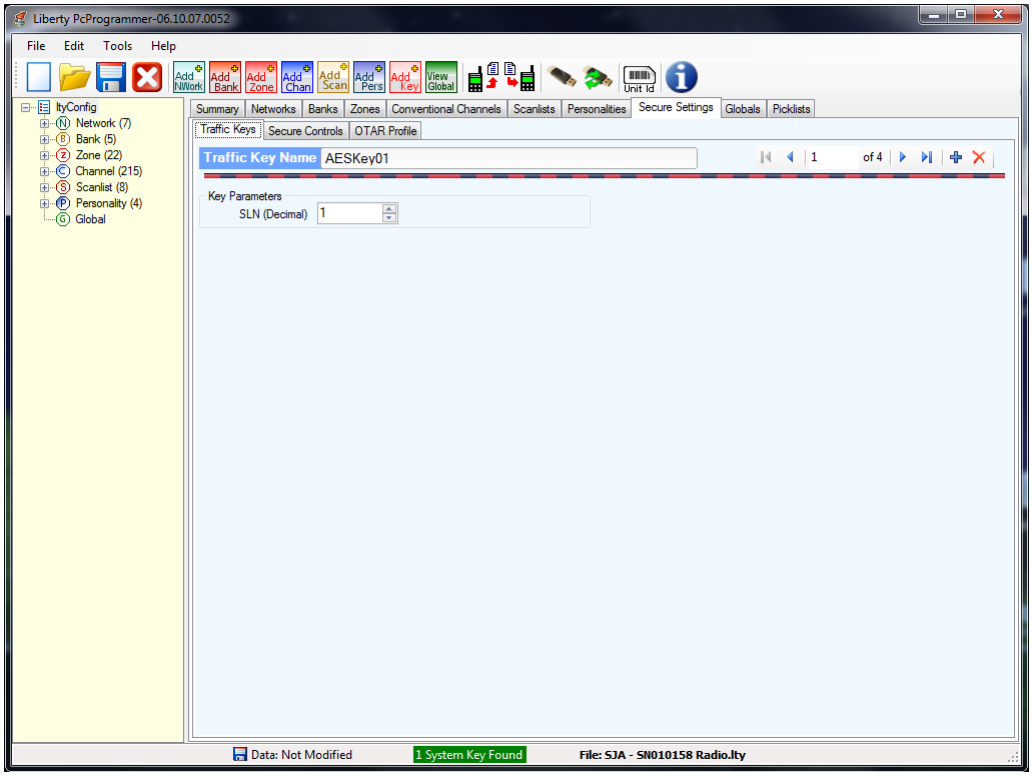


Figure 2-14 Secure Settings – Traffic Key

Table 2-11 Traffic Key Parameters

Parameter	Accepted Values
Traffic Key Name	Assign a 32-Character Traffic Key Name or use default key name. The default name is Key01, Key02, etc.
Key Parameters	SLN (Decimal): 1 thru 4095 (Default setting is 1)

NOTE

The Liberty radio configuration holds / stores up to 64 keys.

Secure Controls

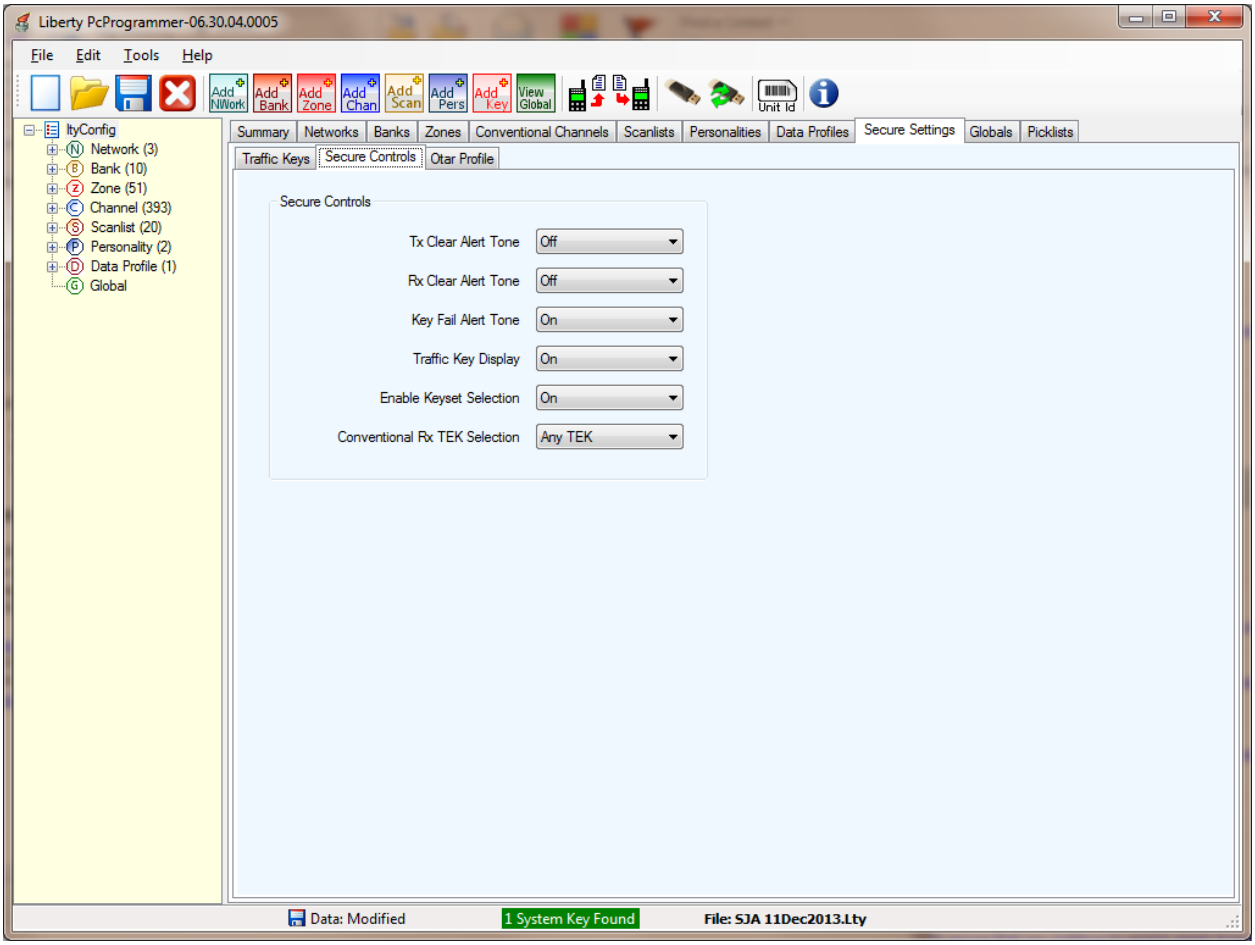


Figure 2-15 Secure Settings – Secure Controls

Table 2-12 Secure Controls Parameters

Parameter	Accepted Values
Secure Controls	**Tx Clear Alert Tone** Set to either ON or OFF (Default setting is **OFF**) – when set to ON, the radio will issue an audible alert tone before transmission of a clear audio on an encrypted channel.
	Rx Clear Alert Tone Set to either ON or OFF (Default setting is **OFF**) -- when set to ON, the radio will issue an audible alert tone on receipt of a clear audio on an encrypted channel.
	Key Fail Alert Tone Set to either ON or OFF (Default setting is OFF) – when set to ON, the radio will issue an audible alert tone when a traffic encryption key error occurs. The visual alert will be displayed even if the tone is set to OFF.
	Traffic Key Display: Set to either ON or OFF (Default setting is ON) When enabled – the Traffic Key Name will be displayed on the Radio's HMI.
	Enable Keyset Selection: Set to either ON or OFF (Default setting is OFF) – When ON, allows the selection of keysets via the Radios HMI Secure Menu.
	Conventional Rx TEK Selection: **Any TEK** (Default Setting) – When selected, the radio will use any TEK from the TEK storage database. **Any Keyset** – When selected, will use any of the TEKs in the 16 keysets identified by the SLN selected for transmit. **Active Keyset --** When selected, the radio will use the TEK identified by the SLN and active keyset selected for transmit.

Over-The-Air-Rekey (OTAR) Profile

NOTE

Before establishing a Network as OTAR capable, an OTAR Profile must be created. Refer to SECURE SETTINGS ➔ OTAR Profile.

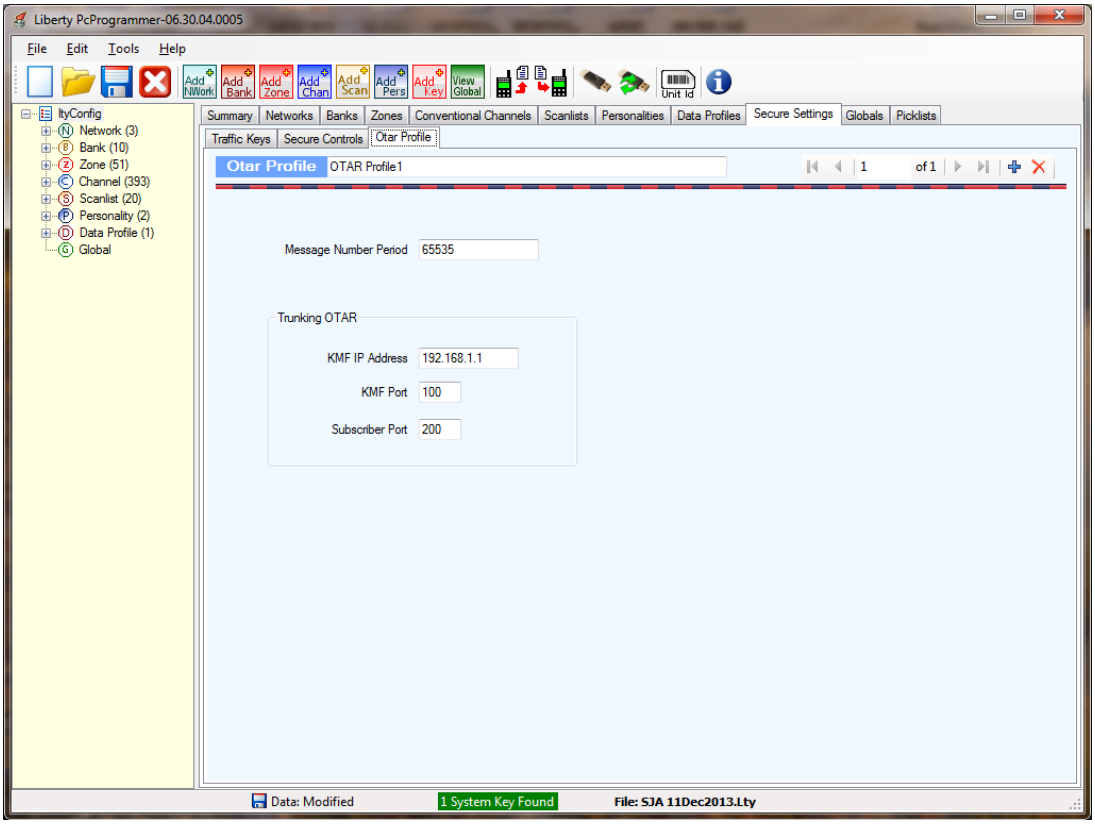


Figure 2-16 Secure Settings – OTAR Profile

Table 2-13 OTAR Profile Parameters

Parameter	Accepted Values
OTAR Profile Name	Assign a 32-Character OTAR Profile Name or use default key name. The default name is OTAR Profile 1, OTAR Profile 2, etc. NOTE: A Liberty Radio Configuration can contain a maximum of 30 OTAR Profiles).
Message Number Period	5-digit numeric entry (1 – 65535) (Default setting is 65535)
Trunking OTAR	KMF IP Address (Default setting is 0.0.0.0)
	KMF Post (Default setting is 64414)
	Subscriber Port (Default setting is 64414)

Points to remember about OTAR Profiles:

- If the OTAR Profile is deleted, the PCP will inform the user that by deleting the OTAR Profile, it will set the OTAR capability of the associated Network to OTAR OFF.

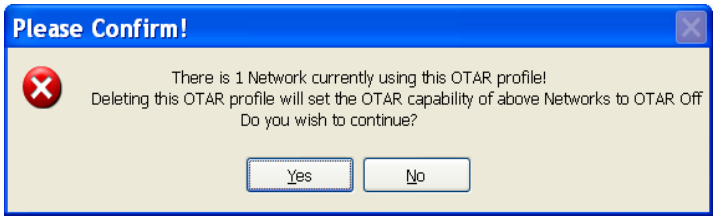


Figure 2-17 Confirmation Notice for an OTAR Profile Deletion

- If used for Trunking, each OTAR Profile will have a unique IP Address and UDP Ports.
- Each Network that uses OTAR, will select one the OTAR Profiles
- For conventional use, the only parameter needed is the message number period, and it is recommended that it be left at 65535. IP settings can be anything since they are not used by conventional networks.
- OTAR Profiles and Data Profiles are generic, and can be used on Networks for Conventional, Trunking, or both. Due to trunking system security, if a profile is used on both, it must be changed from the Trunking Tab. This ensures you have the authority via a System Key that is required

Conventional Channels

Three (3) different channel types can be selected:

- Analog Narrowband – Normal and Multi-Mode (Refer to *Figure 3-19*)
- Analog Wideband – Normal and Multi-Mode (Refer to *Figure 3-20*)
- Project 25 (Digital) – Normal and Multi-Mode (Refer to *Figure 3-21*).

There are several ways to access the Channel Programming Screen.

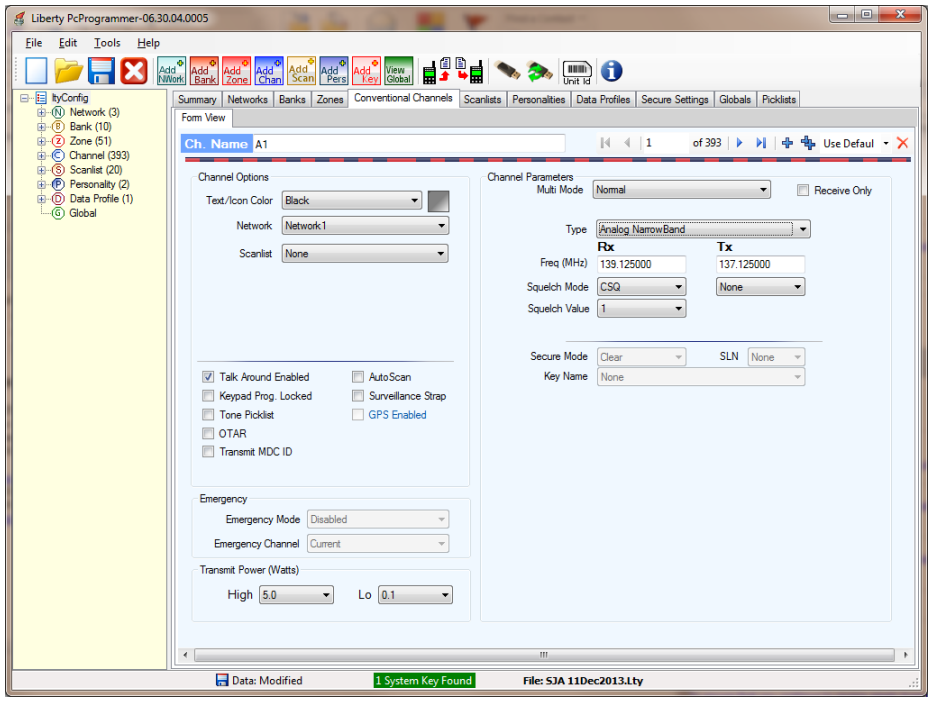
(1) Click on the 

icon located on the toolbar.
(2) Click on CHANNEL located in the navigation window.
(3) Click on the tab labeled CONVENTIONAL CHANNEL on the data entry screen.
(4) Click on the SUMMARY tab and select ADD A NEW CHANNEL.

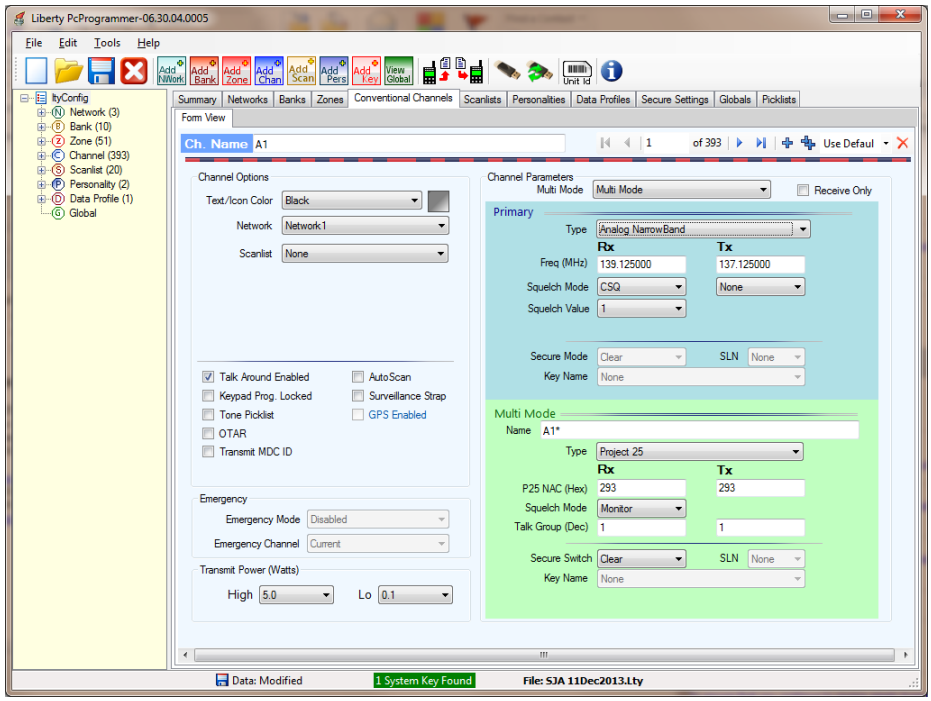
NOTE

The Liberty radio shall support a minimum of 2608 channels in any mix of conventional channels, shadow channels, and trunked channels.

Analog Narrowband -- Normal and Multi-Mode



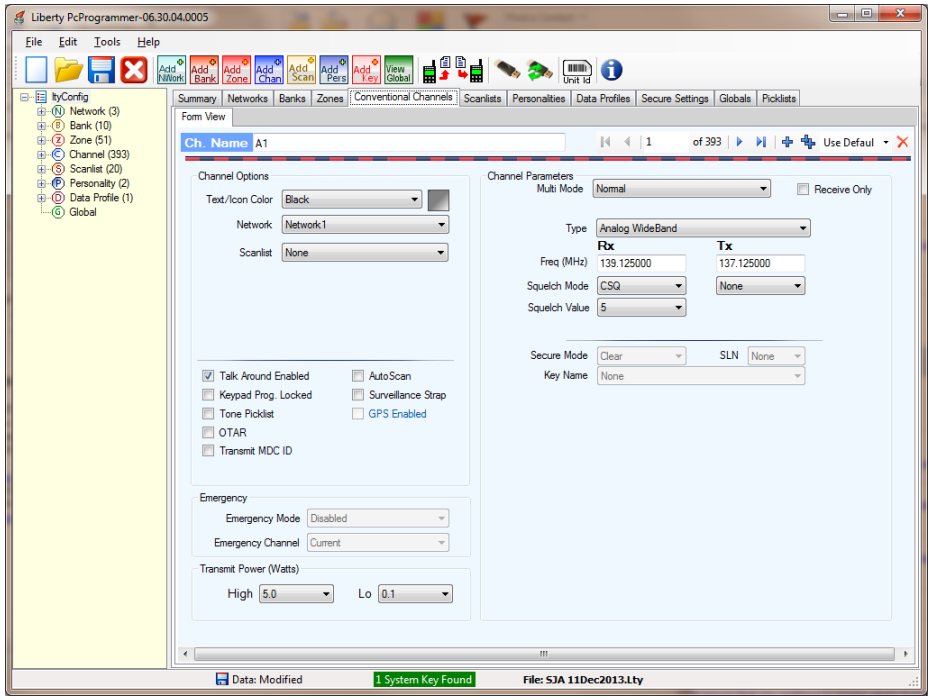
Normal



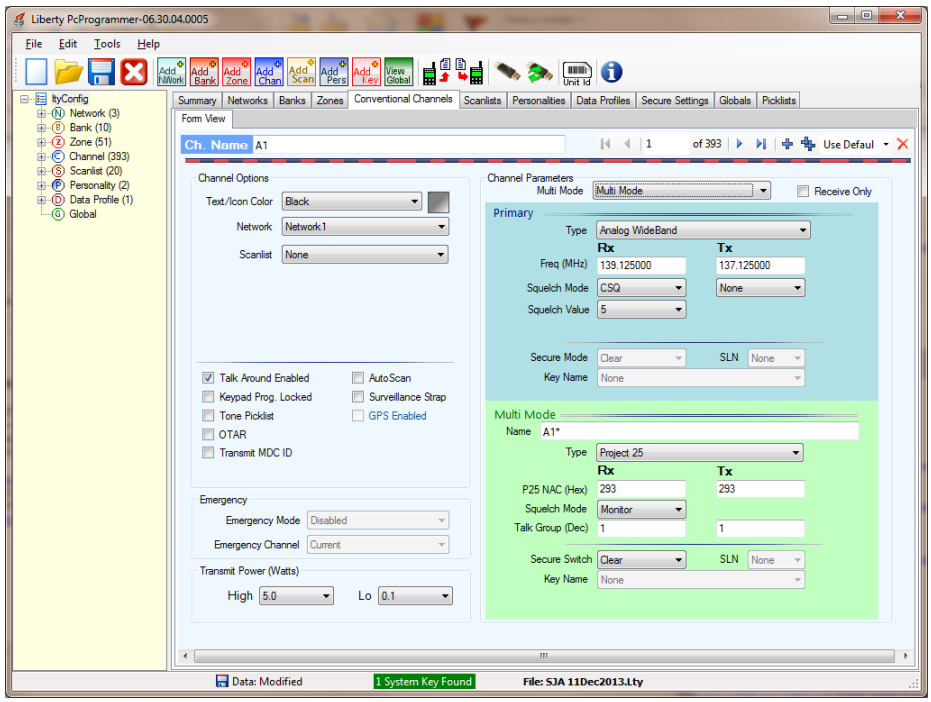
Multi-Mode

Figure 2-18 Analog Narrow Band Conventional Channels Screen - Normal and Multi-Mode

Analog Wideband -- Normal and Multi-Mode



Normal



Multi-Mode

Figure 2-19 Analog Wide Band Conventional Channels Screen - Normal and Multi-Mode

NOTE

Programming Selections that are grayed-out are not available for the selected Channel Type at this time.

NOTE

In this PCP, it is important to fill out the RX parameters first as they are always copied to the TX parameters, which can be changed independently. (If the TX parameter is entered first, it will be modified when the RX parameter is entered.)

Table 2-14 Analog Narrowband (NB) and Wideband (WB) Channels Parameters

Parameter	Accepted Values
Channel Name	Enter the alphanumeric name up to 32 characters. The default name is Channel001, Channel002, etc.
Channel Options	Text/Icon Color –Use the drop down menu to view the available color options (Red, Orange, Brown, Green, Blue, Indigo, Violet, and Black). The default setting is BLACK.
	Network – select the Network from the drop down menu.
	Scanlist – select the channel type from the drop down menu
	Talk Around Enabled – Talk Around is enabled when checked
	Keypad Prog. Locked – When checked, locks the keypad from any additional programming by the radio user.
	Tone Pick List – When checked, allows the radio operator to select from the pre-programmed tone pick list
	OTAR – when checked, OTAR is enabled for a P25 Channel
	Transmit MDC ID – when checked, Transmit MDC ID is enabled on the analog channel. (Default setting is **DISABLED**) ***Note**: If Network is NOT MDC Enabled, and TRANSMIT MDC ID is selected, the PCP will notify the programmer that the Network is NOT MDC Capable.*
	AutoScan – when checked – this channel automatically starts scanning.
	Surveillance Strap – when checked, this channel automatically enters surveillance mode.
	GPS Enabled – Not available on Analog Channels

<table>
<tr><th>Parameter</th><th>Accepted Values</th></tr>
<tr><td rowspan="2">Emergency</td><td>Emergency Mode – Select the emergency mode for the P25 Digital Channels:
Alarm and Call
Call
Alarm
Disabled (Default setting)</td></tr>
<tr><td>Emergency Channel– Sets the Emergency Channel
Current (Default Setting)
Channel xxx (select which channel is to be the EMERGENCY Channel)
Note: Receive–Only channels cannot be assigned as Emergency channels.</td></tr>
<tr><td rowspan="2">Transmit Power (Watts)</td><td>Low Transmit Power: This selection allows the user to set the low transmit power setting to any of the values in the following table with default values in bold underlined type:<table><tr><th><u>(VHF)</u></th><th><u>(UHF)</u></th><th><u>(700)</u></th><th><u>(800)</u></th></tr><tr><td>0.1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>0.5</td><td>0.5</td><td>0.5</td><td>0.5</td></tr><tr><td><u>1.0</u></td><td><u>1.0</u></td><td><u>1.0</u></td><td><u>1.0</u></td></tr><tr><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr><tr><td>3.0</td><td>3.0</td><td>2.5</td><td>3.0</td></tr><tr><td>4.0</td><td>4.0</td><td></td><td></td></tr><tr><td>5.0</td><td>5.0</td><td></td><td></td></tr></table>Note: The Low Transmit power cannot be greater than the High Transmit Power setting.</td></tr>
<tr><td>High Transmit Power: This selection allows the user to set the high transmit power setting to any of the values in the following table with default values in bold underlined type:<table><tr><th><u>(VHF)</u></th><th><u>(UHF)</u></th><th><u>(700)</u></th><th><u>(800)</u></th></tr><tr><td>0.1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>0.5</td><td>0.5</td><td>0.5</td><td>0.5</td></tr><tr><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr><tr><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr><tr><td>3.0</td><td>3.0</td><td><u>2.5</u></td><td><u>3.0</u></td></tr><tr><td>4.0</td><td>4.0</td><td></td><td></td></tr><tr><td><u>5.0</u></td><td><u>5.0</u></td><td></td><td></td></tr></table></td></tr>
</table>

Parameter	Accepted Values
Channel Parameters	Multi-Mode – Select NORMAL or Multi-Mode **Normal Mode** – act as the same as when programming a channel. **Multi-Mode** – This option allows for two separate channel settings to be made: PRIMARY and MULTI-MODE Settings on one channel. Each can be set to different channel types (for example, the primary channel can be Analog NarrowBand (NB) and the Multi-Mode Channel can be set to P25). The programming selection for each these are set in the same manner as you would for NORMAL Mode. • Both Primary and Multi-Mode Channel settings continue to be used for RX.
	Receive Only – when enabled, the channel can receive communications *only* (Default setting is disabled).
	Channel Type: Analog Narrowband (AN), Analog Wideband (AW) (only available in radios with the Wideband Feature Enabled), or **Project 25 (P25)** (Default is P25)
	Enter the desired RX Freq (MHz): VHF -- 136-174 MHz; UHF -- 380-520 MHz; 700 -- 763-776 MHz; 800 -- 851-869 MHz;
	Enter the desired TX Freq (MHz): VHF -- 136-174 MHz; UHF -- 380-520 MHz; 700 -- 763-776 MHz; 700 -- 793-806 MHz; 800 -- 851-869 MHz; 800 -- 806-824 MHz
	Analog Squelch Mode Rx: **CSQ**, CTCSS, and CDCSS (Default setting is **CSQ**)
	Analog Squelch Mode Tx: **None,** CTCSS, and CDCSS (Default is **NONE**)
	When Rx Squelch Mode is set to CSQ, select the Squelch Value: 1-16 (Default is **1**)
	Secure Switch – Disabled for AN and AW Channel Settings
	Key Name – Disabled for AN and AW Channel Settings

NOTE

If CTCSS or CDCSS is selected, the Squelch Value will provide the drop down values for each of these.

- Refer to Table 2-15 for CTCSS Codes.
- Refer to Table 2-16 for CDCSS Codes.

If RX/TX CTCSS is chosen, a drop down list for the Squelch Value will be made available that contains the 42 valid CTCSS tones and codes as listed in Table 2-15. The CTCSS tones are either provided as the actual audio tone (i.e. 127.3 Hz) or the Code (i.e. 3A). The drop down list provides both – select the required tone. The default value is 67.0 Hz (XZ) (in bold and underlined).

Table 2-15 CTCSS Tones and Codes

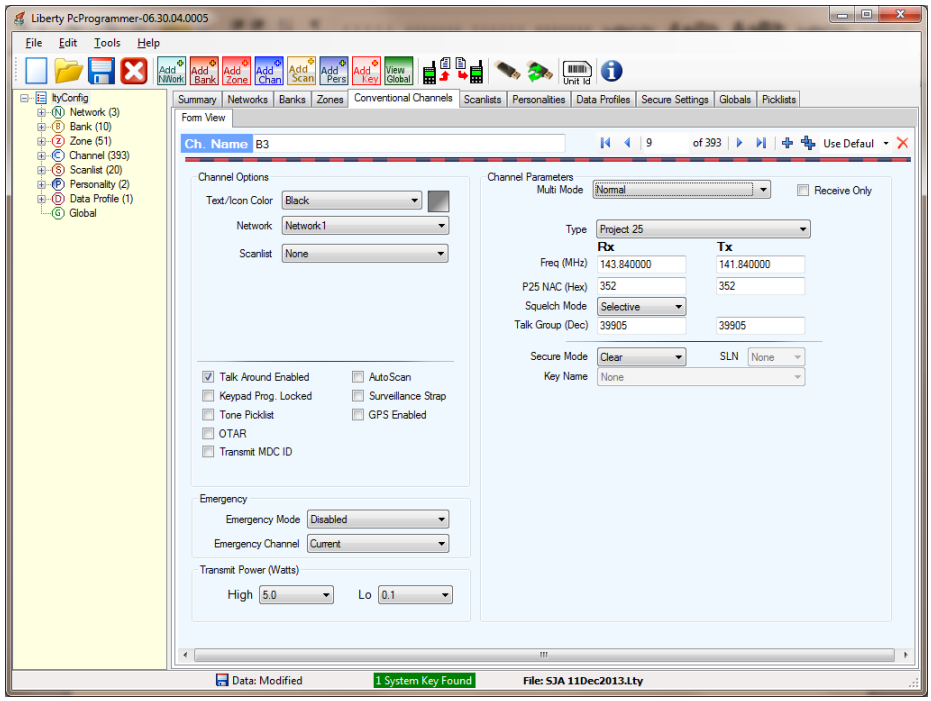
67.0 Hz (XZ)	97.4 Hz (ZB)	141.3 Hz (4A)	206.5 Hz (8Z)
69.3 Hz (WZ)	100.0 Hz (1Z)	146.2 Hz (4B)	210.7 Hz (M2)
71.9 Hz (XA)	103.5 Hz (1A)	151.4 Hz (5Z)	218.1 Hz (M3)
74.4 Hz (WA)	107.2 Hz (1B)	156.7 Hz (5A)	225.7 Hz (M4)
77.0 Hz (XB)	110.9 Hz (2Z)	162.2 Hz (5B)	229.1 Hz (9Z)
79.7 Hz (WB)	114.8 Hz (2A)	167.9 Hz (6Z)	233.6 Hz (M5)
82.5 Hz (YZ)	118.8 Hz (2B)	173.8 Hz (6A)	241.8 Hz (M6)
85.4 Hz (YA)	123.0 Hz (3Z)	179.9 Hz (6B)	250.3 Hz (M7)
88.5 Hz (YB)	127.3 Hz (3A)	186.2 Hz (7Z)	254.1 Hz (0Z)
91.5 Hz (ZZ)	131.8 Hz (3B)	192.8 Hz (7A)	
94.8 Hz (ZA)	136.5 Hz (4Z)	203.5 Hz (M1)	

If RX/TX CDCSS is chosen, a drop down list for the Squelch Value will be made available that contains the 83 valid CDCSS codes as listed in Table 2-16. The default value is **023** (in bold and underlined).

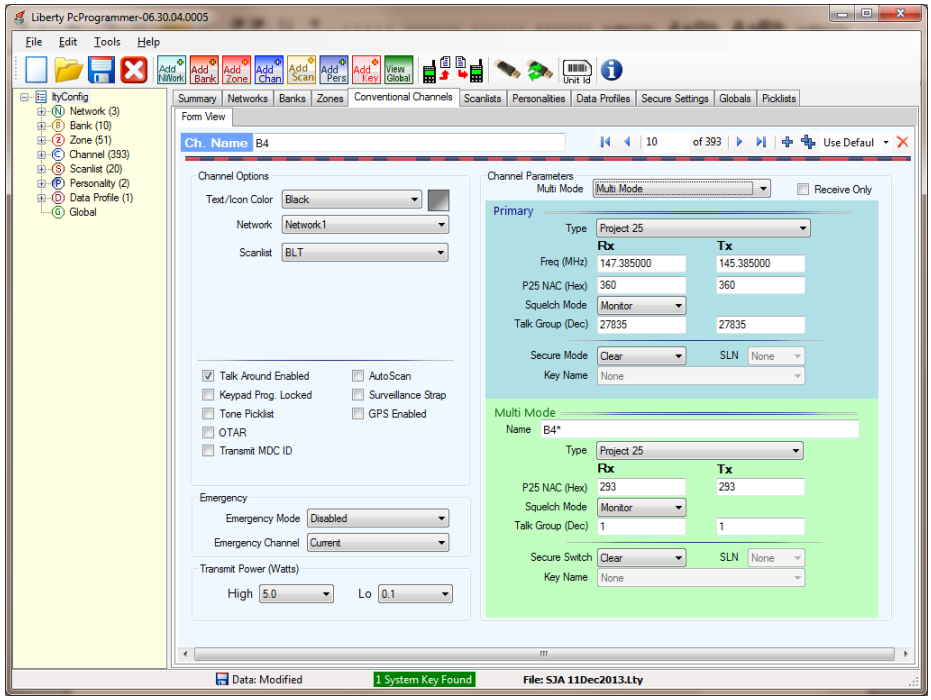
Table 2-16 CDCSS Codes

023	114	174	315	445	631
025	115	205	331	464	632
026	116	223	343	465	654
031	125	226	346	466	662
032	131	243	351	503	664
043	132	244	364	506	703
047	134	245	365	516	712
051	143	251	371	532	723
054	152	261	411	546	731
065	155	263	412	565	732
071	156	265	413	606	734
072	162	271	423	612	743
073	165	306	431	624	754
074	172	311	432	627	

Project 25 (Digital) -- Normal and Multi-Mode



Normal



Multi-Mode

Figure 2-20 P25 Band Conventional Channels Screen - Normal and Multi-Mode

Table 2-17 P25 (Digital) Channels Parameters

Parameter	Accepted Values
Channel Name	Enter the alphanumeric name, up to 32 characters. The default name is Channel001, Channel002, etc.
Channel Options	Text/Icon Color –use the drop down menu to view the channel color options (Red, Orange, Brown, Green, Blue, Indigo, Violet, and Black).– the default setting is BLACK.
	Network – select the Network from the drop down menu.
	Scanlist – select the channel type from the drop down menu
	Talk Around Enabled – Talk Around is enabled when checked
	Keypad Prog. Locked – When checked, will "lock" the keypad from any additional programming by the radio operator. NOTE: if the channel is assigned to a protected zone, the radio operator will not be able to modify the channel settings.
	Tone Pick List – when checked, allows the radio operator to select from the pre-programmed tone pick list
	OTAR – when checked, OTAR will be enabled for this channel ***Note**: TX INHIBIT is forced to P25 Busy regardless of PCP Global Settings or radio settings.*
	Transmit MDC ID – when checked, Transmit MDC ID is enabled on the analog channel. (Default setting is **DISABLED**) ***Note**: If this is checked for a P25 Channel, MDC TRANSMIT ID will not work for the P25 Channel.* ***Note**: If Network is NOT MDC Enabled, and TRANSMIT MDC ID is selected, the PCP will notify the programmer that the Network is NOT MDC Capable.*
	AutoScan – when checked – this channel automatically becomes part of a scanlist.
	Surveillance Strap – when checked. Surveillance Strap will be enabled.
	GPS Enabled – The user enables or disables – Tier 1 GPS for each *P25 Channel* as desired. ***NOTE**: a flashing* ⚠ *indicates that the current P25 channel is NOT configured correctly for GPS Operation.*

<table>
<tr><th>Parameter</th><th>Accepted Values</th></tr>
<tr><td rowspan="2">Emergency</td><td>Emergency Mode – Select the emergency mode for the P25 Digital Channels:
Alarm and Call
Call
Alarm
Disable</td></tr>
<tr><td>Emergency Channel (P25 Channels) – Sets the Emergency Channel
Current (Default Setting)
Channel xxx (select which channel is to be the EMERGENCY Channel
Note: Emergency channels cannot be assigned to receive only channels.</td></tr>
<tr><td rowspan="2">Transmit Power (Watts)</td><td>Lo Transmit Power: This selection allows the user to set the low transmit power setting to any of the values in the following table with default values in bold underlined type:<table><tr><th>(VHF)</th><th>(UHF)</th><th>(700)</th><th>(800)</th></tr><tr><td>0.1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>0.5</td><td>0.5</td><td>0.5</td><td>0.5</td></tr><tr><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr><tr><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr><tr><td>3.0</td><td>3.0</td><td>2.5</td><td>3.0</td></tr><tr><td>4.0</td><td>4.0</td><td></td><td></td></tr><tr><td>5.0</td><td>5.0</td><td></td><td></td></tr></table></td></tr>
<tr><td>High Transmit Power: This selection allows the user to set the high transmit power setting to any of the values in the following table with default values in bold underlined type:<table><tr><th>(VHF)</th><th>(UHF)</th><th>(700)</th><th>(800)</th></tr><tr><td>0.1</td><td>0.1</td><td>0.1</td><td>0.1</td></tr><tr><td>0.5</td><td>0.5</td><td>0.5</td><td>0.5</td></tr><tr><td>1.0</td><td>1.0</td><td>1.0</td><td>1.0</td></tr><tr><td>2.0</td><td>2.0</td><td>2.0</td><td>2.0</td></tr><tr><td>3.0</td><td>3.0</td><td>2.5</td><td>3.0</td></tr><tr><td>4.0</td><td>4.0</td><td></td><td></td></tr><tr><td>5.0</td><td>5.0</td><td></td><td></td></tr></table></td></tr>
</table>

Parameter	Accepted Values
Channel Parameters	Multi-Mode – Select NORMAL or Multi-Mode **Normal Mode** – act as the same as when programming a channel. **Multi-Mode** – This option allows for two separate channel settings to be made: PRIMARY and MULTI-MODE Settings on one channel. Each can be set to different channel types (for example, the primary channel can be Analog Narrow Band and the Multi-Mode Channel can be set to P25). The programming selection for each these are set in the same manner as you would for NORMAL Mode. • Both Primary and Multi-Mode Channel settings continue to be used for RX.
	Channel Type: Analog Narrowband (AN), Analog Wideband (AW) (only available in radios with the Wideband Feature Enabled) , or **Project 25 (P25)** (Default is P25)
	Enter the desired RX Freq (MHz): VHF -- 136-174 MHz; UHF -- 380-520; 700 -- 763-776 MHz; 800 -- 851-869 MHz;
	Enter the desired TX Freq (MHz): VHF -- 136-174 MHz; UHF -- 380-520; 700 -- 763-776 MHz; 700 -- 793-806 MHz; 800 -- 851-869 MHz; 800 -- 806-824 MHz
	P25 NAC RX: 1-FFF Hex (1 - 4095 Decimal) Excluding the reserved value of F7F Hex (3967 Decimal) used for repeater functionality. (Default NAC is 293)
	P25 NAC TX: 1-FFF Hex (1 - 4095 Decimal) Excluding the reserved value of F7E Hex (3966 Decimal) and F7F Hex (3967 Decimal) (Default NAC is 293)
	Digital Squelch Mode Rx: **Monitor**, Normal, Selective (Default setting is MONITOR)
	Digital Talk Group RX: 1 – 65535 Decimal (1 – FFFF Hex). Note: “0” RX Talkgroup is permitted
	Digital Talk Group TX: 1 – 65535 Decimal (1 – FFFF Hex). (Default setting is 1)
	Secure Switch: **Clear**, Encrypted, or Select (Default setting is CLEAR)
	Key Name: Enter Key name from drop down menu when Secure Switch is either Encrypted or Select. Using the Secure Settings ➔ Traffic Keys, ensure key is loaded before selecting from the drop down menu.

NOTE

It is important to fill out the RX parameters first, as they are always copied to the TX parameters, which then may be changed. (If the TX parameter is entered first, it will be modified when the RX parameter is entered.)

SCANLIST

There are several ways to access the SCANLIST Programming Screen.

(1) Click on the Add Scan icon located on the toolbar.
(2) Click on SCANLISTS located in the navigation window.
(3) Click on the tab labeled SCANLISTS on the data entry screen.
(4) Click on the EDIT drop down menu and select ADD SCANLIST.

The SCANLIST Screen is used to assign channels to SCANLIST.

NOTE

Channels must be assigned to the SCANLIST in order for the selected channels to be scanned. (This is done from the Channels Tab. To do this, go back to the Channels Tab and select SCANLISTS for each Channel that is to be added to the SCANLIST.)

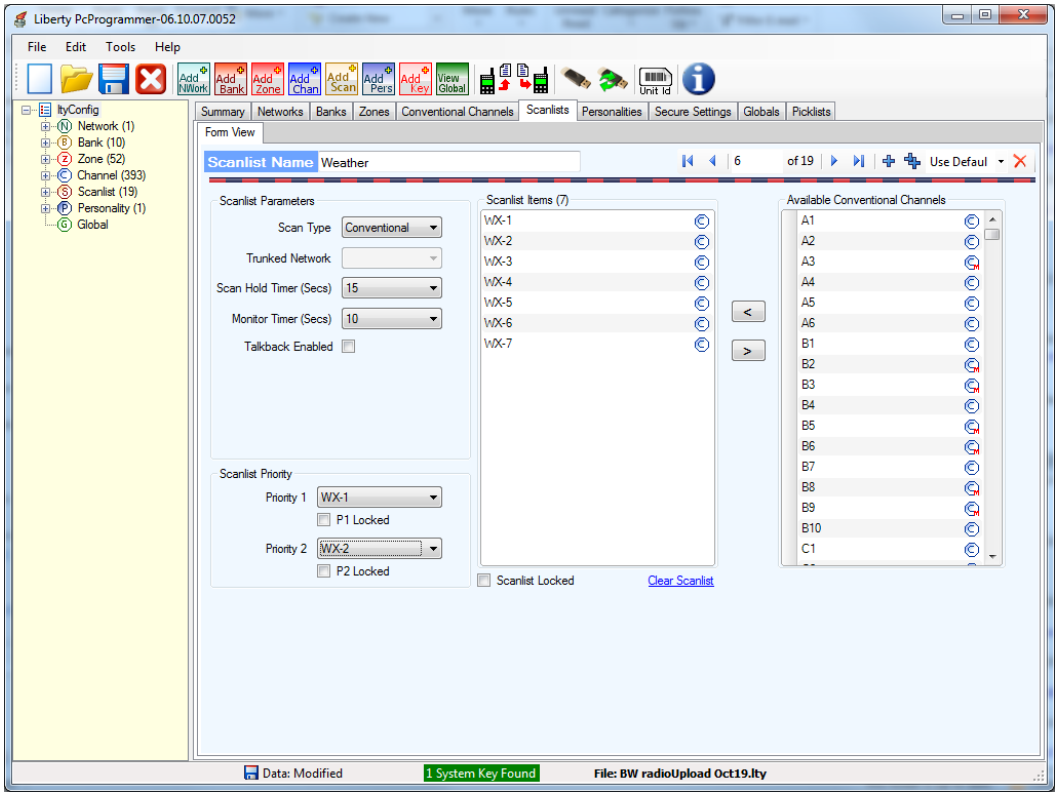


Figure 2-21 SCANLIST – Menu Screen

Table 2-18 SCANLIST Parameters

Parameter	Accepted Values
SCANLIST Name	Enter the alphanumeric name up to 16 characters. The default name is Scanlist001, Scanlist002, etc.
SCANLIST Parameters	Scan Type – Select either Conventional or Trunking Channels. The Liberty Radio can contain up to a maximum of 200 SCANLIST.
	Trunked Network – When Scan Type is set to TRUNKING, select the Trunking Network from the drop down menu.
	Scan Hold Timer (Sec) – Off, 1-15 seconds (Default setting is OFF)
	Monitor Timer (Sec) – Off, 10 thru 120 sec (at increments of 10 seconds)
	Talkback Enabled – to enable the talkback capability, click on the box. The Talkback timer is 5 seconds. (Default setting is OFF)
SCANLIST Priority	Establishes Priority 1 and Priority 2 Channels. If P1/P2 boxes are checked, these channels are locked. Note: If there is no Priority 1 Channel, then the selection of the "P2 Channel" is not permitted; i.e., the Priority 1 Channel must be selected before a Priority 2 Channel can be selected.
SCANLIST /Available Channels	To assign a channel to the SCANLIST -- scroll down the AVAILABLE CONVENTIONAL CHANNELS listed, click on it (it will be highlighted in Blue.) At this point, drag it to the SCANLIST Items. Once all required Channels have been placed in the SCANLIST – the SCANLIST can be LOCKED. **Note**: Locking the SCANLIST would disable the user's ability to make any modifications to the SCANLIST using the Radio. A maximum of 16 conventional channels from all available channels may be used. Channels may NOT be duplicated. To remove a channel from the SCANLIST – highlight the channel, and then click the RIGHT Arrow. This will remove the channel from the SCANLIST and place it back into the Available Channel Listing.

Personalities

There are several ways to access the Personalities Programming Screen.

(1) Click on the Add Pers icon located on the toolbar.
(2) Click on PERSONALITIES located in the navigation window.
(3) Click on the tab labeled PERSONALITIES on the data entry screen.
(4) Click on the EDIT Drop Down Menu and select ADD PERSONALITY.

NOTE

The Personalities Menu shown below is *only* enabled when the Trunking Feature is AUTHORIZED. A valid System Key MUST be inserted and acknowledged by the PCP otherwise the Personality Menu is *VIEW ONLY* (Refer to Figure 2-23 and Figure 2-22).

No System Keys Indicates that there is NO system key

System Key Found Indicates that one or more valid System Keys are available

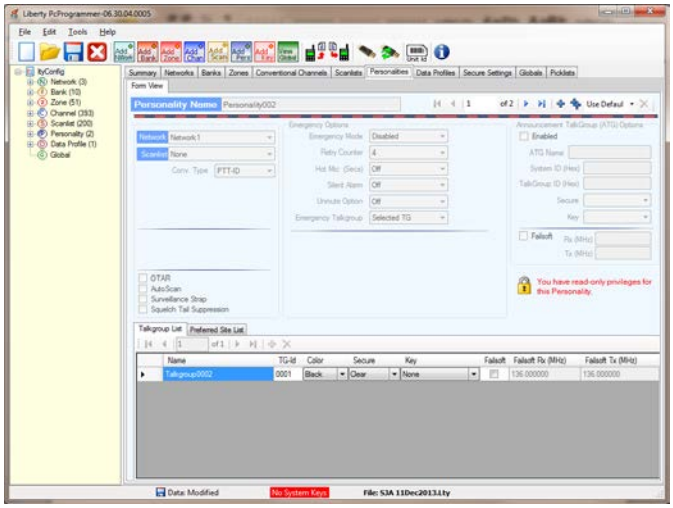


Figure 2-22 Personalities Screen – Shown with NO System Key Present

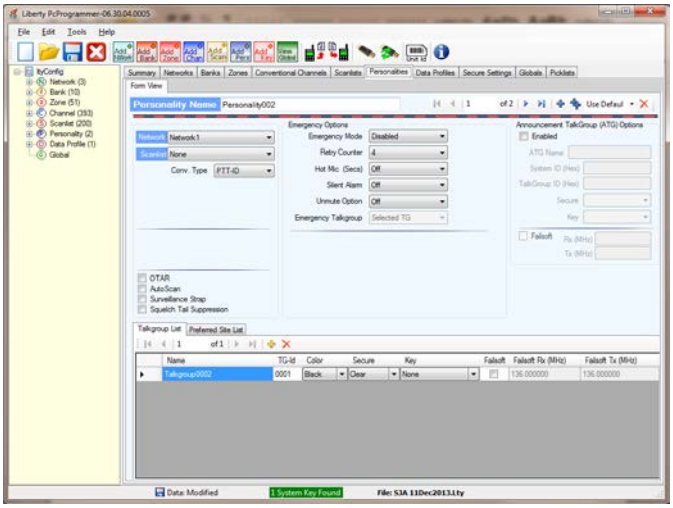


Figure 2-23 Personalities Screen - Shown with System Key Present

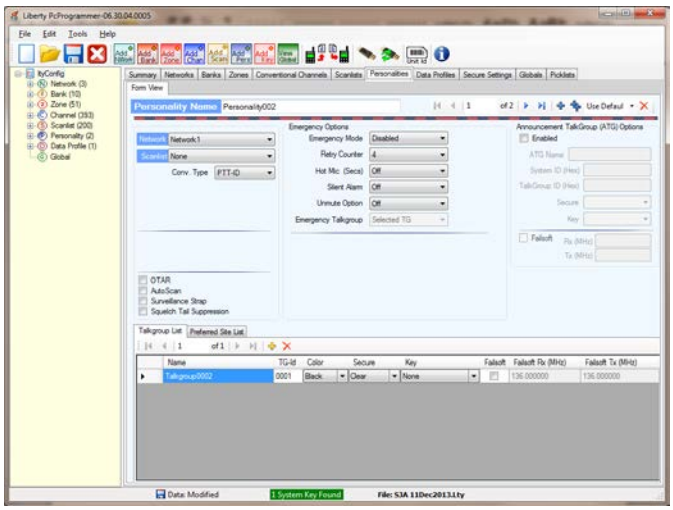


Figure 2-24 Personalities Screen - Talkgroup List

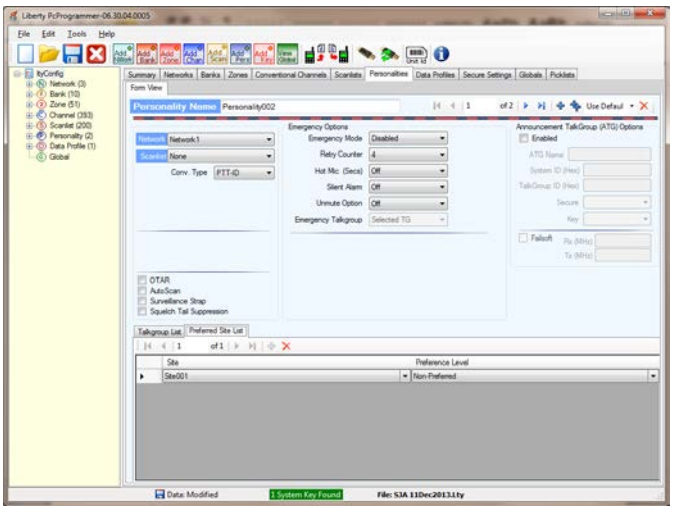


Figure 2-25 Personalities Screen - Preferred Site List

Table 2-19 Personalities Parameters

Parameter	Accepted Values
Personality Name	Assign a 16-Character Personality Name or use the default Personality Name (Personality001, Personality002, etc.) **Note**: A maximum of 600 Personalities, with a maximum of 256 Talkgroups are available per Personality.
Personality	Network – Using the drop down menu Select the Network Personality
	Scanlist – select the scanlist using the drop down menu

Parameter	Accepted Values
Other	Conversation Type – Transmission, **PTT-ID**, or Message (The default setting is **PTT-ID)**
	OTAR – When checked, all talkgroups in the personality will be enabled for OTAR operation. ***NOTE**: a flashing*  *indicates that the current network is NOT setup for OTAR.*
	AutoScan – When Checked, this personality is automatically added to the scan list.
	Surveillance Strap – when checked, Surveillance Strap will be enabled
	Squelch Tail Suppression -- Checking this box will eliminate squelch tail or other artifacts heard at the end of receptions. This is typically only needed if Talkgroups will be patched to conventional channels.
Emergency Options	Emergency Mode – Select **Disabled**, Alarm, Call, or Alarm and Call (The default setting is DISABLED)
	Retry Counter – Set the retry counter to 1 through 15 times (Default setting is **4**)
	Hot Mic (Sec) – **OFF**, 5, 10, or 15 seconds (Default setting is **OFF**)
	Silent Alarm: **OFF** / ON (Default setting is **OFF**) (If set to ON, the radio will not sound any audible or display any emergency indications when the user transmits an emergency alarm.)
	Unmute Option: **OFF** / ON (Default setting is **OFF**) (Only applies if SILENT ALARM is set to ON) (Note: When ON, the radio will unmute on received calls while operating in silent alarm mode. When enabled the users must be careful NOT compromise the silent alarm (for example respond using code words)
	Emergency Talkgroup (TG)– Using the drop down menu, select the emergency Talkgroup • **Selected TG** (Default setting) • TG • ATG • TG + ATG

Parameter	Accepted Values
Announcement TalkGroup (ATG) Options	The ENABLED box must be checked to assign an ATG.
	ATG Name – Enter the 16-character TalkGroup Name being assigned to ATG
	System ID (Hex) – Default setting is 1 -- *not available this release*
	TalkGroup ID (Hex) – Enter the TalkGroup ID (Acceptable values 0001 and FFFE)
	Secure – Select from the drop down menu Clear, Encrypted, or Select Note: If CLEAR is selected, then KEY will be grayed out.
	Key – Select NONE, Traffic Key Name previously assigned (Refer to ENCRYPTION Programming)
	ATG FAILSOFT and ATG Rx / Tx – The ATG FAILSOFT can be "settable" to any frequency assigned to the P25 Trunking System • ATG FAILSOFT is only enabled if ATG is enabled. Checked box will enable FAILSOFT for the ATG. (Default setting is OFF) • ATG RX / TX – Only enabled if ATG is enabled. Any valid RX / TX frequency if enabled. (Default setting for TX/RX Frequency is 136 MHz)
Talk Group List Tab	Displays the TalkGroup Name, Talkgroup ID, Color, Encryption, and the name of the Key. • TG FAILSOFT – When checked enables FAILSOFT for the Talkgroup. • TG RX / TX Frequency – If FAILSOFT is checked, and system enters FAILSOFT state, then FAILSOFT TX/RX freqs entered will be used as specified for each specific TG entry. Any TX / RX Frequency if enabled. (Default TX / RX Frequency is 136 MHz)

Parameter	Accepted Values
Preferred Site Tab	This tab requires the SITE LIST be configured in the NETWORK Tab first. • Site – dropdown of site names from "Site List" on the personalities' network, default first in list • Preference-Level – (Non-Preferred; Preferred, Least Preferred, Always Preferred) Refer to Table 2-20 for additional information. Note: • A Preferred Site List can contain a maximum of 200 sites • Duplicate sites are not allowed. • The list should collapse on any deleted entry and stay in entered order. • If the "Network Site List" is changed, a warning will be given indicating that the Preferred Site List will also be changed. The user will have the option to continue or cancel the change. • This tab has the same System Key edit protection requirements as the "Site List" tab. Basically if you have a network license you can modify it, otherwise you can't.

Points to remember when adding Personalities:

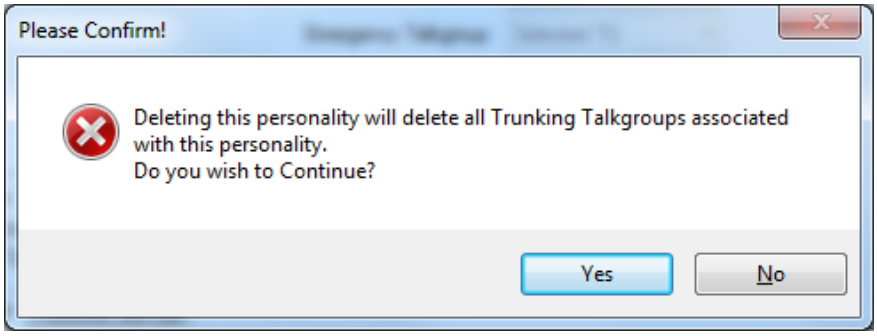
- The total channel count includes Conventional Channels and Trunking Talkgroups.
- The total number of Conventional channels and Trunking Talkgroups cannot exceed 2608.

Table 2-20 Site Preferences – Description of Preferences and Radio's Behavior

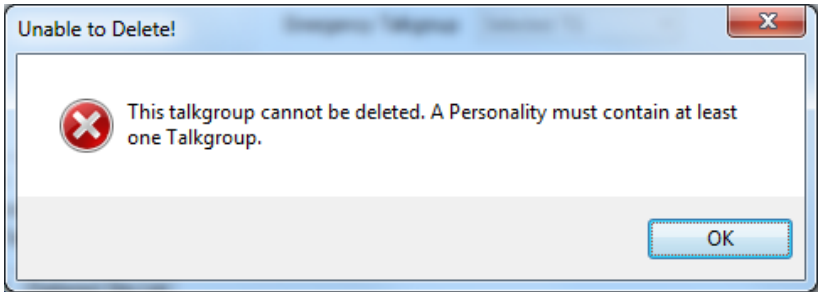
Current Site Preference	Enhanced Roaming
Always Preferred	The radio will only switch to another Always Preferred site, unless the current site is unusable, (Site Access Denied, RSSI not acceptable, or CC synch loss).
Preferred	• The radio will immediately switch to an acceptable Always Preferred adjacent site. • The radio will switch to another preferred site if RSSI is 2 levels better. • The radio will not switch to a Non Preferred or Least Preferred site unless the current site has an error (Site Trunking, TX retries) or is unusable.

Non-Preferred	• The radio will immediately switch to an acceptable Always Preferred or Preferred site. • The radio will switch to another Non Preferred site if RSSI is 2 levels better. • The radio will switch to a Least Preferred site if RSSI is 4 levels better. • The radio will switch to any other acceptable adjacent site if the current site has an error or is unusable.
Least Preferred	• The radio will immediately switch to any acceptable Always Preferred, Preferred, or Non Preferred site. • The radio will switch to another Least Preferred site if the RSSI is 2 levels better • The radio will switch to any other acceptable adjacent site if the current site has an error or is unusable.

- When deleting a personality, it is important to remember that it will also delete all Trunking Talkgroups associated with it.



- A personality must contain at least one (1) talkgroup –



Data Profiles

There are two ways to access the Data Profile Screen:

(1) Click on DATA PROFILE located in the navigation window.

(2) Click on the tab labeled DATA PROFILE on the data entry screen.

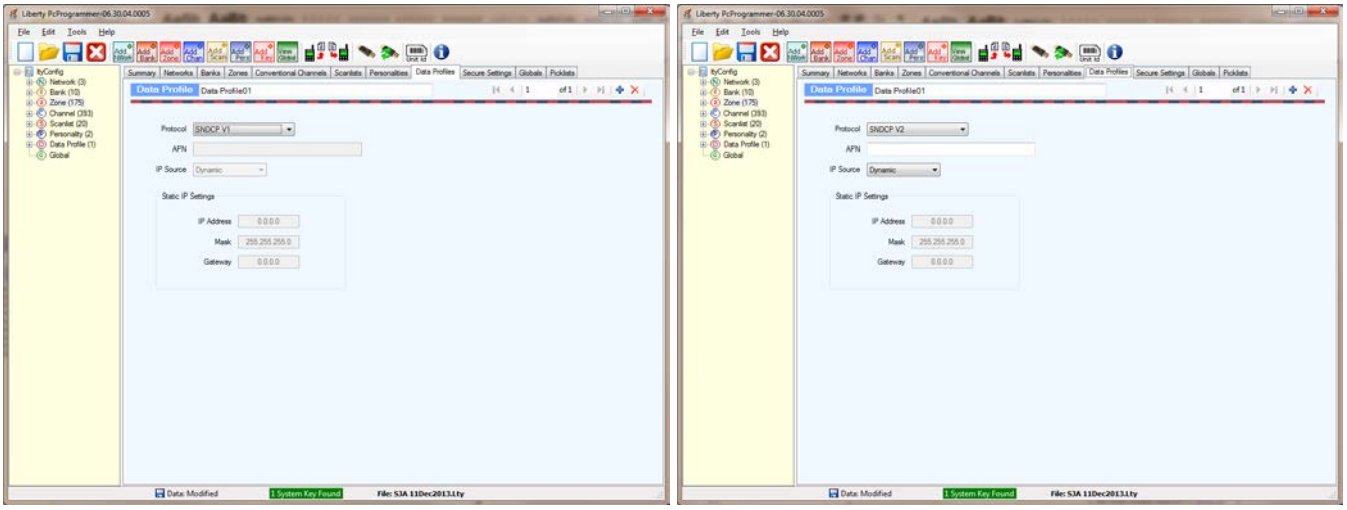


Figure 2-26 Data Profiles Screen SNDCP Protocol

Table 2-21 Data Profiles Parameters

Parameter	Accepted Values
Data Profile Name	Assign a 16-Character Personality Name or use the default Personality Name (Data Profile01, Data Profile02, etc.) **Note**: The maximum data profile is 30.
Protocol	Select the SNDCP protocol used for Data. Select either SNDCP V1 or SNDCP V2. (Note: SNDCP V2 is compatible with SNDCP V3.)
Access Point Name (APN)	APN can be edited when the Protocol is set to SNDCP V2. Optional. Either 0, or from 2 to 255 characters. (Default setting is 0 chars.)
IP Source	Select either STATIC or DYNAMIC If the IP Source is set to STATIC, the Static IP Settings can be edified If the IP Source is set to DYNAMIC – the Static IP Settings cannot be modified.

Parameter	Accepted Value
Static IP Settings	IP Address – 0.0.0.0 (Default setting)
	Mask – 255.255.255.0 (default setting)
	Gateway – 0.0.0.0

Points to Remember about Data Profiles:

- There are no daughter key restrictions for setting data profiles or OTAR profiles on a trunked network.
- The data profile may be added to a network any time after it is created.
- The Access Point Name (APN) is only enabled if the Data Protocol is set to SNDCP V2.
- The IP Address / Subnet Mask / Gateway fields are only enabled if the IP Source is set to STATIC and the Protocol is set to SNDCP V2.
- When deleting a Data Profile, the PCP will provide a warning if the data profile being deleted is referenced by any network.

NOTE

Consult with your radio officer to obtain the proper setting values that are compatible with your particular KMF implementation.

Zones

The Liberty Radio can support up to 175 different zones, each zone can have one (1) to sixteen (16) channels assigned to any zone. The Zones Screen is primarily issued to assign channels to their channel positions within a zone.

There are several ways to access the Zone Programming Screen.

(1) Click on the Add Zone icon located on the toolbar.
(2) Click on ZONES located in the navigation window.
(3) Click on the tab labeled ZONES on the data entry screen.
(4) Click on the EDIT Drop Down Menu and select ADD ZONE.

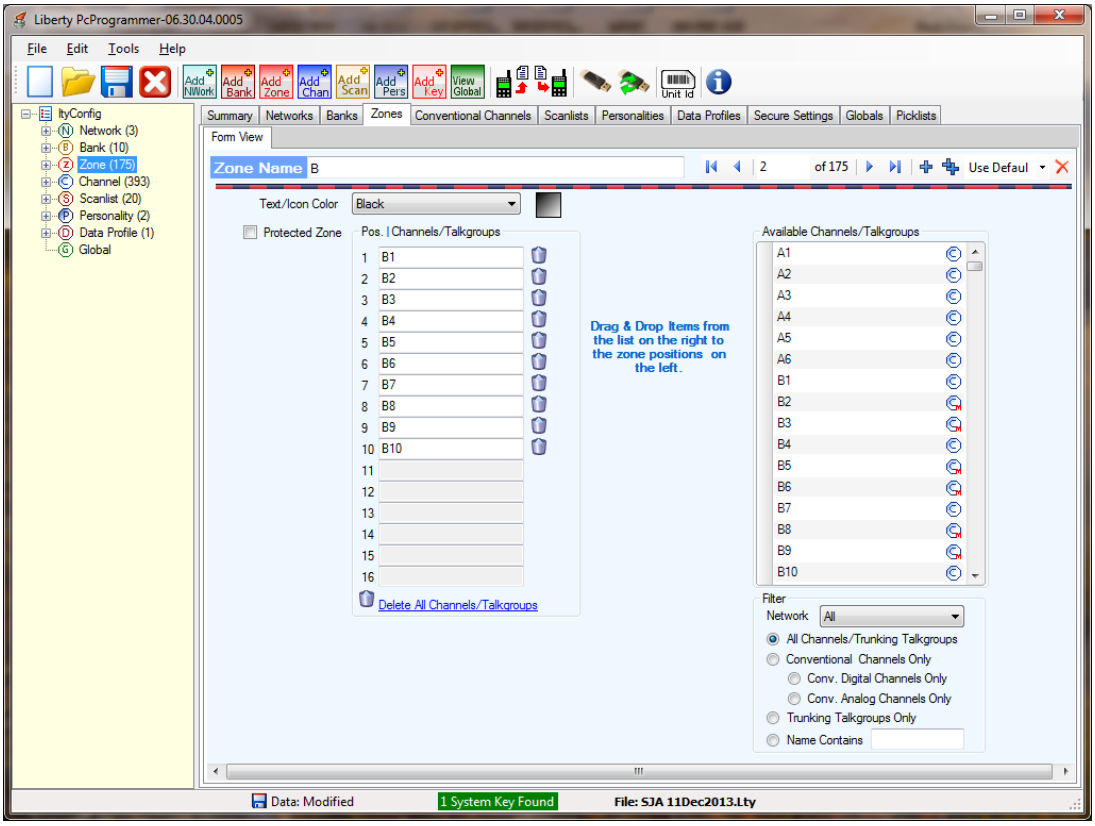


Figure 2-27 Zones Screen

Table 2-22 Zones Parameters

Parameter	Accepted Values
Zone Name	Enter the alphanumeric name up to 32 characters. The default name is Zone01, Zone 02, etc.
Text/Icon Color	Text/Icon Color – default setting BLACK, use the drop down menu to view the additional color options (Red, Orange, Brown, Green, Blue, Indigo, Violet, and Black).

Parameter	Accepted Values
Protected Zone	When checked, this zone becomes a protected zone – which prevents any changes being made to this zone by the radio user. (Default setting is OFF)
Available Channels / TalkGroups	This is the list of all available Channels and Talkgroups programmed into the radio
Pos/Channels / Talkgroups	To assign a channel to a position, scroll down the available channel list box. Once the desired channel is found, click on it (it will be highlighted in Blue.) At this point, drag it to the Pos/Channel it is to be assigned. To move a channel to a different position, highlight the channel to be removed, and drag it to a different position. To remove a channel from a position, simply click on the trash can  icon or click on the  located at the bottom of the channel list to DELETE ALL CHANNELS/TALKGROUPS.
Filter	This section will FILTER the channels listed in the Channel Box –These channels can be filtered by: • Network – Allows the user to select a specified network from the drop down selection list. • All Channels/Trunking Talkgroups • Conventional Channels Only (Conv. Digital Channels Only or Conv. Analog Channels Only) • Trunking Talkgroups Only • Name Contains - <enter a character> to further filer the channel selection – maximum of 8 characters can be entered.

Points to Remember about ZONES:

- The PCP Zone Filter selection of NETWORK will limit the other filter settings to display items from the one specific network only.

- There are no restrictions on channels. They may be assigned to multiple positions and positions may also be left blank.

Banks

There are several ways to access the Bank Programming Screen.

(1) Click on the Add Bank icon located on the toolbar.
(2) Click on BANKS located in the navigation window.
(3) Click on the tab labeled BANKS on the data entry screen.
(4) Click on the EDIT Drop Down Menu and select ADD BANK.

NOTE

Zones must be assigned to a bank in order to be downloaded to the radio.

The Banks Screen is used to assigned zones into banks.

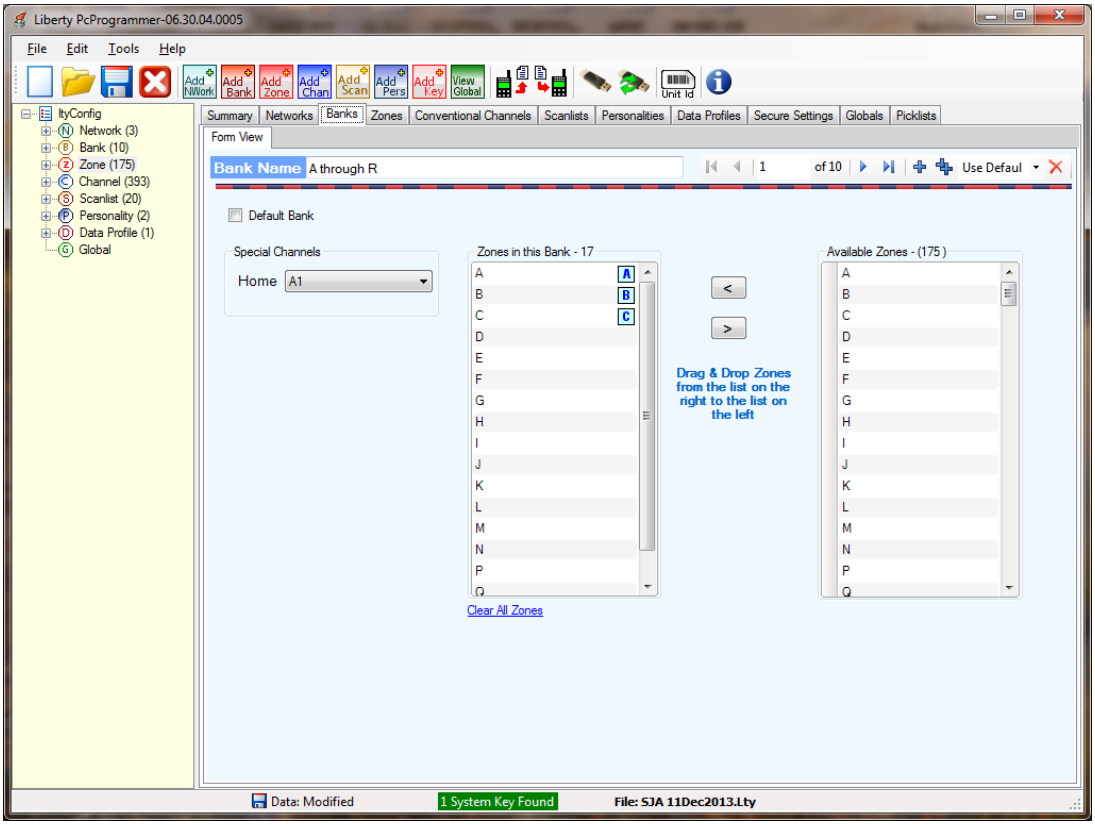


Figure 2-28 Banks Screen

Table 2-23 Banks Parameters

Parameter	Accepted Values
Bank Name	Enter the alphanumeric name up to 32 characters. The default name is Bank01,Bank02, etc.
Default Bank	When this is checked, the bank becomes the Default Bank. Only one (1) bank can be the default bank. (Maximum of 10 Banks)
Special Channels	HOME – Enables a user selected channel to function as the HOME Channel.
Available Zones	This is the list of all available zones programmed into the radio
Item/Zones	To assign a zone to a position, scroll down the available channel list box. Once the desired zone is found, click on it (it will be highlighted in Blue) or dragged over to the Item/Zone position it is to be assigned. Or click on the < to move the desired zone over to the list of "ZONES in this BANK column." To remove a zone from a position: • Highlight the ZONE that is to be removed, then press the > to move it back into the LIST OF AVAILABLE ZONES, or • To clear all the zones, click the "CLEAR ALL ZONES".
	The alpha characters A/B/C correspond to the 3-Position Toggle Switch on top of the radio. When preprogrammed for ZONES, Position A/B/C will switch to each of the zones programmed in each of those positions.

Globals

There are several ways to access the Global Parameters Screens.

(1) Click on the  icon located on the toolbar.
(2) Click on GLOBALS located in the navigation window.
(3) Click on the tab labeled GLOBALS on the data entry screen.
(4) Click on the EDIT Drop Down Menu and select VIEW/EDIT GLOBALS.

The Global Programming Screen allows the user to program the following parameters into the radio:

- Global Parameters
- Programmable Soft Key functions
- GPS Parameters

GLOBAL Parameters – General

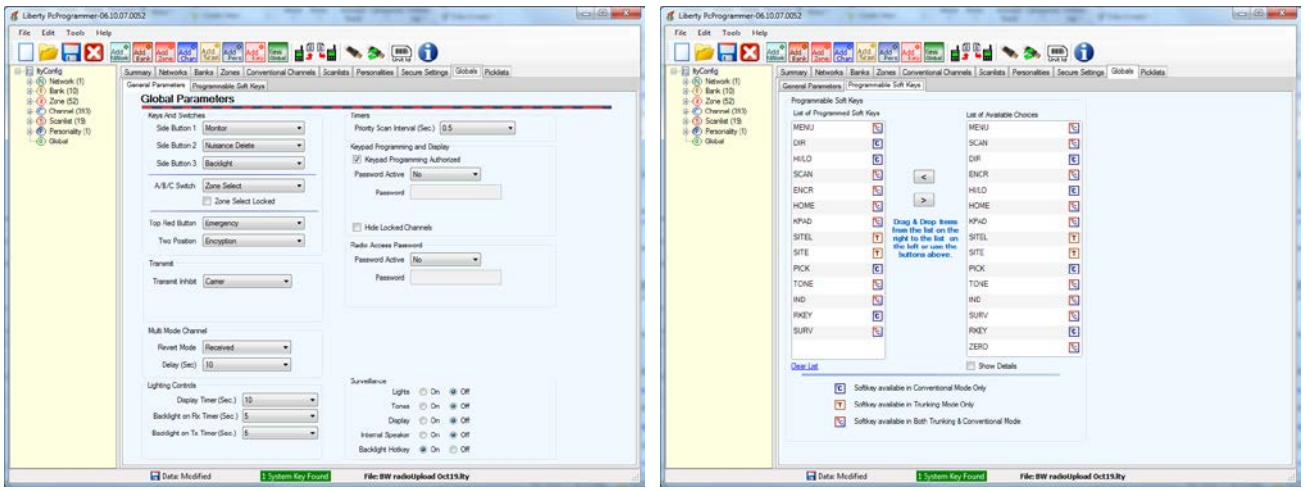


Figure 2-29 Global Parameters Screen – General Parameters

Table 2-24 Global Parameters

Parameter	Accepted Values
Keys and Switches	• Side Button 1 – available selections are – Disabled, Backlight, Hi/Lo Power, Keypad Disabled, Location, Monitor, Nuisance Delete, Site Change, Scan, Scan/Priority, Talk Around, Zone Hot Key, Surveillance Mode, and Zeroize.
	• Side Button 2 – available selections are – Disabled, Backlight, Hi/Lo Power, Keypad Disabled, Location, Monitor, Nuisance Delete, Site Change, Scan, Scan/Priority, Talk Around, Zone Hot Key, Surveillance Mode, and Zeroize.
	• Side Button 3 -- available selections are – Disabled, Backlight, Hi/Lo Power, Keypad Disabled, Location, Monitor, Nuisance Delete, Site Change, Scan, Scan/Priority, Talk Around, Zone Hot Key, Surveillance Mode, and ZEROIZE.
	• Toggle A/B/C – Available selections are – Disabled, Zone Select, Scan Select, and Monitor.
	• Zone Select Locked box – o When enabled, the radio HMI selection is temporary. The radio will revert back to the PCP programmed A/B/C selection on channel knob changes or when the radio powered cycle o When disabled, the radio HMI zone selection will permanently the PCP ABC selection.
	• Top Red Button - Disabled, Emergency, Talk Around, Hi/Lo Power, and ZEROIZE.
	• Two Position – Disabled, Encryption, Talk Around, and Hi/Low Power.
Transmit	Transmit Inhibit: Off, Carrier, Tone, NAC, P25 Busy Status
Multi-Mode Channel	Revert Mode – available selections are Received and Selected
	Delay (Sec) – available selections are 1 thru 15 seconds
Lighting Controls	Display Timer (Sec) – available sections are 5, **10**, 15, 20, 25, and 30 seconds (Default setting is 10 seconds)
	Backlight on Rx Timer (Sec) – sets the backlight time to either OFF, **5**, 10, 15, 20, 25, or 30 seconds (Default setting is 5 seconds)
	Backlight on Tx Timer (Sec.) – sets the backlight timer to either OFF, **5**, 10, 15, 20, 25, or 30 seconds (Default setting is 5 seconds)
Timers	Priority Scan Interval (Sec) - 0.5, 1.0 1.5, **2.0**, 2.5,2.0, 3.0, 3.5, 4.0, 4.5, and 5 Seconds (Default setting is2.0 secs)

Parameter	Accepted Values
Keypad Programming Password	Keypad Programming Authorization - • When this box is checked, programming of the radio is permitted using the radio's keypad • When this box in NOT checked, programming of the radio is NOT authorized.
	Password Active – YES or NO (Default setting is NO)
	Password – Default Password is 000000. Password can be 6 to 10 Alphanumeric characters long. (Upper and lower case alpha characters are accepted)
	Hide Locked Channels – When checked, conventional channels with "KEYPAD PROG LOCKED, set on the conventional channels screen, will not display channel type, frequency, or squelch settings.
Radio Access Password	Password Active -- YES or NO (Default setting is NO)
	Password – Default Password is 000000. Password can be 6 to 10 Alphanumeric characters long. (Upper and lower case alpha characters are accepted)
Digital Audio Adjustments	MIC Gain: Select **Standard**, Medium, High, or Extreme (Default setting is STANDARD)
	Acoustic Echo Suppression – Select ON or **OFF** (Default setting is OFF)
Surveillance	From this section, the user can selectively turn ON or OFF miscellaneous functions on the radio when operating in the surveillance mode: • Lights ON / **OFF** (includes the keypad/knob backlights and top LED) • Tone ON/**OFF** (includes both tones and alert tones) • Display ON/**OFF** • Internal Speaker ON/**OFF** (when an external speaker device is not attached to the radio) • Backlight Hotkey **ON**/OFF (Hotkey "ENT")

Points to remember about GLOBAL Parameters:

- SITE CHANGE is only available when in TRUNKING MODE.
- The LOCATION Side button, when pressed, opens the LOCATION Menu. From this menu, the user can turn the GPS Function ON/OFF..

  Note: The user can also turn the GPS Function ON/OFF by accessing the LOCATION Menu using the radio HMI GPS Location Menu.

GLOBAL Parameters – Programmable Soft Keys

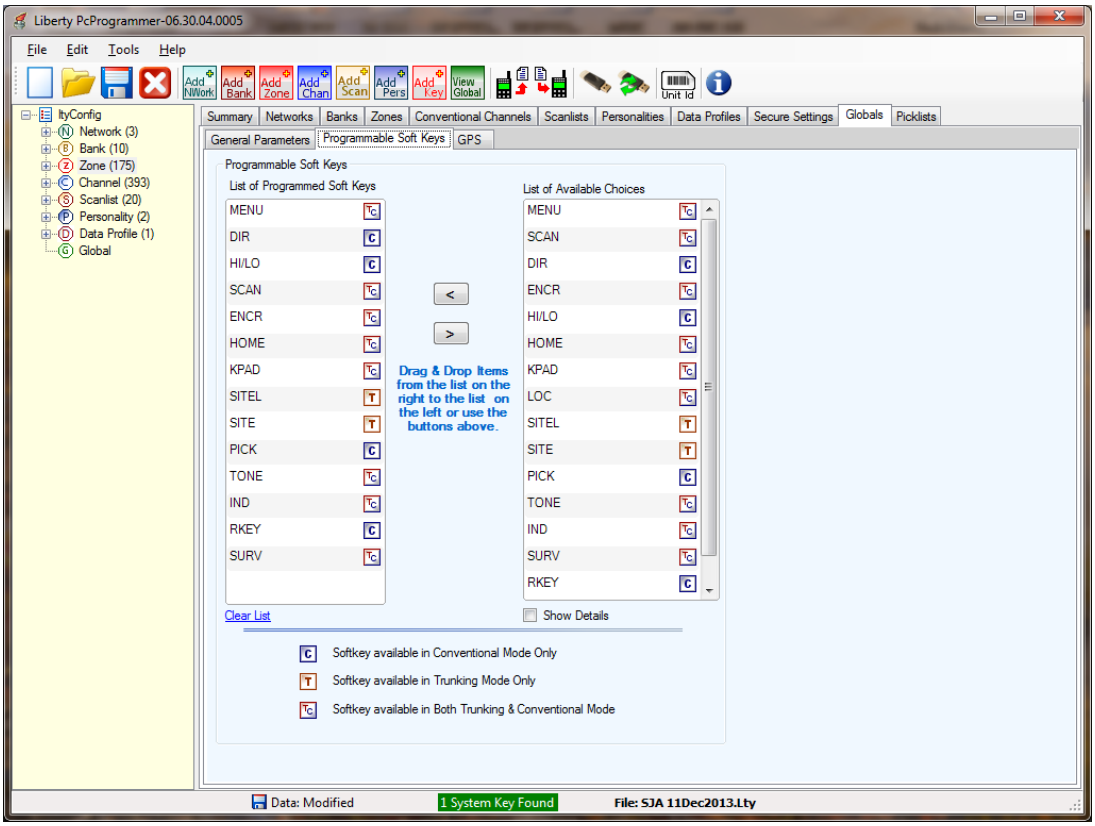


Figure 2-30 Global Parameters Screen – Programmable Soft Keys

Table 2-25 Programmable Soft Key Parameters

Soft Key	Description	*Softkey Available*
MENU	Provides access to the radio's menus for control and setup of the radio. (It will always be available and always in the first position).	TC
SCAN	Allows the radio user to turn scan mode ON/OFF. Note: This only applies to channels that are not selected for auto scan.	TC
DIR	Allows the radio user to enable or disable the Direct Talkaround Mode	C
ENCR	Toggle between the radio's secure encrypted transmissions for a channel that is programmed for SELECT Mode	TC
HI/LO	Allows the radio user to toggle between the current conventional channels HI and LOW power settings	C

Soft Key	Description	*Softkey Available*
HOME	Allows the radio user to go directly to the predefined Home Channel or talkgroup	
KPAD	Allows the radio user lock the radio's keypad	
LOC	The LOC soft key, when pressed, opens the LOCATION Menu. From this menu, the user can turn the GPS Function ON/OFF.	
SITEL	Allows the radio user to display the site lock status and toggle between site lock and site unlock mode when operating in Trunking Mode.	
SITE	Allows the radio user access to a listing of the available sites	
PICK	Allows for radio user access to a listing of Squelch Pick Lists	
TONE	Allows the radio user to enable or disable all tones	
IND	Allows the radio user to make an individual call	
SURV	Allows the radio user to set the Surveillance Mode (The default setting is OFF) Pressing the soft key SURV will toggle surveillance ON and OFF. (Note: This only applies to channels that are not selected for surveillance strapping.)	
RKEY	Allows the radio user to initiate a Radio Rekey via OTAR.	
ZERO	Allows the radio user to ZEROIZE all TEK and KEK in the radio	

GLOBAL Parameters – GPS

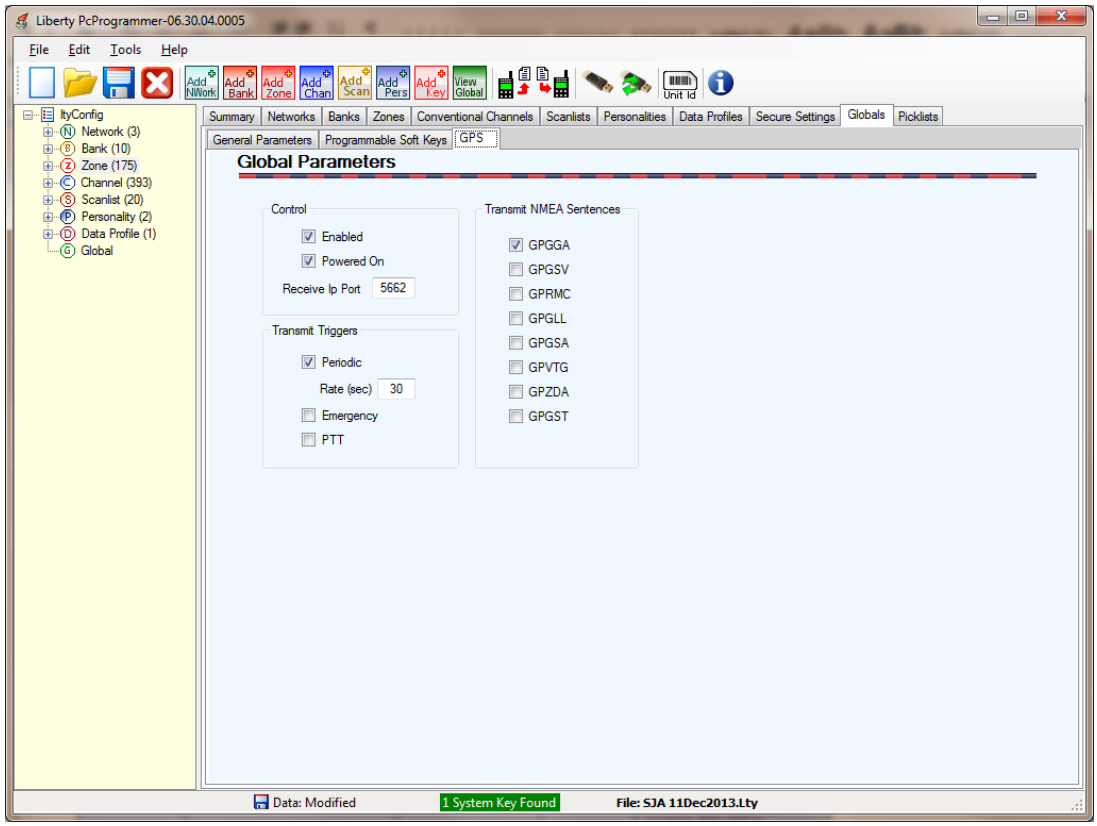


Figure 2-31 Global Parameters Screen – GPS Parameters

Table 2-26 Global Parameters Screen - GPS Parameters

Parameter	Description
Control	Enabled – when checked, turns GPS function **ON** / OFF in the radio. (Default settings is ON)
	Powered On – When checked, sets the default condition for when GPS MIC is first attached to the radio.
	Receive IP Port – Enter the IP Port used by the RX Radio that receives the location data and is connected to some mapping applications using a USB Cable. (Default setting is 5662)
Transmit Triggers	Periodic – When selected, the GPS location is transmitted a specified interval (no more often than once every 60 seconds)
	Rate (sec) – Enter the number of seconds between transmitting coordinates
	Emergency – When selected, the radio will transmit location information when emergency mode is activated and whenever an emergency message is transmitted.
	PTT – When selected, the radio will transmit the location immediately after the release of the PTT.
Transmit NMEA Sentences	Select the appropriate NMEA Sentences: • GPGGA – Fixed Location Fixed Location that is the recommended and most often used NMEA sentence for location information. • GPGSV – Detailed Satellite Data • GPRMC – Recommended minimum data for GPS • GPGLL – LAT/LON Data • GPGSA – Overall Satellite Data • GPVTG – Vector track an Speed over the Ground • GPZDA – Date and Time • GPGST – GPS Pseudo Range Noise Statistics *Note:* There are many sentences in the NMEA standard for all kinds of devices that may be used in a Marine environment. Some of the ones that have applicability to GPS receivers are listed above.

Points to Remember about GPS:

- If GPS is enabled for a P25 channel on the Conventional Channel tab, but the network and GPS Triggers have not been configured correctly, a FLASHING ⚠ will appear next to the GPS ENABLED check box.

  This indicates that GPS will NOT transmit due to the current GLOBAL GPS Settings. At least one Transmit Trigger must be selected.

- GPS location information is transmitted on either the same channel that is used for voice communications, or on a separate channel dedicated to location reporting as selected on the Conventional Network screen.

  - The use of a dedicated channel allows the user to talk on one channel without concern that GPS Location Information messages may interfere.

  - When using a channel that is shared with voice services, the Location Information message will only be sent when the channel is idle.

  - The GPS data message is sent with encryption according to the channel settings on which it is set, i.e., the current channel or the dedicated GPS channel.

- A GPS Status icon:

When STEADY, GPS is ENABLED and active.

When FLASHING, GPS is attempting to re-synch with the GPS Satellites.

Indicates that GPS is NOT ACTIVE, even though it is ENABLED. Either there is NO GPS Speaker Microphone attached or unable to communicate with the satellites.

NOTE: The GPS Icon will be missing if GPS is NOT ENABLED or is OFF.

Picklists

To access the Tone Picklist Programming Screen, click on the PICKLISTS tab located on the toolbar.

The Tone Picklist Programming screen allows the user to assign different tones for each Analog and Digital Squelch Modes.

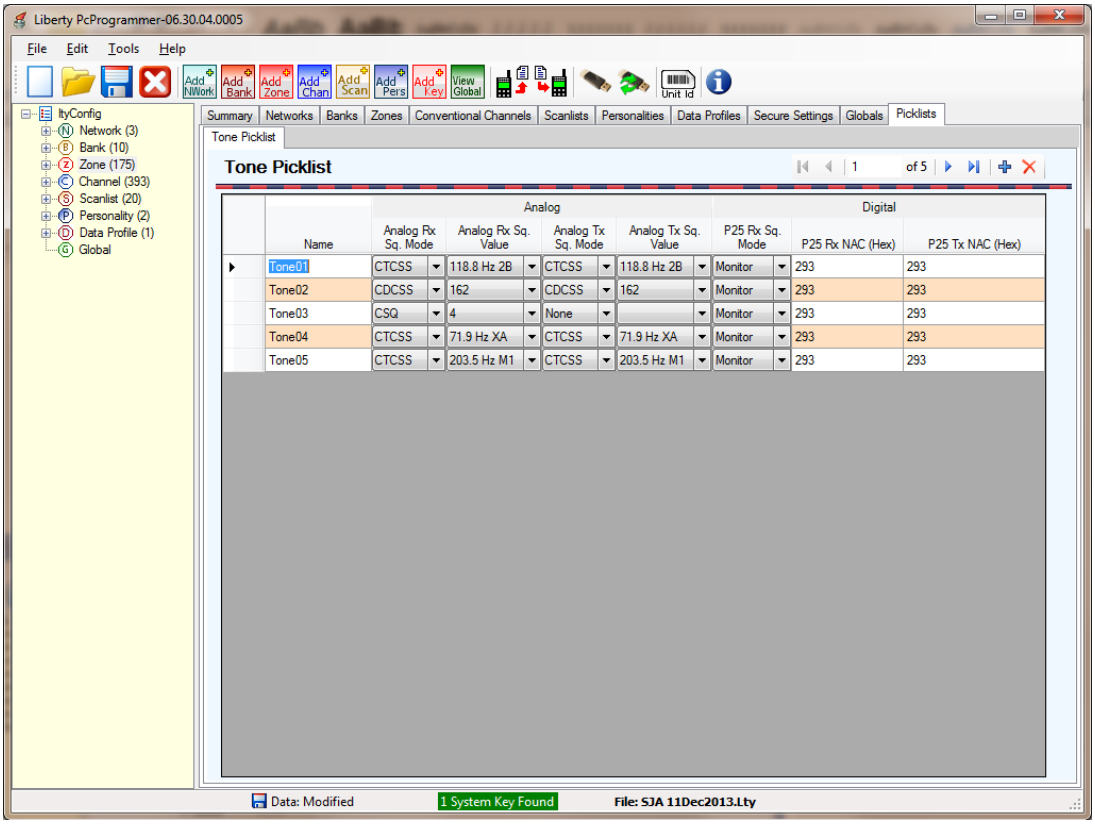


Figure 2-32 Tone Pick List Parameters Screen

Table 2-27 Tone Picklist Parameters

Parameter	Accepted Values
Name	Assign a 8-Character Tone Name or use default key name. Up to 32 tone entries are permitted
Analog	Analog Rx Sq Mode -- Select CSQ, CTCSS, or CDCSS
	Analog Rx Sq Value -- Select Squelch Value 1-16
	Analog Tx Sq Mode -- Select None, CTCSS, or CDCSS
	Analog Tx Sq Value – For CTCSS Codes - Refer to Table 2-15 and for CDCSS Codes - Refer to Table 2-16
Digital	P25 Rx Sq Mode – Select Monitor, Normal, or Selective
	P25 NAC RX: 1-FFF Hex (1 - 4095 Decimal) Excluding the reserved value of F7F Hex (3967 Decimal) used for repeater functionality.
	P25 NAC TX: 1-FFF Hex (1 - 4095 Decimal) Excluding the reserved value of F7E Hex (3966 Decimal) and F7F Hex (3967 Decimal)

MENU COMPONENTS

The PCP Menu main components consist of a pull-down menu bar, a toolbar, tree structure menu, parameter screen, and a status bar. The parameter screens are described earlier in this section. The menus and the status bar are described below.

Pull Down Menu

The pull-down menu appears at application start-up. To display a brief description of the menu item's functionality, place the arrow cursor on the menu item. Items that appear disabled (grayed out) are not applicable in the current context. For instance, some items in the FILE menu (e.g., PRINT) are not applicable until an operational data file is loaded into the PCP. The four (4) menu headings listed below are described in the following sections:

1. File
2. Edit
3. Tools
4. Help

File

Contains all items relating to file operations. The available menu items are described in the following sections. Only one operational data file at a time can be resident in the PCP. Using the "New" or "Open" commands when an operational data file is currently in the PCP will cause that file to be overwritten. Therefore, the PCP prompts the user to save any changes to the current file before overwriting the file.

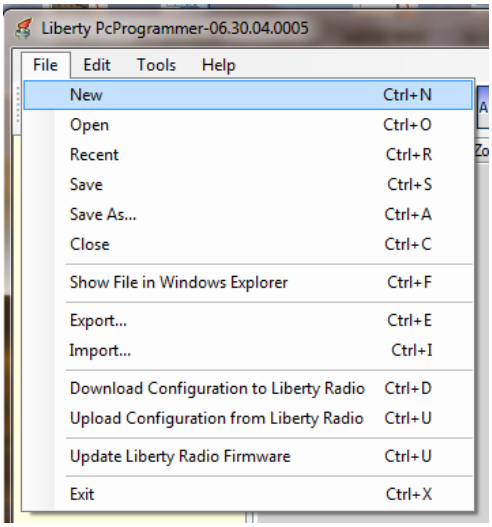


Figure 2-33 Radio File Pull-Down Menu

- **New** -- Opens a blank/empty operational configuration data file.
- **Open** -- Loads an operational data file from the hard drive or external storage into the PCP. Clicking on "Open" will display the "Open File" dialog box. The user may then select the file to be opened. The operational files do not have to reside in the same directory as the executable program files. To load an operational file, either double-click on the file name or single click on the file name to highlight it and then click on "Open".
- **Recent Files** – Displays the most recent files accessed using the PCP.
- **Save Configuration File** -- Saves the operational data file currently in PCP. It will save the file in its original path and will overwrite the older version of the file. If the file has not been saved (uploaded from radio or new file) previously, a "Save As" dialog box will appear and allow the user to save the file as described in paragraph “SAVE AS”.

- **Save As** -- Saves the operational data file currently in PCP. A "Save As" dialog box allows the user to name or rename a file and designate the directory to which it will be saved. "Save As" must be used to initially save an operational data file uploaded from a radio or to save a file created using the "New" command under the "File" pull-down menu. Using "Save As" on a file that has already been saved allows the user to save the file under a different file name and, therefore, not overwrite the original file.
- S**how File in Windows Explorer View** – Will display the folder container the opened file in Windows Explorer.
- **Close** -- Closes the file currently in the PCP and returns the user to the start-up screen (refer to Figure 2-2). If the file has been modified, a dialog box that allows the user to save the file before exiting will appear. This dialog box will not appear if the file has not been modified.

- **Export** – The PCP provides the user with the ability to export the full configuration file to an EXCEL file (.xls).

NOTE

The PCP will not export or import any Radio Serial Number (RSN), password data or encryption key values.

1. Prior to exporting the configuration file, it is important to save first.

2. From the drop down menu, select EXPORT.

3. The EXPORT LIBERTY CONFIGURATION Screen will appear. Enter the name of the file, the press SAVE.

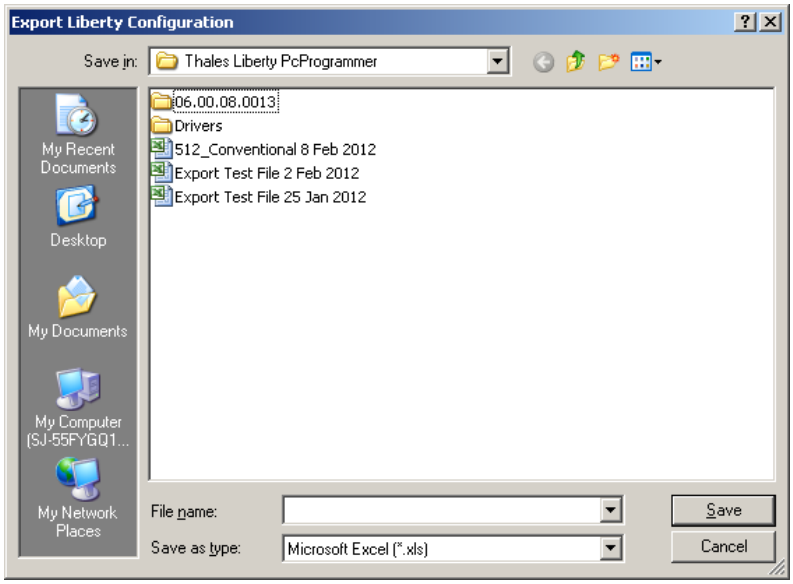


Figure 2-34 Export Liberty Configuration Screen

4. Once the configuration file has been saved to the directory, this file can now be opened and modified as needed.

Points to remember when exporting a configuration file:

- When exporting a radio configuration file from the PCP:
  - The PCP will support the download of a CONVENTIONAL ONLY configuration file without a System Key.

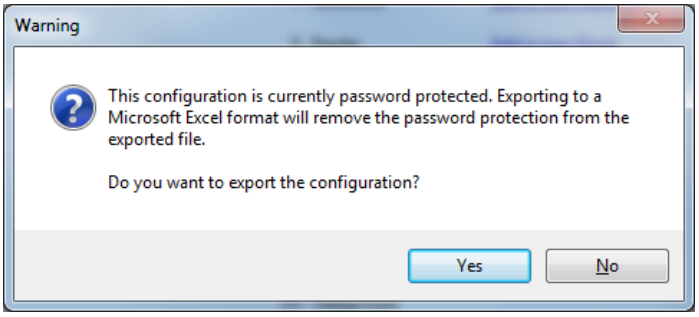
The PCP will also support the download of a Conventional and Trunking Configuration File that originated from a radio that is attached to the PCP (i.e., the RSN matches), then it is OK to download both the Conventional and Trunking data. Or if there is a Master (or Daughter key) that contains a valid Network License. (Refer to Table 3-10)

NOTE

Exporting a configuration password protected file will remove the password.

NOTE

The configuration file can be imported back into the PCP, but it will NOT be password protected.



- **Import** -- The PCP provides the user with the ability to import configuration data from an EXCEL file as a new configuration.

NOTE

The PCP will ONLY import data from the EXCEL file those parameters that the PCP can export to an EXCEL file.

NOTE

It is important to remember:

- DO NOT DELETE ANY COLUMNS or WORSKSHEETS in the configuration file.

Import a Configuration File (.XLS)

1. From the drop down menu, select IMPORT.

2. The IMPORT LIBERTY CONFIGURATION screen will appear. Highlight the file you want to import, and select OPEN.

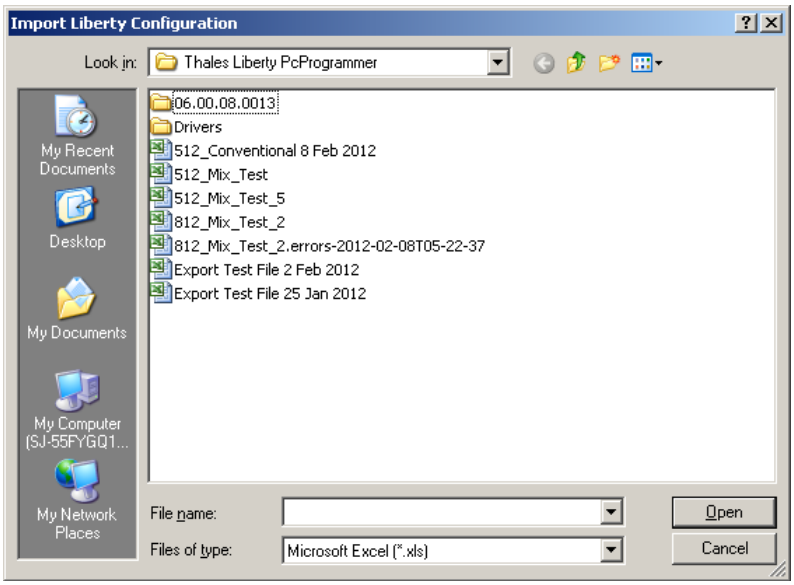


Figure 2-35 Import Liberty Configuration Screen

3. For a successful import, the SUMMARY page will appear giving the configuration file contents (refer to Figure 2-36).

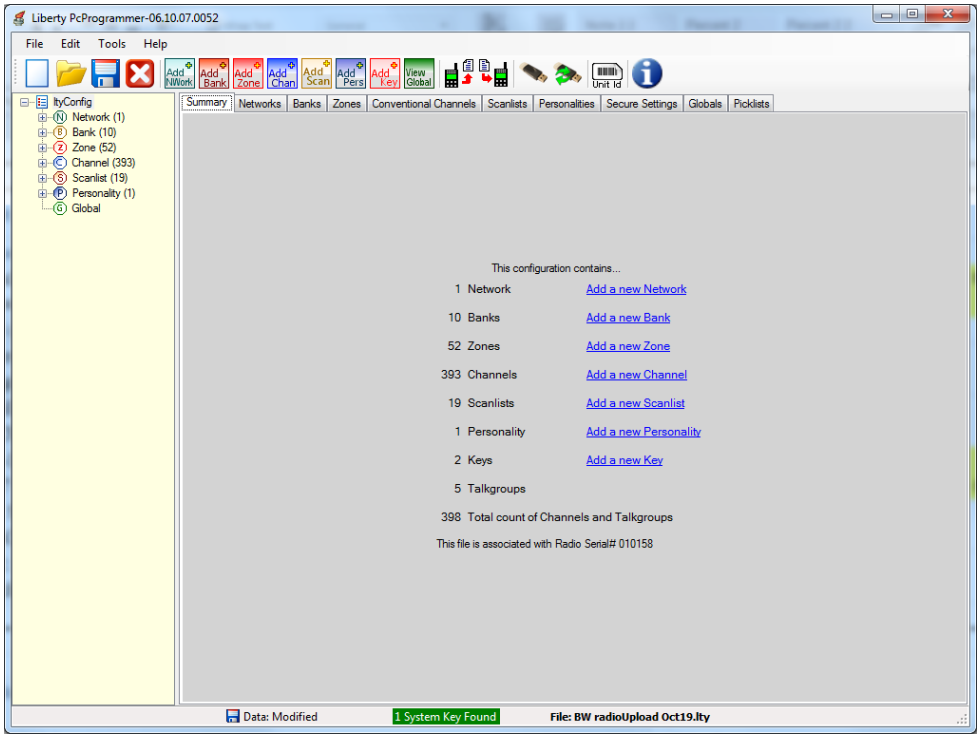


Figure 2-36 PCP Summary Page Showing New Configuration Contents

NOTE

If the PCP encounters any errors during the import process, the import process will stop, and an "error" report will be generated. The "error" file will contain either "#" or "YELLOW" tabs where the error can be found, and the cell will also be highlighted YELLOW. Additional information can also be found about the error by placing the cursor on the cell. Corrections should be made in the original configuration file that was being imported.

4. The PCP Summary page will indicate once the configuration file has been saved to the directory, this file can now be opened and modified as needed.

Points to Remember when populating the EXCEL Spreadsheet:

- To create a "template" that can be used for creating NEW configuration files, it is recommended to first create a configuration file in the PCP,. then export this using the EXPORT function. This spreadsheet will then have all the correct headers, tabs, etc…. needed to create a new configuration spreadsheet.

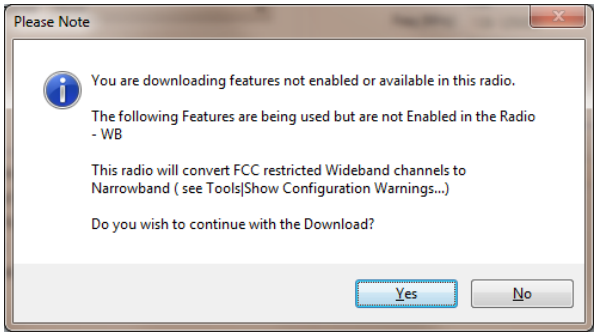
- The import function is CASE sensitive. (i.e., Monitor will work for squelch value, but MONITOR will not). So if you are using a previously exported configuration file as a template, follow the conventions used in that file for upper and lower case, numeric values, and so forth.

- Any data that is NOT entered into the spreadsheet will be treated as DEFAULT data by the PCP when it is imported.

- **Download Configuration to Liberty® Radio** -- Sends an operational data file in PCP to an attached radio. This operation will overwrite the operational data file currently in the radio. It is recommended that the radio configuration file be saved prior to downloading a different configuration file into the radio.

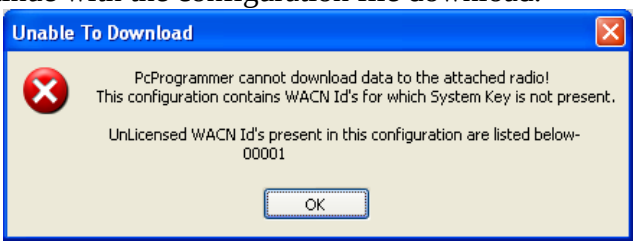
NOTE If the radio configuration file (.lty) is stored on an external storage device (i.e., thumb drive), it is recommended that the configuration file be saved to the hard drive before downloading it to the radio (or ensure that the thumb drive is not removed during the download process.

NOTE If you are attempting to download a feature that is NOT enabled or available in the radio, the PCP will prompt you asking if you wish to continue with the download.



NOTE

If you are attempting to download a configuration file which contains WACN IDs that do not have a system key, the PCP will not continue with the configuration file download.



To down load a channel configuration to the Liberty® Radio, the following steps should be taken:

1. Launch Liberty® PCP and connect the USB cable to the radio.
2. Open a configuration file.
3. Click the download button on the PCP - either from the File Drop Down located on the tool bar (Refer to Figure 2-33) or the  icon.
4. The radio will automatically go into PCP Session and the following screen provides a status of the down load.

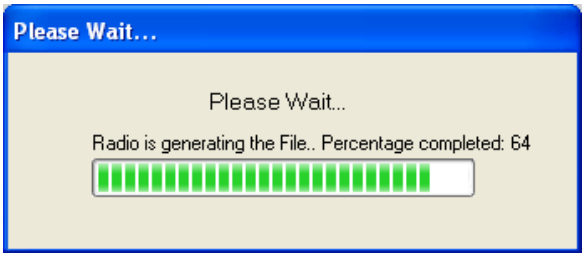


Figure 2-37 Download Status Screen

5. Prior to starting the download, the PCP will ask the user to confirm the information contained in the UNIT ID Programming Table. If the information is acceptable, then click CONTINUE DOWNLOAD. If not, then click CLOSE.

NOTE

The highlighted Unit IDs are those currently found in the radio.

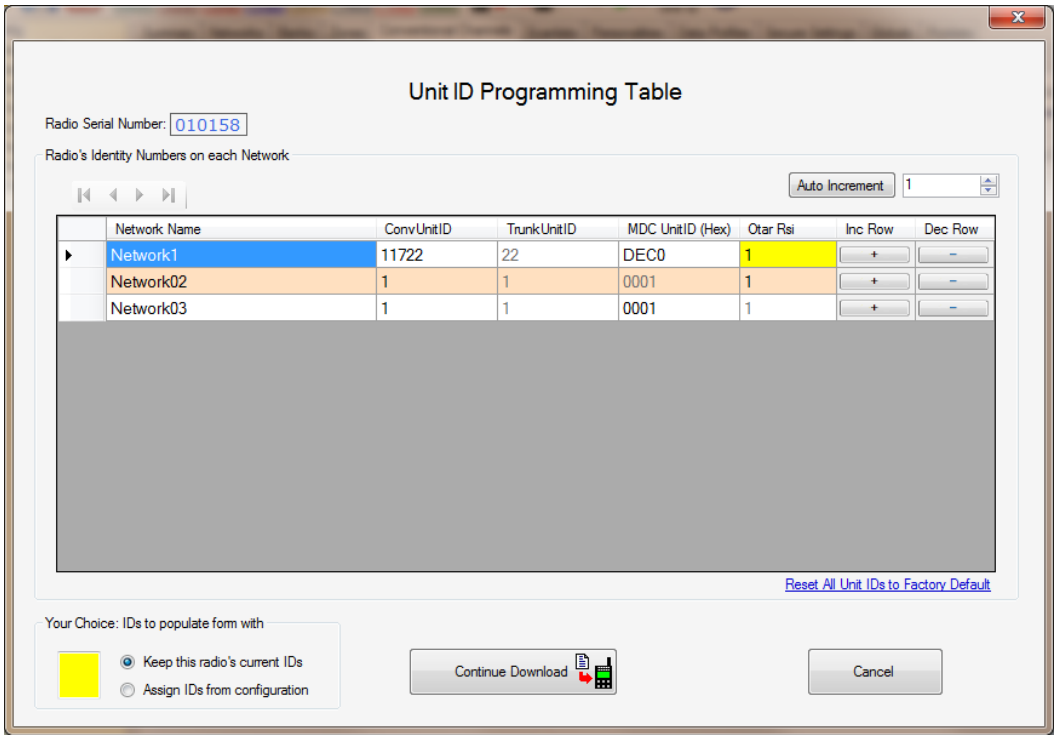


Figure 2-38 Unit ID Programming Table -- Download Status Screen

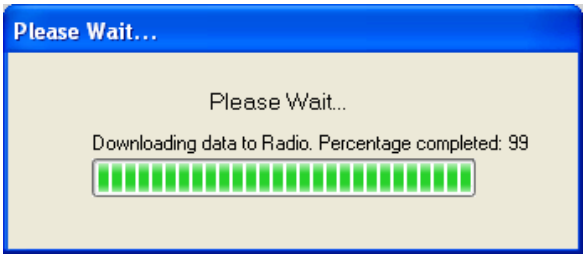


Figure 2-39 Download Status Screen

6. When the download is complete, the radio's screen will indicate that that PC Session was Successful.

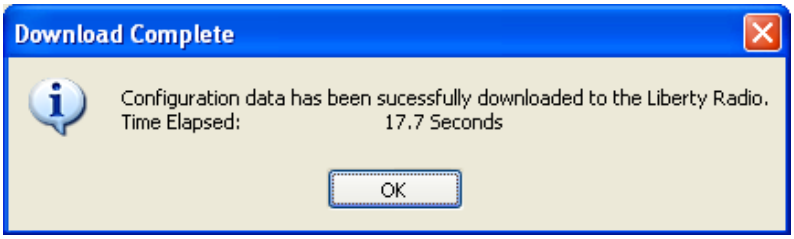


Figure 2-40 Successful Download Pop-Up Screen

7. Once the down load is complete, the radio will automatically reboot.

- **Upload Configuration from Liberty® Radio** -- Loads an operational data file from an attached radio into the PC Programmer.

NOTE

It is important to save any changes to the existing CONFIG file prior to initiating the radio upload, otherwise this information will be lost.

1. Click the upload button on the Pc Programmer - either from the File Drop Down located on the tool bar (Refer to Figure 2-33) or the  icon.

2. It is important to save any changes to the existing CONFIG file prior to initiating the radio upload – to SAVE, click yes, otherwise click NO.

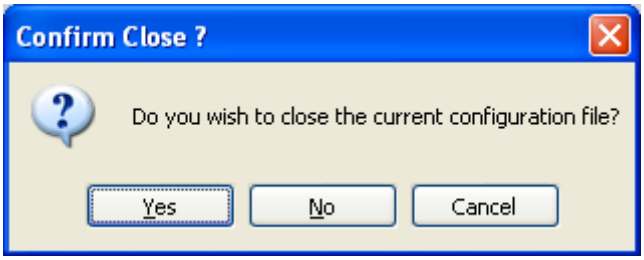


Figure 2-41 Request to Save the PCP Configuration File prior to Upload

3. The radio will go in to PC Programmer Mode and the following screen will appear indicating that that the radio is generating the configuration file for transfer. The  icon will also illuminate during the upload.

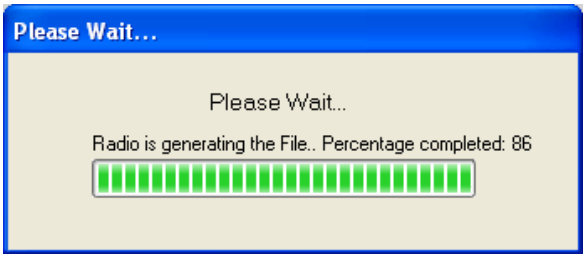


Figure 2-42 Configuration File from Radio being Generated

4. After a successful, the PCP will display the configuration contents.

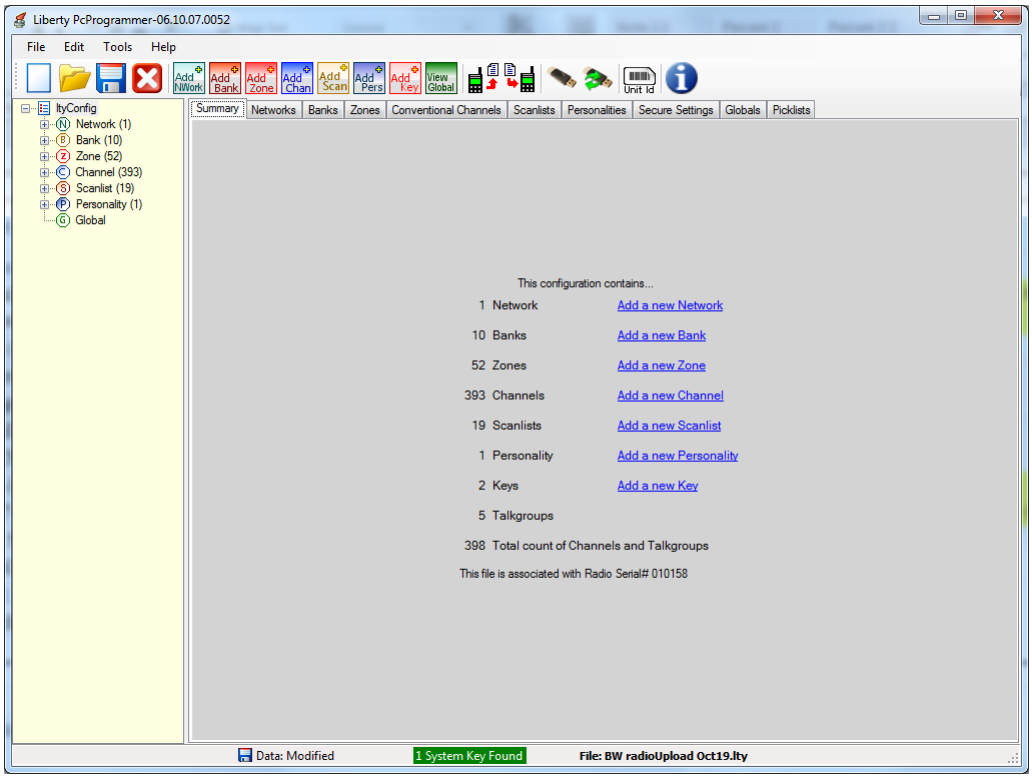


Figure 2-43 Radio Configuration Screen.

- **Update Liberty® Radio Firmware** – Allows for the updating on the radio's firmware package. For detailed information, refer to Section 4 for additional information.

- **Exit Liberty® PCP** -- Exits the PCP. The program can also be closed by double clicking on the PC Configuration Toolkit icon in the upper left corner of the PCP screen, by single clicking on the icon and then clicking on "Close", or by clicking on the X located in the upper right.

Edit

Provides the mechanism to add parameters – such as Network, Bank, Zone, Channel, Scanlist, Personality, Key, and Global parameters. (Refer to Figure 2-46).

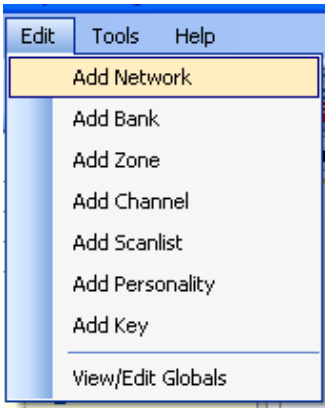


Figure 2-44 Edit Pull-Down Menu

Tools

Contains interface parameters between the radio and the PCP -- Check Radio, Manage System Keys, Manage Unit IDs, Update Radio with Factory Enabled Options, Download Latest Feature Database and Configuration Password.. (Refer to Figure 2-47).

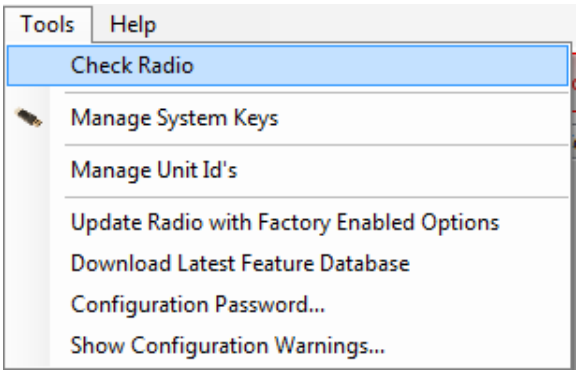


Figure 2-45 Tools Pull-Down Menu

- Check Radio The PCP will verify if a radio is detected on the USB or not.

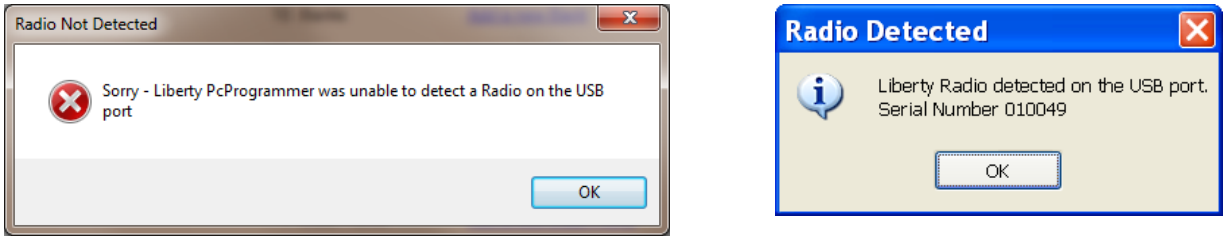
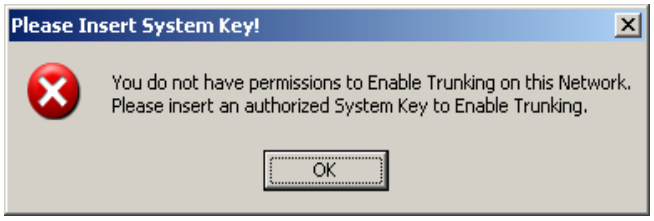


Figure 2-46 Check Radio – Verify if Radio is Detected on USB Port

- Manage System Keys – When a valid System Key is found, the system key information will be displayed.

NOTE Refer to Attachment B for information on how to program the Daughter Keys.

NOTE When a Master System Key is not available (or a Daughter Key). The Network Trunking and Personalities features CANNOT be accessed.
An error message will appear asking for a valid Systems Key to be inserted. To continue, either insert a valid Systems Key or only Conventional Data maybe entered.



However, if an existing file was opened or uploaded from a radio, the Trunking data can still be viewed.

To access the System Key:

1. Insert the Master Key (or Daughter Key).
2. Click on the MANAGE SYSTEM KEYS from the TOOL drop down menu (or select the  icon). This screen will appear.

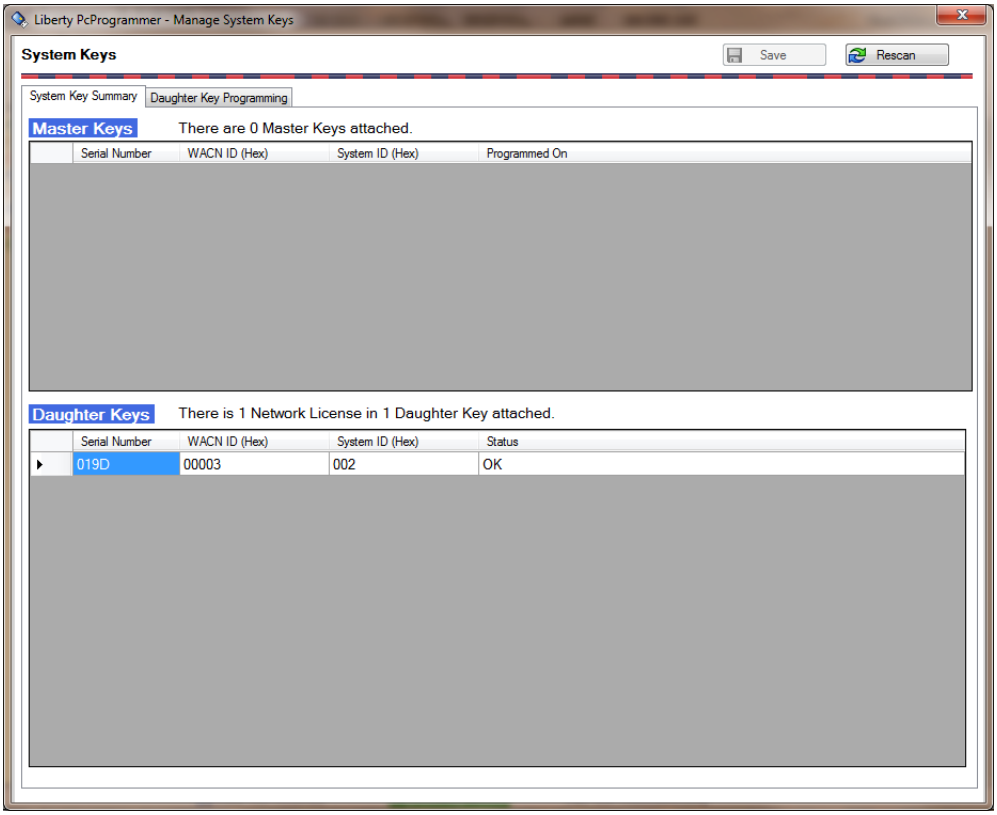


Figure 2-47 Initial Manage System Keys Screen

NOTE

Rescan is not required if the Master Key (or Daughter Key) is inserted before the PCP is opened.

3. To check for System Key (or Daughter Key), press RESCAN (or the  icon.) The PCP will scan the inserted System Key for information.

4. To check the restrictions on the Daughter Key, press the Daughter Key Programming Tab, this screen will indicate if the daughter has any programming restrictions imposed on it, such as an expiration date, serial number limitations, or P25 Unit ID restrictions, for example. Figure 3-50 illustrates a Daughter Key that does NOT have any restrictions.

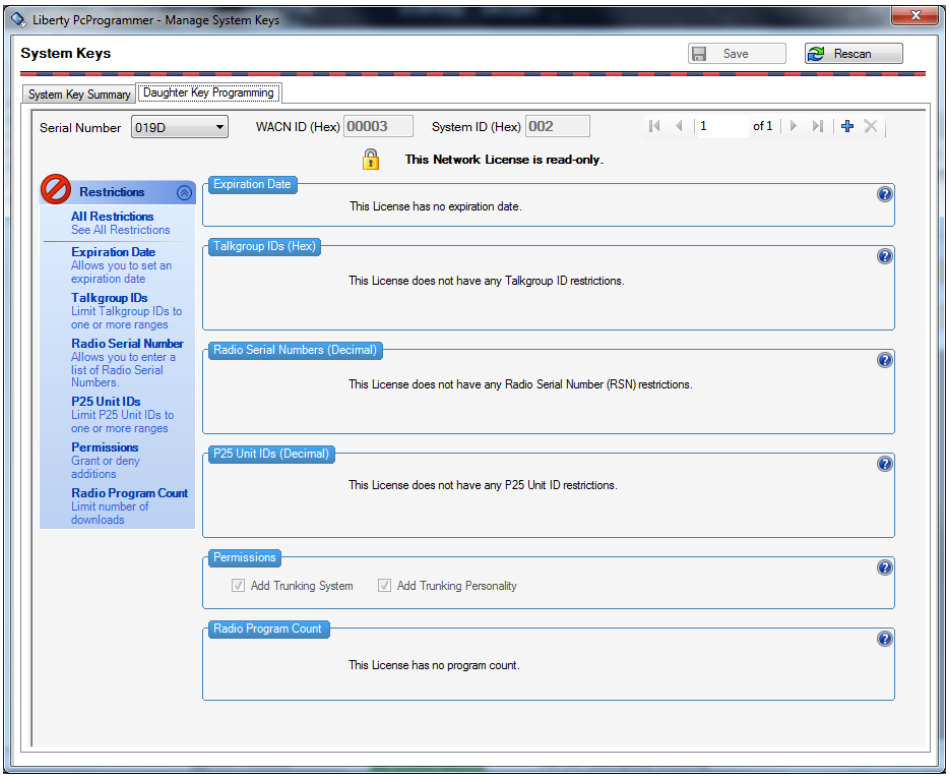


Figure 2-48 Example of a Daughter Key with No Programming Restrictions

- Manage Unit IDs

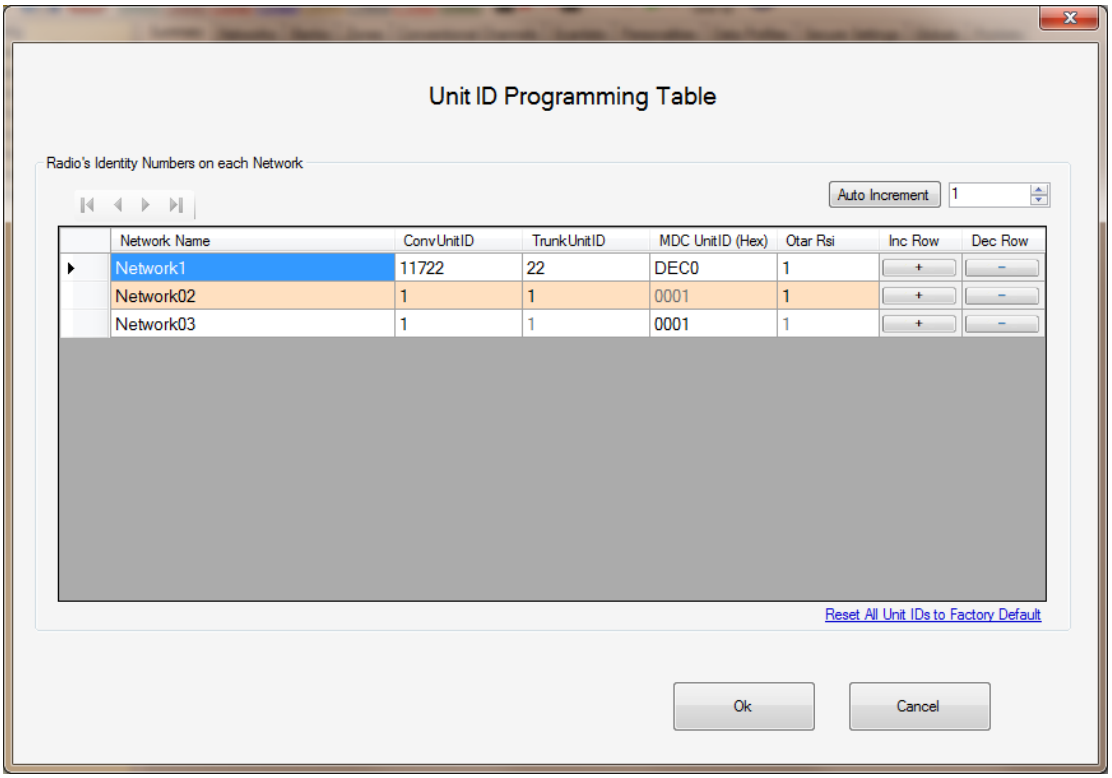


Figure 2-49 Unit ID Programming Table

- Update Radio with Factory Enabled Options

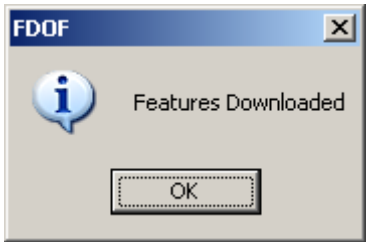


Figure 2-50 Features Downloaded Screen

- Download Latest Feature Database -- The feature database is updated by Thales each month and posted on the Internet. (You will require internet access to download this database.) Select DOWNLOAD LATEST FEATURE DATABASE to download the current database from Thales and to automatically install it in the PC Programmer. If the feature database is current, a pop-up screen will ask if you want to download it anyways.

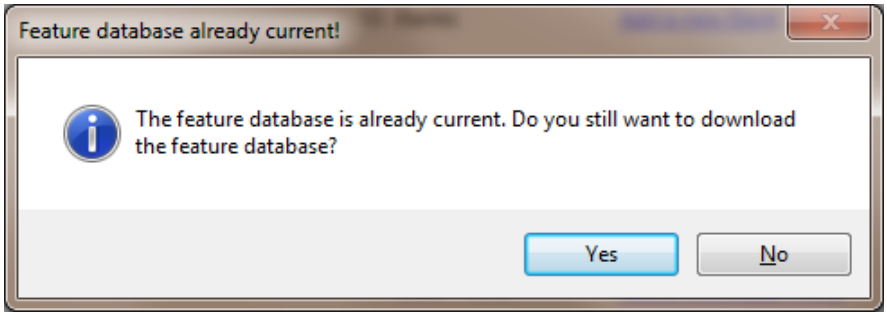


Figure 2-51 Notification of Feature Database Being Current

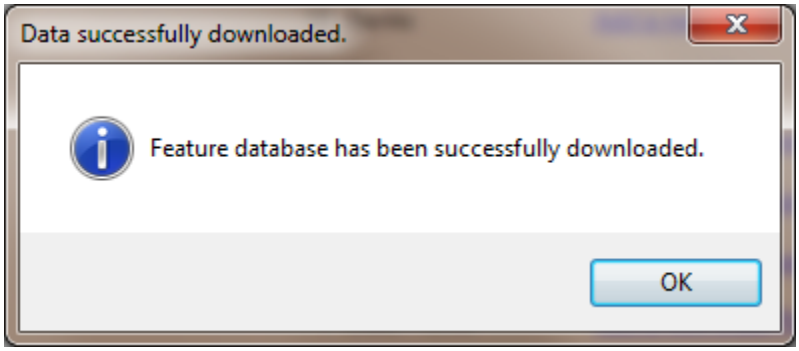


Figure 2-52 Successful Download of Features Database

- Configuration Password

NOTE

A password protected file cannot be downloaded to radios containing S/W Release 6.0 and earlier.

The Configuration Password option provides a tool to prevent unauthorized users from access a (protected) configuration(s). The configuration password is required to be entered by the user only when accessing a protected configuration in the radio or in a saved file.

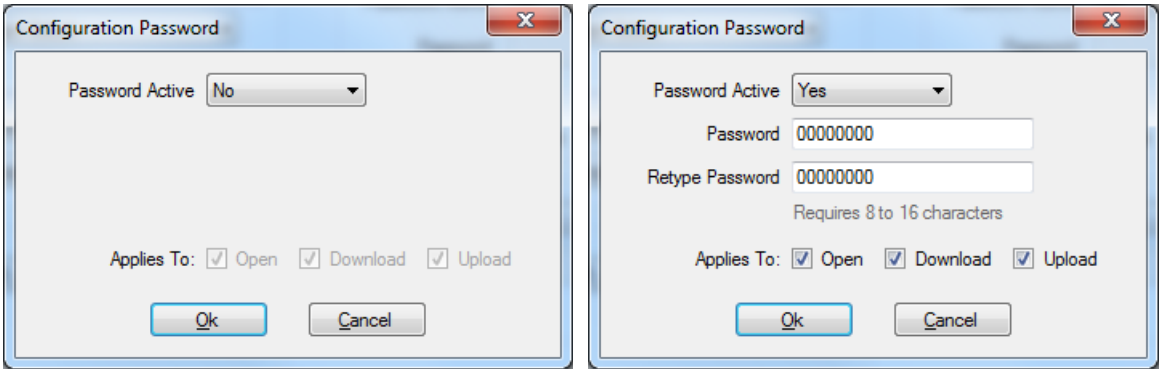


Figure 2-53 Configuration Password – Creating a Password for a Configuration File

Table 2-28 Configuration Password

Parameter	Accepted Values
Password Active	Set Password to YES or NO (Default setting in **NO**)
Password / Retype Password	Enter NEW Password – password requires 8 to 16 Alpha-Numeric Characters. Note: When the NEW password has reached the required character count, the color will change from RED to BLACK, indicating the minimum number of characters have been entered. In order to proceed, the password must be retyped.
Applies to:	When checked, the configuration password will prevent unauthorized users from opening, downloading, and uploading a configuration file. The default setting is to have ALL three checked, but at least one option must be checked.

Points to Remember:

- There are NO maximum number of password entry retries.
- If the Configuration file is password protected, software upgrades will not be possible unless the correct password is entered.
- When opening and saving a protected configuration file, a pop-up screen will appear asking the user to enter the Configuration Password when first accessing the file.
- When uploading a protected configuration file from the radio to the PCP, the PCP will ask the user to enter the password. If the password entered is correct, then the upload will proceed.

- To change the Configuration Password – select CHANGE PASSWORD. The Password will default to the DEFAULT PASSWORD. The user can enter the NEW Password.

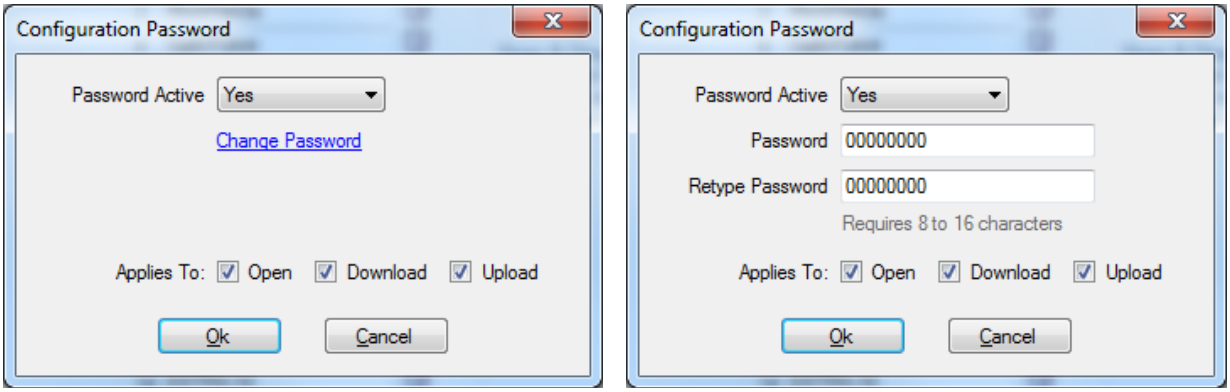


Figure 2-54 Change the Configuration Password

- Show Configuration Warnings

NOTE This selection is only available with Liberty Radio S/W Ver 6.20 (that does not have the Analog Wideband feature enabled) and greater and Liberty PCP Ver 6.2 and greater.

NOTE The Analog Wideband Feature is *only* available in those radios with this feature enabled.

If the Analog Wideband feature enabled is NOT enabled, the radio will automatically convert any wideband channels to Analog Narrowband.

However, the radio will leave in place all Part 22 and Part 80 VHF/UHF Analog Wide Channels, all receive-only channels and all Analog Wideband channels not on frequencies in the Part 90 VHF/UHF prohibited bands.

- When the user has opened a file, uploaded a configuration from a radio, or created a configuration that contains wideband channels in the FCC prohibited portions of the VHF band and/or UHF band. This menu option provides useful information to allow the user to correct these channels prior to downloading to a radio that does not have the Analog Wideband feature enabled.

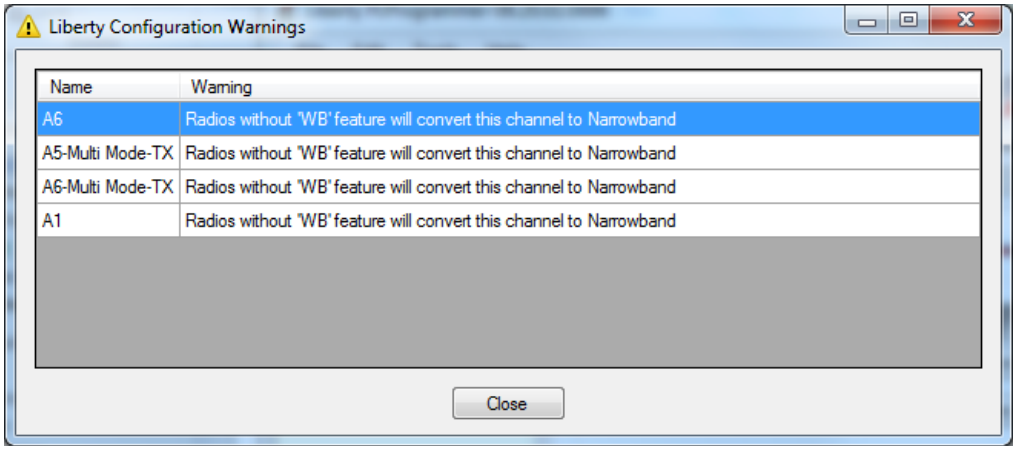


Figure 2-55 Liberty Configuration Warnings Screen

- If a configuration file is downloaded to a radio that does not have the WB Feature enabled, the PCP will provide a warning notice indicating the configuration file contains information that is not enabled on the radio.

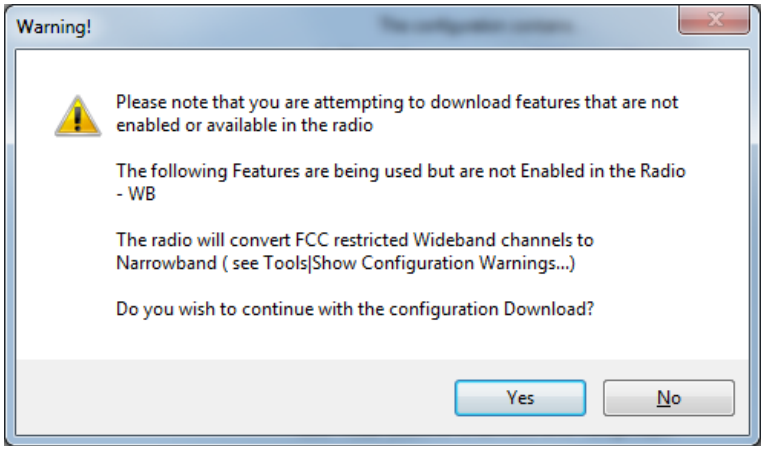


Figure 2-56 Liberty Configuration Warnings Message

The radio will convert any Analog WB channels to Analog NB

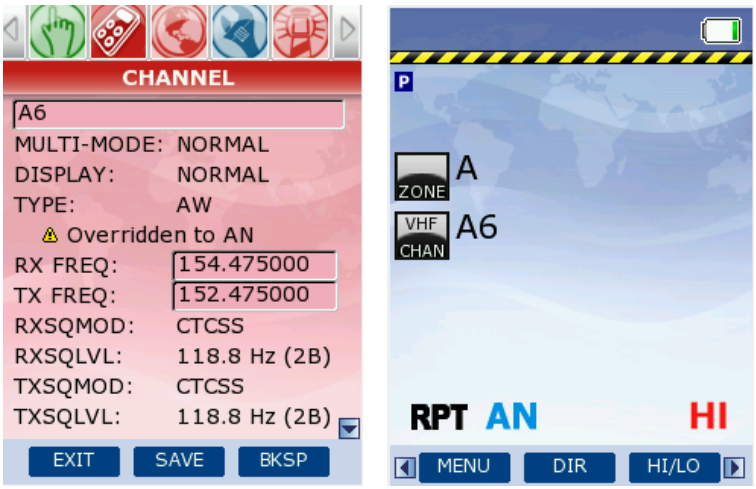


Figure 2-57 Example of the Radio HMI Showing the Analog NB Conversion

Help

There are two (2) available menu items: About and User Manual.

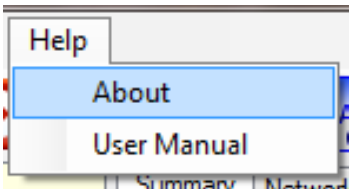


Figure 2-58 Help – Pull-Down Menu

- ABOUT – Clicking on ABOUT, a dialog box provides the version of the installed PCP Software, Thales Contact Information, Radio Information, and OS Information.

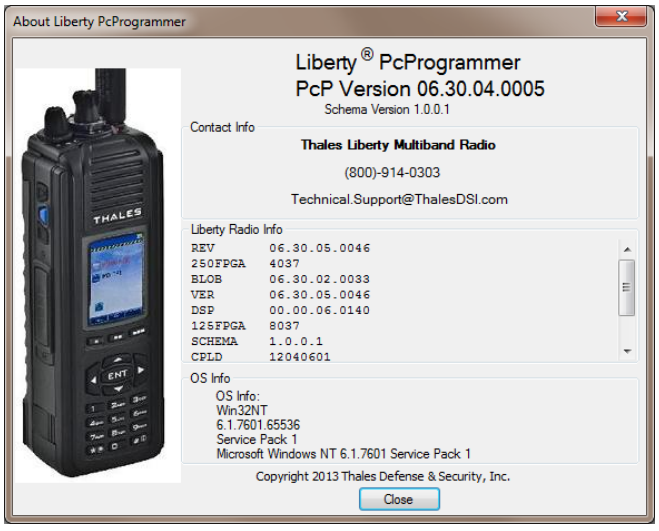


Figure 2-59 Help – About Information (Typical) – with Liberty Radio Attached

- USER MANUAL – Clicking on USER MANUAL will open a PDF Format copy of the user manual for the Liberty® PCP (requires Adobe® Acrobat® Reader).

UNIT ID – UNIT IDs correspond to an active Network (Conventional and Trunking) P25 Channels/Talkgroups.

When assigning Unit IDs, it is important to remember that the Liberty Radio can support:

- 30 Radio Unit IDs for Trunking Systems (one per Network System),
- 30 Radio Unit IDs for Conventional Systems (one per Network System),
- 30 Radio MDC Unit IDs (one per Network System),

NOTE

If Trunking Unit IDs are being assigned, a Master (or Daughter) Key must be inserted, otherwise, the Trunking ID will not be able to be assigned.

1. Click on the UNIT ID ICON (

) located on the Toolbar.

2. The UNIT ID Programming Table will appear. Each Network is assigned a unique UNIT ID for Conventional, Trunking, and/or MD, depending on how the channel has been configured.

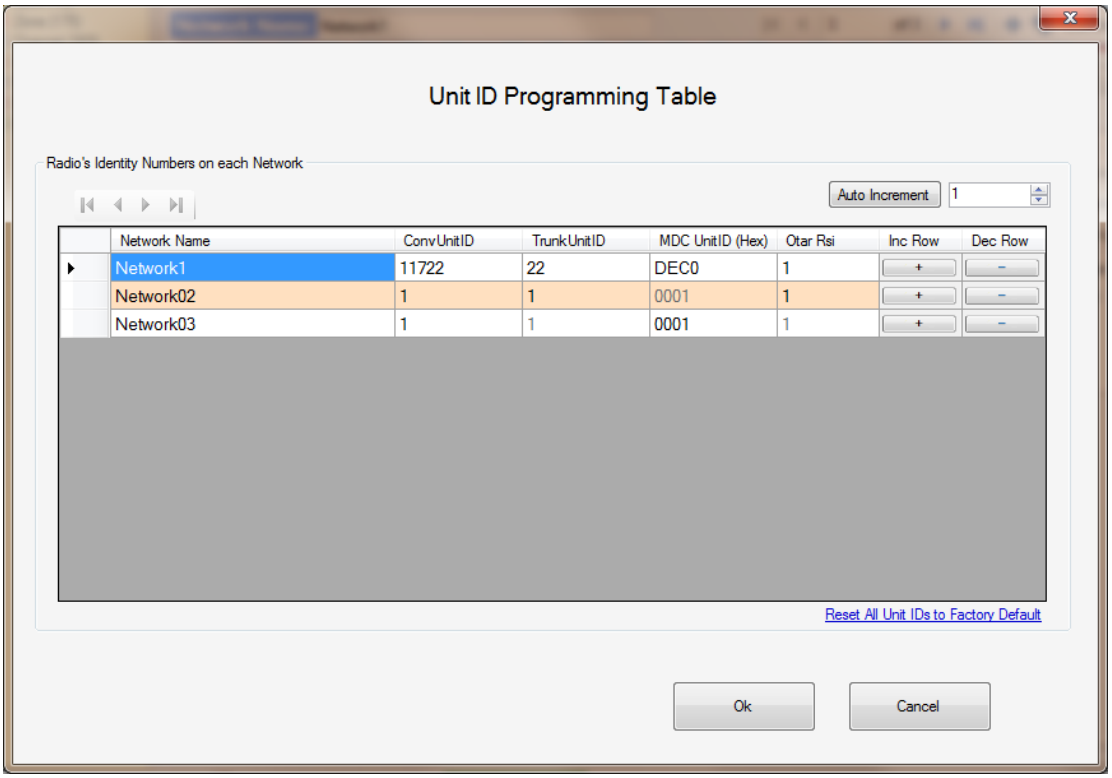


Figure 2-60 UNIT ID Programming Table

3. Set the OTAR Radio RSI number.

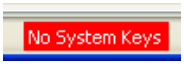
Toolbar

The toolbar is a quick method of accessing menu commands. To display a brief description of a tool's functionality, place the arrow cursor on the tool icon and pause for a second. The items on the toolbar are described in the following paragraphs.

Figure 2-61 Toolbar Icons

Table 2-29 Toolbar Icons - Description

Toolbar Icon	Icon Name	Description
	Open New	Clicking on this icon opens a new configuration file with default parameters.
	Open Existing Configuration	Clicking on this icon opens an existing configuration file.

Toolbar Icon	Icon Name	Description
	Save File	Clicking on this icon saves the configuration file currently in PCP.
	Close File	Clicking on this icon closes the configuration file currently in PCP.
	Add Networks	Clicking on this icon adds a network
	Add Bank	Clicking on this icon adds a bank
	Add Zones	Clicking on this icon adds a zone
	Add Channels	Clicking on this icon adds a channel
	Add Scan	Clicking on this icon adds a scan list.
	Add Pers	Clicking on this icon adds a Trunking Personality.
	Add Key	Clicking on this icon opens the DES or AES keys
	View Global	Clicking on this icon opens the Global Settings screen showing the current settings on the radio.
	Upload Data	Clicking on this icon uploads a configuration file from an attached radio into PCP.
	Download Data	Clicking on this icon downloads the active configuration file into an attached radio from PC Programmer.
	Manage System Key	Clicking on this button will bring up the system key management screen. The PCP Screen will provide the following indication:  Indicates that there is NO System Key  Indicates that one or more valid System Keys are available
	Rescan System Key	Clicking on this button will rescan the system key.

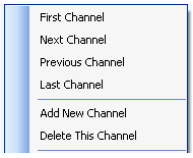
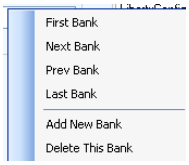
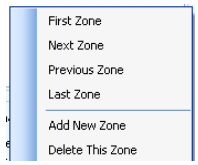
Toolbar Icon	Icon Name	Description
	Unit ID	Unit ID Programming Table this tables provides a mechanism to uniquely identify the Unit ID for each conventional and trunking networks.
	About	Clicking on this icon brings up a dialog box that displays the version of the installed PC Programmer.

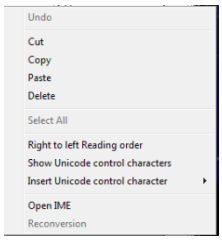
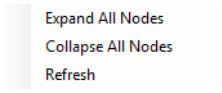
Context Menu

The context menu is a "floating menu" with context sensitive menu items (a menu contains different items depending on the current selected action). Selecting a context menu item performs the same function as selecting that same item from the standard menu bar.

To activate the context menu, place the arrow cursor on the currently selected item and press the right mouse button. Because the context menu uses the currently selected item to calculate the context, it is important to select the item before activating the context menu.

Table 2-30 Context Menu Examples

Menu Examples	Description
	CHANNELS – this context menu enables to user to quickly review and modify the contents of various configured CHANNELS.
	BANK – this context menu enables to user to quickly review and modify the contents of various configured BANK.
	ZONES – this context menu enables to user to quickly review and modify the contents of various configured ZONES.
	Common Context Menu – allows for the editing of most text and numeric fields

Menu Examples	Description
	Numeric Fields – allows the user to edit and format numeric fields
	Navigation Menu – allows the user to quickly expand and collapse the different categories

Status Bar

The Status Bar (Figure 3-63 and Figure 3-64) shows the file name of the configuration file being used and whether it has been modified since last being saved and whether or not a system key is available.

Figure 2-62 Status Bar - NO SYSTEM KEY

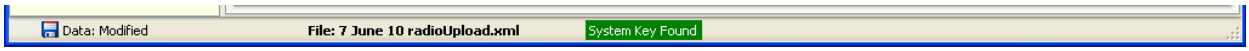


Figure 2-63 Status Bar - SYSTEM KEY FOUND

Save Changes

The PCP will display a warning window if the operator attempts to close a modified file without first saving changes (Refer to Figure 3-65), and then ask the operator to confirm exiting the program. (Refer to Figure 3-66).

NOTE

The PCP will provide a pop-up screen indicating that there are errors to the current configuration file that MUST be corrected prior to saving the file.

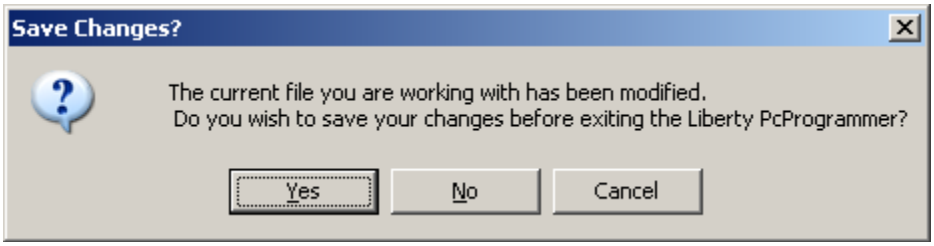


Figure 2-64 Save Changes Warning

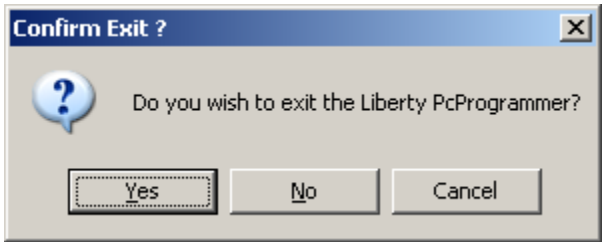


Figure 2-65 Confirm Exit

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SECTION 3. UPDATING RADIOS SOFTWARE – FLASH DOWNLOAD PROCEDURE

NOTE

It is recommended to upgrade the PCP to Release 6.30 first and then upgrade the existing radios to Release 6.30.

UPGRADE THE RADIO'S SOFTWARE – FLASH DOWNLOAD

NOTE

The following instructions assume that the Liberty PC Programmer is installed and ready for use.

1. Upload and save the radio's configuration at this point. This will ensure that the radios configuration is not lost due to the upgrade. To do this, select FILE, then UPLOAD CONFIGURATION FROM LIBERTY RADIO, then SAVE AS to save the configuration in a PC Folder and file name you choose.

2. On the PCP, select FILE, and then Select UPDATE LIBERTY RADIO FIRMWARE.

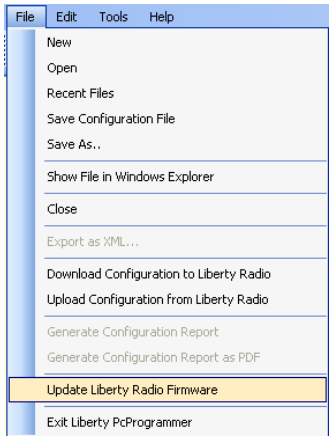


Figure 3-1 Select Update Liberty Radio Firmware

3. Use the downloader dialog to select the source folder containing the new radio software (.dld filename).

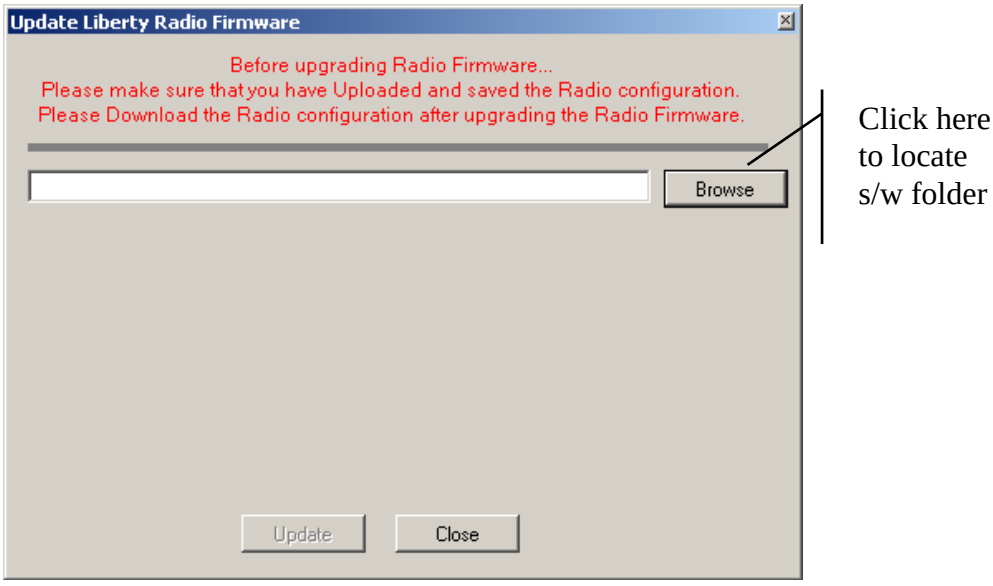


Figure 3-2 Initial Download Screen

4. Select the source file named *.dld extension and then click OPEN.

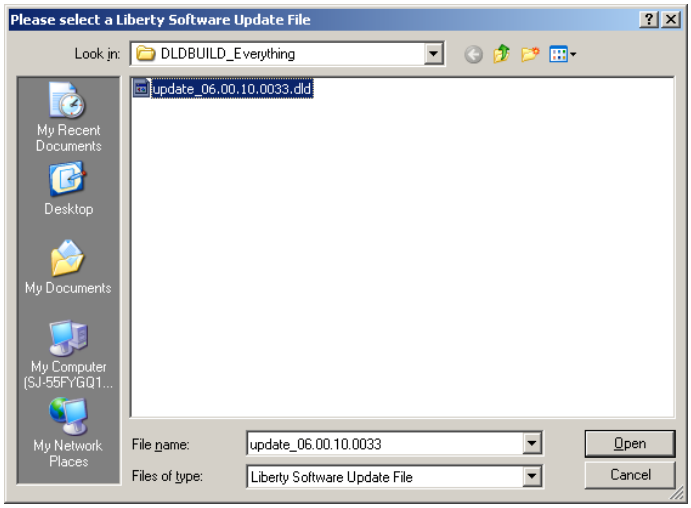


*Figure 3-3 *.dld Source File Selection*

5. An information screen will appear providing Existing Radio Version and New Version to be updated. Notice that these two columns have different versions (and that the text is BLACK). Press UPDATE.

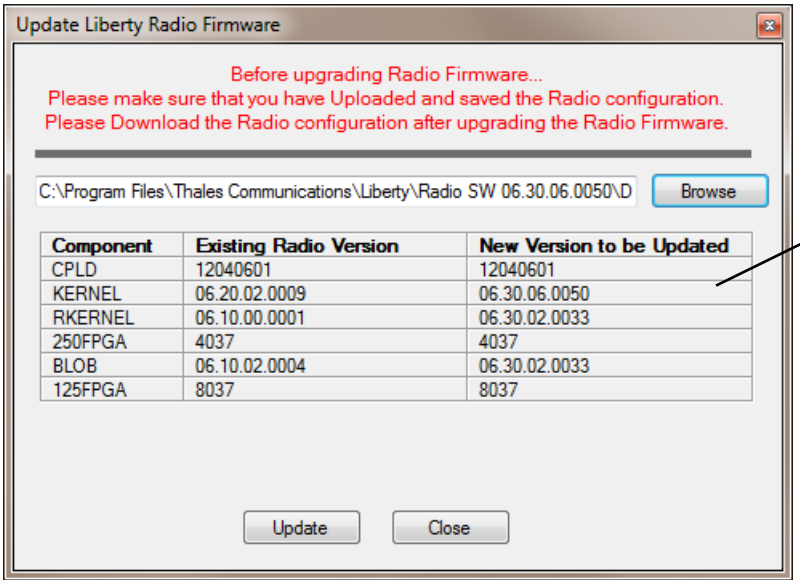


Figure 3-4 Existing Radio Version to New Version to be Updated Info Screen

6. Click UPDATE to install the s/w upgrade files – this step will take approx 3 to 5 minutes complete – the download, authentication, extraction, and decryptions of the update.

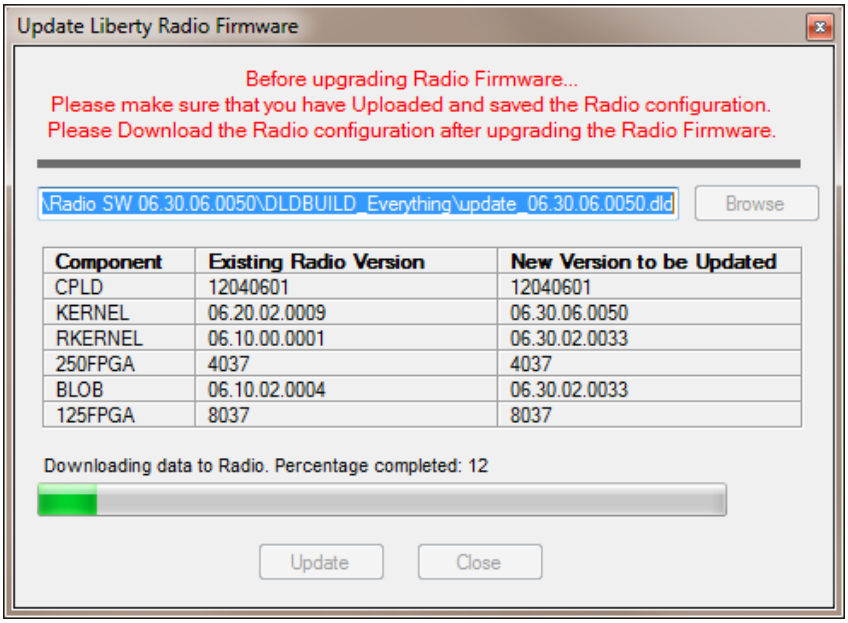
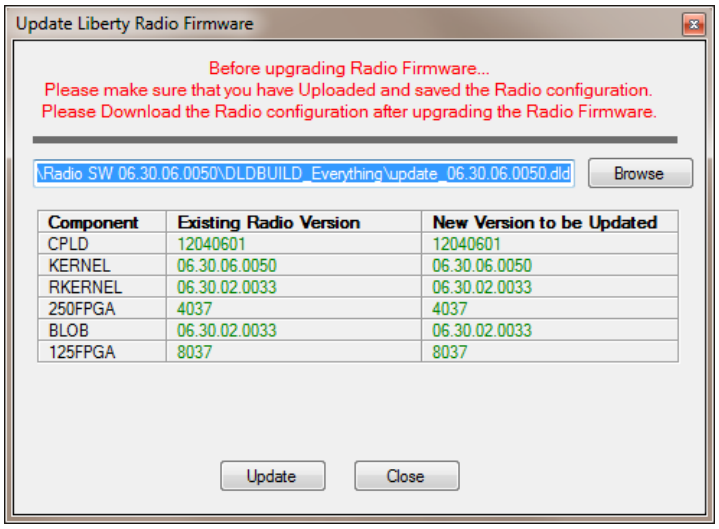


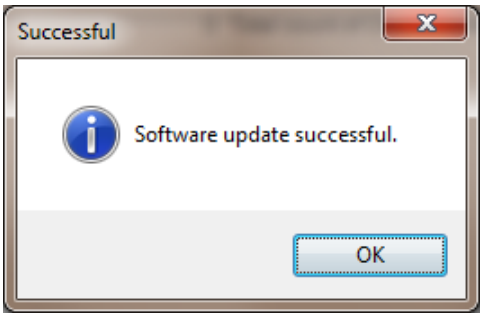
Figure 3-5 Initial Flash Download Box

NOTE

During the download sequence, the radio will reboot – please note, this is normal, and part of the software upgrade.

7. When the download is completed, the UPDATE LIBERTY RADIO FIRMWARE screen will appear showing the new code versions. When the SOFTWARE UPDATE SUCCESSFUL pop-up screen appears, press OK.

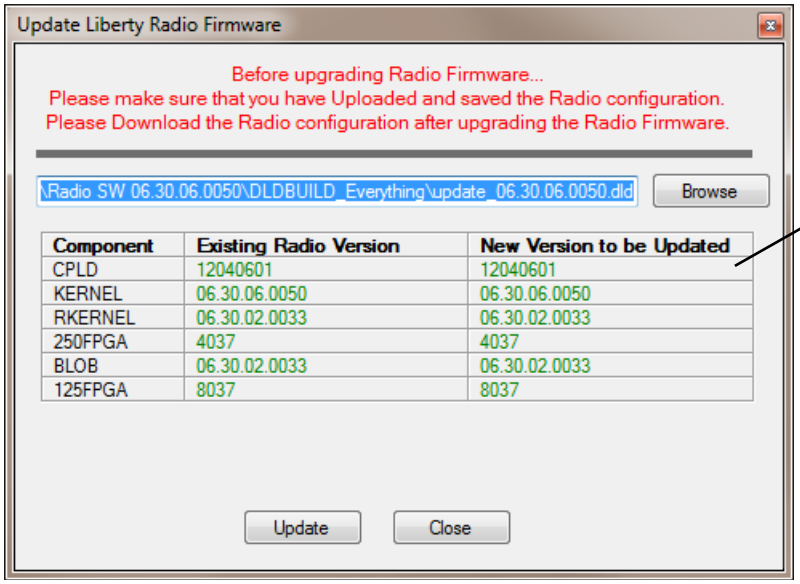




Update Liberty Radio Firmware – Update Completed Software Update Successful Screen

Figure 3-6 Successful Radio Firmware Screens

8. Verify the radio versions are the same (See the GREEN Text). If they are not, then press UPDATE to restart the upgrade. If they are the same, then press CLOSE.



Notice that the two columns reflect the same versions after the update.

Figure 3-7 Update Complete -

NOTE

Once the radio software has been successfully updated on the radio. The configuration file will need to be loaded into the radio. (*FILE ➔ DOWNLOAD CONFIGURATION TO LIBERTY RADIO*)

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Section 4. TROUBLESHOOTING

NOTE

The following information may provide some guidance if any problems occur when using the Liberty PCP.

TROUBLESHOOTING

Table 4-1 Troubleshooting

Symptom	Probable Cause	Corrective Action
Radio software flash download fails	PCP version may not be able to flash download the updated software.	• Verify that the latest version of the PCP is being used when updating the radio software. • Radio may need to be power-cycled
Configuration File will NOT open using the PCP	The Configuration File maybe password protected and the user has not entered the correct password	Enter the correct configuration password to OPEN, DOWNLOAD, or UPLOAD.
Uploading or downloading a “protected” configuration file.	The PCP will not allow the upload from a radio or the download of a configuration file to a “protected” configuration file that is currently loaded on a radio without first entering the correct password.	The user must enter a correct configuration password in order for the download to proceed.
Invalid Trunked OTAR	The Data Profile is missing.	Trunked OTAR requires a Data Profile

CORRESPONDING RADIO SOFTWARE AND PCP VERSIONS

Table 4-2 Radio and PCP Information

Liberty Radio Software Release	Liberty PCP Version
Radio S/W Rel 5.0	PCP Ver 01
Radio S/W Rel 5.5	PCP Ver 5.05
Radio S/W Rel 6.00	PCP Ver 6.00
Radio S/W Rel 6.10	PCP Ver 6.10
Radio S/W Rel 6.20	PCP Ver 6.20
Radio S/W Rel 6.30	PCP Ver 6.30

RESET THE RADIO

NOTE

The following information allows the radio technician the ability to “reset” the radio.

NOTE

Prior to resetting the radio, verify the radio is turned OFF.

1. Simultaneously, press and hold down the top and bottom side buttons, then turn the radio ON. HOLD for approximately 5 seconds after the radio is turned ON. This will put the radio into SERVICE MODE.

2. Select FORMAT FLASH from the Service Mode Screen. Then press ENT.

NOTE

FORMAT FLASH will erase all saved data and channel settings.

3. Move the selection outline to EXIT, press ENT. Then reboot the radio.
4. At this point, the radio will need to have a radio configuration file loaded in to it. Refer to Chapter 3 – **Download Configuration to Liberty® Radio**

Section 5. GLOSSARY

ACRONYMS

Term	Description
AES	Advanced Encryption Standard
AGID	Announcement Group Identity
AN	Analog Narrowband
ATG	Announcement Talk Group
AW	Analog Wideband
C4FM	Compatible 4 Level Frequency Modulation
CC	Channel Controller
CDCSS (also DCS)	Continuous Digital Controlled Squelch System
CFSN	Configuration File Serial Number
CTCSS	Continuous Tone-Controlled Squelch System
DES	Data Encryption Standard
DK	Daughter Key
DTMF	Dual-Tone Multi-Frequency (DTMF)
ETR	Enhanced Trunked Roaming
FCC	Federal Communications Commission
FSCCS	Full Spectrum Control Channel Scan
GPS	Global Positioning System
GPSR	Global Positioning System Receiver
HMI	Human Machine Interface
IP	Internet Protocol
KMF	Key Management Facility
LCD	Liquid Crystal Display
LOC	Location
LSM	Linear Simulcast Modulation
MDP	Mobile Data Peripheral (MDP) --
MK	Master Key
NAC	Network Access Code
NMEA	National Marine Electronics Association

Term	Description
NMEA Sentences	GPGGA – Fixed Location that is the recommended and most often used NMEA sentence for location information. GPGSV – Detailed Satellite Data GPRMC – Recommended minimum data for GPS GPGLL – LAT/LON Data GPGSA – Overall Satellite Data GPVTG – Vector track an Speed over the Ground GPZDA – Date and Time GPGST – GPS Pseudo Range Noise Statistics
OTAR	Over-The-Air-Rekeying
P25	Project 25
PCP	PC Programmer
PTT	Push-to-Talk
RF	Radio Frequency
RFSS	Radio Frequency (Radio Frequency) Sub-System
RSI	Radio Set Identifier
RSN	Radio Serial Number
RSSI	Received Signal Strength Indication
RTC	Real-Time-Clock
TEK	Traffic Encryption Key
UHF	Ultra High Frequency
USB	Universal Serial Bus
VHF	Very High Frequency
WACN	Wide Area Communications Network

DEFINITIONS

Term	Definition
AES Key	Advanced Encryption Standard Keys
AGID	Announcement Group Identity – is a group used to identify or address a super group of multiple independent group memberships
Backlight Timeout	Automatically turns off the backlight after a pre-determined length of time with no keypad activity.
Bank	Banks provide a means of easily switching a set of Zones (which contain channels with a few key presses.
Channel	(xx channels) A group of characteristics, such as transmit / receive, radio parameters, encryption coding. Squelch, modulation, and power settings.
Control Channel Hunt	While a radio is registered with a particular control channel site controller, the radio will continue to monitor the status of other control channels. If the unit determines that a different control channel can provide "better" service, the unit will abandon the current control channel and move to the desired control channel. The function of monitoring other control channels will not interfere with any active service processing by the unit. Control channel hunt options are: • A single channel hunt is when the radio is directed by the RFSS to a control channel other than one that was last confirmed. • The short hunt sequence searches the list of those channels identified by the RFSS in the adjacent site broadcast message along with the primary control channel and the secondary control channel(s) of the last confirmed site. • The extended hunt sequence searches those channels programmed into the radio as possible channels.
Control Channel	In a trunking system, one of the channels that is used to provide a continuous, two-way / data communications path between the RFSS central control and all radios on the system
Conventional	Typically refers to radio-to-radio communications, sometimes through a repeater. The user shares a frequency, or frequencies, with other users without the aid of a central controller to assign communication channels. Therefore, the user should monitor each channel before transmitting to avoid interfering with another user who may be transmitting.

Term	Definition
CTCSS Tone	Standard Continuous Tone Controlled Squelch System (CTCSS) squelch tones. Sub-audible tones superimposed on the radio carrier frequency. When the radio is set to a channel that is programmed for receive CTCSS, the radio will not open squelch unless the required tone is present in the received signal.
DES Key	Data Encryption Standard Keys
DTMF	Dual-Tone Multi-Frequency (DTMF) signaling is a method of in-band signaling for issuing or entering control codes, passwords, and other signals.
Extended Hunt	Control channel extended hunt sequence searches a list of those channels programmed into the radio as possible control channels.
Frequency Modulation (FM)	The voice signature is converted to a frequency deviation that is added to the frequency of the transmission - the transmission amplitude does not change.
Global Parameters	Programmable radio parameters that apply to all channels.
GUI	Graphical User Interface
HOME Channel	The HOME channel is the channel designated as the user's home or the user's most commonly used channel.
Impolite Channel Access	Impolite Channel Access refers to the method whereby the radio sends a message on a channel regardless of the "busy" state of the inbound channel. In this way it could step on other active transmissions.
Inter-RFSS Roaming	Inter-RFSS Roaming allows for roaming across RFSS boundaries. Inter-RFSS Roaming may cross System and WACN boundaries, but does not necessarily include all Systems and RFSSs within those foreign WACNs & Systems. The services available at the new point of attachment depend on the service capabilities of the site
Inter-System Roaming	Inter-System Roaming allows for roaming across System boundaries. Inter-System Roaming may cross WACN boundaries, including all RFSSs within those foreign Systems, but does not necessarily include all Systems within those foreign WACNs. The services available at the new point of attachment depend on the service capabilities of the site

Term	Definition
Inter-WACN (or Inter-Network) Roaming	Inter-WACN Roaming allows subscriber units to obtain services from P25 Systems other than their home P25 Systems. By definition, Inter-WACN Roaming allows for roaming across WACN boundaries, including all Systems, RFSSs, and sites within those WACNs. The services available at the new point of attachment depend on the service capabilities of the site
Intra-RFSS Roaming	Intra-RFSS Roaming includes roaming between sites within the same RFSS within the same system. The services available at the new point of attachment depend on the service capabilities of the site. The services available at the new point of attachment depend on the service capabilities of the site
Intra-System Roaming	Intra-System Roaming includes roaming between sites within the same RFSS, (Intra-RFSS roaming), and roaming between RFSSs within the same system. The services available at the new point of attachment depend on the service capabilities of the site or RFSS. The services available at the new point of attachment depend on the service capabilities of the site
Key Management Facility	The Key Management Facility (KMF) is a Project 25-compliant mission critical enterprise solution that provides Over-The-Air-Rekeying and related key management service to the subscriber units.
Mobile Data Peripheral (MDP)	Peripherals for the use in mobile data systems including GPS receivers for automatic vehicle location (AVL), routing and mapping requirements, printers, and barcodes.
Network License	Network License is defined as a valid WACN or WACN / System ID that correspond to a Trunking Network
NMEA	National Marine Electronics Association

Term	Definition
NMEA Sentences	There are many sentences in the NMEA standard for all kinds of devices that may be used in a Marine environment. Some of the ones that have applicability to GPS receivers are listed below: GPGGA – Fixed Location Fixed Location that is the recommended and most often used NMEA sentence for location information. GPGSV – Detailed Satellite Data GPRMC – Recommended minimum data for GPS GPGLL – LAT/LON Data GPGSA – Overall Satellite Data GPVTG – Vector track an Speed over the Ground GPZDA – Date and Time GPGST – GPS Pseudo Range Noise Statistics
Open Channel	The squelch setting is overridden and the radio is in a constant receive state.
OTAR	OTAR provides a mechanism for the radio to receive encryption keys without having to bring the radio into a radio shop. The Liberty radio is capable of OTAR using any Key Management Facility (KMF) that is compliant with Project 25 standards.
PCP	PC Programmer
Polite Channel Access	Polite Channel Access refers to the method whereby the radio sends a message on a channel only if it believes the channel is idle. In this way it does not step on other transmissions.
RF Power	Transmit power levels. The lower levels extend battery life but limit transmission range. The higher levels increase transmission range but reduce battery life.
Scanlist	A "grouping" of channels that are to be checked during scan operations.
Selected Channel	The Channel/Frequency currently loaded into the radio for Receiving/Transmitting operations.
Short Hunt	A Control Channel Short Hunt sequence searches occurs when a list of channels identified by the RFSS in the adjacent site broadcast message along, with the primary control channel and the secondary control channel(s) of the last confirmed site.

Term	Definition
Squelch	The muting of audio circuits when received signals fails to meet the open squelch (unmute) criteria. With carrier squelch, the user will hear all channel activity which exceeds the radio's preset squelch level.
Squelch Tail Suppression	A burst of noise (i.e., "static") heard after a FM radio transmission ends. The random static sound is actually the radio trying to decipher the ambient background noise into meaningful audio.
Standby	Standby is where the radio is not receiving any communications by can actively listen for signals
Talk-Group	An organization (or group) of radio users who communicate with each other.
Transmit (TX) Timeout	The radio can be programmed to end transmission automatically after a pre-determined length of time in transmit mode. The radio gives a warning tone and visual indication immediately before ending transmission. The visual indication ("TIME" on the front display) continues until the radio exits transmit mode or the radio is unkeyed, whichever comes first.
Trunking	Trunking is the mutual sharing of a finite number of RF channels among a population of radio subscribers. Access control over system resources, ranging from a single station at a single site, to multiple stations at multiple sites, is a key differentiator between Trunking and Conventional system operation.
Trunking System Key	A system key is a hardware security device to control access to programmable Trunking fields in the customer s PC Programmer. There are two different types of system keys: (1) A Master System Key – is a security device that resembles a USB thumb drive. This device is programmed by Thales for specific WACN and System ID or a specific WACN only. A master key can only be ordered by system owner or their designee. The master key may be used to create daughter keys using the PCP. (2) Daughter Keys – is a security device that resembles a USB thumb drive. This device is programmed by the customer using the PCP software. The customer can institute restrictions that will allow the users to program radios with limited ID ranges, field access, limited by time, or other restrictions. Users may have between 20 and 50 systems per daughter key, depending on restrictions applied. Blank Daughter keys may be ordered from Thales with no restrictions.

Term	Definition
Unit ID	Unit ID is a unique identifier assigned to a subscriber unit for each P25 conventional system and each P25 Trunking system for which it is configured. The P25 Unit ID range is 1 – 9999999.
Zone	A grouping of channels or talk-groups

ATTACHMENT A INSTALLATION

CONTENTS OF THE LIBERTY PCP PACKAGE:

When the Liberty PCP is delivered, the following items are included in the package:

- User's Manual (.PDF file on the CDROM),
- One Compact Disc (CDROM) containing the radio programming software and PCP User's Guide

The following items are required for use with the PCP and must be ordered separately.

- Programming Cable Kit (PN 3100965-501). Contains the following items:
- USB Adapter (PN 1600703-1) - This adapter allows the radio USB port to interface with standard USB Series A and Mini A and Mini-B plugs
- USB Interface Cable (PN 85326) – this cable connects to the Mini A and Mini-B receptacle on the USB Adapter and a Series A receptacle on a PC, or other data device.

NOTE A Liberty Radio and Battery are required to upload and download between the PC and the Radio, but they are NOT required to set-up the programmer or to set up the configuration file.

SYSTEM REQUIREMENTS

The Liberty® PCP can be installed on either Windows 2000®/ XP® / Windows Vista®, or Windows 7® operating system. The system requirements for each of these are as follows:

- AMD® or Intel® x86 or x64 processor
- A desktop version of Microsoft® Windows® Operating System:
  - Windows2000® with Service Pack 4;
  - Windows XP® (32bit or 64bit)
  - Windows Vista® (32bit or 64bit)
  - Windows 7® (32bit or 64bit)
- CD-ROM compatible drive
- USB Port
- 2GB (or greater) of RAM
- 100MB of available disk space

NOTE

Windows Installer 3.0 and .NET 2.0 are required. These will be installed as part of the installation process.

- For Windows Installer 3.0 (or greater) -- select "Accept" when prompted.
- For .NET 2.0 – select "Accept" when prompted.

HARDWARE INSTALLATION

The PC Programmer Cable Kit (PN 3100965-501) is used the PCP to connect the radio side connector to the USB port of the computer when the PCP is installed. This cable kit contains the following items:

- USB Adapter (PN 1600703-1) that allows the radio USB port to interface with standard USB Series A and Mini-B receptacles,
- USB Interface Cable (PN 85326) that connects to the Mini-B receptacle on the USB Adapter and a Series A receptacle on a PC,

Connect the USB Adapter to the side connector of the radio. To attach the adapter to the radio, align the pin on the adapter with the hole on the radio side and press the adapter straight in until it is as tight as possible against the pins on the radio. Then, tighten the adapter to the radio. Locate a USB port on the computer and connect the Series A (larger) end of the interface cable. Connect the USB Mini-B (smaller) end of the interface cable to the Mini-B receptacle on the adapter. Leave the radio powered off for now since the PCP software needs to be installed first.

LIBERTY® PC PROGRAMMER SOFTWARE INSTALLATION

NOTE

You must have "Administrator" privileges on the PC in order to install this software. Once all steps are complete, "User" privileged accounts can operate the PC Programmer.

NOTE

The following paragraphs provide instructions for installing the PCP on your computer.

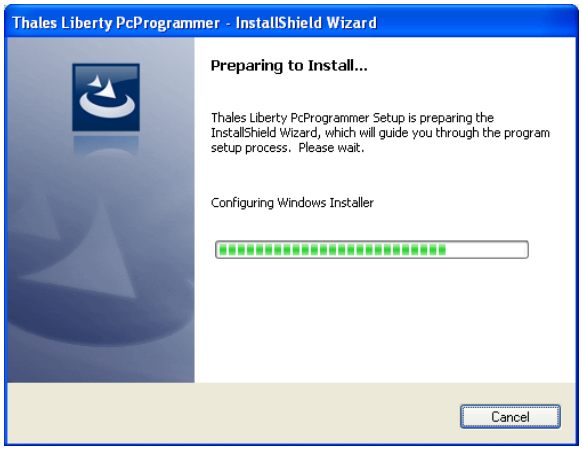
- For Windows 2000® / XP®, refer to page **Error! Bookmark not defined.**
- For Windows Vista®, refer to page **Error! Bookmark not defined.**.
- For Windows 7®, refer to page **Error! Bookmark not defined.**.

Windows 2000 ®/ Windows XP® Installation Procedures

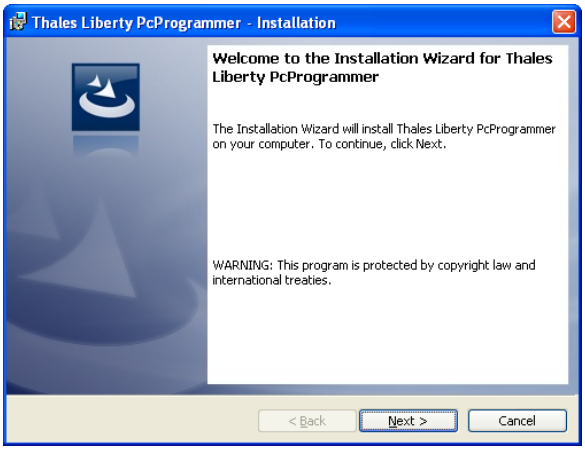
To install the application on Windows 2000® / Windows XP®:

- Insert the program CDROM and select PCP Installation link -- if the introductory screen does not automatically appear, the program can be installed using the RUN command as follows:
  - Click on  , Click RUN, Click on BROWSE, Select the CD drive, and double click on the SETUP.EXE file. The user can also put the disk in the CD drive, use Windows Explorer, and double-click on the SETUP.EXE file.

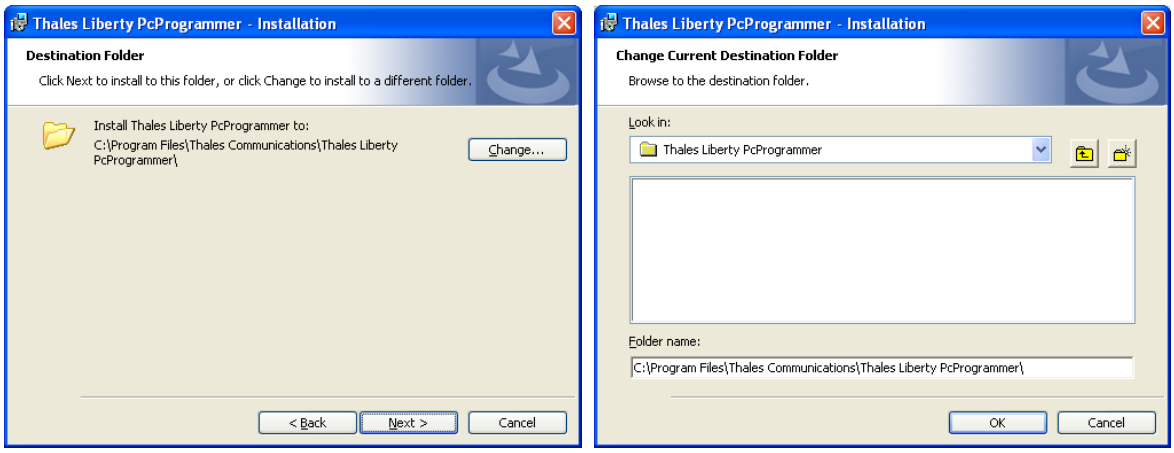
  The PCP Installation application will scan your computer to verify that the system requirements are met.



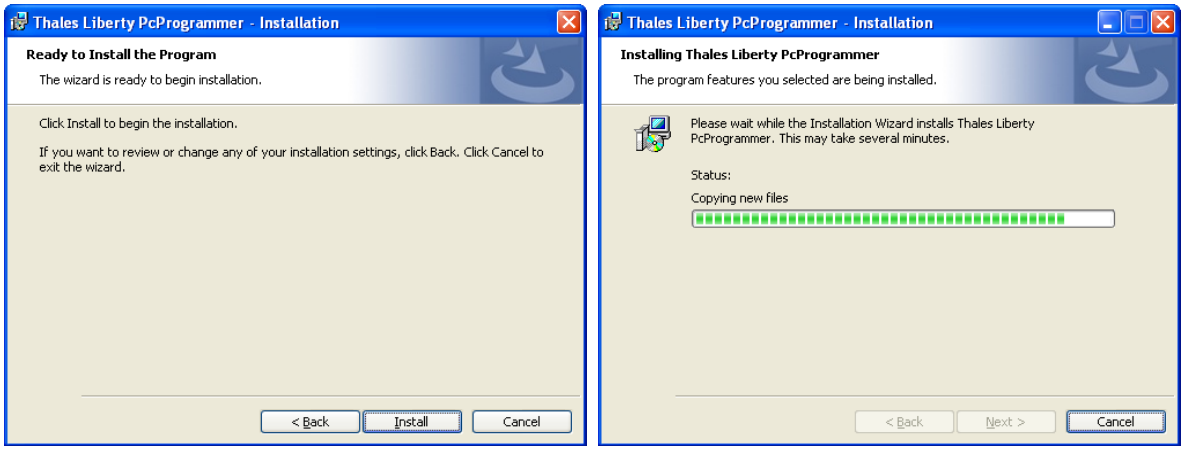
- The Welcome to the Thales Liberty PC Programmer Setup Wizard screen will appear. Click NEXT.



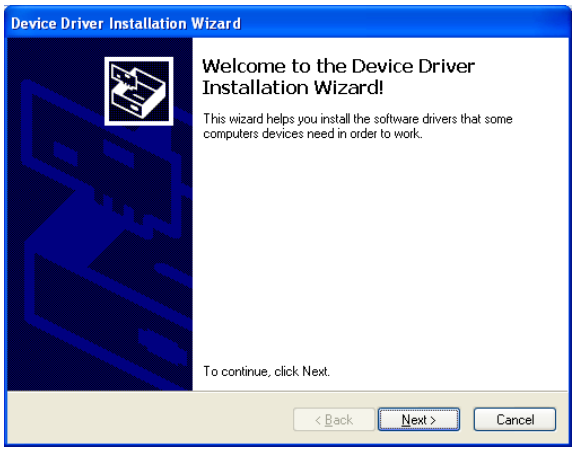
- The next screen will provide information as to where the program will be installed. Thales recommends using the default directory for PCP files, which is C:\Program Files\Thales Communications \ Thales Liberty PC Programmer. The application's software and USB network driver folder will be located here. The users will be granted read/write/modify permissions to this folder as well, so radio configuration files can be stored at this location.



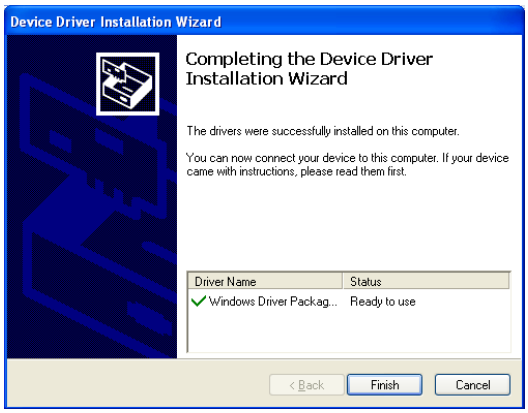
- After you have entered the installation folder, and click INSTALL, the PC Programmer will be installed.



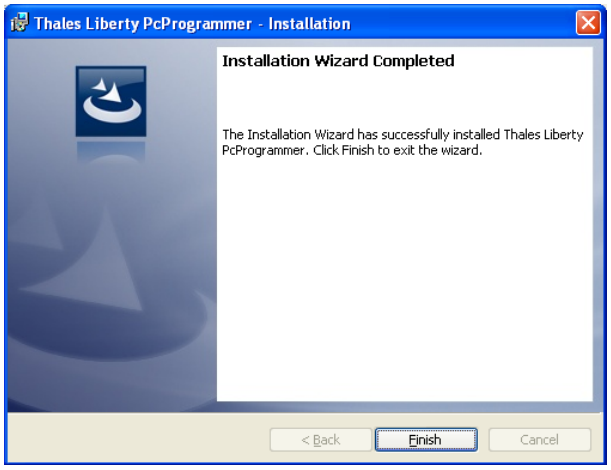
- As part of the installation process, the Device Drivers will need to be installed. Click NEXT to continue with the installation of the required drivers for the PCP. NOTE: This window may appear behind other Windows. The installation will not complete until this step is finished.



- The drivers will be automatically installed. Click FINISH to complete the installation process.



- Once the installation is complete, click FINISH.



- At completion of the install, a shortcut (Liberty® PC Programmer) is automatically placed on the Windows desktop.

NOTE

Some systems may require the USB network driver for the Liberty® Radio to be installed and configured for each USB port that you want to use with the Liberty® Radio.

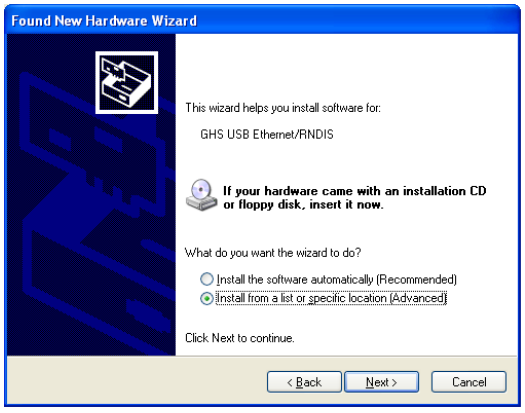
USB Configuration for Windows 2000® / Windows XP®

NOTE

After the PCP software is successfully installed, some systems may require the USB network driver for the Liberty® Radio be separately installed and configured for each USB port that you want to use with the Liberty® Radio. Repeat these steps for each USB port.

- Connect a Liberty® Radio using the USB Adapter and USB Interface cable.
- Turn on the radio if not already on. A "Found New Hardware" wizard will appear. If asked, select "No, not this time" for Windows Update and click NEXT.

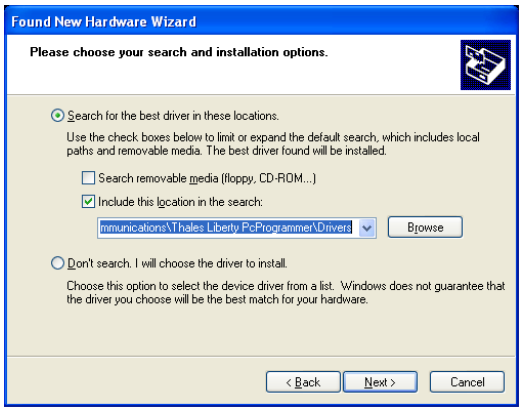
- Select to "Install from a list or specific location" and click NEXT.



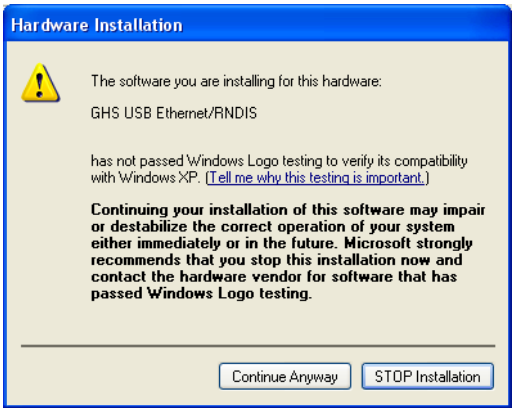
- Enter the path to the Liberty® USB Drivers folder. For example, If you installed the USB Drivers in a separate folder, the path might look like this:

  C:\Program Files\Thales Communications \ Thales Liberty PcProgrammer\Drivers\ Thales Liberty

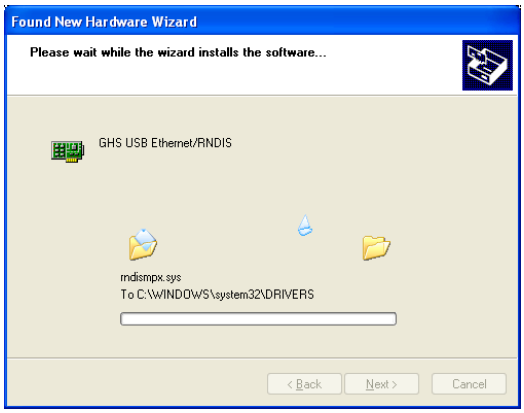
As an option, you can use the “browse” button to navigate to the folder, which will enter this path for you. Click NEXT.



- Select CONTINUE ANYWAY when prompted by the Hardware Installation message. Finish the wizard.

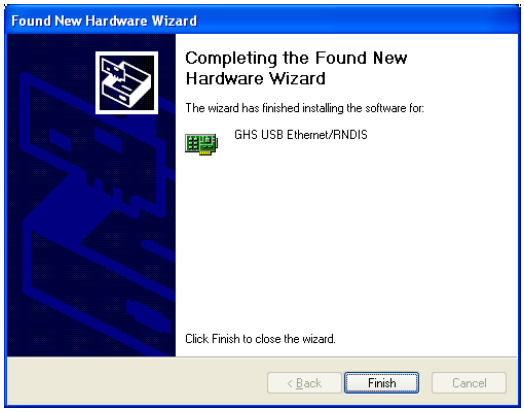


- The following window will appear. This step can take up to several minutes to configure your IP settings. Please be patient.



- This step is done when the message

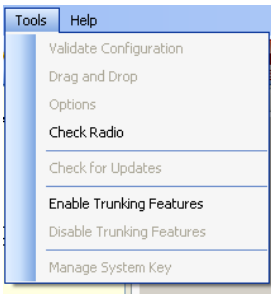
  "THE wizard has finished installing the software for GHS USB Ethernet/RNDIS" is displayed. Click FINISH to exit this dialog.



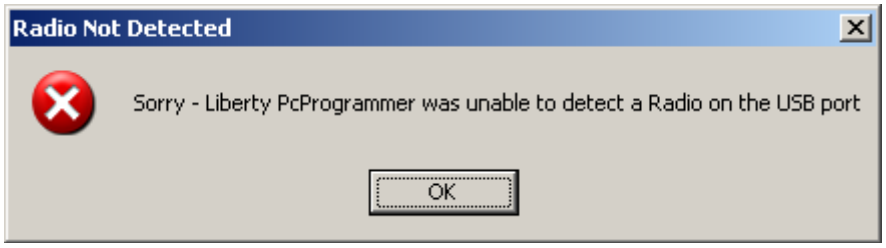
NOTE

Refer to the firewall documentation if you are running a personal firewall on your PC for instructions on how to enable a new application to communicate with IP protocols on a new network connection. Generally, when attempting to use the PC Programmer, a firewall dialog box will appear asking whether or not to allow or block this network access. If you click "allow", the firewall settings automatically adjust. ***Do this once as an administrator, and the settings are saved for all users of the PC.*** **NOTE**: If the firewall settings do not automatically adjust, refer to the section for setting up the network connections. This completes the installation process.

To verify that the radio is talking to the PCP, open the PCP, then click on TOOLS, and select the CHECK RADIO option.



- If the radio is not talking to the PCP, an error message will appear letting you know that a Liberty® Radio is not detected on the USB port.



- If the radio is detected, a message will appear indicating that the Liberty® Radio has been detected.

NOTE

If the PCP is running before a radio is connected and turned on, there may be a slight delay in the PCP recognizing that there is a radio attached.

NOTE

The following steps may also need to be performed as well.

- Refer to Page A-11 for Network Connection Set-Up
- Refer to Page A-13 for information on how to Change the Windows Firewall Settings

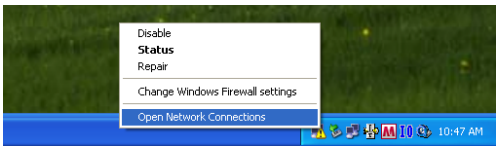
Network Connection for Windows 2000®/ Windows XP®

NOTE

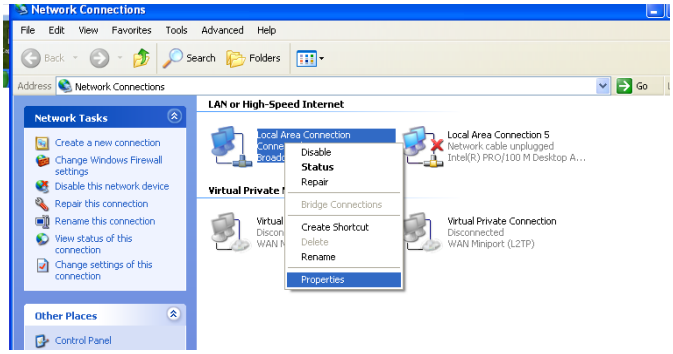
It is recommended to run the PCP prior to checking the Network Connection.

After the USB network driver is successfully installed, the Network Connections may also need to be set up. This step should be done once and then saved for all users of the PC.

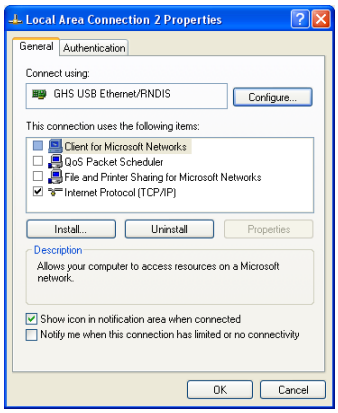
- Now the network connection needs to be setup. Click on the icon for the OPEN NETWORK CONNECTIONS.



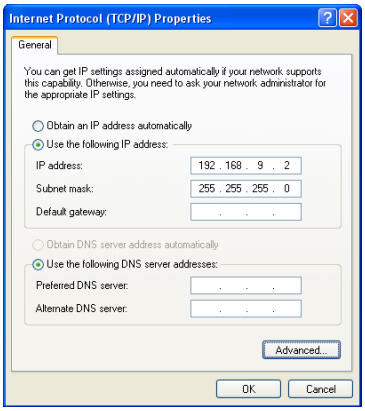
- Select the LOCAL AREA CONNECTION, and the right click on the mouse and select properties



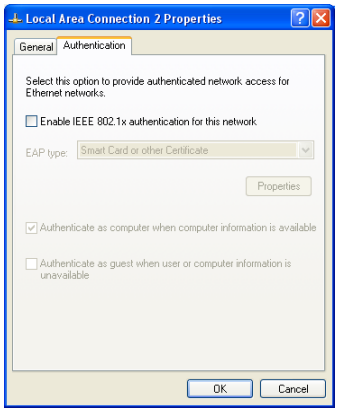
- On the GENERAL Tab - Verify that the Internet Protocol (TCP/IP) is checked. The only box at the bottom of the screen that should be checked is “Show icon in notification area when connected”.



- Then click on the TCI/IP and click CONFIG. The radio is configured as IP Address 192.168.9.168. Make sure you are on the same subnet. The IP Address and Subnet mask shown below work fine. Select OK.



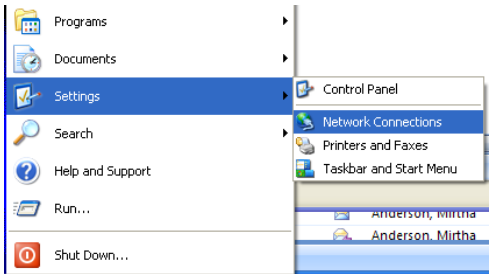
Then select the AUTHENTICATION Tab. Verify that the Enabled IEEE 802 1x authentication for this network is NOT checked. Then select OK.



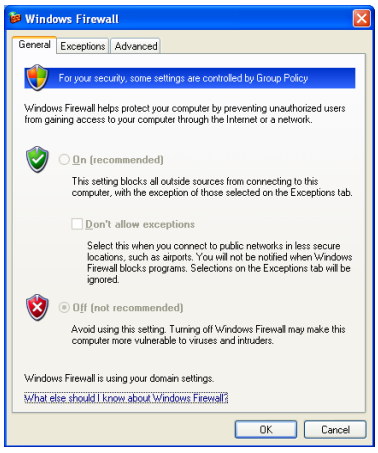
Change Windows Firewall Settings

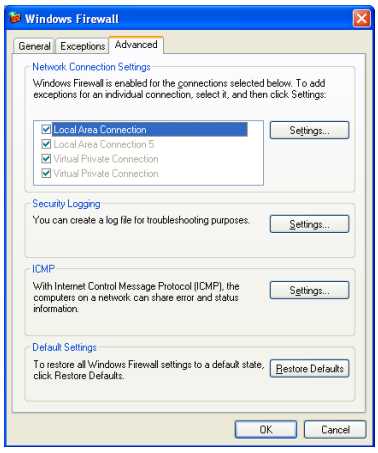
In some instances, the Windows Firewall Settings might have an effect on the USB Link to the Liberty Radio. The following information is being provided as a "possible fix"

- After the installation and successful USB connection to the radio, open the USB Driver Settings by double clicking the Liberty USB Link icon in the systems tray at the bottom of the windows screen or by going to the Network Settings on the control panel.

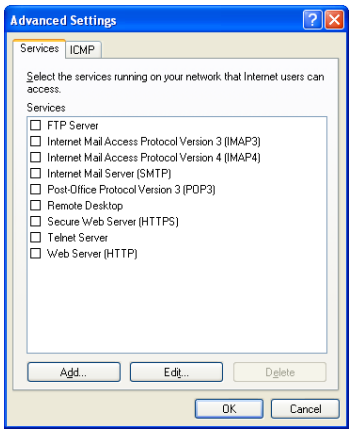


- Open the Change Windows Firewall Settings. Select the Advanced Tab and then select the Settings button next to the Network Connection Settings.

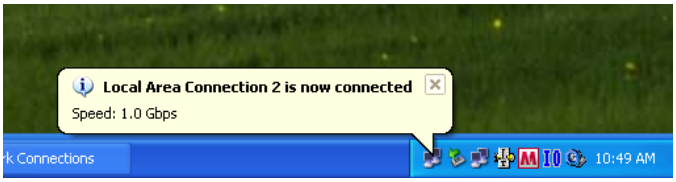




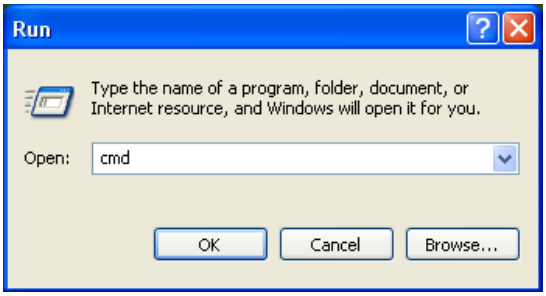
- A listing of all the devices enabled with the Windows Firewall. De-select any devices that are enabled.



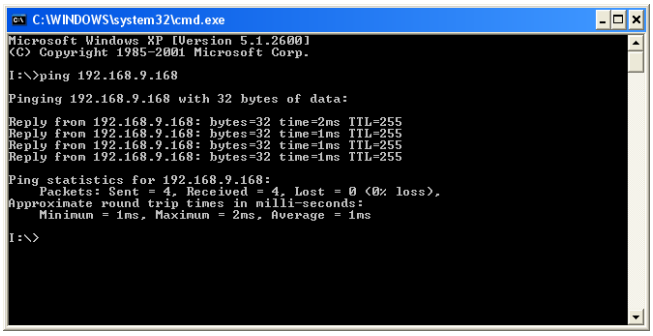
- When you select OK, the LOCAL AREA NETWORK CONNECTION Message will appear.



- To test the connection, open a DOS window and ping the radio's IP Address (192.168.9.168)



- You should get responses from the radio similar to what is shown below:



Windows Vista® Installation Procedures

To install the application on Windows Vista®, follow the following steps.

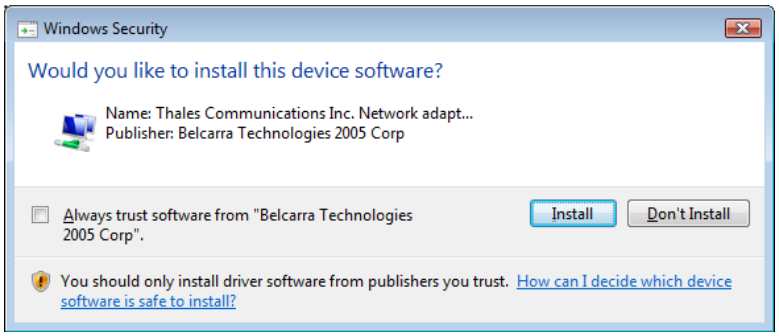
NOTE

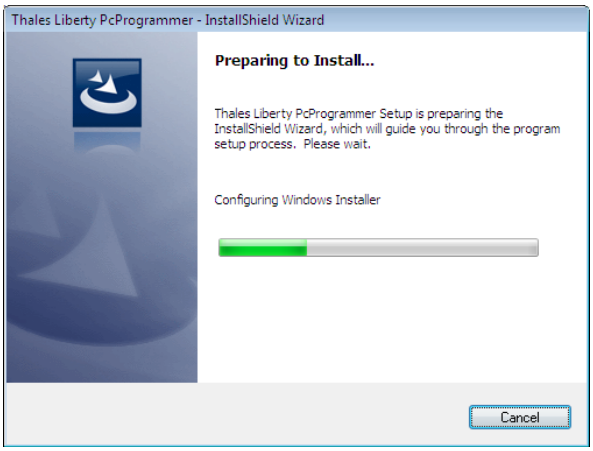
The User Account Control (UAC) pop-up screen will appear after some of these steps unless it has been disabled.

- Insert the program disk and select PCP Installation link -- if the introductory screen does not automatically appear, the program can also be installed using the "Run" command as follows. Click on Start, click RUN, then click BROWSE, select the CD drive, and double click on the SETUP.EXE file. The user can also put the disk in the CD drive, use Windows Explorer, and double-click on the SETUP.EXE file.

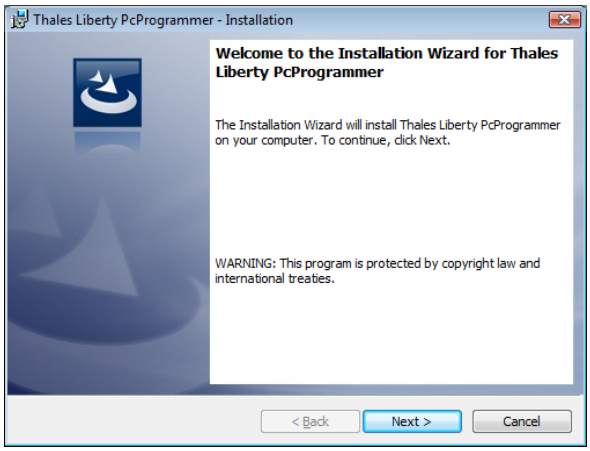
  The PCP Installation application will scan your computer to verify that all the prerequisites are met.

- Windows Security pop-up screen will ask if you want to install the PCP Software – to continue with the installation, click INSTALL.

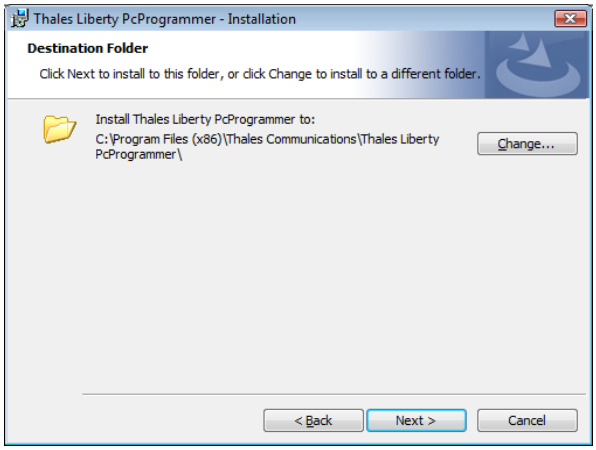




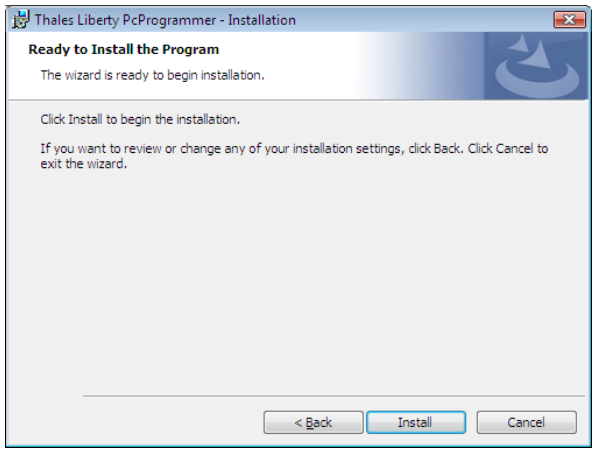
- Once this is complete, the Welcome Dialog Box will appear. Click NEXT.



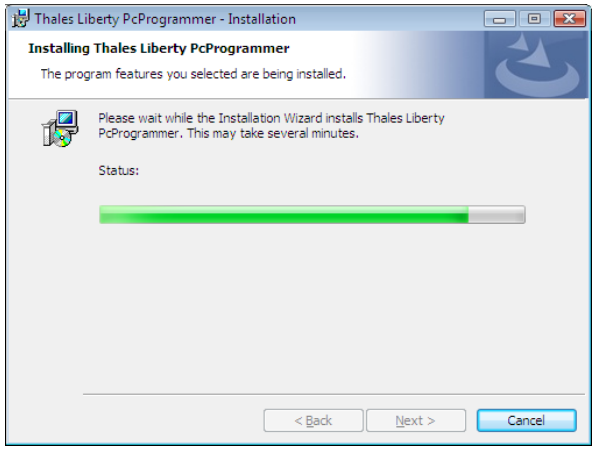
- Thales recommends using the default directory for PC Configuration Toolkit files, which is C:\Program Files\Thales Communications \Thales Liberty PC Programmer. The application's software and USB network driver folder will both be located here. The users will be granted read/write/modify permissions to this folder as well, so radio configuration files can be stored at this location. Click NEXT to continue.



- The next screen will ask you to confirm installation. Click NEXT to install the program.



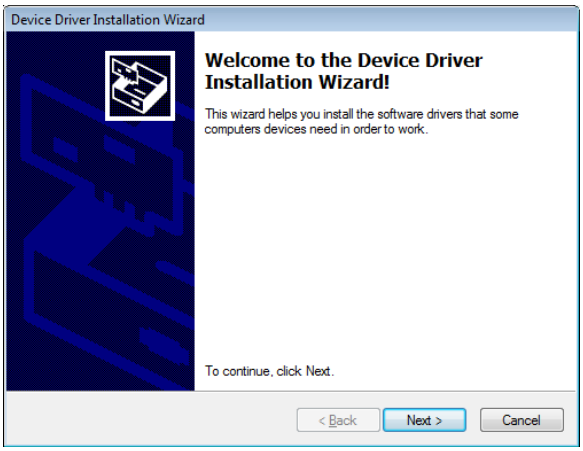
- The PCP will now be installed.



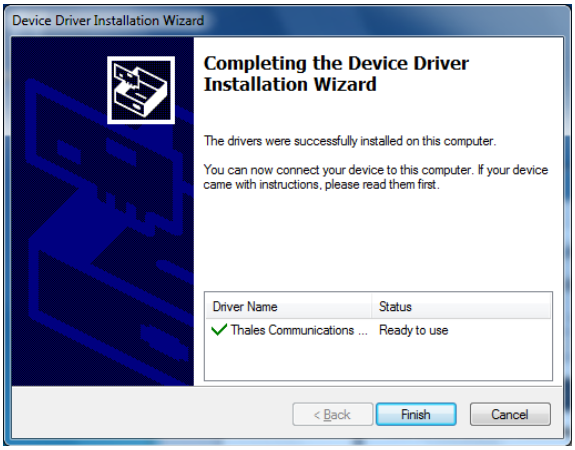
- As part of the installation process, the Device Drivers will need to be installed. Connect a Liberty® Radio using the USB Adapter and USB Interface cable.

NOTE After the PCP software is successfully installed, some systems may require the USB network driver for the Liberty® Radio be separately installed and configured for each USB port that you want to use with the Liberty® Radio. Repeat these steps for each USB port.

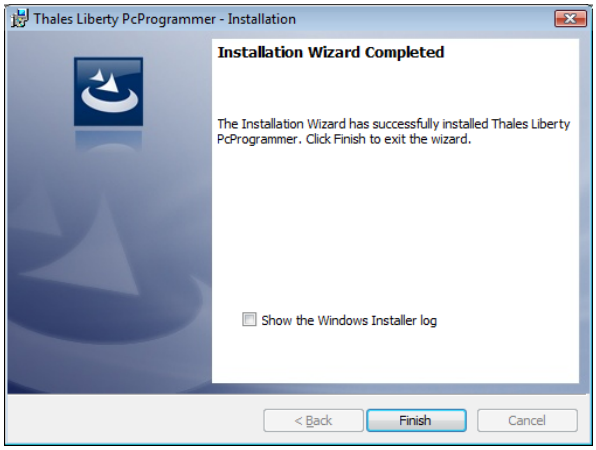
- Click NEXT to continue with the installation of the required drivers for the PCP.



- The drivers will be automatically installed. Click FINISH to complete the installation process.



- Once the installation has completed, the "Install Shield Wizard Completed" screen will appear.



- At completion of the install, a shortcut (Liberty PC Programmer) is automatically placed on the Windows desktop.

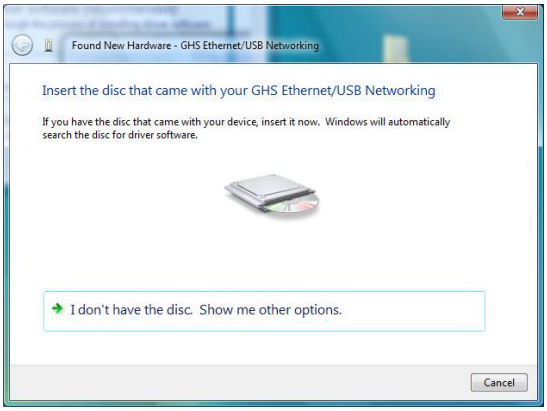
NOTE

Some systems may require the USB network driver for the Liberty® Radio be installed and configured for each USB port that you want to use with the Liberty® Radio.

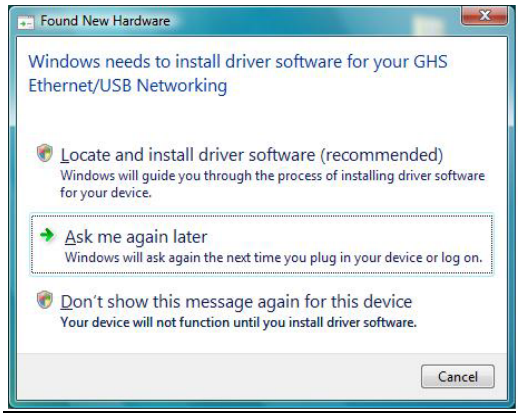
USB Configuration for Windows Vista®

After the PCP software is successfully installed, some systems may require the USB network driver for the Liberty radio be installed and configured for each USB port that you want to use with the Liberty radio. Repeat these steps for each USB port, as required.

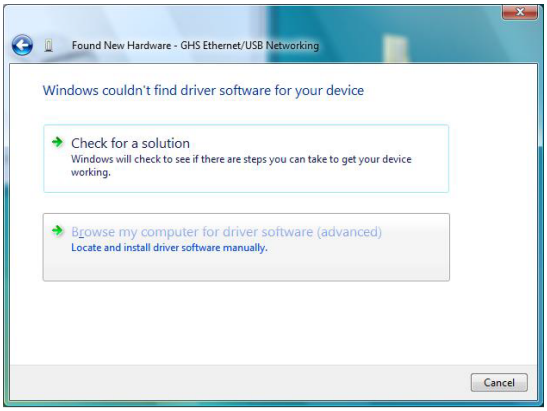
- Connect a Liberty radio using the USB Adapter and USB Interface cable.
- Turn on the radio if not already on.
- A "Found New Hardware" wizard will appear. When asked, select "I don't have the disc. Show me other options." Then click NEXT.



- Click "Locate and Install driver software (recommended)".

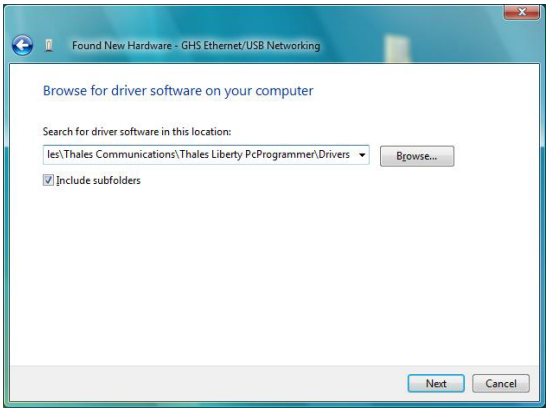


- Windows will then browse the computer checking for the driver software. When this screen appears, click "Browse my computer for driver software (advanced)".

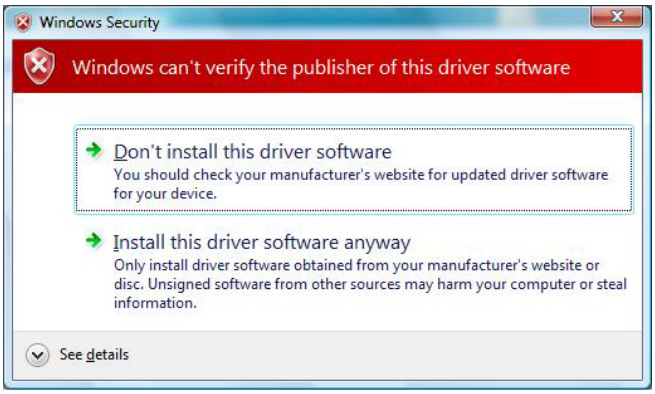


- Enter the path to the Liberty USB Drivers folder. If you installed the PC Toolkit to the default location, the path is:

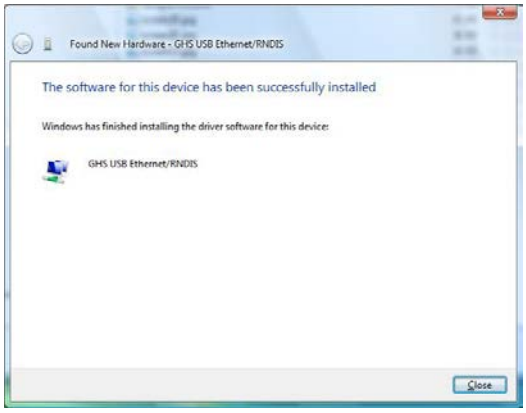
  C:\Program Files\Thales Communications\Thales Liberty PCProgrammer\Drivers\Thales Liberty



- The Windows Security Screen will appear stating that it cannot verify the publisher of this driver software. Click “Install this driver software anyway.”



- Once the USB driver software has been installed, Select CLOSE.



- This USB port is now configured with a network driver and network IP setting allowing communications with the radio.

NOTE

Refer to the firewall documentation if you are running a personal firewall on your PC for instructions on how to enable a new application to communicate with IP protocols on a new network connection. Generally, when attempting to use the PC Toolkit, a firewall dialog box will appear asking whether to “Keep Blocking” or “Unblock this network access. If you click “Unblock”, the firewall settings automatically adjust. Do this once as an administrator, and the settings are saved for all users of the PC. This completes the installation process.

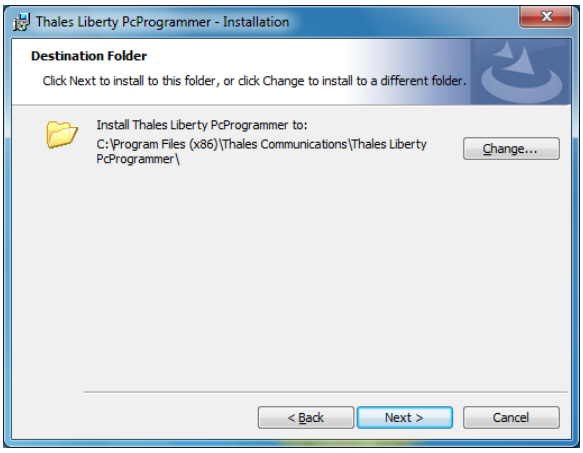
Windows 7® Installation Procedures

- Insert the program disk and select PCP Installation link -- if the introductory screen does not automatically appear, the program can also be installed using the RUN command as follows. Click on Start, click RUN, click on BROWSE, select the CD drive, and double click on the SETUP.EXE file. The user can also put the disk in the CD drive, use Windows Explorer, and double-click on the SETUP.EXE file.

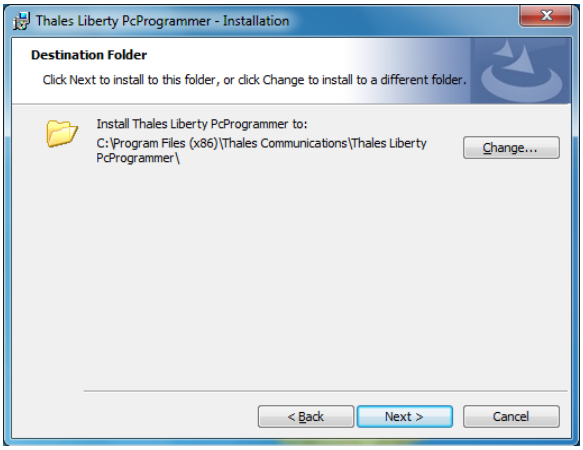
  The PCP Installation application will scan your computer to verify that all the prerequisites are met.

- The Welcome to the Thales Liberty PCP Setup Wizard screen will appear. Click NEXT.

- The next screen will provide information as to where the program will be installed. Thales recommends using the default directory for PCP files, which is C:\Program Files\Thales Communications \ Thales Liberty PC Programmer. The application's software and USB network driver folder will be located here. The users will be granted read/write/modify permissions to this folder as well, so radio configuration files can be stored at this location.



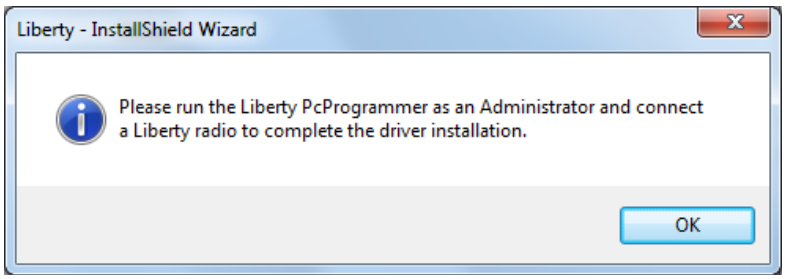
- The next screen will ask you to confirm installation. Click NEXT to install the program.



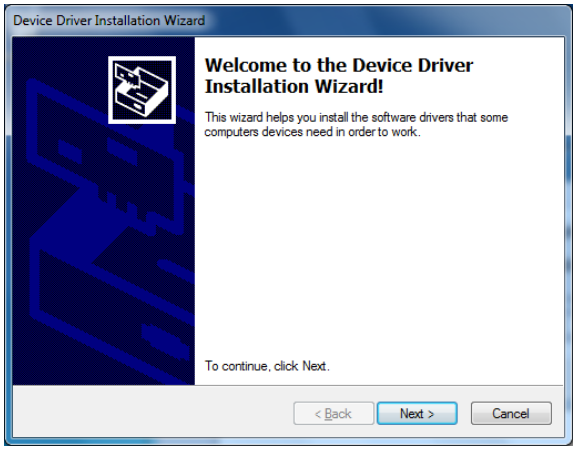
- As part of the installation process, the Device Drivers will need to be installed.

NOTE

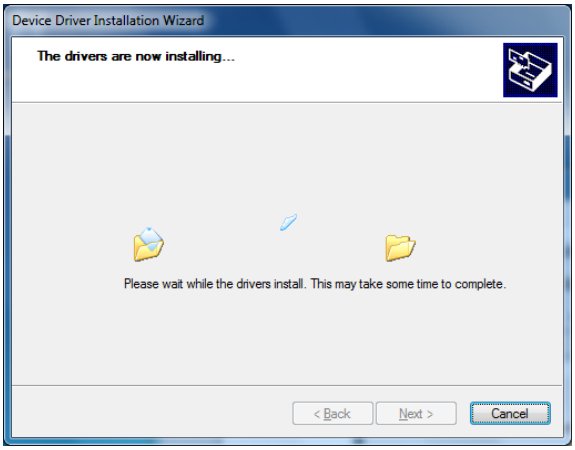
After the PCP software is successfully installed, some systems may require the USB network driver for the Liberty® Radio be separately installed and configured for each USB port that you want to use with the Liberty® Radio. Repeat these steps for each USB port.

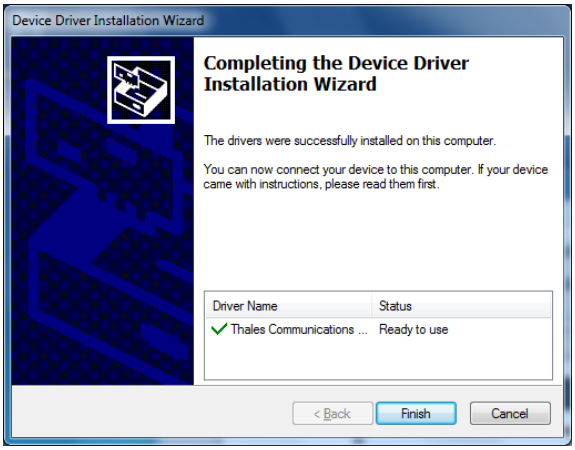


- Connect a Liberty® Radio using the USB Adapter and USB Interface cable.
- Click NEXT to continue with the installation of the required drivers for the PCPPCP.

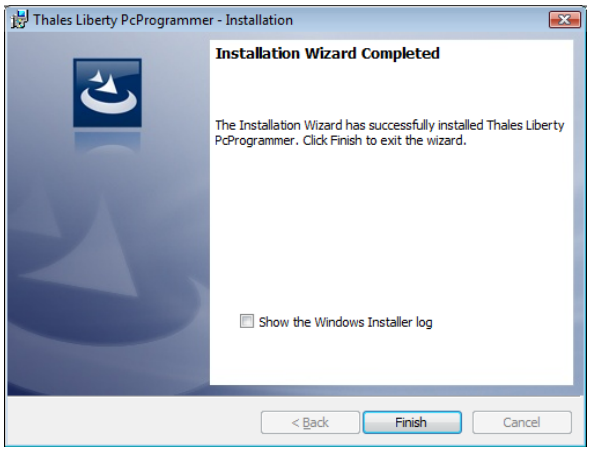


- The drivers will be automatically installed. Click FINISH to complete the installation process.





- Once the installation is complete, click FINISH.



- At completion of the install, a shortcut (Liberty® PCP) is automatically placed on the Windows desktop.

PC PROGRAMMER SOFTWARE UPDATE

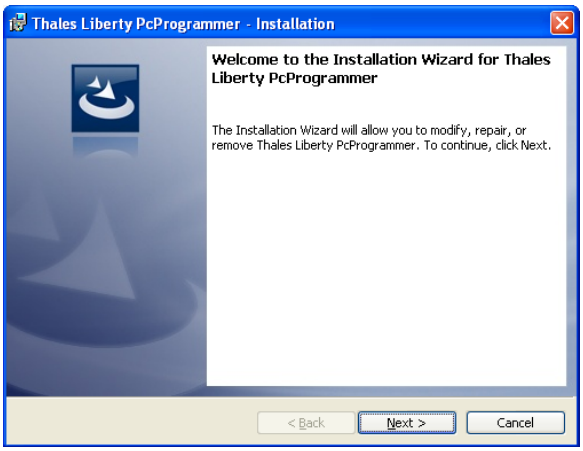
The PCP Software can be updated from a CDROM.

- Update the PC Programmer Software from a CDROM

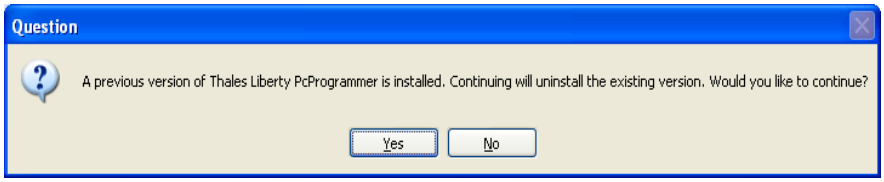
To update the PC Programmer Software from a CDROM:

1. Insert the CDROM into the PC. A Liberty Introduction Page will automatically appear. To initiate the Installation of the PCP Software, click on the CLICK HERE TO INSTALL Pc PROGRAMMER.

2. The next screen will be the Installation Wizard screen. Click NEXT.

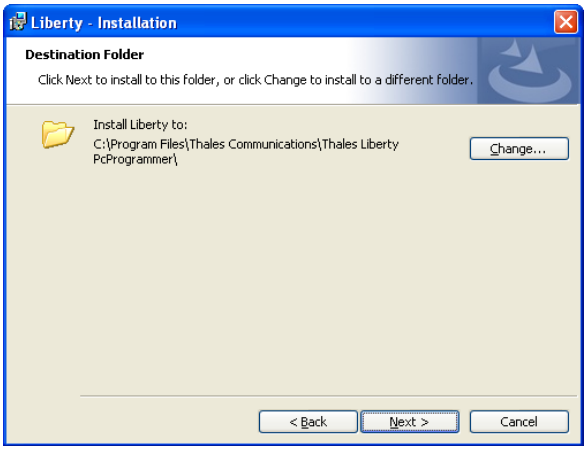


3. The following screen will ask you to confirm that you want the PCP Program removed from your computer. Click YES to continue.

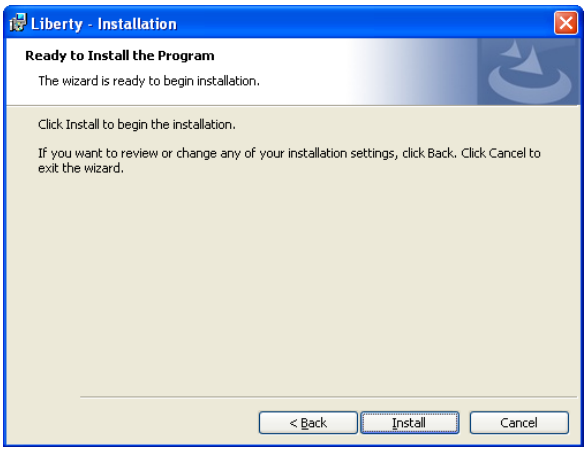


4. The Liberty PCP Installer application will now install the PC Programmer. The following installation screen will appear, click NEXT to continue.

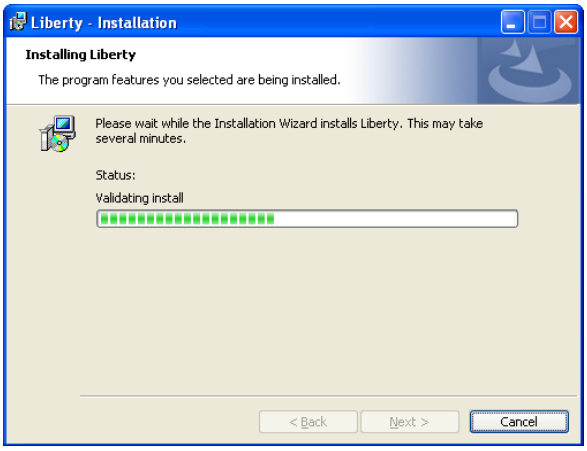
5. The next screen will ask where you want the programmer tobe installed. To CHANGE the location, click CHANGE. Otherwise, select NEXT.



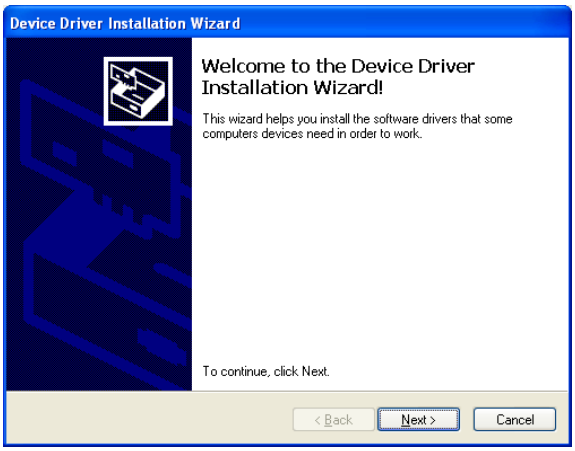
6. To begin the installation – click INSTALL



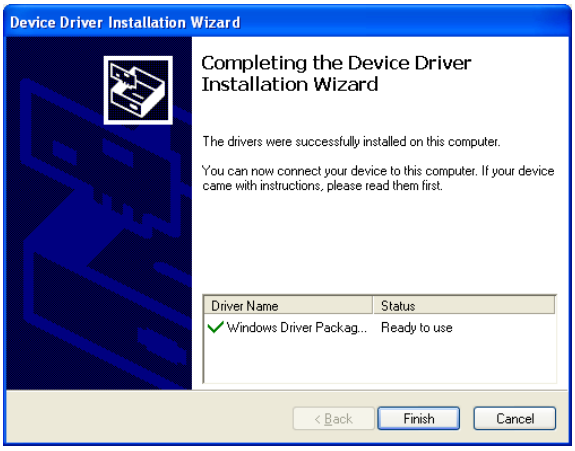
7. The next screen will provide a status of the installation.



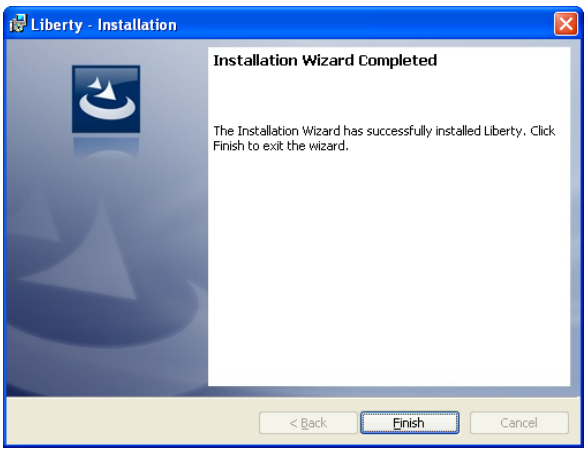
8. The PCP will now install the software drivers needed in order for the program to work. As the program was previously installed, this step is to verify that they are still resident on the machine. Click NEXT.



9. Once the device drivers are installed, Click FINISH.



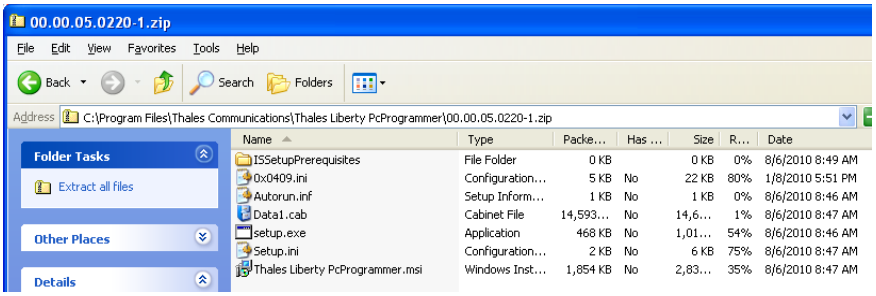
10. The updated PCP is now installed. And the Liberty ICON has been placed on your desktop.



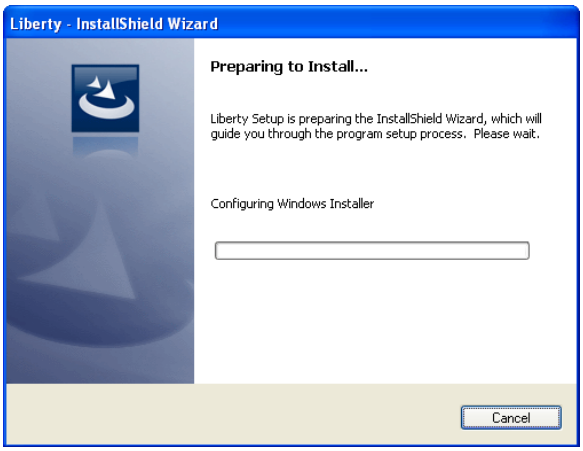
<u>To update the PC Programmer Software Using a PCP File that was downloaded from the Thales Website:</u>

1. Download the Liberty PCP Software from the Thales Website.

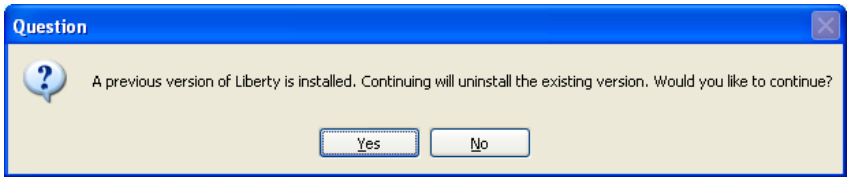
2. Open the .ZIP file. Double click on the setup.exe file.



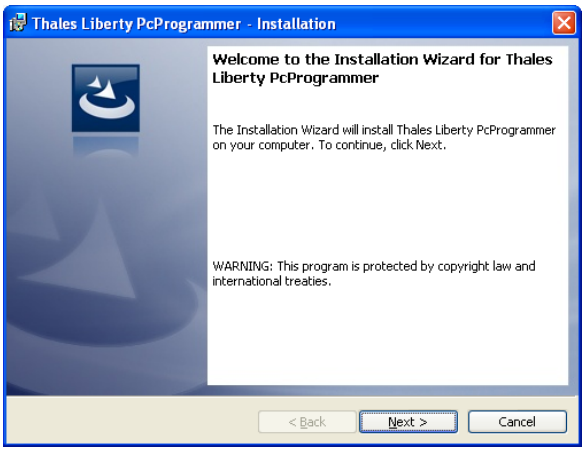
3. The PREPARING TO INSTALL screen will appear.



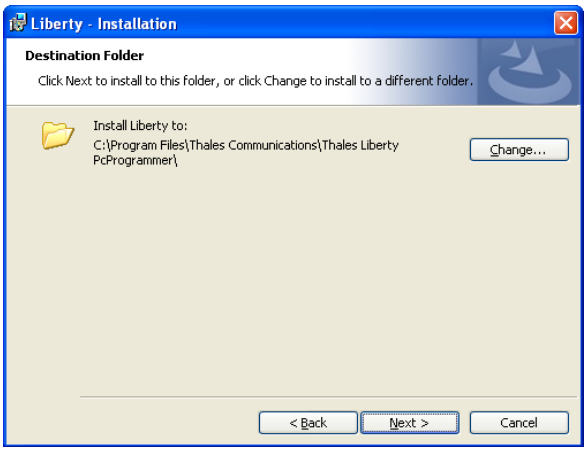
4. To continue with the installation, the programmer will detect a previous version of the Liberty PCP on your machine. Click YES to have the PCP uninstall the existing version.



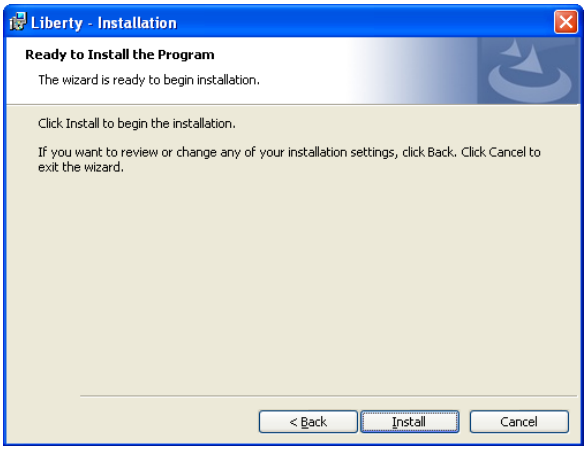
5. The Liberty PCP Installer application will now install the PC Programmer. The following installation screen will appear, click NEXT to continue.



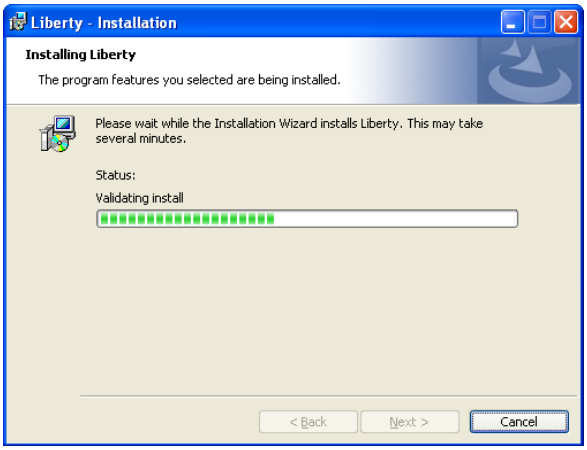
6. The next screen will ask where you want the programmer tobe installed. To CHANGE the location, click CHANGE. Otherwise, select NEXT.



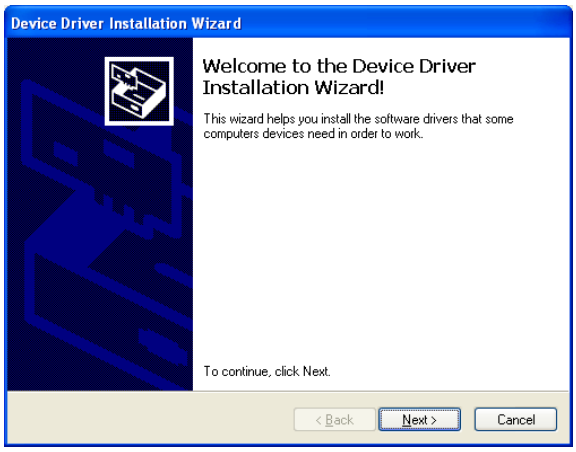
7. To begin the installation – click INSTALL



8. The next screen will provide a status of the installation.

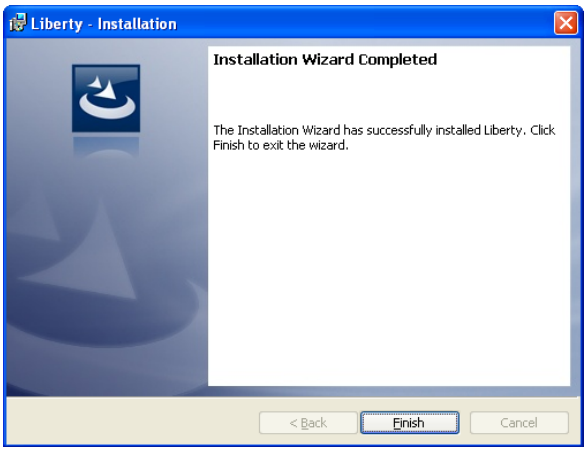


9. The PCP will now install the software drivers needed in order for the program to work. As the program was previously installed, this step is to verify that they are still resident on the machine. Click NEXT.



10. Once the device drivers are installed, Click FINISH.

11. The updated PCP is now installed. And the Liberty ICON has been placed on your desktop.

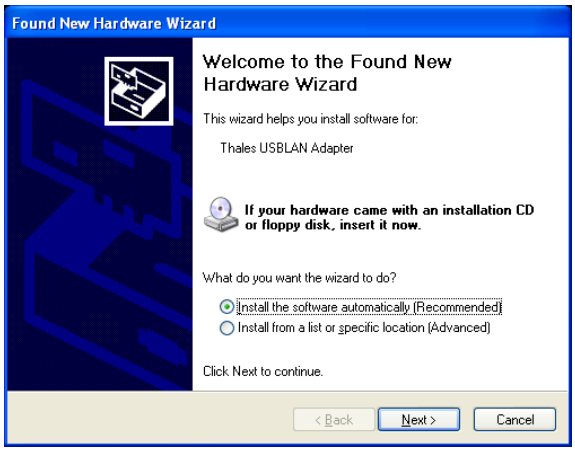


VERIFY RADIO IS COMMUNICATING WITH THE PCP

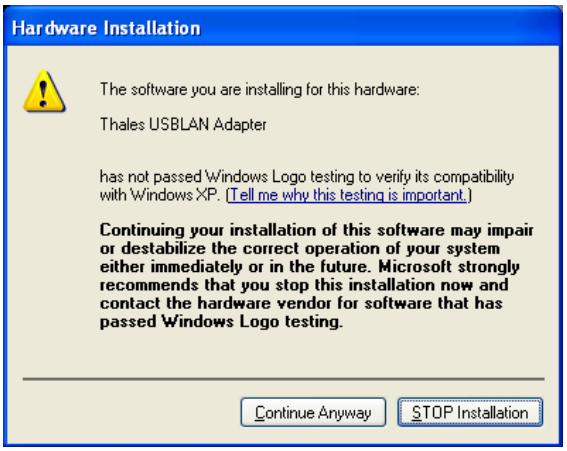
To verify that the radio is communicating with the PCP,

1. After a new installation or after an update to the Liberty PCP Software, whenever the radio is plugged into the PC the ***first*** time a series of HARDWARE WIZARD Screens will appear.

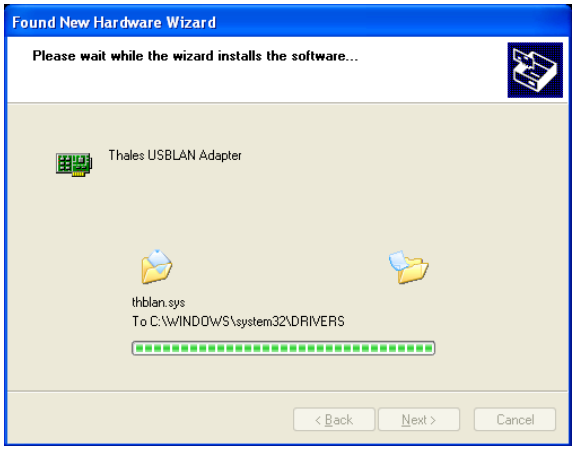
   Found New Hardware Wizard – Click INSTALL THE SOFTWARE AUTOMATICALLY (RECOMMENDED), then press NEXT to continue.



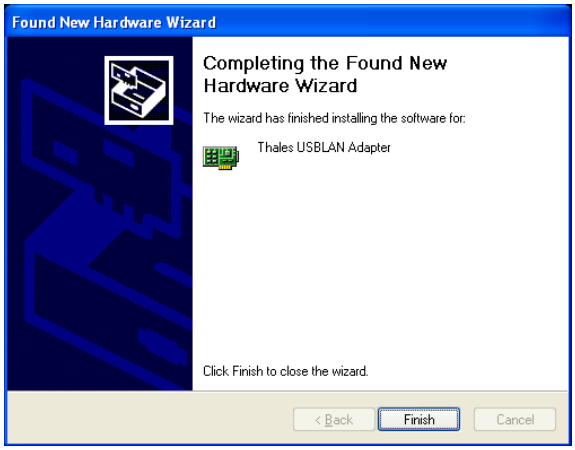
2. The next screen will ask if you want to continue with the installation of the USB drivers, click CONTINUE ANYWAYS.



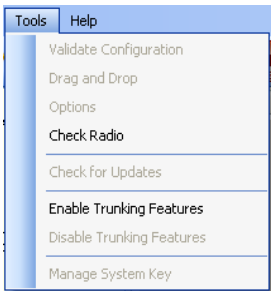
3. The drivers will now be installed.



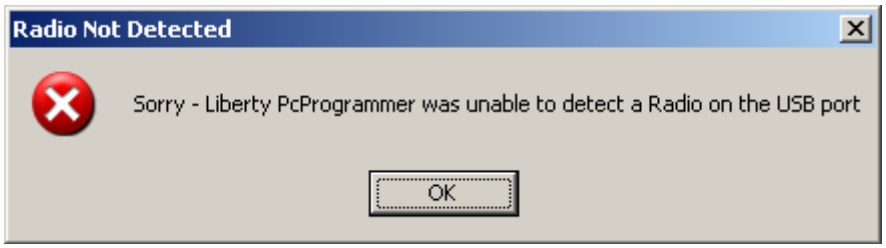
4. When the drivers have been installed, a confirmation screen will appear. Click FINISH.



7. Then click on TOOLS, and select the CHECK RADIO option.



- If the radio is not talking to the PCP, an error message will appear letting you know that a Liberty® Radio is not detected on the USB port. If this occurs, verify the radio is connected and turned ON.



- If the radio is detected, a message will appear indicating that the Liberty® Radio has been detected.

ATTACHMENT B DAUGHTER KEYS

PROGRAMMING OF TRUNKING SYSTEM DAUGHTER KEYS

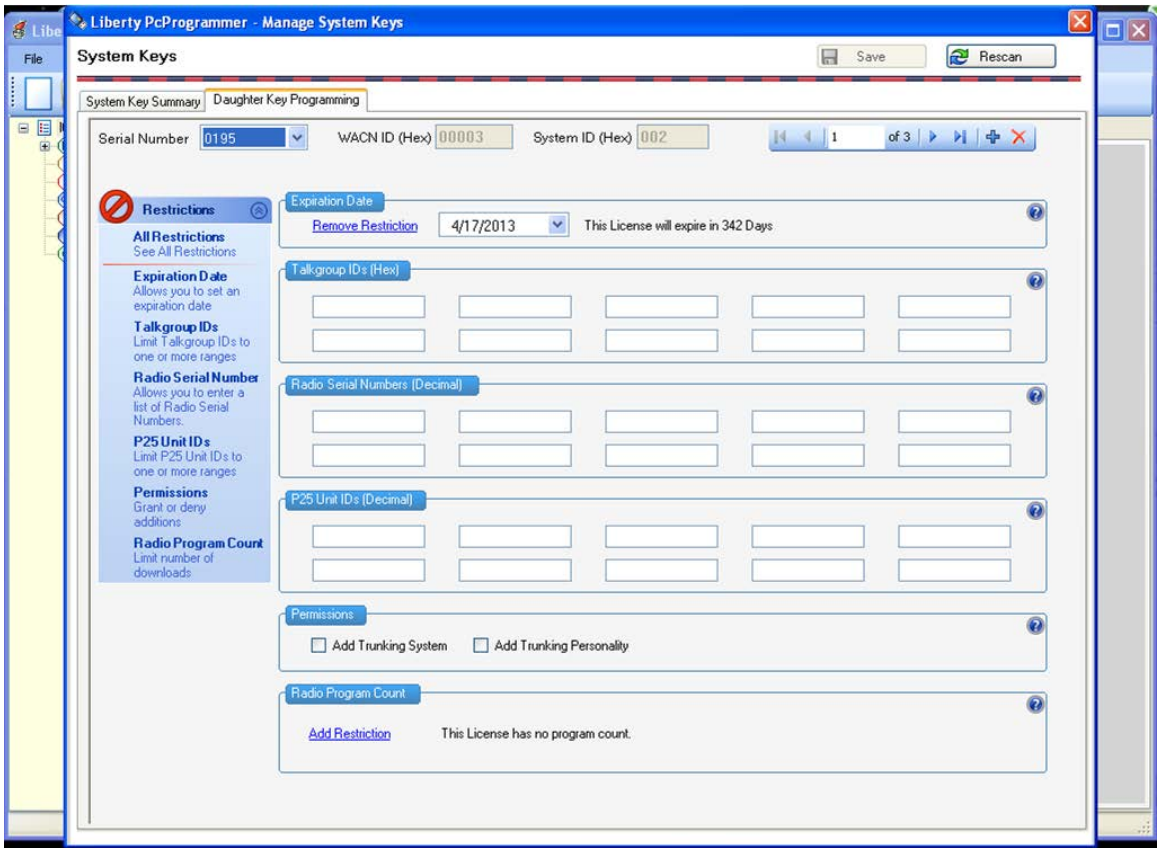
The Liberty PCP may be used to create, delete, or edit a Trunking System Daughter Key License on a Daughter Key using a Trunking System Master Key.

In order to create a Daughter (Key) License, the programming officer must have a Trunking System Master Key, and a blank Daughter Key device, or a Daughter Key device that has sufficient memory available to add additional licenses to it.

Daughter Keys may be full access keys, (i.e., a mirror image of the Master Key, except they will not be able to program a Daughter Keys), or restrictions may be assigned to them. These restrictions can include any combination of the following:

- **WACN ID –** This is the specific Wide Area Communication Network (WACN) ID received from the Master Key (MK) that is used when configuring the Daughter Key (DK). Defaults to the WACN from the attached/selected Master Key. The DK license is valid only for the specified WACN.
- **System ID –** If present, the DK license is valid only for the specified System ID within the specified WACN. If not present, the DK license is valid for any System ID within the specified WACN, subject to restrictions on adding a System to the configuration.
- **Expiration Date/Time** – This is the number of days beyond the creation date that the DK is valid.
- **Radio Serial Number** (RSN) List – This is a list of RSNs for which the DK license is valid. Each entry in the list may be an individual RSN or a range of RSNs.**P25 Trunking Unit ID** List – This is a list of P25 Trunking Unit IDs for which the DK license is valid. Each entry in the list may be an individual P25 Trunking Unit ID or a range of P25 Trunking Unit IDs.

DESCRIPTION OF DAUGHTER KEY PROGRAMMING SCREEN



PCP Daughter Key Programming Page

Restrictions	Explanation
Add Trunking System	Yes / No – Default is YES
Add Trunking Personality	Yes / No – Default is YES
Radio Configuration Count	The radio configuration count limits the number of times that the DK license may be used to download a configuration to a radio. The count is not tied to any particular radio or configuration file; it is simply the number of times that this DK license is used to download a configuration to a radio. Once the limit is reached, the DK license can no longer be used to download a configuration to any radio. The DK license may still be used to create or edit configurations, depending on restrictions.
Trunking Talkgroup List	If the DK has an active TG List, the user may only add/edit/delete the Talkgroups with IDs in the range of allowed values for the assigned WACN/System. All other TGs in the configuration will be grayed-out and read-only. When allowed to edit, all fields in a row are controlled together (exception is for fields that have not been implemented yet). New Talkgroups will default their ID to the lowest value in the allowed range of values. If the user wishes a DK to allow all Talkgroups for editing, then the user merely deletes all TG IDs entries from the list.
Add Trunking System	If "Add Trunking System" is checked, then the user is allowed to add Trunking Systems for the specified WACN/System of the DK license; else the user cannot add a Trunking System to the configuration.
Add Trunking Personalities	If "Add Trunking Personalities" is checked, then the user is allowed to add Trunking Personalities to the specified WACN/System in the configuration; else the user cannot add a Trunking Personality to the specified WACN/System in the configuration to the configuration. When using a valid DK license, the user is always allowed to edit or delete Trunking personalities for the specified WACN/System of the DK license.

PCP PROGRAMMING OF A DAUGHTER KEY USING A MASTER KEY

1. The PCP operator, (aka user), attaches a Master Key – with a specific WACN/System – and a Daughter Key (DK) to the PC that contains the PCP.

2. Then press the RESCAN button on the SYSTEM KEYS page or by clicking on the "Rescan Systems Key" icon  in the tool bar

3. Next, click on the DAUGHTER KEY PROGRAMMING tab to open the Daughter Key Programming screen.

4. The user directs the PCP to add a license to the Daughter Key.

5. The PCP will automatically assigns the same WACN/System to the Daughter Key license that is on the Master Key license. (Note: Optionally, the operator cancels the addition of the Daughter Key license.)

6. The operator can either leave the policies and restrictions at the default settings or add restrictions on the license.

7. If the operator wishes a DK to allow all Talkgroups for editing, then the operator deletes all TG IDs entries from the Talkgroup ID list.

8. The user then saves the license to the Daughter Key.

NOTE

If the user exits the System Keys screens without saving the Daughter Key license(s), the NEW / MODIFIED licenses will not be saved on the Daughter Key.

Using the Master Key to Edit a License on a DK

In order to edit a DK License, the appropriate MK, (by WACN/System), must be used.

1. The user attaches a Master Key – with a WACN/- or a specific WACN/System – and a Daughter Key to the PC that contains the PCP. If not yet recognized by the PCP, the operator "Rescans" to present the keys to the PCP.

2. Next, click on the DAUGHTER KEY PROGRAMMING tab to open the Daughter Key Programming screen.

3. The user then selects a Daughter Key license, (Daughter Key Serial Number and license number), to edit / modify those policies that are to be changed on the license.

4. The operator modifies only those policies and restrictions that are to be changed on the license.

5. The user then saves the changes to the license to the Daughter Key.

NOTE

If the user exits the System Keys screens without saving the Daughter Key license(s), the NEW / MODIFIED licenses will not be saved on the Daughter Key.

NOTE

If the DK was created using an earlier version of the PCP (i.e, Version 6.0) but a later version of the PCP is being used to edit an existing license (i.e., PCP Ver 6/1), Before saving the changes to the DK License, the PCP checks all licenses, both newly created as well as those edited from the Daughter Key, to determine if any policy or restriction set by the current PCP is not supported by an earlier version PCP.

If there, then once saved, the DK Licenses will no longer work on earlier versions of PCPs.

USING A DK LICENSE WITH POLICIES AND RESTRICTIONS

In all the cases in this section, the operator is using a DK that has a valid license for the Trunking system they are attempting to edit or download a configuration. This is also specific to a network's Trunking settings, since conventional settings are not restricted by DKs. Other DKs, licenses, Trunking systems, etc. and their possible interactions/use cases are independent from this section.

Operator has a DK License with a Configuration Count Restriction

Using a DK license with a "Radio Configuration Count" restriction, only applies during a configuration download, and has no effect while editing a configuration. The purpose of this license is to be able to "set" the number of times the DK can download configurations onto radios and then prevent further downloads.

- The DK must be "attached" and active in order to proceed with a configuration file download.
- The DK must have a configuration count greater than 0 (> 0) the PCP checks that the DK is physically present and the Configuration Count is > 0. If the Configuration count is 0, the PCP will cancel the download.
- After each download, the DK will show the current count value.

Using a DK that has a License with Talkgroup ID Restriction

Using a DK license with TG (Talkgroup) restrictions limits the operator to add/edit/delete only the Talkgroups with IDs in the range of listed values.

- All other Talkgroups will be grayed-out and read-only.
- All fields for a TG (in the row) are controlled together; either all grayed-out or all editable (exception is for fields that have not been implemented yet).
- New Talkgroups will default their ID to the lowest value in the DK's allowed range of values.

User Adds/Edits/Deletes a TG within the Allowed Range

- In the grid of Talkgroups, those rows with IDs in the allowed range are editable, and can be deleted.
- On the personality, every way a new Talkgroup can be added will be available to the operator.
- When a Talkgroup is added, it defaults to having a Talkgroup ID that is the equal to the first one listed in the allowed range.
  Example: if first range field is 10-19, then the default will be 10, no matter what the other range fields have for values.
- When editing a Talkgroup, the operator can only change the Talkgroup ID to values in the allowed range.

User attempts to Add / Edit / Delete a TG Outside the Allowed Range

The user is restricted to adding/editing/deleting TGs within the range(s) specified by the DK license.

- In the grid of Talkgroups, those rows with IDs not in the allowed range are grayed-out and read-only. Nothing in those rows can be edited, and the row itself cannot be deleted.

Use Attempts to Edit Outside of the PCP and Import from Excel

The PCP allows the user to export a configuration file to Excel format. The spreadsheet provides a means for the operator to freely modify all data in the configuration. While editing the data in the spreadsheet, the operator may violate one or more restrictions imposed by the Daughter Keys licenses(s).

When importing the configuration file, the PCP uses the following rules for importing a spreadsheet that contains Trunking data:

- **MK(s) present**
  The PCP checks if all the Network/System combinations in the spreadsheet are covered by the licenses on the presented MK(s). If all are covered, the PCP allows the import. If one or more Network/System combinations are not covered by the licenses on the presented MK(s), then the import is not allowed.
- **Only DKs are present**
  If one or more of the valid licenses on the presented DKs (for each WACN/System in the spreadsheet), has a Talkgroup list, or is not allowed to add a personality; then the PCP does not allow the import, else the import is allowed.
- **Combination of MK(s) and DK(s) present**
  If one or more of the valid licenses on the presented DKs that is not superseded by a MK (for the WACN/System in the spreadsheet), has a Talkgroup list, or is not allowed to add a personality, then the PCP does not allow the import, else the import is allowed.

1. The user exports a configuration file containing Trunking data to an Excel spreadsheet.
2. The operator makes changes to the configuration data in the Excel spreadsheet,
3. The operator attempts to import the configuration file to the PCP.
4. When importing the configuration file back into the PCP, if the rules above do not allow for spreadsheet import, the PCP will STOP the import and give the user an error message indicating that the licenses(s) on the attached DKs have restrictions that prohibit the import of Excel spreadsheet.

Points to remember:

- User attempts to edit Personality Settings with TG Restrictions --
  - If there is a Talkgroup restriction for a Talkgroup associated with this personality, the PCP will not allow the user to edit its network association. All other personality settings are able to be edited since there is no restriction for those. This is to prevent a user from defeating the restriction by changing to a different network with different or no restrictions.

  - If the user attempts to move a different personality to this network, since a Talkgroup restriction are in effect, the PCP will prevent the user from doing this by removing restricted networks from the dropdown of selectable networks. This is to prevent an user from defeating the restriction creating the Talkgroups in a different network with different or no restrictions, then moving to this one.

- User Attempts to Delete a Personality with TG Restrictions
  - When there are Talkgroup restrictions for this personality, the PCP will only allow the operator to delete the personality if all of the Talkgroup IDs are within the allowed range of values.

DK ADDITIONAL PERMISSIONS SET TO DISALLOW "ADD TRUNKING SYSTEM"

- When the user attempts to add a new network and the DK's license does not allow for ADD TRUNKING SYSTEM, the WACN/System ID will be limited in the dropdown list to those for other licenses that are not restricted. There will be no way available to add a new network to this configuration using this DK license.

- If the user attempts to edit or delete an existing network, the DK license setting for ADD TRUNKING STSTEM has no effect. The operator can still edit the network settings.

DK ADDITIONAL PERMISSIONS SET TO DISALLOW "ADD PERSONALITY"

- When the user attempts to add a personality to the systems network, the PCP will block this attempt.

- If the user attempts to EDIT or DELETE a Personality on this Network, the DK license restriction for ADD PERSONALITY has no effect. The user will be able to edit or delete personality settings.

- If the user attempts to CHANGE the Personality settings, this is effect the same as ADDING a personality, so this activity will be blocked.

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