

**SeQent**  
Corporate Office  
Suite 137 – 4500 Blakie Road  
London, ON,  
N6L 1G5  
Canada  
Phone: +1.519.652.0401

**User and Installation Guide**



**SeQent**  
Real-Time Visualization

*FirstPAGE Link for CPLUS  
V9.00*

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## Version Information

### Edits

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Description</b>
V9.00	February 1, 2016	S. Burns	Initial Document

# Customer Service

## Support Contracts

You may purchase a support contract for any of our products. Support is free for product trials and for the first 30 days of product ownership.

To view the SeQent support options, go to our web site ([www.SeQent.com](http://www.SeQent.com)). To contact SeQent's Customer Support department please use the following methods.

### *Urgent Issues:*

Normal Business Hours (Weekdays 9AM-5PM EST):

1. Dial: +1.519.652.0401
2. Select: Option 1

If there is no answer then please leave a voice mail message with your contact information and your call will be returned promptly.

After Hours (Weekdays 5PM-9AM EST and Weekends):

1. Visit [www.seqent.com/afterhours](http://www.seqent.com/afterhours)
2. Call the Primary Contact
3. If no answer leave a message
4. If no response within 1 hour call the Secondary Contact

### *Non-Urgent Issues / Questions*

Normal Business Hours (Weekdays 9AM-5PM EST):

1. E-Mail: [Support@SeQent.Com](mailto:Support@SeQent.Com)
2. Include the following information:
  - Contact Information
  - Product Name
  - Version
  - Description of the problem being experienced

## Location

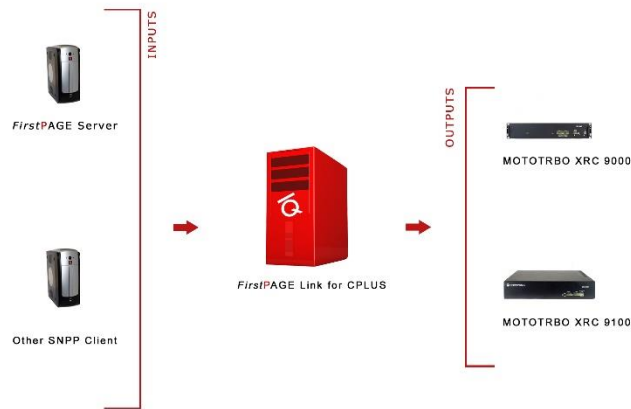
### **Corporate Office**

4500 Blakie Road, Suite 137  
London, Ontario  
Canada  
N6L 1G5  
Phone: +1.519.652.0401  
Fax: +1.519.652.9275  
Email: [info@SeQent.com](mailto:info@SeQent.com)



## .1. Product Overview

SeQent's *FirstPAGE Link for Connect Plus (FPLNKCPLUS)* is another product in the *FirstPAGE* Suite of products and may reside on your *FirstPAGE* Server or be accessed from a *FirstPAGE* Server over a LAN or WAN connection. *FirstPAGE Link for CPLUS* is designed to deliver SNPP initiated messages to Motorola Solutions' MOTOTRBO Connect Plus platform.



### Key Features:

- IETF 1861 – SNPP compliant interface
- Low latency delivery to MOTOTRBO Connect Plus
- Full redundancy supported
- Presence Notification monitoring
- Real-time presence and queue status view
- Delivery to SUID (Portables/Mobiles) or TGID (Talk Groups)
- Queuing
- End-to-end message traceability
- Full support of redundant Connect Plus controllers
- Hardware appliance version available
- Dual NIC appliance for radio network isolation, available for mounting in radio racking
- Subscriber count based licensing
- Optional E-Mail/SMTP interface supporting unique SUID or TGID mailboxes



## How it Works

*FirstPAGE Link for CPLUS* offers an IETF RFC 1861 SNPP listener for message input and delivers received messages to the MOTOTRBO Connect Plus digital two-way radio system. Using this path any mobile/portable ID (SUID) or talk group (TGID) destination may be addressed using *FirstPAGE* Server or another SNPP client. Full transaction logging is provided to enable tracing of all dispatched messages.

No configuration of SUID's is required with *FirstPAGE* Link for CPLUS. The first time a message is received for an SUID by the Link a queue is automatically created for it and its presence is subscribed to the Controller.

The first message received for a specific SUID is always accepted as this initial transaction initiates the Presence Notification subscription. Subsequent transactions are accepted and queued even if Presence is Absent or Invalid unless the Reject If – PN Absent option is selected on the SNPP configuration tab. If the Reject If – PN Absent option is selected then any transaction received for an SUID which is Absent, or Invalid, will be rejected with the SNPP error: "554 Failed: PN Absent for SUID #####". If Reject If – PN Absent is not selected then the transaction will be accepted and queued awaiting a Present state for the SUID.

## **.2.** Installation

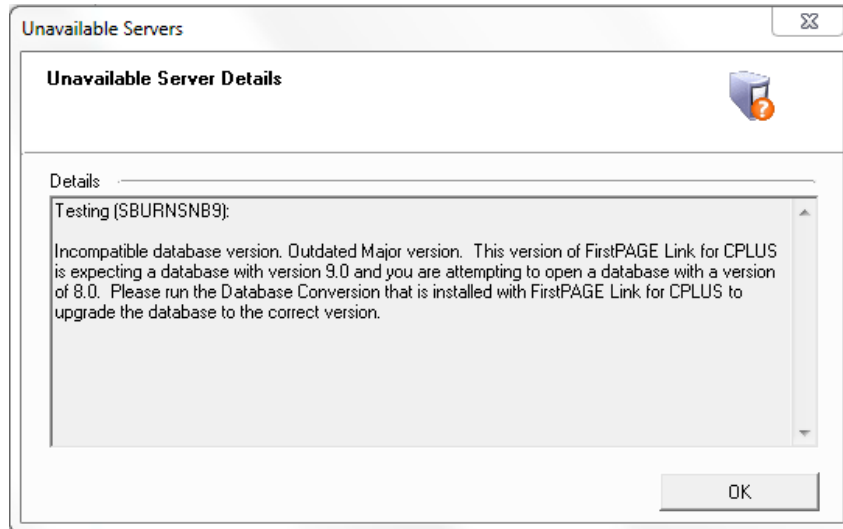
### Prerequisites


Before beginning the installation, it is important to determine the hardware and software requirements necessary for *FirstPAGE Link for CPLUS* to run efficiently. Review the following prerequisite list before the software is installed.

<b>Licensing</b>	<b>General:</b> Per server <b>Licensing Options:</b> SUID count
<b>Product Requirements</b>	MOTOTRBO Connect Plus R1.5.554 Release or newer
<b>System Requirements</b>	<b>One of:</b> Microsoft Windows 8.x Microsoft Windows 8.x Embedded Microsoft Win2K8 Microsoft Win2K8R2 Microsoft Win2K12 <b>Display:</b> 800x600 <b>Disk Space:</b> 1 GB <b>RAM:</b> 4GB <b>Applications:</b> FirstPAGE Server V9.11+ (Optional)
<b>Drivers</b>	TCP/IP MDAC V2.7 (SP1+)

## Database Conversion

If you are upgrading to a higher version of *FirstPAGE Link for CPLUS*, you may need to run the Database Converter included in your kit. When starting the application for the first time after your upgrade, you will receive a message indicating an incompatible database. You will be instructed to run the Database Converter.



The Database Converter is found under: Start > All Programs > FirstPAGE> Link for CPLUS >  Database Conversion

The Database Conversion Wizard will display a summary of changes that will be made to your database, including the current version that is running and the target database.

Click Start to run the converter. Conversion results will then be displayed. Be sure to stop and restart the *FirstPAGE Link for CPLUS* service after running the Database Conversion utility.

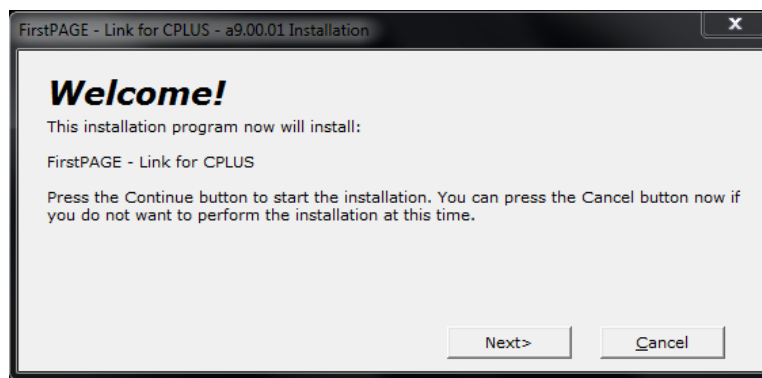
## Installing the Application

Before installing *FirstPAGE Link for CPLUS*, the following information must be considered:

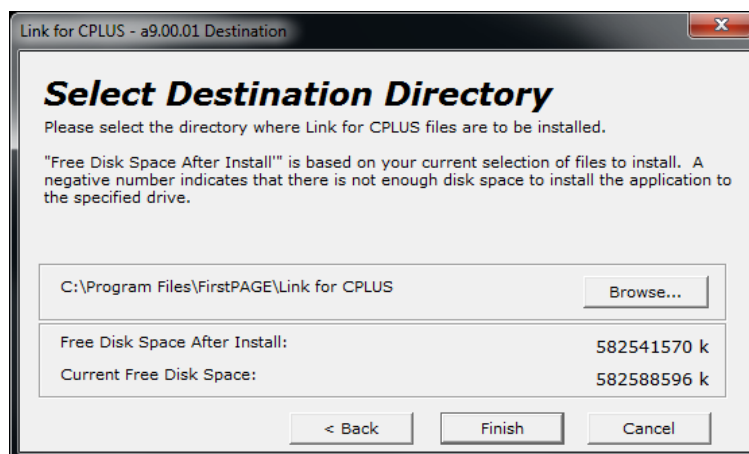
- Ensure the MOTOTRBO Connect Plus Controller is configured properly for text messaging. See the Appendix A – Controller Configuration for details on this configuration.
- Determine which disk drive/directory your FirstPAGE Link software will reside on. The server software itself requires 1 GB of disk space for installation and operation.
- Determine IP address or DNS name of the MOTOTRBO Connect Plus Controller.
- Ensure Windows Firewall allows for SNPP, TMS and PN ports to pass cleanly through.
- Determine the PN and TMS ports configured in the MOTOTRBO Connect Plus Controller.

*To Install FirstPAGE Link for CPLUS:*

1. Run *FirstPAGE Link for CPLUS* SETUP.EXE. Click *Next*.



2. You will be prompted for the installation destination directory.



3. Click *Finish* to complete the installation. The computer must be restarted before the *FirstPAGE Link for CPLUS* can be configured or operated.

## Installing Remote Administrator - Setup

The *FirstPAGE Link for CPLUS Administrator* utility program is used to configure and control the *FirstPAGE Link for CPLUS* engine. System managers responsible for *FirstPAGE Link for CPLUS* are the intended users of *FirstPAGE Link for CPLUS Administrator*.

**Note:** This section is only required if you are setting up the Remote Administrator. If you are installing the Link for the first time proceed to the next section.

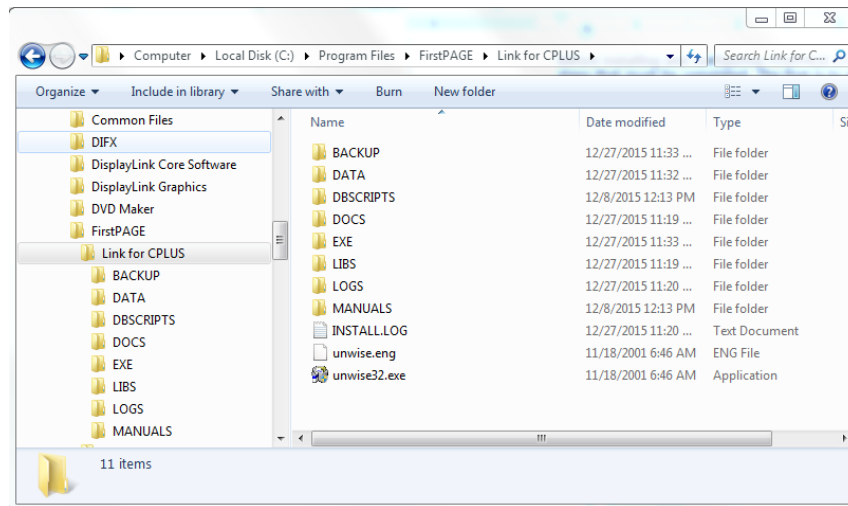
The features and operations that can be performed with *FirstPAGE Link for CPLUS Administrator* include adding, modifying, deleting, listing database information, viewing logs and changing server configurations, etc.

A copy of *FirstPAGE Link for CPLUS Administrator* is included with the *FirstPAGE Link for CPLUS* software; it will be installed automatically when you install the server. The *FirstPAGE Link for CPLUS Administrator* program can be accessed from any administrator workstation by purchasing the remote *FirstPAGE Link for CPLUS Administrator* Kit.

Before installing and configuring *FirstPAGE Link for CPLUS Administrator*, there are two steps that must be completed. The first is to share the files on the server running *FirstPAGE Link for CPLUS*. The second is creating a DSN on the Administrator workstation.

### Sharing an Application Folder

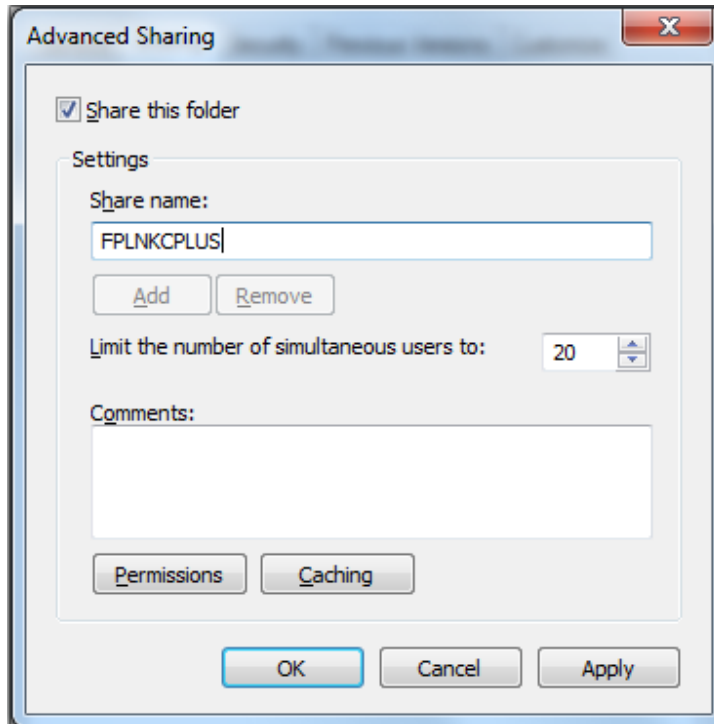
1. On the *FirstPAGE Link for CPLUS* server, in the Program Files folder, chose your Application folder – in this case, *FirstPAGE*. Expand the folder and choose the part of the application you would like to share. In this example, Link for CPLUS is the folder we want to share because it contains the data and log files.



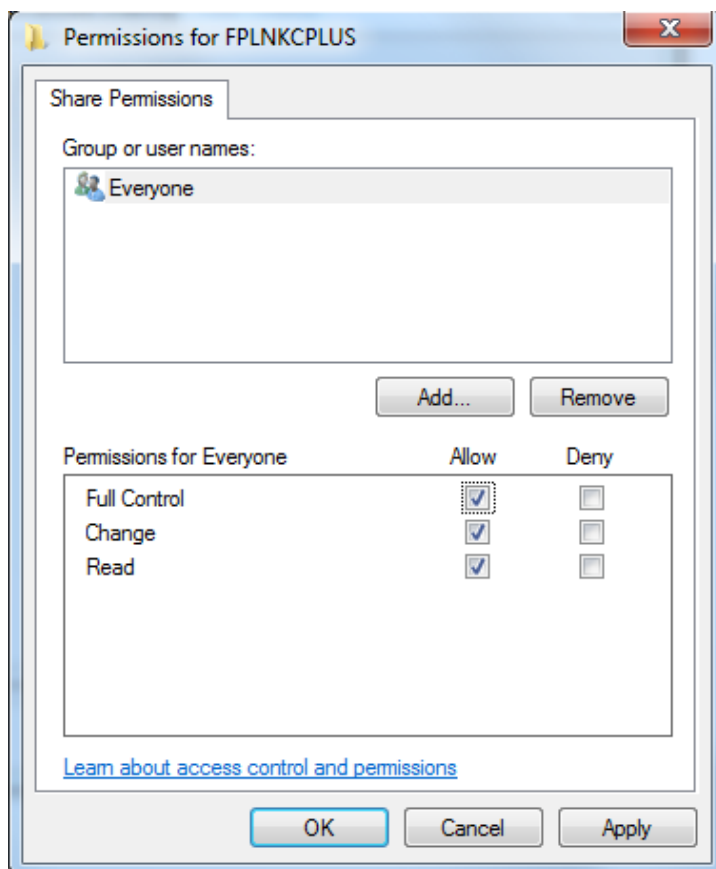
2. Right click on the folder and choose Sharing and Security. On the *Sharing* tab, chose "Share With... Advanced Sharing".
3. Click "Advanced Sharing" button.

## FirstPAGE Link for CPLUS V9

4. Check "Share this folder"
5. Change "Share name" to "FPLNKCPLUS"



6. Click on the *Permissions* button and make sure *Allow* is selected for all permission types under *Permissions for Everyone*. Click *Apply*.



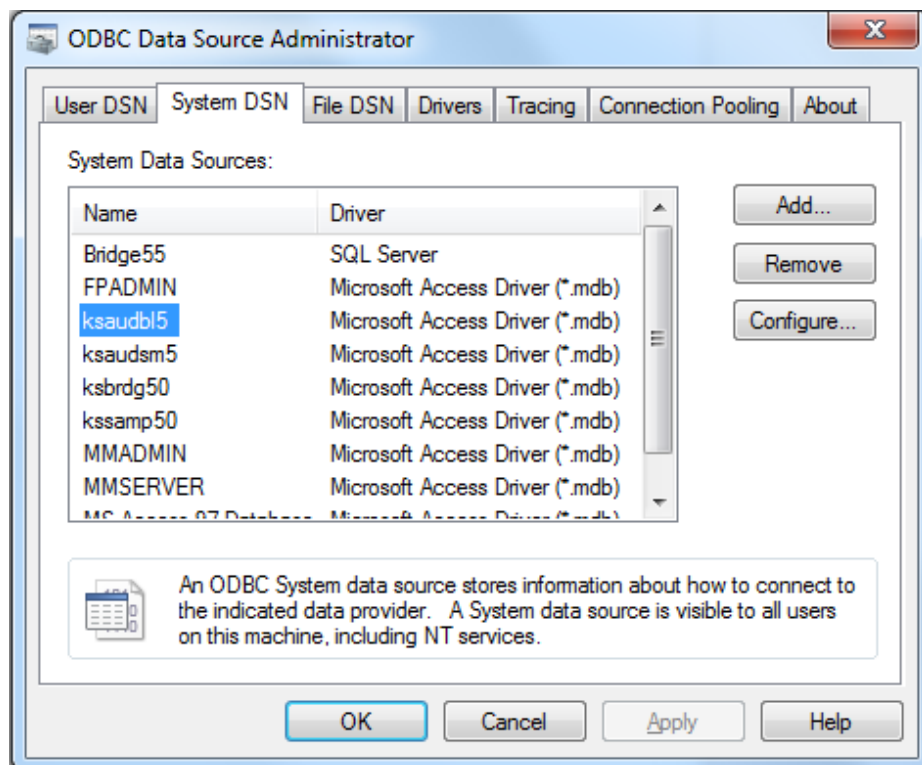
7. In your tree view, the *FirstPAGE Link for CPLUS* folder will now appear as follows:



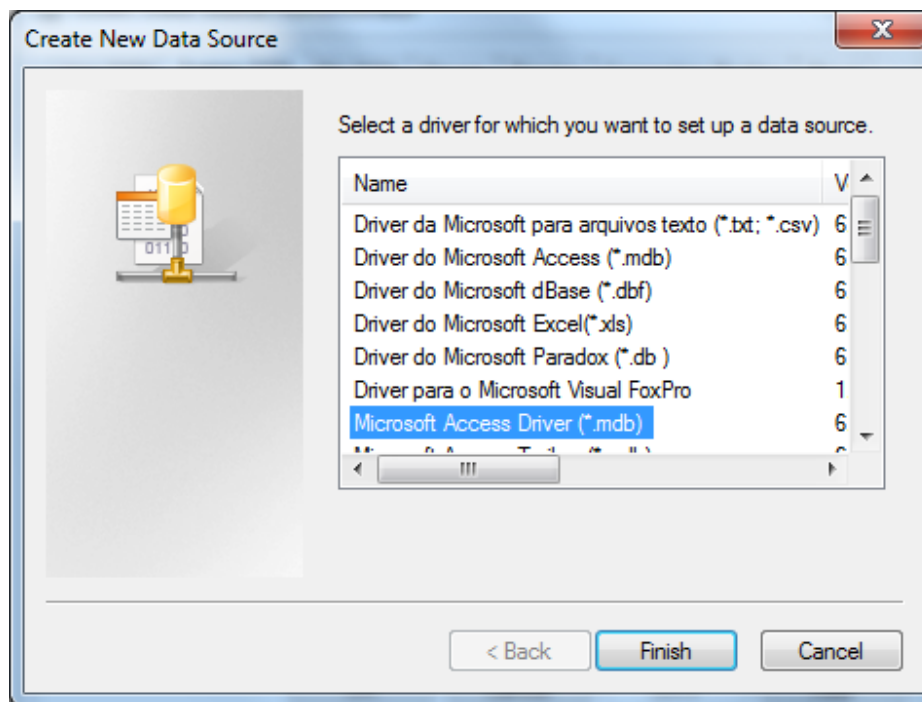
### Creating a DSN

The next step is to create a 32-bit ODBC DSN. This must be done on the computer where the *FirstPAGE Link for CPLUS Administrator* will be installed.

1. In Windows run "C:\Windows\SysWow64\ODBCAD32". Chose the System DSN tab and click on *Add*.

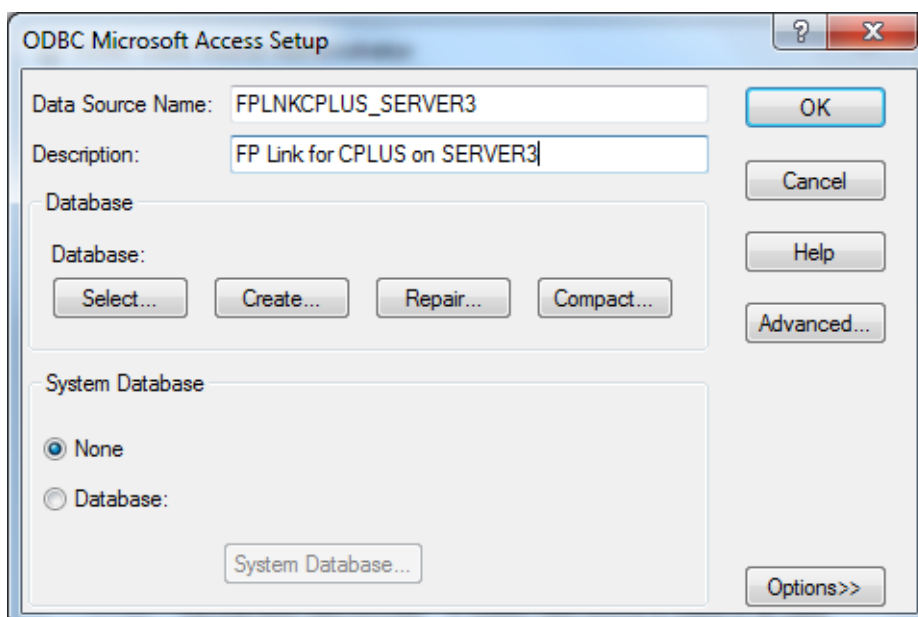


2. Double click on Microsoft Access Driver (\*.mdb)

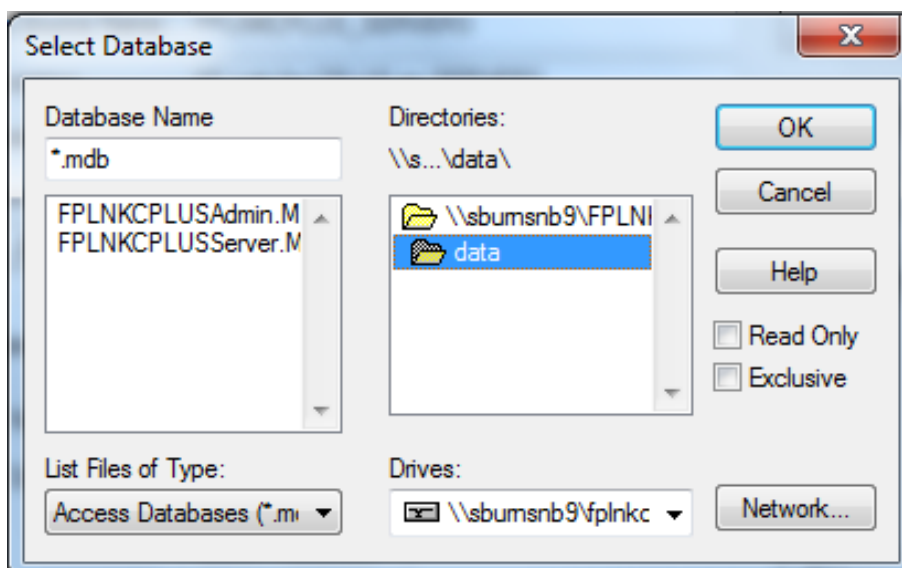




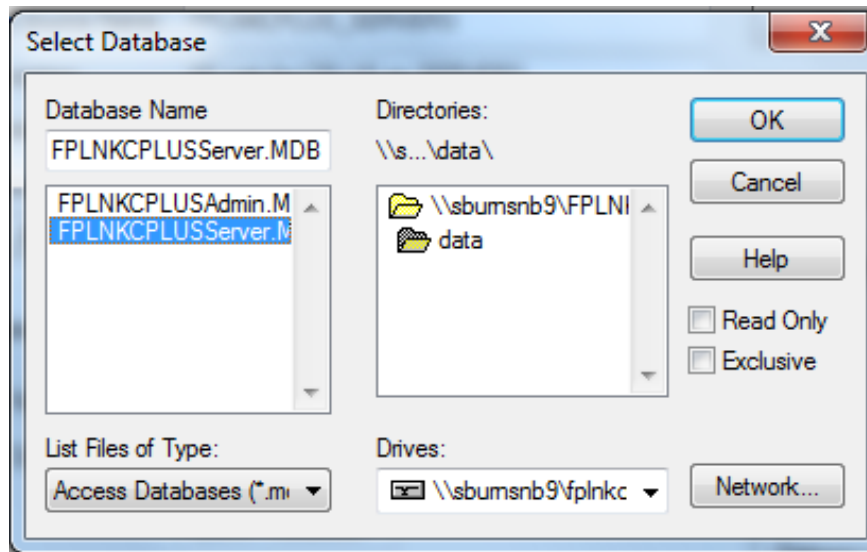
3. Enter the Data Source Name then click on *Select* to locate the associated database.



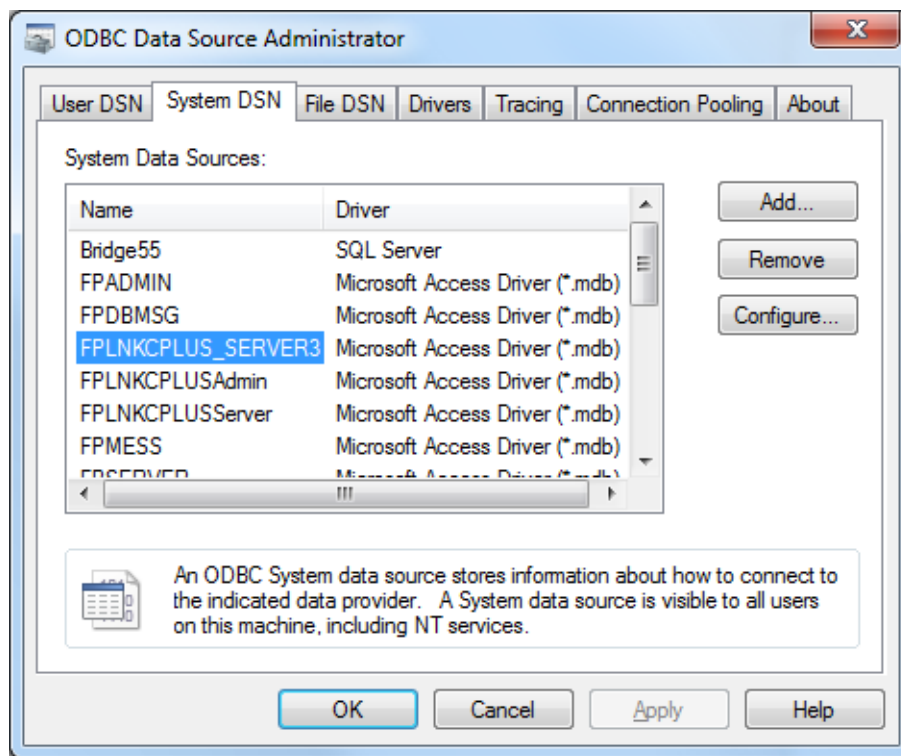
4. In the Database Name, type "\\", the name of the computer the Server Application is installed on, "\\" the share name, "\\" data "\\" and the name of the database file. An example would look like this:  
 \\SERVER3\FPLNKCPLUS\data\ A list of SERVER3's .mdb's will appear.



5. Choose the FPLNKCPLUSServer.mdb and click OK.



6. Your new DSN name should appear.





## **3.** Configuration

### Setting up the Application

Before you can begin using *FirstPAGE Link for CPLUS*, you must add at least one Server to the Administrator. Once the Server is added, various settings that control the interface to the Server must be configured. The steps required include:

1. Adding a Server
2. Creating SNPP Users
3. Creating Talk Group IDs

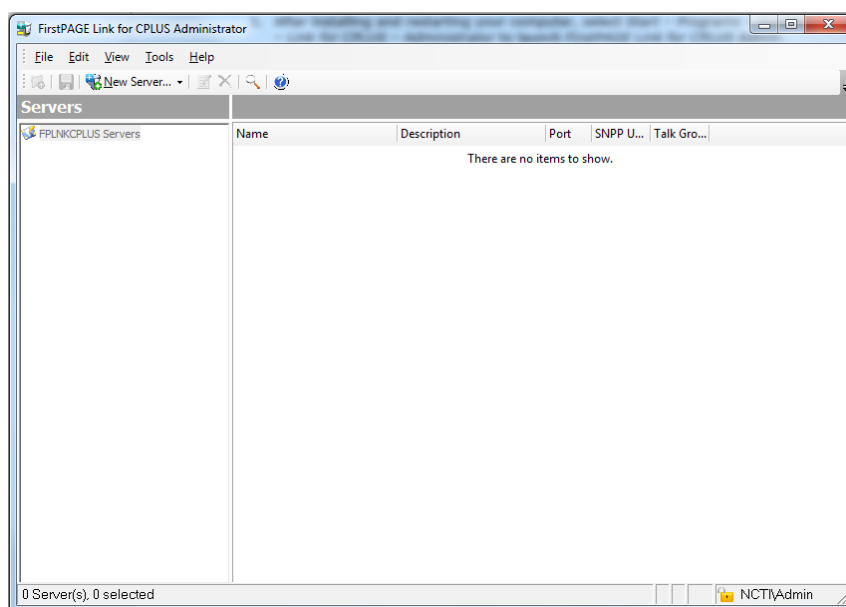
## Configuring Key Components - Server

### Adding a Server

*FirstPAGE Link for CPLUS* includes one Administrator license key that allows the addition of a single server. Additional licenses may be purchased that allow multiple servers to be added and maintained from your *FirstPAGE Link for CPLUS Administrator*.

#### *New Server Steps*

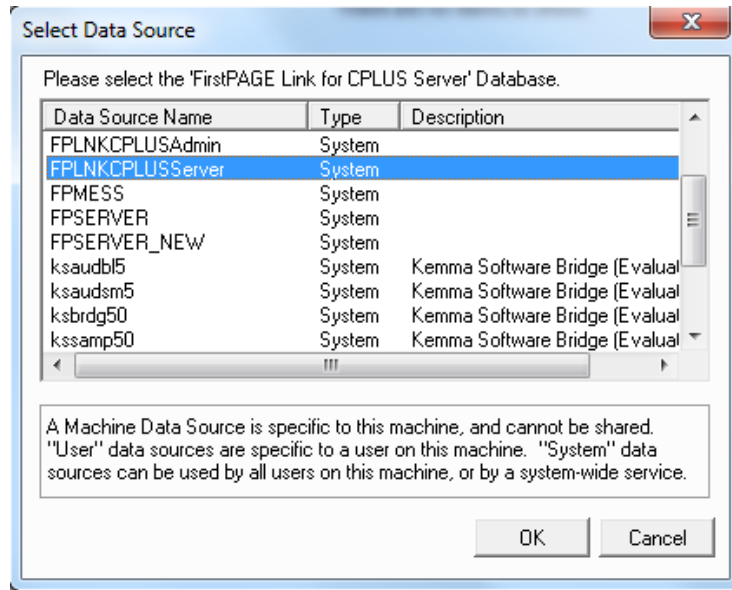
1. After installing and restarting your computer, select *Start – Programs – FirstPAGE – Link for CPLUS – Administrator* to launch *FirstPAGE Link for CPLUS Administrator*.



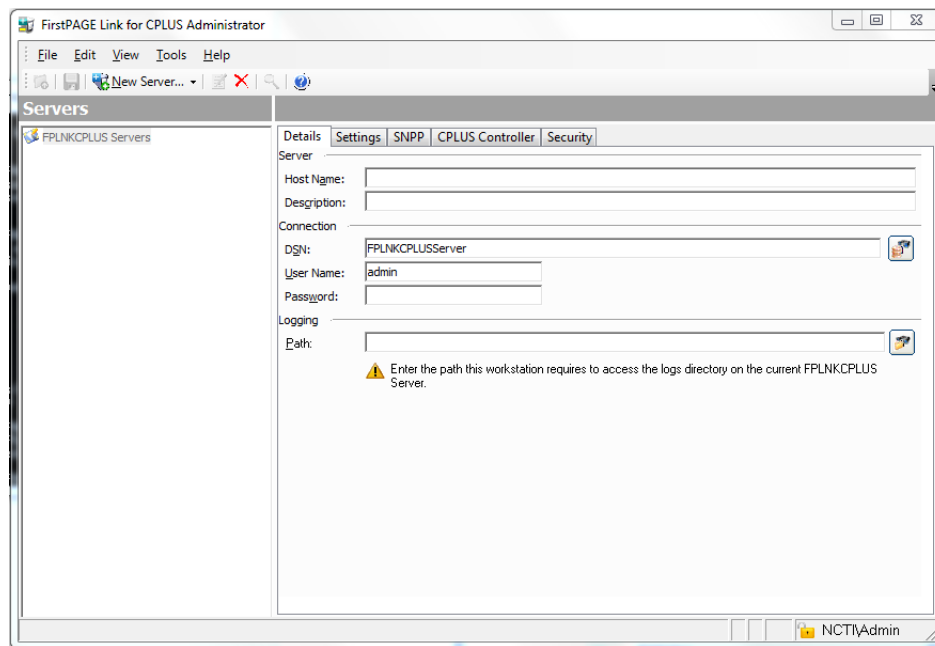
2. Select the *FirstPAGE Link for CPLUS Servers* icon in the tree view. Click the *New* icon in the toolbar. You will be prompted to select an *ODBC Machine Data Source*. If you are configuring *FirstPAGE Link for CPLUS Administrator* supplied with *FirstPAGE Link for CPLUS*, the installation kit has already created this DSN. Simply select the *FPLNKCPLUSServer DSN* from the *Machine Data Source* tab, and click OK.

*If you are using an upgraded FirstPAGE Link for CPLUS Administrator license key, which supports multiple servers, then the DSN entered here must be created by hand and associated with the FPLNKCPLUSServer.MDB file for the remote server to be maintained. To facilitate this, first share the remote server's FirstPAGE\Link for CPLUS directory structure and configure the DSN to use the file:*  
`\\remoteservername\fpInkcplusshare\data\FPLNKCPLUSSERVER.MDB.`

## FirstPAGE Link for CPLUS V9

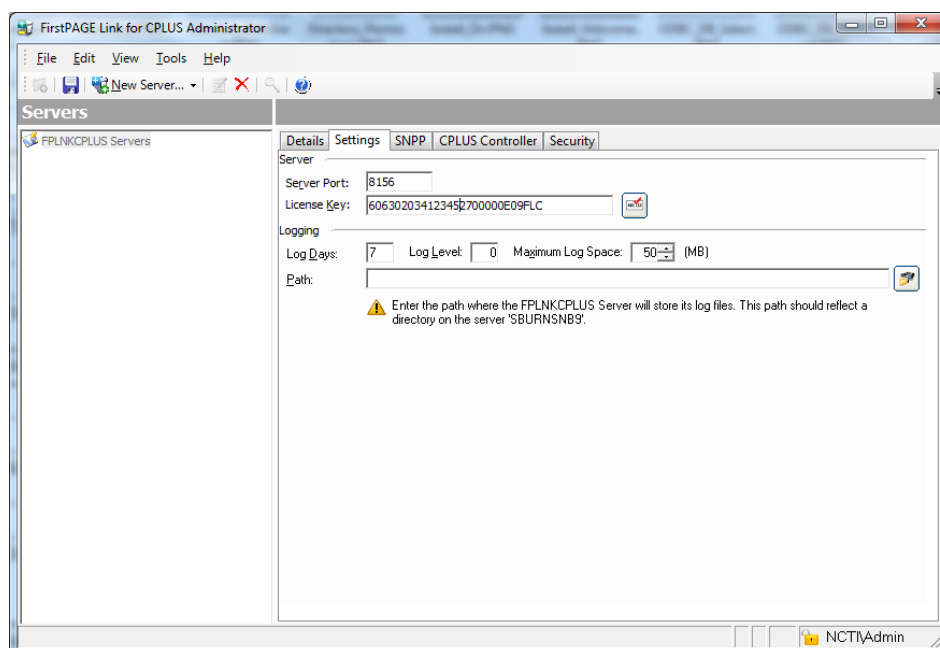


3. The Server configuration process includes a *Details* tab, a *Settings* tab, a *SNPP* tab, a *CPLUS Controller* tab and a *Security* tab. The *Details* tab defines the connection from the *FirstPAGE Link for CPLUS Administrator* to the *FirstPAGE Link for CPLUS* allowing it to maintain a server.



DETAILS TAB	
<b>Server</b>	
<i>Host Name</i>	A TCP/IP resolvable name which must be in your DNS server or local host file and can be reached from the Administrator workstation
<i>Description</i>	Any text the system manager wishes to refer to the server as.
<b>Connection</b>	
<i>DSN</i>	This field is already populated
<i>User Name</i>	Optional
<i>Password</i>	Optional
<b>Logging</b>	
<i>Path</i>	Enter or browse to the <i>Log Path</i> required to access the logs directory on the current <i>FirstPAGE Link for CPLUS Server</i> . In most cases, if the server is locally installed this path will be a drive letter based directory specification (e.g.: C:\Program Files\ <i>FirstPAGE Link for CPLUS</i> \Logs\). If the server being managed is not the local server then this path will most likely be a UNC path (\\server\share\directory\), which provides access to the remote servers log directory. (e.g.: \\LAB1\FPLNKCPLUSServer\logs\).

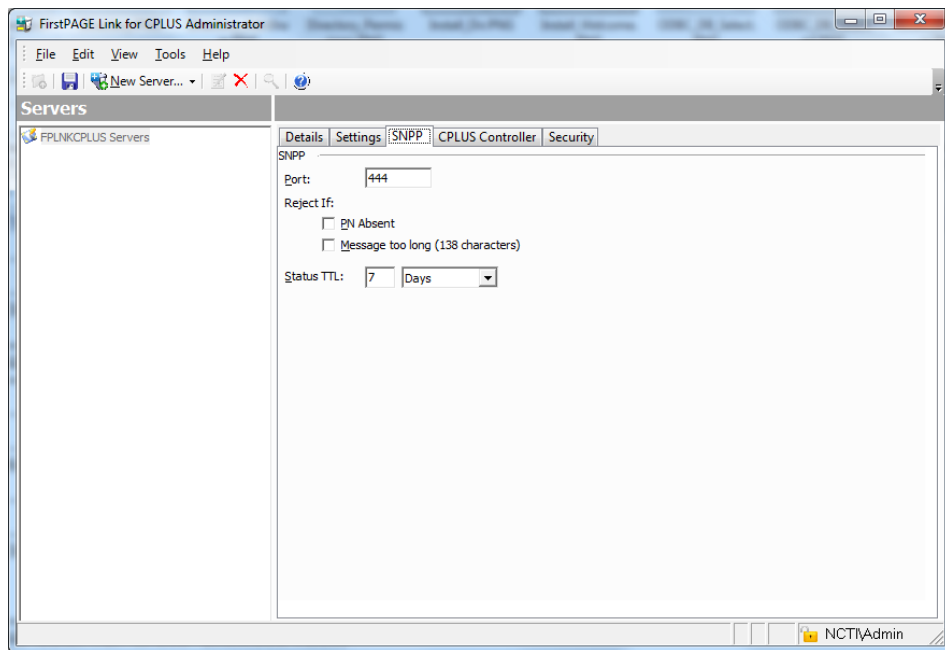
- After completing the Details tab, click on the *Settings* tab to configure the server options. If the server has never been configured before then the contents of the Settings tab contain defaults. If the server is already configured and operational, these fields will be filled with the current server's settings.



## FirstPAGE Link for CPLUS V9

SETTINGS TAB	
Server	
Server Port	Defaults to 8156. Used by Admin to interact with the server.
License Key	FirstPAGE Link for CPLUS license key. Use button to validate.
Logging	
Log Days	The number of days the log file will be kept before being purged. Defaults to 7 days.
Log Level	The log Level field is for use at the request of SeQent. In the event of any problems, SeQent may request additional levels of logging to assist in problem solving.
Maximum Log Space	To prevent the log files from consuming too much drive space, you can specify how much space to allot to the log file in the Maximum Space field. Default is 50 MB.
Path	The path specification, local to the actual FirstPAGE Link for CPLUS Server. It contains the directory where the FirstPAGE Server for CPLUS will store its log files.

- After completing the Settings tab, click on the *SNPP* tab to configure the SNPP options. If the server has never been configured before then the contents of the SNPP tab contain defaults. If the server is already configured and operational, these fields will be filled with the current server's settings.

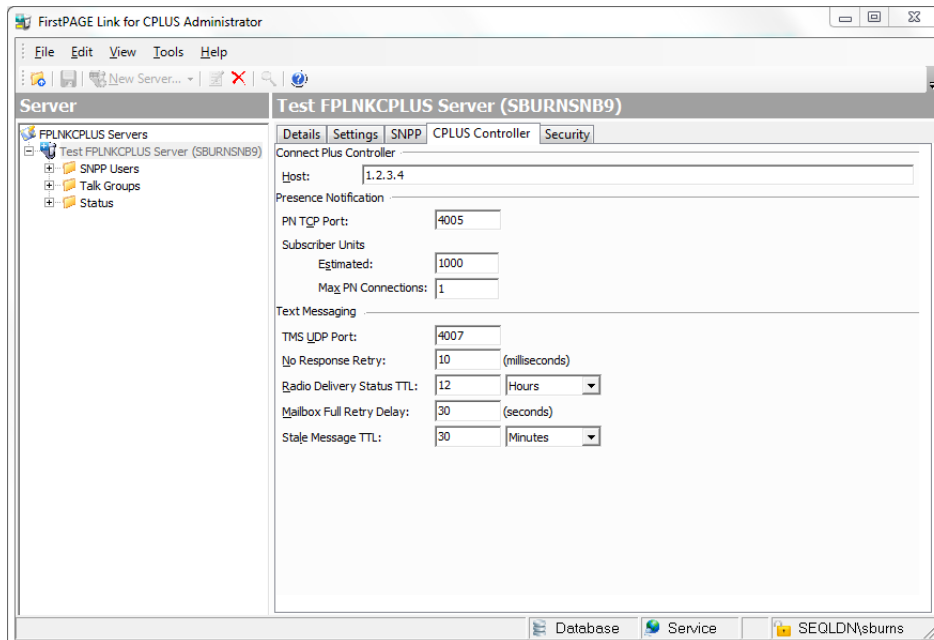




<b>SNPP TAB</b>	
<b>Details</b>	
<i>Port</i>	SNPP listener port. Default - 444.  <b>Note:</b> If two FP Link products are installed on the same server each must have a different port number selected. See the FirstPAGE Administrator manual for details on specifying a non-standard SNPP port number.
<i>Reject If</i>	
<i>PN Absent</i>	If checked SNPP PAGE requests to SUIDs which are currently reporting PN Absent will be rejected. Initial messages to an SUID are always accepted to establish the PN subscription. SNPP will respond to SNPP PAGE requests to these SUIDs with "554 Failed: PN Absent for SUID #####". Default - Unchecked.
<i>Message Too Long</i>	If checked SNPP MESS requests with message text which is longer than 138 characters will be rejected. If unchecked the messages will be truncated at 138 characters. SNPP will respond to SNPP MESS requests which are too long with "554 Failed: Text message greater than 138 characters". Default - Unchecked
<i>Status TTL</i>	Status Time to Live reflects the period of time for which each transactions SNPP status will be available for SNPP MSTA querying. This number should be larger than the FirstPAGE Link for CPLUS - CPLUS Controller – Text Messaging - Radio Delivery Status TTL field. Default - 7 days. SNPP MSTA queries after this time will report "550 Failed: Message not found, or invalid serial number".

- After configuring the SNPP tab, click the *CPLUS Controller* tab to configure the Controller address, queue and protocol properties. If the server has never been configured before then the contents of the CPLUS Controller tab contain defaults. If the server is already configured and operational, these fields will be filled with the current server's settings.

## FirstPAGE Link for CPLUS V9

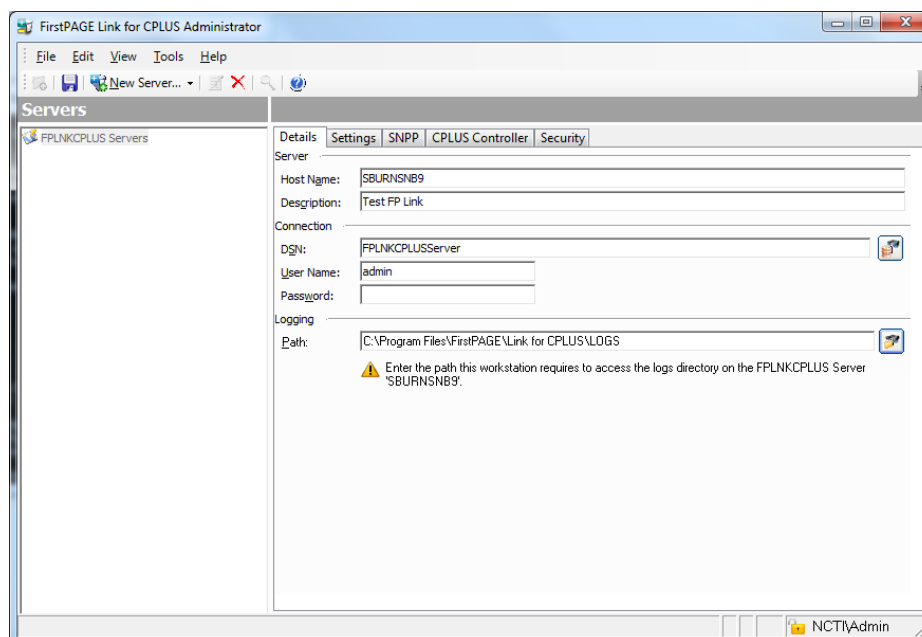


CPLUS Controller	
Details	
<i>Host</i>	DNS name or IP address of the Connect Plus Controller. This field must match the Controller TCP/IP – Primary Controller Address field.
PRESENCE NOTIFICATION	
<i>PN TCP Port</i>	TCP Port to connect to the Controller on for Presence Notification and updates. This must match the Controller's Site Configuration – Configuration – Critical Settings – PN TCP Listen Port field. Default - 4005.
<i>Subscriber Units</i>	
<i>Estimated</i>	Estimated number of subscribers (SUIDs) which will be monitored for Presence. Enter a number slightly larger than the estimated number of radios on the Connect Plus system. Talk Group count is not included in this number. Default 1000.
<i>Max PN Connections</i>	<p>Maximum number of Presence Notification connections to the Controller. Default - 1.</p> <p><b>Note:</b> The Controller supports 1000 subscriptions per PN connection with a maximum of 10 connections to the Controller. If other applications are using TMS and PN ensure that this value leaves enough PN connections for the other applications.</p>
TEXT MESSAGING	
<i>TMS UDP Port</i>	UDP Port to connect and send text messages to the Controller on as well as the listener port to be started on the FirstPAGE Link for CPLUS host to receive responses. This value must match the Controller's Site Configuration – Configuration – Critical Settings – TMS UDP Listen Port value. Default - 4007.

<i>No Response Retry</i>	Time to wait for Controller to send an ACK or NAK for receipt of message into a SUID or TGID mailbox before FirstPAGE Link for CPLUS resends the message to the Controller. Default - 1500 milliseconds.
<i>Radio Delivery Status TTL</i>	The time to wait for SUID message delivery confirmation ACK before setting status to failed. This value should be slightly longer than the Controller's Site Configuration - Non-Critical Settings - Call Configuration - Text Message Retention Time value. SNPP MSTA queries after this time will report "780 Failed: Delivery Status TTL Expired". Default - 12 hours.
<i>Mailbox Full Retry Delay</i>	When SUID mailbox full is reported during sending this is the time to wait before next send attempt. This protects against mailbox space being available but unused if a radio message delivery ACK or NAK was potentially missed due to a problematic network connection. Default - 30 seconds.
<i>Stale Message TTL</i>	The amount of time a message should remain unsent in the FirstPAGE Link queue before being discarded. If the Controller is unreachable, or Presence Notification is not present for this SUID after this period of time, or there is a flood of incoming messages above the capacity of the Controller messages still in the FirstPAGE Link queue messages will be discarded and logged. SNPP MSTA queries after this time will report "780 Failed: Stale Message TTL Expired". Default - 30 minutes.

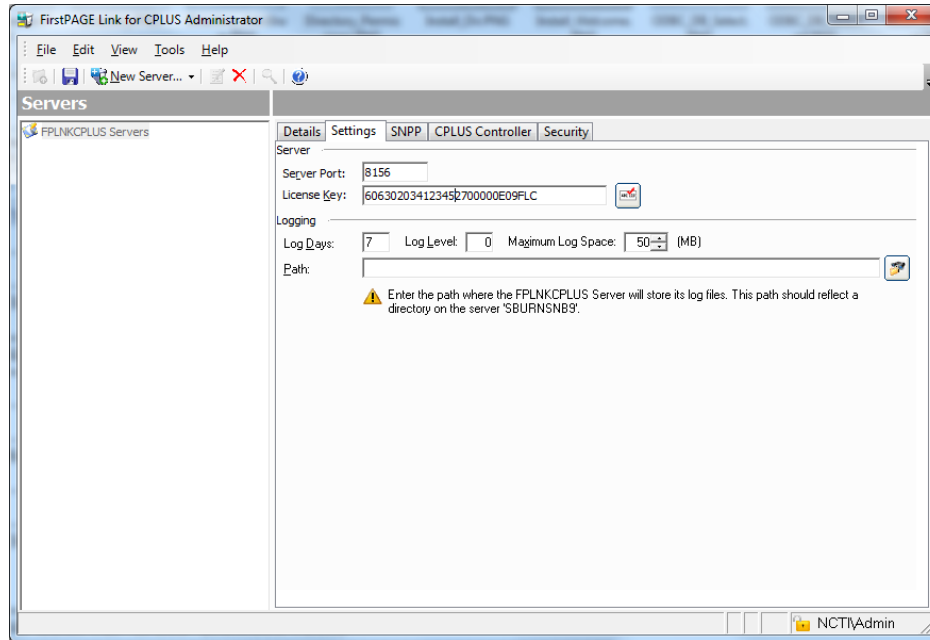
- Click on the *Save* icon to save your settings.

Sample *FirstPAGE Link for CPLUS* - Details tab

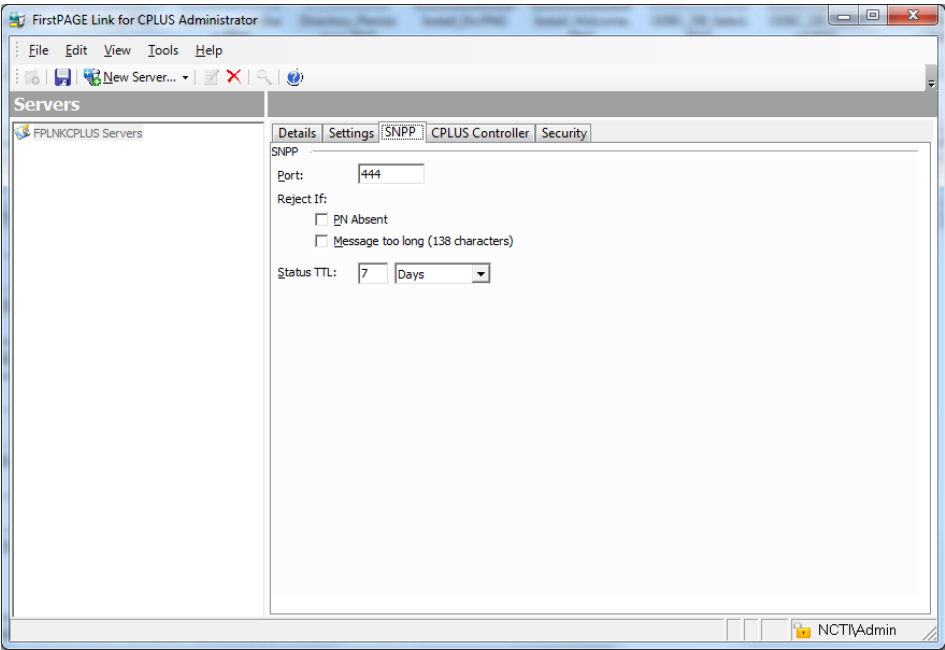


Sample *FirstPAGE Link for CPLUS* - Settings tab

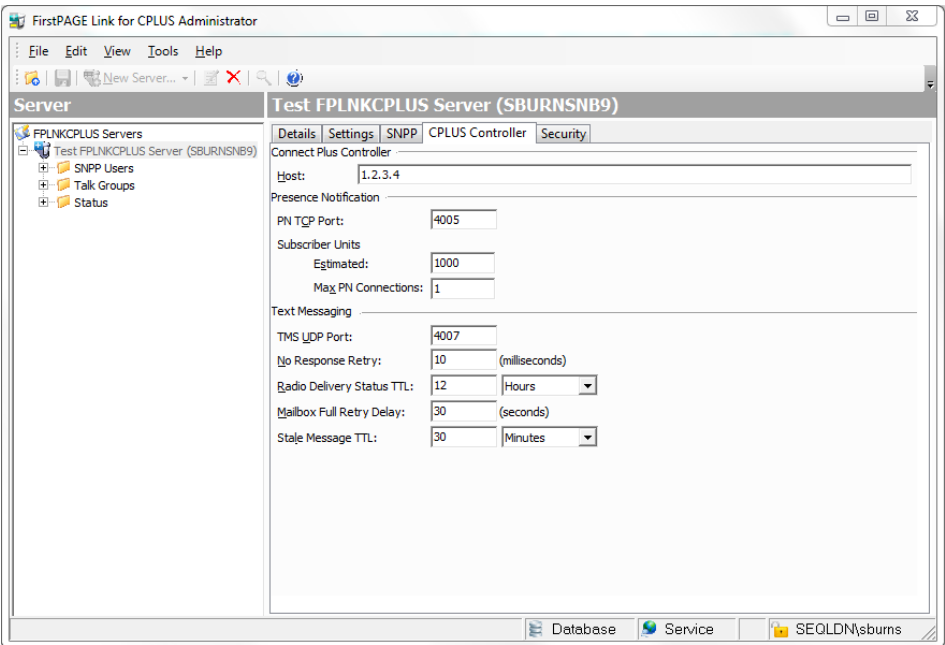
## FirstPAGE Link for CPLUS V9



Sample FirstPAGE Link for CPLUS - SNPP Tab



Sample FirstPAGE Link for CPLUS - CPLUS Controller Tab

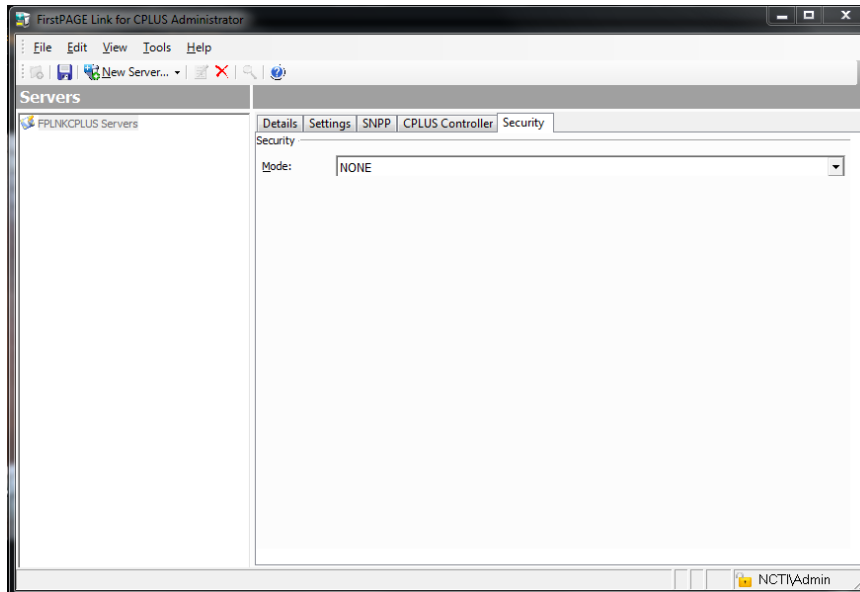


## Enabling and Configuring Security

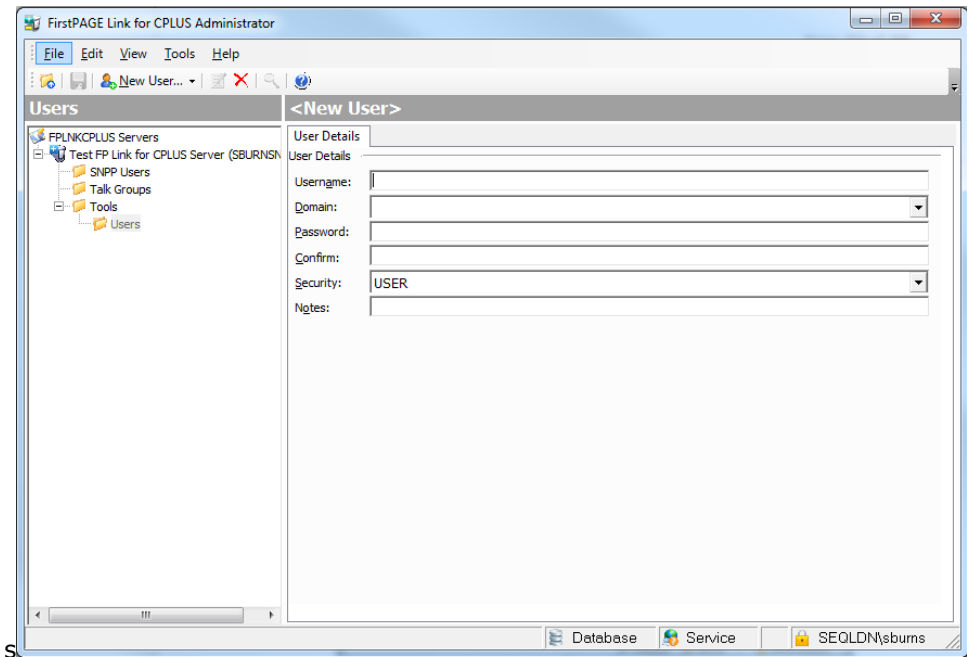
The security feature allows you to restrict who may open the Administrator application and make changes to the configuration of the service. This does not impact who may send messages to the *FirstPAGE* Link for CPLUS. For that security please see the SNPP Users section of the manual.

1. To enable Security, you must select a *Security Mode*. Default selection is NONE. Your choices include:
  - WINDOWSTRUSTED
  - NONE

Once a mode is selected and saved, a *User Security Configuration* folder appears under the *Tools* section of the tree view. This folder allows the administrator to add destinations with limited access to various user applications.



2. Click on the *Tools* folder then select the *Users* folder. Right click and select *New User* or click the *New* icon in the toolbar.



DETAILS TAB	
<i>Username</i>	Enter the <i>Username</i> for this account. This must be the Windows login username. The first user entered must be an administrator with <i>Admin</i> security. The last user removed must also be an Admin.
<i>Domain</i>	Select or enter the <i>Domain</i> from the drop-down list of available domains
<i>Security</i>	Select the level of security this user will have. Choices include Supervisor and Admin. At least one user must have a security level of Admin at all times for the current server. First user must have Admin security level.
<i>Notes</i>	Optional field.

3. Save your changes. The next time you open the application, you will be prompted to enter a User ID/password and a valid Domain name before you are allowed access.

## .4. SNPP Users

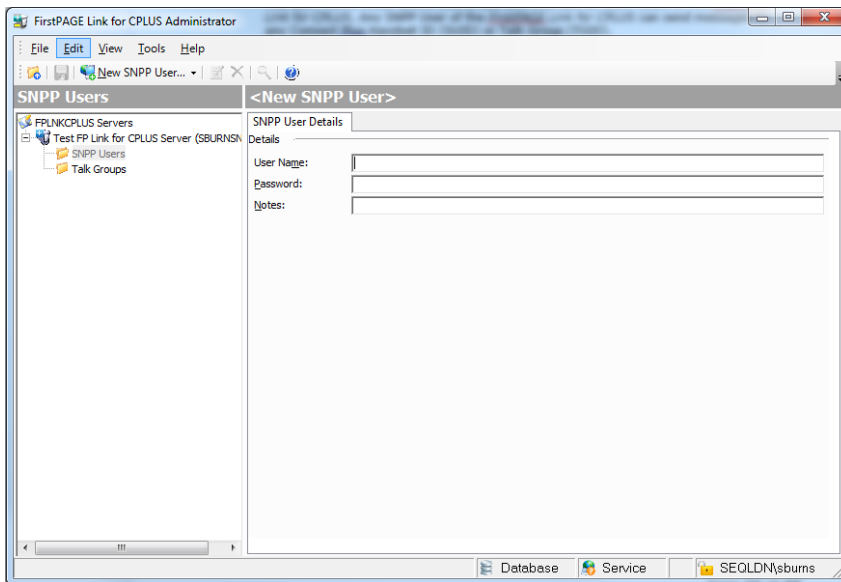
### SNPP Users

Within *FirstPAGE Link for CPLUS* SNPP Users are the point to which external requests are received. For communication from FirstPAGE Server, or other SNPP compatible clients, the SNPP User configuration provides the authentication information required to login and remit transactions or check transaction status. One or more SNPP users may be configured.

### Adding a SNPP User

The SNPP Users folder allows you to add and maintain all SNPP Users of the *FirstPAGE Link for CPLUS*. Any SNPP User of the *FirstPAGE Link for CPLUS* can send messages to any Connect Plus Mobile/Portable ID (SUID) or Talk Group ID (TGID).

Select the *SNPP Users* folder and then click on the *New SNPP User* icon in the menu. The following screen is displayed:



SNPP DETAILS TAB	
Details	
<i>Username</i>	The username of this SNPP user.
<i>Password</i>	The password for this SNPP user.
<i>Note</i>	Notes regarding this user.



## .5. Talk Groups

### Talk Groups

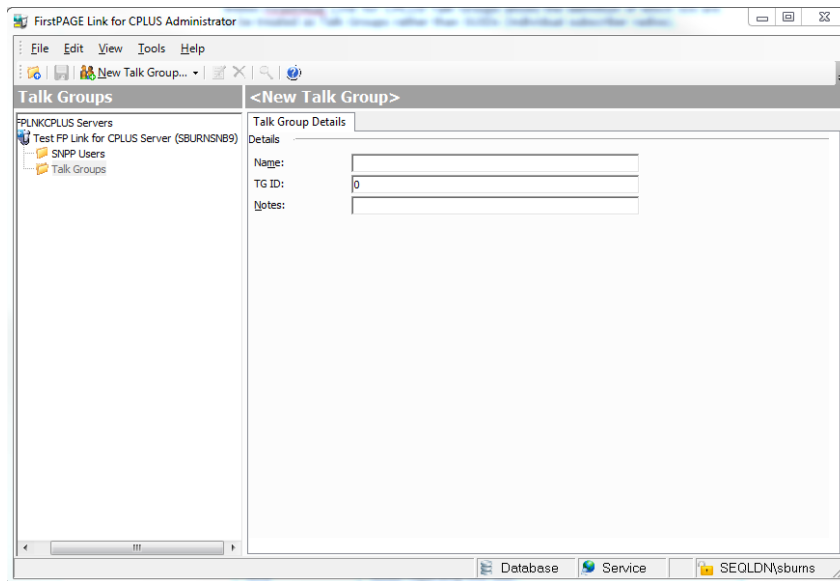
*FirstPAGE Link for CPLUS* Talk Groups allow for the definition of which IDs are to be treated as Talk Groups rather than SUIDs (individual subscriber radios). These IDs, when received in an SNPP PAGE request, are transmitted to the Controller without Presence Notification checks and using the TMS protocol format for Talk Groups.

If a Talk Group in the Controller is not configured as a Talk Group in *FirstPAGE Link for CPLUS* any messages sent to that Talk Group will result in an error of: "Invalid SUID: <#####>, MSGID: <#####> discarded".

### Adding a Talk Group

The Talk Groups folder allows you to add and maintain all Talk Groups of the *FirstPAGE Link for CPLUS*. An ID listed in the Talk Groups folder will be forwarded to the Controller as a Talk Group TMS message meaning it will not check for Presence Notification being present before sending.

Select the *Talk Groups* folder and then click on the *New Talk Group* icon in the menu. The following screen is displayed:



TALK GROUP DETAILS TAB	
Details	
<i>Name</i>	Name of the Talk Group. For reference purposes only.
<i>TG ID</i>	Talk Group ID.
<i>Notes</i>	Notes regarding Talk Group.



## **.6.** Status

### Status

*FirstPAGE Link for CPLUS* Status option provides a window into the Controller’s view of each SUID’s presence and the current size of the queue in *FirstPAGE Link for CPLUS* awaiting transmission to the Controller and Talk Group queue sizes.

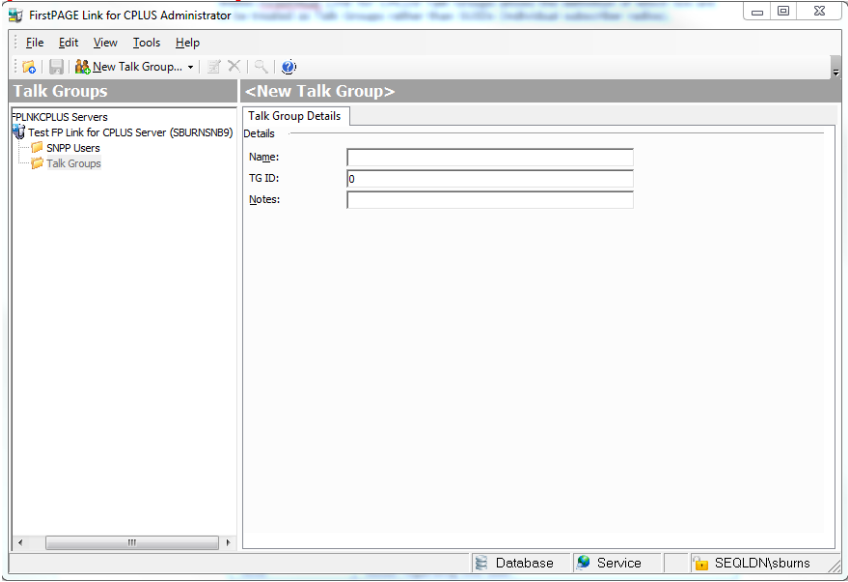
### Radio Status

The Radio Status folder provides a near real-time view of the current presence status and queue size for each SUID which has had a message sent through the *FirstPAGE Link for CPLUS*. This list of SUIDs may be updated by pressing the Refresh button or the F5 key. The display may be automatically refreshed by selecting the Auto Refresh option and setting the number of seconds desired between refreshes.

In addition to a status view the ability to Purge specific SUID queues or all SUID queues is available via the Purge Queue and Purge All Queue buttons.

Under the SU ID column a red dot (●) indicates a radio for which Presence is being reported as Absent by the Controller. A green dot (●) indicates the SUID Presence is being reported as Present. A yellow dot (●) indicates the SUID Presence is being reported as Unknown.

**(New Pic Needed)**



RADIO STATUS TAB	
<i>SU ID</i>	SUID of the radio being reported on.  Green = Present Red = Absent Yellow = Unknown
<i>Status</i>	Present – Radio is reported Present by Presence Notification

	Absent – Radio is reported Absent by Presence Notification Unknown – Radio is reported as Unknown by Presence Notification.
<i>Queue Size</i>	Number of messages currently queued within <i>FirstPAGE</i> Link for CPLUS. This queue size does not account for the count of messages already transmitted to the Controller SUID Mailbox for delivery.
<i>Presence Updated</i>	The last date/time the Presence was reported to <i>FirstPAGE</i> Link for CPLUS by the Controller. Date/Time is reflected in Localtime.

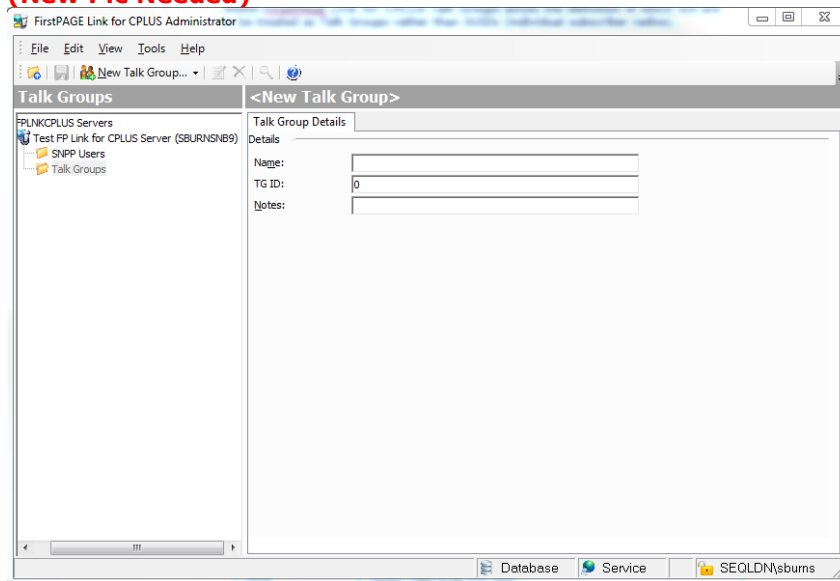
## Talk Group Status

The Talk Group Status folder provides a near real-time view of the current queue size for each TGID which is configured in the *FirstPAGE* Link for CPLUS. This list of TGIDs may be updated by pressing the Refresh button or the F5 key. The display may be automatically refreshed by selecting the Auto Refresh option and setting the number of seconds desired between refreshes.

In addition to a status view the ability to purge specific TGID queues or all TGID queues is available via the Purge Queue and Purge All Queue buttons.

Under the TG ID column the TG ID will usually show a green dot (●) as Presence is not supported for Talk Groups. It is also possible for a TG ID to show a yellow dot (●) if a configured Talk Group configured in Link for CPLUS is not a valid configured Talk Group in the Controller.

### (New Pic Needed)



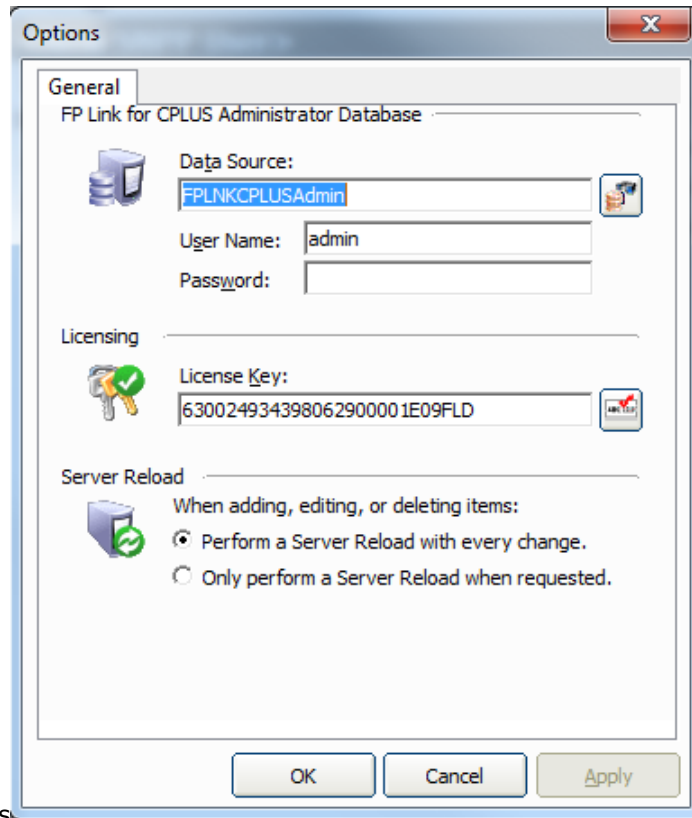
RADIO STATUS TAB	
<i>TG ID</i>	SUID of the radio being reported on. Always Green.
<i>Queue Size</i>	Number of messages currently queued within <i>FirstPAGE</i> Link for CPLUS. This queue size does not account for the count of messages already transmitted to the Controller for delivery.

## *FirstPAGE Link for CPLUS* Tools - Options

### Setting Options

The *Tools* menu allows users to set *FirstPAGE Link for CPLUS* options and details.

1. Click the *Tools* menu then select *Options*. The following screen is displayed:



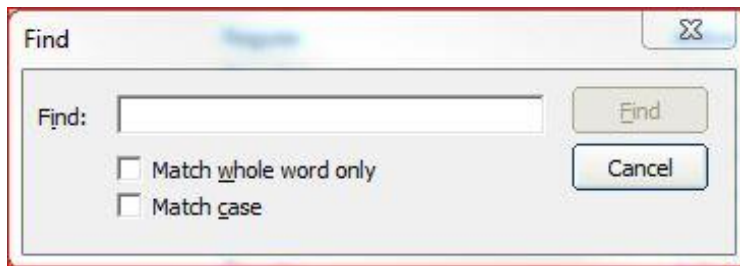
2. The *General* tab displays the Administrator Data Source name as well as the Administrator license key. This key determines the number of servers that can be configured.
3. *FirstPAGE Link for CPLUS* gives you the option to reload the server with any additions, edits or deletions automatically or when requested by the user. Select if you would like the server to automatically reload after every change or to perform the reload only when requested.
4. If you choose to reload with every change, the reload will take place when the Save button is clicked. If you choose to reload only when requested, you will be informed that there are data changes the server needs to be notified about and have the option to either send the reload before closing or close the system without reloading the changes.

## *FirstPAGE Link for CPLUS Search*

*FirstPAGE Link for CPLUS* Administrator contains a utility that allows users to search for configured items by name. For very large configurations search for SNPP users may be facilitated by this option.

### Searching

1. From the *Tools* menu in the toolbar, select *Find*. The following screen is displayed:

A screenshot of a 'Find' dialog box. The dialog has a title bar with the word 'Find' on the left and a close button (X) on the right. Inside the dialog, there is a text input field labeled 'Find:'. Below the input field are two checkboxes: 'Match whole word only' and 'Match case'. To the right of the input field are two buttons: 'Find' and 'Cancel'.

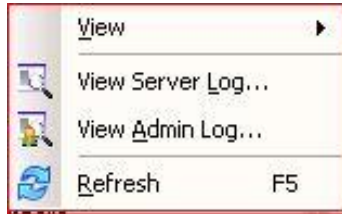
2. From this form you may enter a portion of the desired item name and the *FirstPAGE Link for CPLUS* Administrator will select the first matching item.
3. The two options below the find field will change the search parameters as indicated.

## FirstPAGE Link for CPLUS Log Files

### Viewing the Log Files

In each application, you are able to view the log files associated with the various components of the software. The log files contain an accurate history of every transaction..

1. Select the View menu in the toolbar. Select the View Server Log or View Admin Log option. This action launches the log viewer for the selected log.



2. Double-click the log entry for further information.
3. Click the Filters button and choose viewing options to display only the desired information.
4. The Events On: field defaults to the current day.
5. The Status Message field can be used to search for a portion of the message in the log. Only certain characters may be used in this field. When matching the special characters left bracket ([), question mark (?), number sign (#), and asterisk (\*), enclose them in brackets. i.e. To find all log items that start with [ enter in [[]\* in the Status Message field.

The common search characters are as follows:

Character	Match Made	Example
?	Any single character	Text in the log is ABC, DBC and XYZ. If ?BC is used in the Status Message field, only ABC and DBC will be returned.
*	Zero or more characters	*Initiated* in the Status Message field would return all log items with the word 'Initiated'
#	Any single digit (0-9)	Text in the log is Device1, Device5, Device8, Device10. Keying in Device# in the Status Message field, will return Device1, Device5, and Device8.

6. Select the Automatic Refresh option to automatically refresh the log file based on the seconds specified.

## Appendix A – Controller Configuration

### **Network Architecture**

Connect Plus can be configured with a stand-alone or with primary & secondary redundant Controllers. Each section below will document the appropriate settings for *FirstPAGE Link for CPLUS* to operate properly.

The generally accepted best practise for configuring the radio LAN is to isolate the network from normal corporate network traffic on its own switch. This can be achieved with either router/switch filtering and access control lists restricting traffic traversing to the radio LAN, or by interconnecting the radio LAN to the corporate network only via a dual-NIC server or *FirstPAGE Link for CPLUS* appliance without routing enabled.-

(pic of router/switch with filtering)

(pic of appliance/server with no routing)

### **Controller**

This portion of the manual will define the Connect Plus Controller settings which are critical to text messaging, provide guidance in their settings and reference the *FirstPAGE Link for CPLUS* settings which are related to these Controller settings.

#### **General**

In all Controller configurations, when Users are registered with the Controller, in order for text messages to be received the following option must be selected for each destination radio:

#### **User Registration – (selected User record)**

- For each radio which will receive text messages the User Registration - Call Privileges – Text RX Capable Radio check box must be checked.

**Note:** If this option is not checked any text messages directly addressed to the radios SUID will be rejected by the Controller. These will be logged with a message similar too:

Invalid SUID: <#####>

Text messages sent to a Talk Group in which that radio is a member will still be received on the radio.



## **Stand Alone**

In this configuration a single *FirstPAGE Link for CPLUS* provides the SNPP input into the radio network via this single Controller. The pairing of the Controller to *FirstPAGE Link for CPLUS* is accomplished with settings in the Controller regarding Presence Notification (PN) and Text Messaging (TMS).

The following will highlight those settings.

### **Controller TCP/IP**

- The Controller Role should be selected as "Stand-Alone".
- The Network Settings – Network IP Addresses – Primary Controller IP Address should match the *FirstPAGE Link for CPLUS* Administrator – Server – CPLUS Controller – Host field.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this TCP/IP Address is allowed.
- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of this TCP/IP address.
- **Note:** Any changes to the Controller TCP/IP settings values require a Controller reboot and restart of *FirstPAGE Link for CPLUS* Service.

### **Site Configuration – Send Presence Notification**

- Either option may be selected.
- *FirstPAGE Link for CPLUS* supports both the Network Registration Only and Every Site Registration & Re-Registration options for Send Presence Notification.

### **Site Configuration – Critical Settings - PN TCP Listen Port**

- The port number entered here must match the *FirstPAGE Link for CPLUS* Administrator – Server – CPLUS Controller – Presence Notification – PN TCP Port field. Default - 4005.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this TCP Port number is allowed.

- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of the selected TCP Port number.
- **Note:** Any changes to the Controller TCP/IP settings values require a controller reboot and restart of FirstPAGE Link for CPLUS Service.

#### **Site Configuration – Critical Settings – TMS UDP Listen Port**

- The port number entered here must match the *FirstPAGE Link for CPLUS* Administrator – Server – CPLUS Controller - Text Messaging – TMS UDP Port field. Default - 4007.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this UDP Port number is allowed.
- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of the selected UDP Port number.
- **Note:** Any changes to the Controller TCP/IP settings values require a Controller reboot and restart of FirstPAGE Link for CPLUS.

#### **Site Configuration – Non-Critical Settings – TMS IP Message Forward – Override**

- This setting should be unchecked.
- If checked the Address and UDP Port number must match the *FirstPAGE Link for CPLUS* Administrator – Server – CPLUS Controller - Host field and the *FirstPAGE Link for CPLUS* – Server – CPLUS Controller - Text Messaging – TMS UDP Port field.
- **Note:** It is recommended that this field be left unchecked to enable these values to be determined automatically at run-time.

#### **Site Configuration – Non-Critical Settings – Call Configuration – Text Message Retention Time**

- This setting should be set to a value which is considered reasonable for a message to be delivered to any radio.

- The Controller will retain text messages in SUID mailboxes for up to this period of time attempting to deliver the messages when a radio registers with Presence Notification as Present.
- This value should be considered when selecting a value in *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Radio Delivery Status TTL*.
- It is recommended that the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Radio Delivery Status TTL* be slightly larger than this Controller value.

### ***Primary/Secondary***

In this configuration dual *FirstPAGE Link for CPLUS* appliances are required to provide truly fault tolerant operation. Each appliance is paired with one of the Controllers and provides full access to the subscriber base and talk groups. It is the client appliances responsibility to select a primary and secondary appliance to utilize. Upon loss of connectivity to its paired Controller the appliance will shut down its SNPP input as a signal to *FirstPAGE Server* or the SNPP Client application should switch to the alternate path.

### **Controller TCP/IP**

- The Controller Role should be selected as “Primary” on one of the controllers, and “Secondary” on the other.
- The Network Settings – Network IP Addresses – Primary Controller IP Address must be different than the Network Settings – Network IP Address – Secondary Controller IP Address.
- The “Network Properties” fields must be appropriate for each Controllers IP address. Ie. On the Primary Controller these fields are appropriate for its IP Address. On the Secondary Controller these fields must be appropriate for its IP Address.
- The Network Settings – Network IP Addresses – Primary Controller IP Address must match the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Host* field.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this TCP/IP Address is allowed.
- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of this TCP/IP address.

- **Note:** Any changes to the Controller TCP/IP settings values require a Controller reboot.

#### **Site Configuration – Critical Settings – PN TCP Listen Port**

- The port number entered here must match the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller - Presence Notification – PN TCP Port* field. Default - 4005.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this TCP Port number is allowed.
- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of the selected TCP Port number.
- **Note:** Any changes to the Critical Settings values require a Controller reboot.

#### **Site Configuration – Critical Settings – TMS UDP Listen Port**

- The port number entered here must match the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller - Text Messaging – TMS UDP Port* field. Default - 4007.
- Windows firewall settings on the *FirstPAGE Link for CPLUS* host should also ensure that free bi-directional flow of this UDP port number is allowed.
- Any router/switch between the *FirstPAGE Link for CPLUS* and the Controller must also allow unrestricted flow of the selected UDP Port number.
- **Note:** Any changes to the Critical Settings values require a Controller reboot and a restart of the FirstPAGE Link for CPLUS service.

#### **Site Configuration – Non-Critical Settings – TMS IP Message Forward – Override**

- This setting should be unchecked.
- If checked the Address and UDP Port number must match the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller - Host* field and the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller - Text Messaging – TMS UDP Port* field for the paired host/appliance.

- If using a DNS name the Name Server properties of the Controller TCP/IP settings must be set correctly.
- **Note:** It is recommended that this field be left unchecked to enable these values to be determined automatically at run-time.

### **Site Configuration – Non-Critical Settings – Call Configuration – Text Message Retention Time**

- This setting should be set to a value which is considered reasonable for a message to be delivered to any radio.
- The controller will retain text messages in SUID mailboxes for up to this period of time attempting to delivery when a radio registers with Presence Notification as Present.
- This value should be considered when selecting a value in *FirstPAGE Link for CPLUS* Administrator – Server – CPLUS Controller – Radio Delivery Status TTL.
- It is recommended that the FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Radio Delivery Status TTL be slightly larger than this Controller value.

### ***Portables/Mobiles***

For a Portable or Mobile to received text messages the only requirement is that the Text RX Capable Radio setting be selected in the Connect Plus Controller User Registration screens.

### ***Talk Groups***

For Talk Group members to successfully receive messages sent to the Talk Group the Talk Group ID must be configured in FirstPAGE Link for CPLUS.

## Appendix B - Troubleshooting

This appendix will guide you through troubleshooting messages which are not being delivered to the destination portable, mobile or talk group.

### **Step 1 – Is SNPP Client sending messages to FP Link for CPLUS correctly?**

#### **Using FirstPAGE Server?**

- Attempt to PING the *FirstPAGE Link for CPLUS* host from the host running FirstPAGE Server:

PING w.x.y.z

Where w.x.y.z is the TCP/IP Address of the Windows host running *FirstPAGE Link for CPLUS* or the *FirstPAGE Link for CPLUS* appliance.

- Does the IP Address/Port on the *FirstPAGE Administrator* - Provider - Connections tab match the TCP/IP Address of the *FirstPAGE Link for CPLUS* host and the *FirstPAGE Link for CPLUS* Administrator - Server - SNPP - Port field?
- Does the User Name/Password for the *FirstPAGE Administrator* - provider - Connection tab match a valid SNPP User in *FirstPAGE Link for CPLUS*?
- Does the Network ID in FirstPAGE Administrator Destination match a valid User or Talk Group Registration in the Connect Plus Controller?
- Using *FirstPAGE Administrator* - View - View Logs - Sender Log does a test message show a successful connection to the *FirstPAGE Link for CPLUS* provider?

Using *FirstPAGE Administrator* - View - View Logs - Message Log does a test message show a successful send of the message to *FirstPAGE Link for CPLUS*?

#### **Using another SNPP Client?**

- Attempt to PING the *FirstPAGE Link for CPLUS* host from the host running the SNPP Client:

PING w.x.y.z

Where w.x.y.z is the TCP/IP Address of the Windows host running *FirstPAGE Link for CPLUS*.

- Does the IP Address/Port on the SNPP client's SNPP configuration match the TCP/IP Address of the *FirstPAGE Link for CPLUS* host and the *FirstPAGE Link for CPLUS Administrator – Server – SNPP – Port* field?
- Does the User Name/Password for the *FirstPAGE Administrator – provider – Connection* tab match a valid SNPP User in *FirstPAGE Link for CPLUS Administrator*?  
  
(Does network ID match SUID and/or TGID? Where to look in Connect Plus/on radio)
- Do the logs of the SNPP Client show a successful connection to *FirstPAGE Link for CPLUS*?
- Do the logs of the SNPP Clients show a successful message send to the *FirstPAGE Link for CPLUS*?

### **Step 2 – Is *FirstPAGE Link for CPLUS* working correctly?**

- Attempt to PING the Connect Plus Controller from the host running *FirstPAGE Link for CPLUS*:

PING w.x.y.z

Where w.x.y.z is the TCP/IP Address entered in the Controllers TCP/IP screens "Primary Controller IP Address" field.

- Does the TCP/IP Address entered in the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Host* field match the TCP/IP Address in the Controllers TCP/IP screens "Primary Controller IP Address" field?

If it does not match correct and restart the *FirstPAGE Link for CPLUS* service under Control Panel – Administrative Tools – Services.

- If the log file has a message of: **xxxxxxx (inability to connect to controller)**

Ensure the "PN TCP Listen Port" value entered in the Controller's Site Configuration – Critical Settings screen matches the "PN TCP Port" value entered in the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Presence Notification*.

- If the log file has a message of: **xxxxxxx**

Ensure the "TMS UDP Listen Port" value entered in the Controller's Site Configuration – Critical Settings screen matches the *FirstPAGE Link for CPLUS Administrator – Server – CPLUS Controller – Text Messaging – TMS UDP Port* value.

(In Status windows is radio PN showing present for that radio ID?)

- If the log file has a message of: Invalid SUID: <#####>

This could indicate the User Registration in the Controller does not have the "Text RX Capable Radio" Call Privilege enabled. If this is the case the radio will still receive Talk Group addressed messages for groups it is in but messages addressed directly to it will fail.

- If the log file has a message of: Invalid TGID: <#####>

This could indicate a FirstPAGE Link for CPLUS Talk Group has been configured which does not exist in the Controller or that the ID entered is actually a SUID.

(Does log file show successful input of message from SNPP Client?)

(Does log file show successful transfer of the message to the Connect Plus Controller?)

### ***Step 3 – MOTOTRBO Connect Plus Controller***

(Do we see the channel come up to deliver the message)

(Correct SUID or TGID shown?)

(Setup check box to return ACK/NAK on incoming IP address or does set IP address match FPLNK box)

(Should be able to see TXT messages coming through live)

Is the problem???

### ***Step 4 – MOTOTRBO Portable/Mobile***

(how to check for messages etc.)

(source address naming/mask correctly set)



# Glossary

## *6.25e Direct Mode*

6.25kHz equivalent Direct Mode operation provides subscriber-to-subscriber communication without use of infrastructure. Two TDMA timeslots are available for every 12.5kHz bandwidth channel.

## *Administrator*

Typically a GUI application, this component facilitates configuration and monitoring of a server engine. If changes are made to the server configuration the administrator notifies the engine to reload its running configuration either automatically or on user demand. An example of an administrator component is *FirstPAGE* Administrator. This administrator allows you to maintain the *FirstPAGE* server's engine configuration.

## *Administrator Kit*

An administrator kit contains the product's administration component only. After installing this kit on a workstation you may utilize any of the features of the Administrator component.

## *Capacity Plus*

The Capacity Plus system topology provides capacity. This MOTOTRBO system topology is a single site of multiple repeaters connected via IP. A controller is not required to operate this system topology.

## *Client*

A client component utilizes the facilities of a standard SeQent server. Typically a GUI application, this component provides a user-friendly interface of the available services offered by the server engine. An example of a client tool would be *FirstPAGE* Client, which presents the user with a list of known messaging destinations and allows them to send messages to one or more destinations.

## *Connect Plus*

The Connect Plus system topology provides coverage and capacity with managed channel efficiency. This MOTOTRBO system topology is a multi-site network of multiple repeaters at each site. A controller is required for every site in this system topology and is responsible for subscriber mobility management and call routing.

## *Destination*

A *FirstPAGE* Server destination is a name assigned to a messaging location to which text messages may be delivered. Ex. SCOTTS\_PAGER, KENS\_PHONE, JIMS\_EMAIL.

#### *DSN*

A DSN, Data Source Name, is the name assigned to an ODBC driver and configuration information that allows an ODBC enabled application to connect to a data source.

#### *Engine*

An engine component implements a unified interface to a set of common, related protocols. The engine provides services to clients and gateways such that a common interface may be used to manipulate many different types of devices. Engines are administered via Administrator components and are utilized by clients, gateways or use written components.

#### *Gateway*

A gateway component creates a bridge between a third party product and a standard SeQent server. Typically an engine this component provides a conduit for forwarding events from the third party product into a SeQent standard server.

An example of a gateway would be an interface to an HMI or SCADA system forwarding events from that system to *TeamCALL Server* for processing. An example of a gateway is Marquee Manager Gateway for ActivPlant. This gateway forwards ActivPlant incidents to Marquee Manager.

#### *Linked Capacity Plus*

The Linked Capacity Plus system topology provides coverage and capacity. This MOTOTRBO system topology is a multi-site network of multiple repeaters at each site. A controller is not required to operate this system topology.

#### *IP Site Connect*

The IP Site Connect system topology provides coverage. This MOTOTRBO system topology is a multi-site network of repeaters connected via IP with each repeater constituting a site in the network. A controller is not required to operate this system topology.

#### *Server Kit*

A server kit typically contains the server engine and administrator components. In some cases a client component is also included with this kit. The server kit is usually installed on a centralized host, and one or more clients or gateways utilize this server. An example of a server kit is *FirstPAGE* Server. This kit contains the *FirstPAGE* Engine, Administrator and Client.

*Single Site Conventional*

In the Single Site Conventional system topology, the MOTOTRBO system is comprised of a single repeater. A controller is not required to operate in this system topology.

*Wizard*

A wizard is a prompted process that guides an application user through a complicated data entry process, providing hints as to the appropriate answers required for each field or screen.