TRBOnet Agent

User Guide

Version 5.4

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Contents

1 About TRBOnet Software

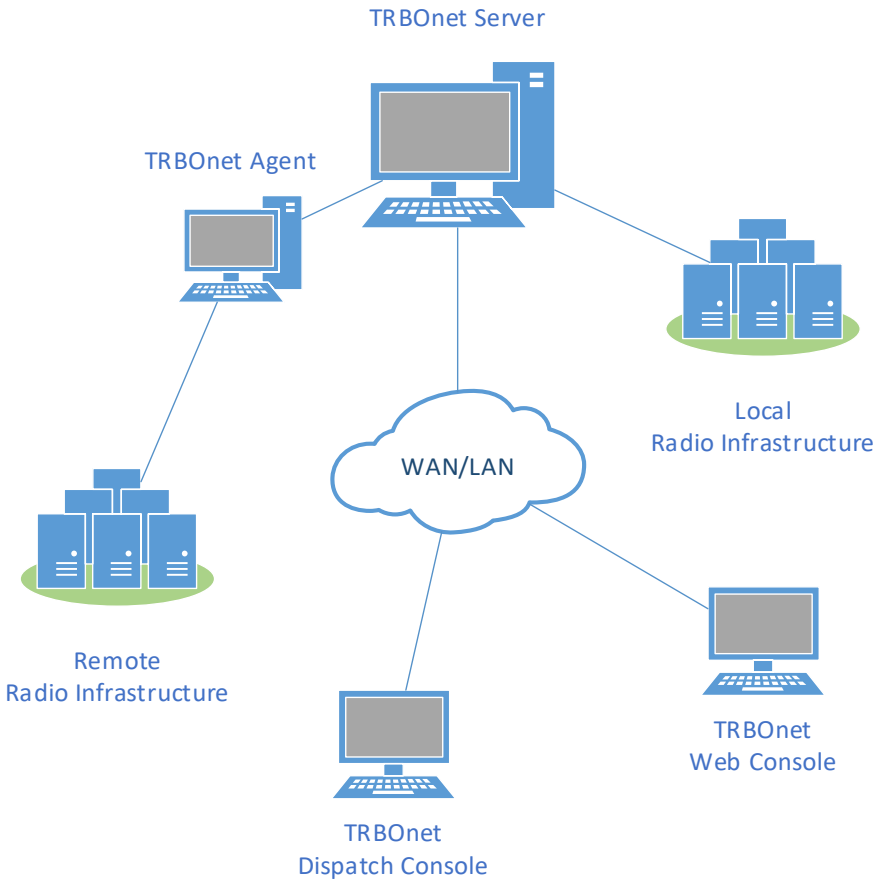
1.1 TRBOnet Server and Console

The TRBOnet software is designed as a client-server architecture, where **TRBOnet Server** is PC-based and runs as a Windows service on a network computer, stores data in an MS SQL database, and allows client connections from Web Consoles, Dispatch Consoles, and Mobile Clients. The TRBOnet service can be located on a dedicated remote PC, a local PC (along with the Dispatch Console), or on a virtual machine.

TRBOnet Dispatch Console is a PC-based voice dispatch and data application for MOTOTRBO professional digital two-way radio systems.

1.2 TRBOnet Agent

Software agents, such as **TRBOnet Agent**, can be connected to TRBOnet Server providing additional voice and data communications paths to and from remote sites. Such configurations can be used when radio equipment can't be connected directly to TRBOnet Server due to IP network limitations (see section 1.3, IP Backend Network Requirements).



1.3 IP Backend Network Requirements

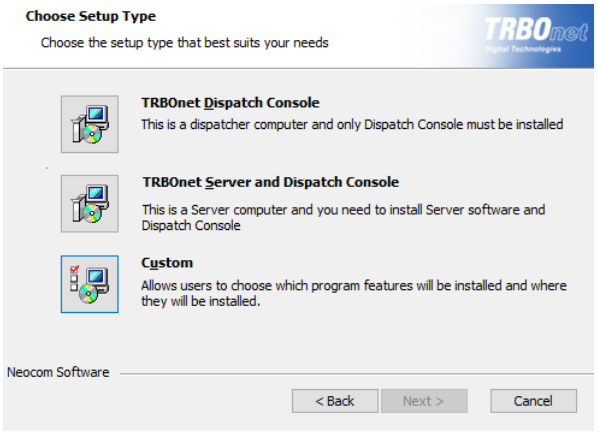
Before planning any IP connected MOTOTRBO system, read System Planner (chapter 4.6.3.2 Characteristics of Backend Network).

- **Delay/Latency**
  The amount of time it takes for voice to leave the source repeater and arrive at the destination repeater. The delay should be less than 60 ms. It can be up to 90 ms, but requires changes in CPS for both radio units and repeaters.
- **Jitter**
  The variation of the packet inter-arrival time. It should be less than 60 ms.
- **Packet Loss**
  In the case of voice, the ongoing call ends if six consecutive packets do not arrive within 60 ms of their expected arrival time. In the case of data, the repeater waits for the expected number of packets (as per the data header) before ending the call.
- **Bandwidth**
  Refer to System Planner for bandwidth calculations, but roughly, it requires 96 kbps for each repeater connection and should be summed up for all repeaters.

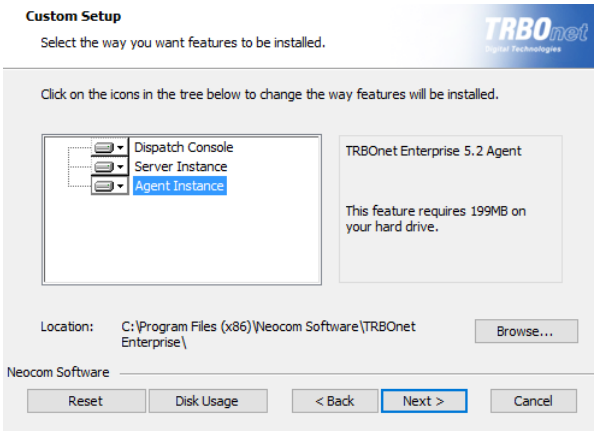
If the IP backend network does not satisfy MOTOTRBO requirements, it will degrade audio quality significantly, including dropped voice calls.

2 Installation

- Contact **Neocom Software** to obtain the latest installation package of the TRBOnet Enterprise software, unzip, and run the setup file as a local administrator.
- When the **TRBOnet Enterprise Setup** wizard appears, click **Next**.
- On the **End User License Agreement** page, accept the terms of the license, and then click **Next**.



- On the **Choose Setup Type** page, click **Custom**.



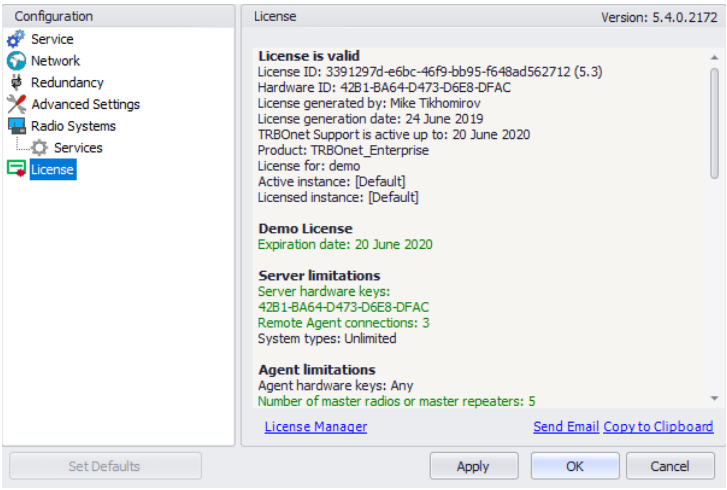
- On the **Choose Setup Type** page, select either Server Instance and Agent Instance or only Agent Instance.
- Accept the defaults for the rest of the setup and complete the installation.

3 TRBOnet Agent configuration

To start TRBOnet Agent, click the corresponding shortcut on the desktop, or click **Start > All Programs > Neocom Software > TRBOnet Agent x.x**

3.1 License Manager

- In the **Configuration** pane on the left, select **License**.
  In the right pane, you can see the text of your current license.



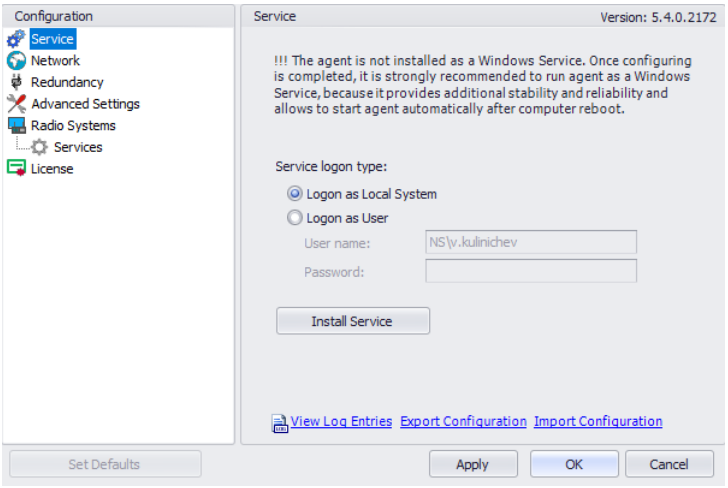
To apply the new license:

1. Click the **License Manager** link in the right pane.
   The **License Manager** wizard appears.
2. Click **Next**.
3. Click the ellipsis (**...**) button on the right-hand side of the **License file** box.
   The **Open** dialog box appears.
4. Locate the license file you received from our technical support and click **Open**.
   The full path of the license file appears in the **License file** box.
5. Click **Next**.
6. Click **Finish** to close the wizard.
7. Click **Apply** and then confirm to restart TRBOnet Agent.

Note: To use a single license for multiple TRBOnet software instances, you need **TRBOnet License Server**. For detailed instructions on how to use TRBOnet License Server, refer to *TRBOnet License Server Configuration Guide*.

3.2 TRBOnet Agent Service

- In the **Configuration** pane, select **Service**.



- In the **Service** pane, specify the following service-related parameters:
  - Choose the required logon type:

    Logon as Local System
    Choose this option to use an account with local system administrator privileges to run the service as a Windows service (Recommended);

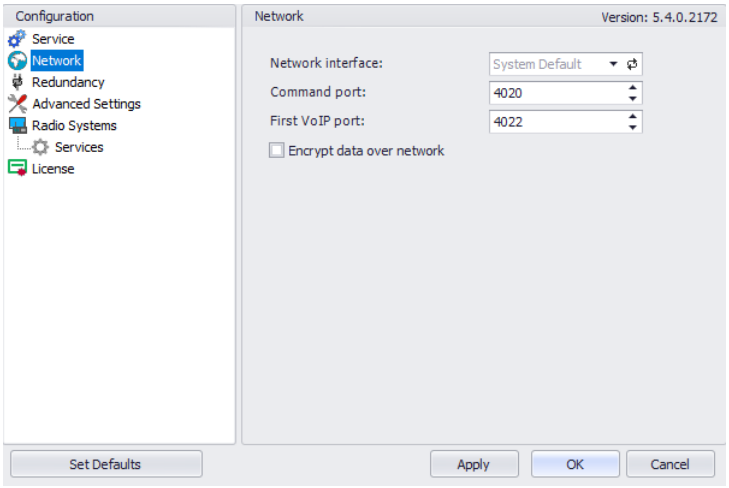
    Logon as User
    Choose this option to use a different account to run the service as a Windows service. This account must allow the user to run services in Windows, have read and write access to the **Neocom Software** folder and subfolders in the "**%ProgramFiles%**" (or, "**%ProgramFiles(x86)%**" for 64-bit OS) and "**%ProgramData%**" folders. For example, using such an account may be required in the following cases:

    1. An Active Directory domain network is used, and the current Windows user is not allowed to use a **Local System** account to launch services on the local PC due to domain policy restrictions.
    2. MS SQL Server is installed on a remote PC, and **Windows Authentication** has been selected to connect to the database.

  - Click **Install Service**.
  - Click the **Start Service** link that appears in the right pane.

3.3 Network Parameters

- In the **Configuration** pane, select **Network**.



- In the **Network** pane, specify the following network-related parameters:
  - **Network interface**
    From the drop-down list, select the network interface that will be used to communicate between the Agent and Server. Click to refresh the list of network interfaces available on your PC.

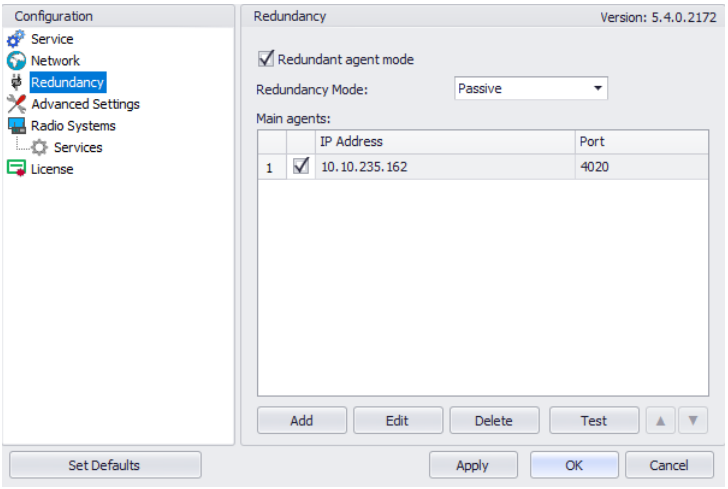
    Note: If both TRBOnet Server and Agent are installed on the same PC, then select **`127.0.0.1`** (Loopback Pseudo-Interface).

  - **Command port**
    Enter the port number to be used by a Server to connect to the Agent (4020, by default).
  - **First VoIP port**
    Enter the number of the first VoIP port for audio communications between the Agent and Server (4022, by default). Each additional Server will establish a connection on the next available port number.
  - **Encrypt data over network**
    Select this option to guarantee the security of data transfer between TRBOnet Server and TRBOnet Agent. It is recommended that this option be used when a connection between system components is established via the Internet or other public networks.

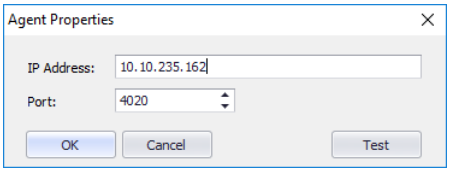
3.4 Backup Configuration

TRBOnet Agent supports a redundant (secondary/backup) configuration which allows automatic switching from the primary to the redundant (secondary/backup) agent in case of failure of the primary agent. Dispatch Console operation will not be interrupted.

- In the **Configuration** pane, select **Redundancy**.



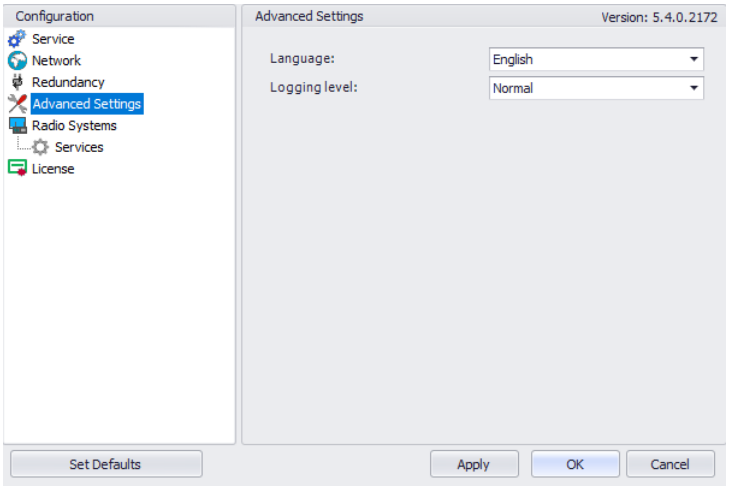
- In the **Redundancy** pane, select the **Redundant server mode** option.
- **Redundancy Mode**
  Select a mode for the backup agent from the drop-down list.
- To add a main agent, click **Add**.



- **IP Address**
  Type the IP address of the main agent.
- **Port**
  Enter the same port number as specified for the Command port.

3.5 Advanced Settings

- In the **Configuration** pane, select **Advanced Settings**.



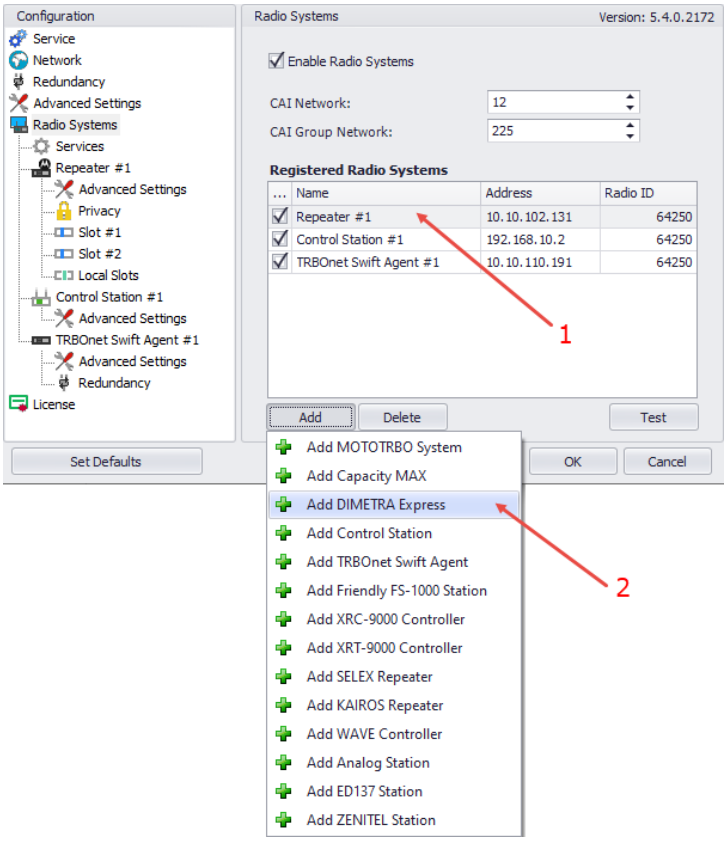
- In the **Advanced Settings** pane, specify the following advanced parameters:
  - **Language**
    From the drop-down list, select the interface language for TRBOnet Agent.
  - **Logging level**
    From the drop-down list, select the logging level that determines the granularity of log messages in the System Log. The choices are: None, Low, Normal, and High.

Note: This information is used by technical support for troubleshooting purposes, so it is recommended that this value be kept unchanged (Normal).

3.6 Radio Systems

- In the **Configuration** pane, select **Radio Systems**.
- In the **Radio Systems** pane, select or make sure **Enable Radio Systems** is selected.
- In the **Radio Systems** pane, specify the following parameters:
  - **CAI Network**
    The CAI (Common Air Interface) Network is a value that is combined with the Radio ID to produce the individual radio's air interface network IP address. All radios must use the same CAI Network ID to be able to exchange data. It is recommended that the default value of 12 is used.
  - **CAI Group Network**
    The CAI Group Network is a value that is combined with the Group ID to produce the group's air interface network IP address. The CAI Group Network ID forms the first or most significant byte of each group's network IP address. All radios must use the same CAI Group Network ID to be able to exchange data (225, by default).

Note: The values of these two parameters must match those configured for the radio units via the MOTOTRBO CPS.



All radio system elements based on MOTOTRBO services are represented in the **Registered Radio Systems** table, including their type (Control Station, Repeater, and others), IP Address, and Radio ID (1):

- To add an element to the system, click **Add** and select the element type from the drop-down menu (2).

3.6.1 Services

- In the **Configuration** pane, under **Radio Systems**, select **Services**:
- In the **Services** pane, specify the following Radio System Services-related parameters:
  - **Automatic Registration Service (ARS)**
    Select this option to enable the ARS service for the radios. When the radio powers up, it automatically registers with the server. This feature is used with data applications, that is, any data traffic on this channel is associated with an application server such as MOTOTRBO Text Messaging or MOTOTRBO Location Services.
    - **Port**
      Enter the local port number for the ARS service (4005, by default).

- **Telemetry service (TLM)**
  Select this option to enable the Telemetry service, which is the wireless transmission and reception of measured quantities for remotely monitoring environmental conditions or equipment parameters.
  - **Port**
    Enter the local port number for the Telemetry service (4008, by default).
- **Text Messaging service (TMS)**
  Select this option to enable the Text Messaging service which is used to exchange text messages between the radios and the dispatchers.
  - **Port**
    Enter the local port number for the Text Messaging service (4007, by default).
- **Location service (GPS / Indoor)**
  Select this option to enable the Location service. The radio can send its coordinates when it is in Global Positioning or iBeacon coverage area.
  - **Port**
    This is the local port number for the Location service (4001), which cannot be modified.
- **Job Ticketing service (JTS)**
  Select this option to enable the Job Ticketing service.
  - **Port**
    This is the local port number for the Job Ticketing service (4013, by default).
- **Text Messaging service DMR**
  Select this option to enable the DMR-based Text Messaging service.
  - **Port**
    Enter the local port number for the DMR-based Text Messaging service (5016, by default).
- **Indoor service (K-TERM)**
  Select this option to enable the Indoor Location service.
  - **Port**
    Enter the local port number for the Indoor service (3022, by default).
- **Indoor LAN Service (K-TERM)**
  Select this option to enable the Indoor LAN service.
  - **Port**
    Enter the local port number for the Indoor LAN service (3001, by default).
- **Tallysman Sprite service**
  Select this option to enable the service for autonomous event and aggregated event reporting to provide significant reduction in GPS data overhead.

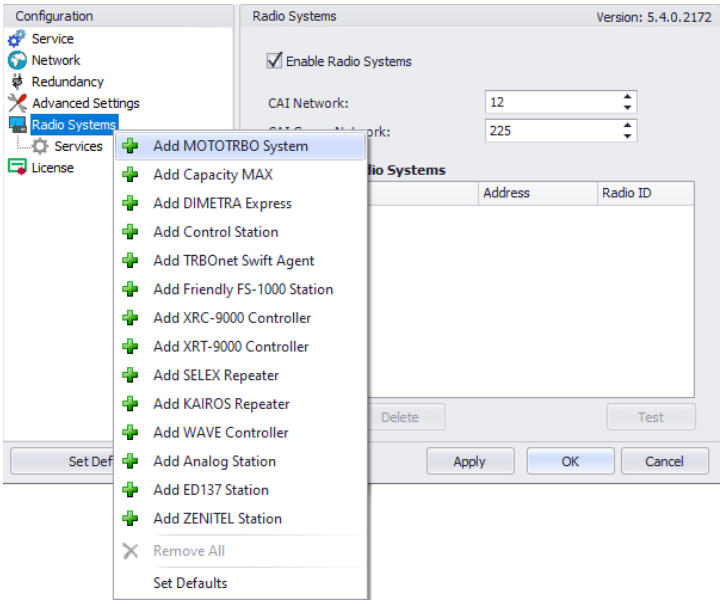
- **Port**
  Enter the local port number for the Tallysman Sprite service (4004, by default).

- **FS 5000 location service (GPS)**
  Select this option to enable the FS 5000 location service, which is a service for transmitting GPS data packages. This service uses FS 5000 Option Board.
  - **Port**
    Enter the local port number for the FS 5000 location service (4004, by default).
- **Swift.Tracker v.1 service**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel using the Swift.Tracker TR001 device.
  - **Port**
    Enter the local port number for the Swift.Tracker v.1 service (4004, by default).
- **Swift.Tracker v.1 service (GSM channel)**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel and a reserved GSM channel using the Swift.Tracker TR001 device.
  - **Port**
    Enter the local port number for the Swift.Tracker v.1 service with a GSM channel (4080, by default).
- **Swift.Tracker v.2 service**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel using the Swift.Tracker TR001 device (version 2).
  - **Port**
    Enter the local port number for the Swift.Tracker v.2 service (4104, by default).
- **Swift.Tracker v.2 service (GSM channel)**
  Select this option to enable the service to transmit coordinates and data packages via a radio channel and a reserved GSM channel using the Swift.Tracker TR001 device (version 2).
  - **Port**
    Enter the local port number for the GSM channel of the Swift.Tracker v.2 service with a GSM channel (4180, by default).
- **Extended Text Messaging service**
  Select this option to enable the Extended Text Messaging service to include sending detailed preconfigured templates with the help of TRBOnet Dispatch Software.
  - **Port**
    Enter the local port number for the Extended Text Messaging service (4010, by default).

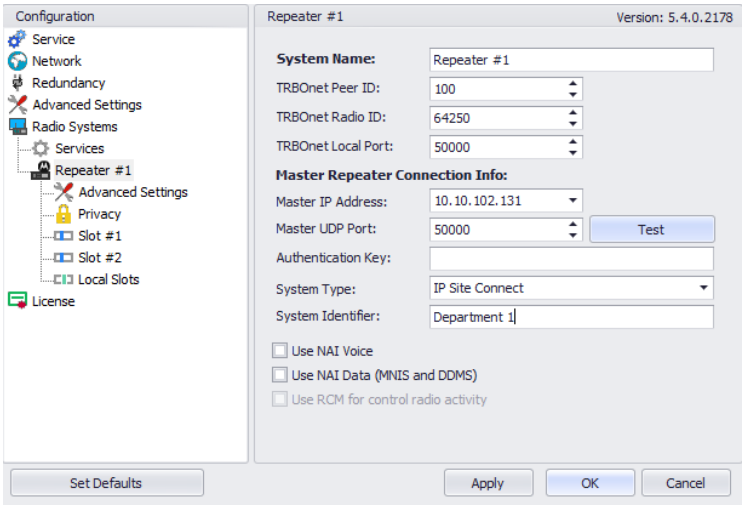
- **Extended Data service**
  Select this option to enable the Extended Data service that will be used for communication with TRBOnet Communicator.
  - **Port**
    Enter the local port number for the Extended Data service (4106, by default).
- **Telemetry service Novox**
  Select this option to enable the Telemetry service based on NOVOX devices.
  - **Requests port**
    Enter the local port number to listen for requests (8090, by default).
  - **Events port**
    Enter the local port number to listen for events (8091, by default).
- **G4S RS232 service**
  Select this option to enable the custom developed G4S RS232 service.
  - **Port**
    Enter the local port number for the G4S RS232 service (4004, by default).
- **Zebra printer service**
  Select this option to enable the service for printing Job Tickets. A Zebra printer is connected to a radio via Bluetooth. The radios should be Bluetooth-enabled.
  - **Port**
    Enter the local port number for Zebra printer service (4072, by default).
- **Forward Data service**
  Select this option to enable the Forward Data service. This feature is used to forward "raw data" via the COM port from one device to another.
  - **Port**
    Enter the local port number for Forward Data service (4011, by default).

3.6.2 Adding a MOTOTRBO Repeater

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add MOTOTRBO System**.



- In the **Repeater** pane, specify the connection parameters.
  To ensure your connection parameters match the actual configuration of your radio network, you may need to use Motorola CPS or Config Advisor tools to determine the values. Contact your radio network administrator, if you do not have this information.



  - **System Name**
    Enter a name for the repeater. This name will be displayed in the Dispatch Console.
  - **TRBOnet Peer ID**
    Enter a Peer ID for TRBOnet Agent. The Peer ID must be unique among the repeaters in the radio system.

    Note: Motorola recommends that this value be less than 200.

- **TRBOnet Radio ID**
  Enter the Radio ID, which is a gateway for voice and data. The Radio ID must be unique in the radio system (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).
- **TRBOnet Local Port**
  Enter the local port number that will be used by TRBOnet Agent to establish a connection to the repeater. Use unique port numbers for each repeater connection if there are several repeaters connected.
- **Master IP Address**
  Enter the Ethernet IP address of the master repeater.

  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master IP*.
- **Master UDP Port**
  Enter the UDP port number of the master repeater.

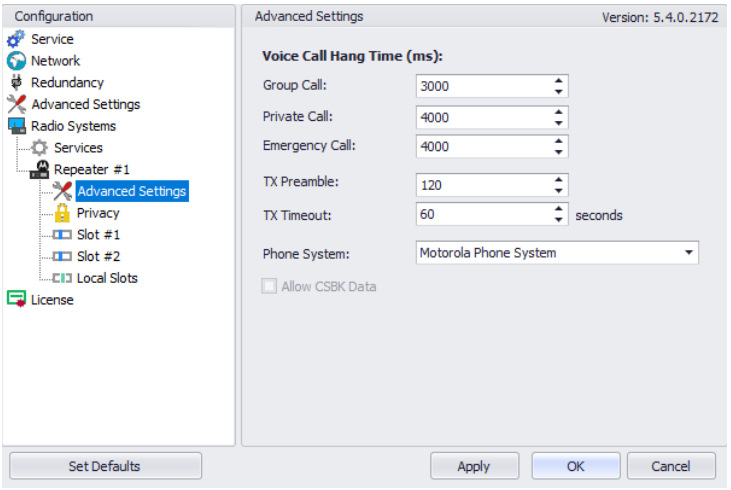
  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Master UDP Port*.
- **Authentication Key**
  Enter the repeater's authentication key (if any).

  Note: This value is programmed for a repeater via MOTOTRBO CPS, in *Link Establishment>Authentication Key*.
- **System Type**
  From the drop-down list, select the system type.
- **Test**
  Click this button to check the connection to your master repeater. If the test is successful, you'll see the information on the repeater you are connected to, such as the serial number, firmware version, and other relevant information.
- **System Identifier**
  Enter the system identifier if a Capacity Plus or Linked Capacity Plus system is used with one or more control stations. Use the same system identifier as you have specified for the corresponding control stations.
- **Use NAI Voice**
  Select this option to connect to the repeater via NAI (Network Application Interface) for Voice transfer.
- **Use NAI Data (MNIS and DDMS)**
  Select this option to connect to the repeater via NAI (Network Application Interface) for Data transfer.
  - **MNIS**
    MOTOTRBO Network Interface Service is a Windows application which acts as a data gateway between the data applications and the radio system. Data messages are routed through the MNIS.

- **DDMS**
  Device Discovery and Mobility Service is a service for tracking the presence of radio subscribers in the radio network and transmitting the data to the server.

3.6.2.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Repeater**, select **Advanced settings**.



- In the **Advanced Settings** pane, specify the following repeater-related advanced settings:

  Voice Call Hang Time (ms):

  - **Group Call**
    This value sets the duration the repeater reserves the channel after the end of a group call transmission. During this time, only members of the group that the channel is reserved for can transmit.
  - **Private Call**
    This value sets the duration a radio keeps the private call setup after a user releases the PTT button. This is to avoid setting up the call again each time a user presses the PTT button to transmit. During this time, other radios can still transmit since the channel is essentially idle. After the hang timer expires, the radio transmits using the *TX Contact Name* parameter specified for this channel in MOTOTRBO CPS.
  - **Emergency Call**
    This value sets the duration the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the Group that the channel is reserved for can transmit.

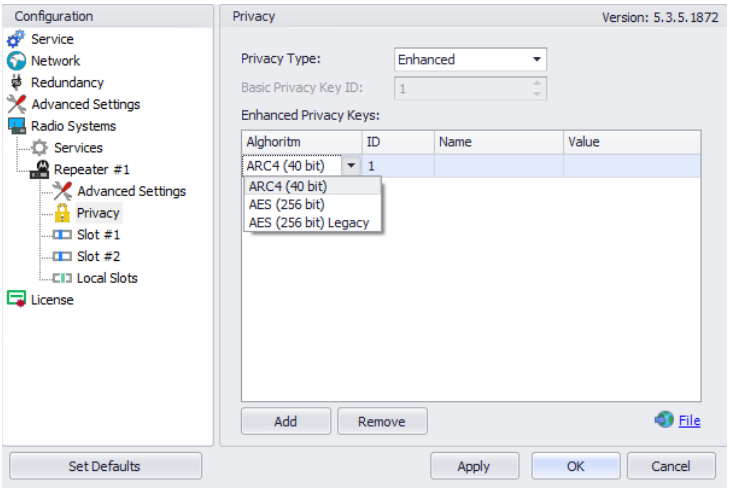
  Note: The values of the above three parameters must be taken from the corresponding parameter values programmed for the repeater via MOTOTRBO CPS in *General Settings*.

- **TX Preamble**
  Enter the value of the TX Preamble. The TX Preamble is a string of bits added in front of a data or control message (Text Messaging, Location Messaging, Registration, Radio Check, Private Call, and other message types) before transmission. The acceptable range is 0 - 8640 ms. The recommended value is 120 ms.
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When the dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
- **Phone system**
  From the drop-down list, select the system for phone calls:
  - **Motorola Phone System**
    This system uses a special call type with the parameters specified for a radio unit in MOTOTRBO CPS. The Motorola Phone System is recommended for IP Site Connect mode to minimize Radio response time.
  - **TRBOnet Phone System (TX Interrupt)**
    This is a phone call system based on the private call type using TX Interrupt feature. This phone system is available for radio systems with control stations.
- **Allow CSBK Data**
  Select this option so that GPS data is sent in a single CSBK.

Note: This feature is available only when the MNIS Data Service is enabled for the repeater.

3.6.2.2 Privacy

- In the **Configuration** pane, under the corresponding **Repeater**, select **Privacy**.



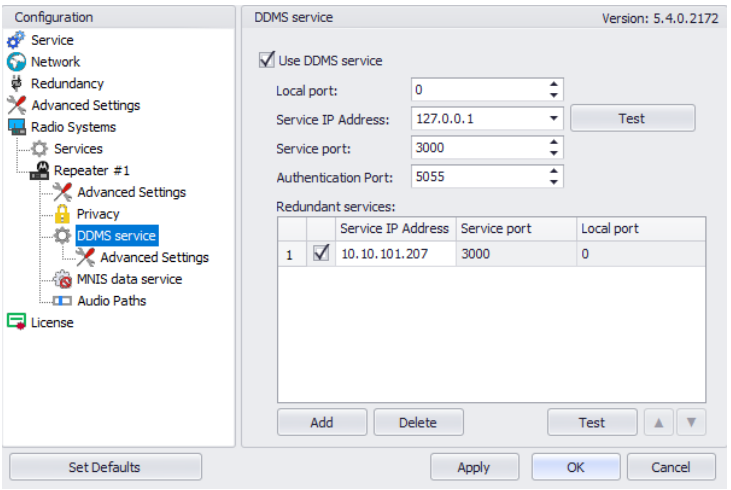
- In the **Privacy** pane, specify the following privacy-related settings:

- **Privacy Type**
  From the drop-down list, select one of the privacy types: **None**, **Basic**, or **Enhanced**.
- **Basic Privacy Key ID**
  Enter the Privacy Key ID available for the **Basic** privacy type.
- **Enhanced Privacy Keys**
  Here you add enhanced privacy keys when the **Enhanced** privacy type is selected.
  - Click **Add** and specify the required **Algorithm**, **ID**, **Name**, and **Value** for the privacy key being added.
    - ✓ **Algorithm**
      From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

3.6.2.3 DDMS Service

The DDMS, or Device Discovery and Mobility Service is a service for tracking the presence of radio subscribers in the radio network and transmitting the data to the server.

- In the **Configuration** pane, under the corresponding **Repeater**, select **DDMS service**.



- In the **DDMS service** pane, specify the following DDMS service-related settings:
  - **Use DDMS service**
    Select this option to enable the DDMS service for the server.
  - **Local Port**
    Enter the number of the local port to be used on a PC with TRBOnet Dispatch Software for DDMS service.
  - **Service IP Address**
    Enter the IP Address of the PC with the DDMS service installed and running.

- **Service port**
  Enter the service port number.

  Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Watcher Settings>PortWatcher*.

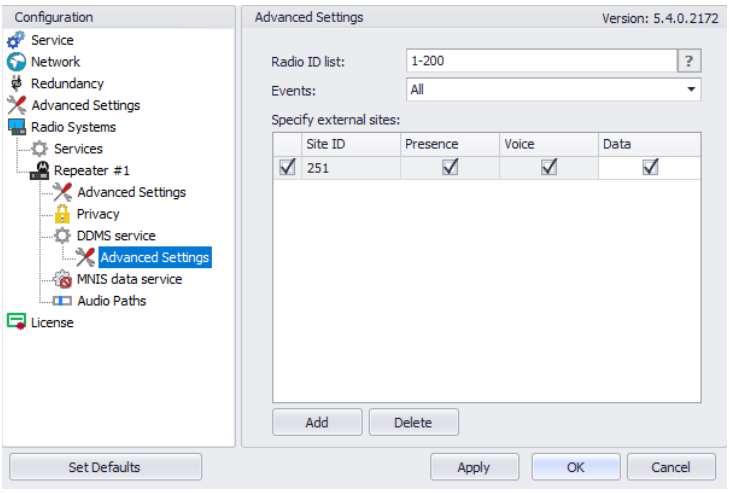
- **Authentication Port**
  Enter the authentication server port number.

  Note: This value is programmed for a DDMS service via MOTOTRBO DDMS Administrative Client, in *Interfaces>Authentication Server Settings>AuthenticationServerPort*.

- **Redundant services**
  Here you see the list of redundant DDMS services for failover purposes.
  - Click **Add** and specify the required parameters for the DDMS service being added.
  - Click **Test** to test if the selected DDMS service is available.
  - Use the **Up** (▲) and **Down** (▼) buttons to move a selected DDMS service up and down in the priority list of DDMS services.

Advanced Settings

- In the **Configuration** pane, under **DDMS service**, select **Advanced Settings**.



- In the **Advanced settings** pane, you can specify settings that relate to the connected DDMS service:
  - **Radio ID list**
    Enter a list of the radios to receive data from according to the following rules:
    - To receive data from all radios in the system, leave this box blank.

- To receive data from multiple radios, separate each Radio ID by a comma, for example, 105,106,111, and so on.
- To receive data from a range of radios, enter the range using the following example: 105-111.

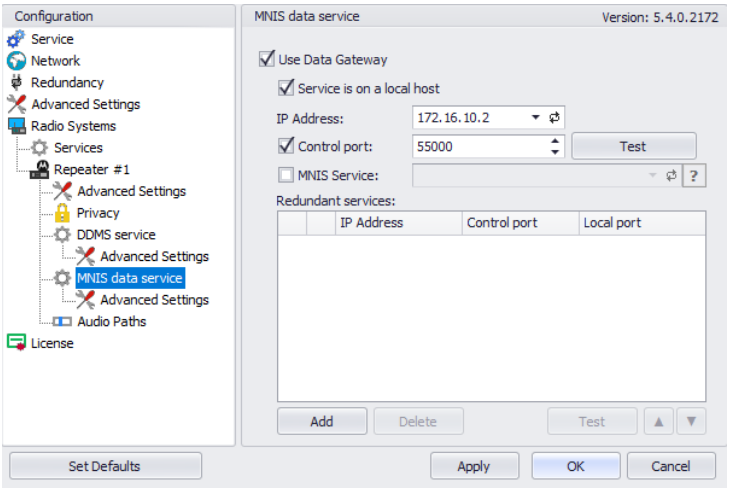
Note: In the Radio ID list, enter Radio IDs only, without mentioning Radio Names and/or the word "Radio".

- **Events**
  In the drop-down list, select the events to be monitored.
- **Specify external sites**
  This is the list of sites that is used when the corresponding system has a MOTOROLA System Bridge to the current Capacity MAX system.
  - Click the **Add** button and add a site by specifying its **Site ID** and selecting the appropriate data types (**Presence**, **Voice**, and/or **Data**).

3.6.2.4 MNIS Data Service

The MNIS, or Motorola Network Interface Service, is a Windows application which acts as a data gateway between the data applications and the radio system. Data messages are routed through the MNIS.

- In the **Configuration** pane, under the corresponding **Repeater**, select **MNIS data service**.



- In the **MNIS data service** pane, specify the following MNIS data service-related settings:
  - **Use Data Gateway**
    Select this option to enable the MNIS data service for the server.
  - **Service is on a local host**
    Select this option if the MNIS data service will be used on the local PC.
  - **IP Address**
    Enter the IP Address used by the MNIS to communicate with the PC.

Note: This value is programmed for a MNIS data service via MOTOTRBO MNIS Configuration Utility, and can be retrieved from *General>Tunnel Network>Tunnel IP Address*.

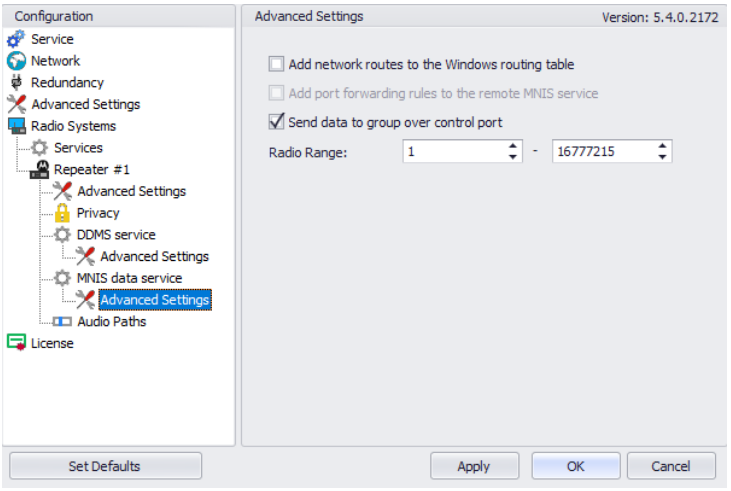
- **Control port**
  Enter the number for the MNIS control port.

Note: This value is programmed for a MNIS data service via MOTOTRBO MNIS Configuration Utility, in *Advanced>Network>MNIS Control Interface TCP Port*.

- **MNIS Service**
  Select this option, and from the drop-down list select the available MNIS service.
- **Redundant services**
  Here you see the list of redundant MNIS data services for failover purposes.
  - Click **Add** and specify the required parameters for the MNIS data service being added.
  - Click **Test** to test if the selected MNIS data service is available.
  - Use the **Up** (▲) and **Down** (▼) buttons to move a selected MNIS data service up and down in the priority list of MNIS data services.

Advanced Settings

- In the **Configuration** pane, under **MNIS data service**, select **Advanced Settings**.



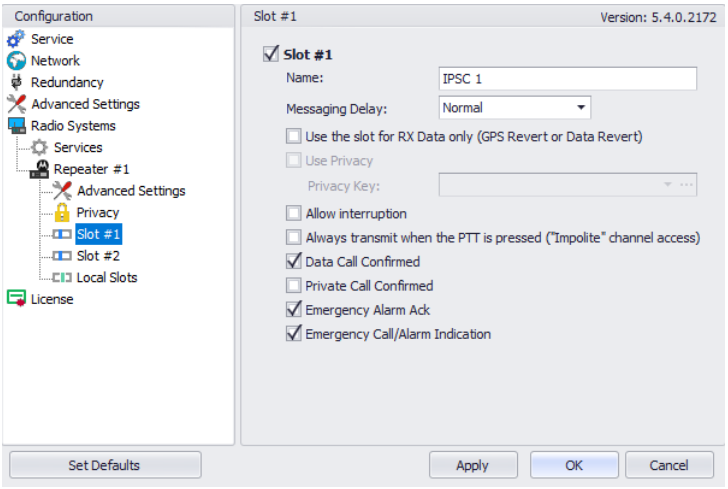
- In the **Advanced settings** pane, you can specify settings that relate to the connected MNIS data service:
  - **Add network routes to the local Windows routing table**
    Select this option to allow TRBOnet Agent to add network routes to the local Windows routing table so that data can be sent to the remote MNIS data service.

- **Add port forwarding rules to the remote MNIS service**
  Select this option to allow TRBOnet Agent to add forwarding rules to the remote MNIS data service.
- **Send data to group over control port**
  Select this option so that data will be sent via the specified control port.
- **Radio Range**
  Specify the range of radios to be monitored by the MNIS service.

3.6.2.5 Slots

Note: The slots are available only when **IP Site Connect** is selected in the **Repeater** pane.

- In the **Configuration** pane, under the corresponding **Repeater**, select **Slot #1** or **Slot #2**.



- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **Messaging Delay**
    From the drop-down list, select the inter-repeater messaging delay based on the IP network configuration.
    - **Normal**
      The inter-repeater messaging delay is 60 ms.
    - **High**
      The inter-repeater messaging delay is 90 ms.
  - **Use the slot for RX data only (GPS Revert or Data Revert)**
    Select this option to configure the slot so that it will only receive data, thus having no transmission capability.
  - **Use Privacy**
    Select this option to use Privacy for the slot.

Note: This option is available only if the **Basic** or **Enhanced** Privacy Type have been selected in Repeater's Privacy settings.

- **Privacy Key**
  From the drop-down list, select the privacy key.

Note: This option is available only if the **Enhanced** Privacy Type has been selected in Repeater's Privacy settings).

- **Allow TX interrupt**
  Select this option to allow interrupting dispatcher transmissions by radios that are Transmit Interrupt capable.

Note: This feature is available only when the **Use NAI Voice** option is cleared in the **Repeater** pane.

- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that when the PTT button is pressed, the dispatcher will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.

- **Data Call confirmed**
  Select this option to enable data packets in data calls (ARS, GPS, and Text Message) on the current slot to be confirmed.

Note: This feature is available only when both the **Use NAI Voice** and **Use NAI Data (MNIS and DDMS)** options are cleared in the **Repeater** pane.

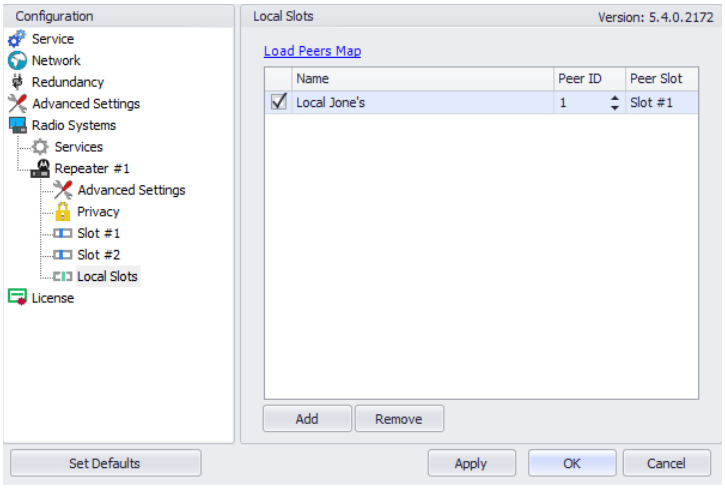
- **Private Call Confirmed**
  Select this option to set Private calls on the current slot as confirmed. By default, Private calls are unconfirmed.
- **Emergency Alarm Ack**
  Select this option so that the Dispatch Console is allowed to acknowledge an emergency alarm received via this slot.
- **Emergency Call/Alarm Indication**
  Select this option so that audio and visual indication is given for an emergency call/emergency alarm received via this slot.

3.6.2.6 Local Slots

While on a local slot, voice or data are not transmitted between sites in IPSC systems. Due to MOTOTRBO limitations TRBOnet Agent can only receive information from local slots, but cannot transmit by IP connection to such slots.

Note: Local slots are available only when **IP Site Connect** is selected, and the **Use NAI Voice** option is selected in the **Repeater** pane. If the **Use NAI Voice** option is cleared, local slots will be available only through dedicated control stations.

- In the **Configuration** pane, under the corresponding **Repeater**, select **Local Slots**.



- In the **Local Slots** pane, specify the following Local Slot-related settings:
  - To add a Local Slot to the system, click **Add**.
  - Select the option in the first column to enable the selected local slot.
  - Enter a **Name** for the local slot. This name will be displayed in the Dispatch Console.
  - Enter the **Peer ID** of the repeater.

    Note: This value can be taken from the repeater's configuration in MOTOTRBO CPS, in *General Settings>Radio ID*.

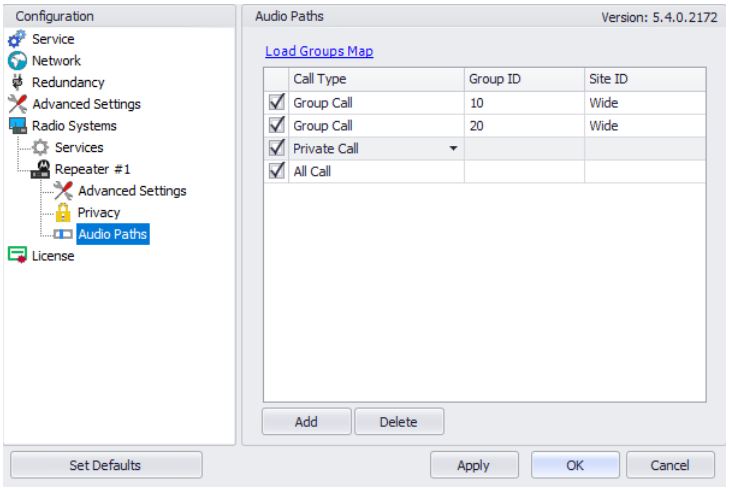
  - From the drop-down list, select the **Peer Slot**.

3.6.2.7 Audio Paths

The Audio Paths are talk paths of the system to make and receive Voice Calls; in general, they are talk groups. TRBOnet Agent requires that all audio paths of a Capacity Plus system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

Note: Audio paths are available only when **Capacity Plus** or **Linked Capacity Plus** are selected.

- In the **Configuration** pane, under the corresponding **Repeater**, select **Audio Paths**.



- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an audio path to the system, click **Add**.
  - Make sure the check box in the first column is selected to make and receive voice calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Group ID**, which is an ID of the talk group the dispatcher can make calls to. The Group ID is not applicable for Private Calls and All Calls.
  - Enter the **Site ID** of the site the audio path will belong to in a Linked Capacity Plus system. Or, leave zero value in this column. In this case, the Site ID will be displayed as Wide, meaning that the audio path will belong to all sites in the system.
  - To configure the selected audio path, click **Configure**.
  - Specify the desired audio path settings similar to those for a common repeater slot.

3.6.3 Adding a Capacity MAX System

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Capacity MAX**.

Note that a Capacity Max system can only be integrated with TRBOnet PLUS software. For more information on how to configure and deploy a Capacity MAX system, see *TRBOnet PLUS MOTOTRBO Capacity MAX Deployment Guide*.

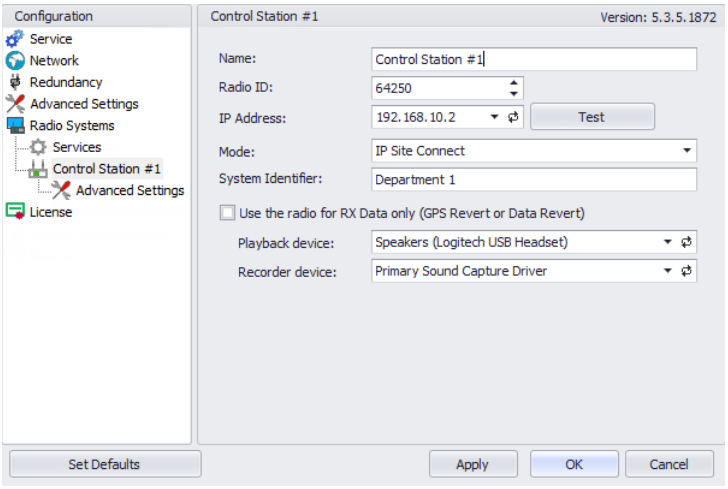
3.6.4 Adding a DIMETRA Express system

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add DIMETRA Express**.

For more information on how to configure and deploy a DIMETRA Express system, see *TRBOnet DIMETRA Express Deployment Guide*.

3.6.5 Adding a Control Station

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Control Station**.



- In the **Control Station** pane, specify the following control station-related parameters:
  - **Name**
    Enter a name for the control station. This name will be displayed in the Dispatch Console in the Voice Dispatch Radio Interface pane. It will be the name at the top of the PTT box.
  - **Radio ID**
    This is the Radio ID of the radio unit connected as a control station. (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).

    Note: This box is populated automatically once you have successfully tested the control station by clicking the **Test** button.

  - **IP Address**
    Enter, or select from the list, the IP Address of the control station network interface.

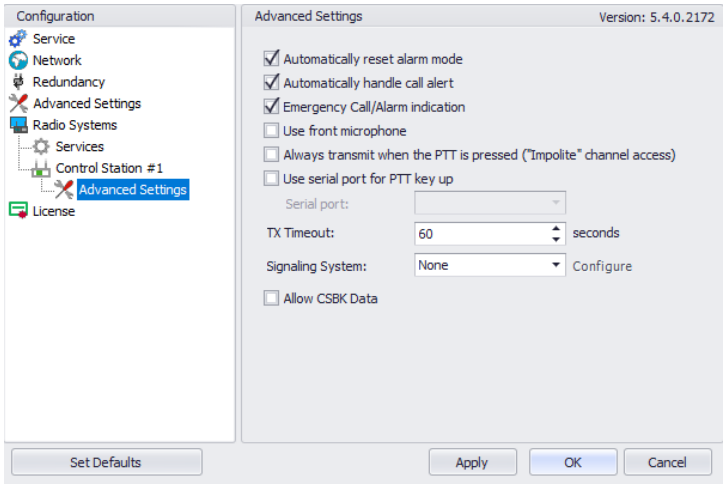
    Note: This value is can be taken from the radio's configuration in MOTOTRBO CPS, in *Network>Accessory IP*.

  - **Test**
    Click this button to check the connection to the control station. If the test is successful, you'll see the information on the control station you are connected to, such as radio ID, serial number, firmware version, and other relevant information.

- **Mode**
  From the drop-down list, select the connection mode for the control station being configured.
- **System Identifier**
  Enter the system identifier with which the control station is used within a Capacity Plus or Linked Capacity Plus system. Note that the system identifier should be the same for all control stations used in a (Linked) Capacity Plus system.
- **Use the radio for RX data only (GPS Revert or Data Revert)**
  Select this option to configure the radio channel so that it will only receive data, thus having no transmission capability.
- **Playback device**
  From the drop-down list, select the playback device on the PC that will be used to transfer audio data to the connected control station.
- **Recorder device**
  From the drop-down list, select the recording device on the PC that will be used to receive audio data from the control station connected via a line-in jack.

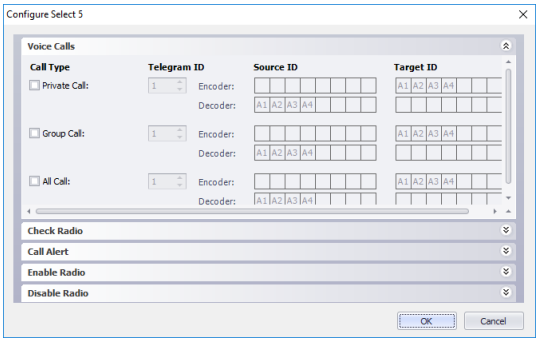
3.6.5.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Control Station**, select **Advanced Settings**.

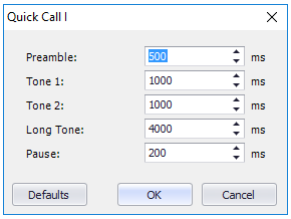


- In the **Advanced Settings** pane, specify the following control station-related advanced settings:
  - **Automatically reset alarm mode**
    Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.
  - **Automatically handle call alert**
    Select this option to automatically redirect call alerts from the control station radio to the Dispatch Console.

- **Emergency Call/Alarm indication**
  Select this option so that audio and visual indication is given by the control station radio when an emergency Call/Emergency Alarm is received.
- **Use front microphone (for PTT key up)**
  Select this option to use a remote control of the PTT button via a remote speaker microphone on the radio.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).
- **Use serial port for PTT key up**
  Select this option to use a remote control of the PTT button via the serial port of the PC, and select the serial port from the drop-down list.
- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When a dispatcher starts any voice session in the Dispatch Console, the ongoing transmission will be interrupted after this TX Timeout expires.
- **Signaling system**
  From the drop-down list, select the signaling system.
  - **MDC-1200** signaling is a Motorola data system using audio frequency shift keying (ASFK) using a 1,200 baud data rate. A general option setting for the system is to enable or disable an acknowledgement (ACK) data packet.
  - **SELECT-5** (5 Tone Signaling System). In the 5 Tone Signaling Systems, each radio has a unique numeric identity (for example, 12345). To signal the number 12345, a sequence of 5 tones is sent. Sequences of audible tones of a very short duration are sent between radios. Most 5 tone sequences take less than half a second to send. Available for Voice Calls, Check Radio, Call Alert, and Enable/Disable Radio.
    Click the **Configure** link and specify desired SELECT 5 settings.



  - **Quick Call I**. Using this signaling system, the radio sends a pair of tones followed by 50 to 1,000 milliseconds of silence and then a second pair of tones.
    Click the **Configure** link and specify desired Quick Call I settings.



- **Quick Call II**. Using this signaling system, the radio sends a single tone followed by 50 to 1,000 milliseconds of silence and then a second tone. Click the **Configure** link and specify desired Quick Call II settings.
- **Quick Call II MOTOTRBO**
  When this system is selected, the parameters are configured on the radio unit via the MOTOTRBO CPS.

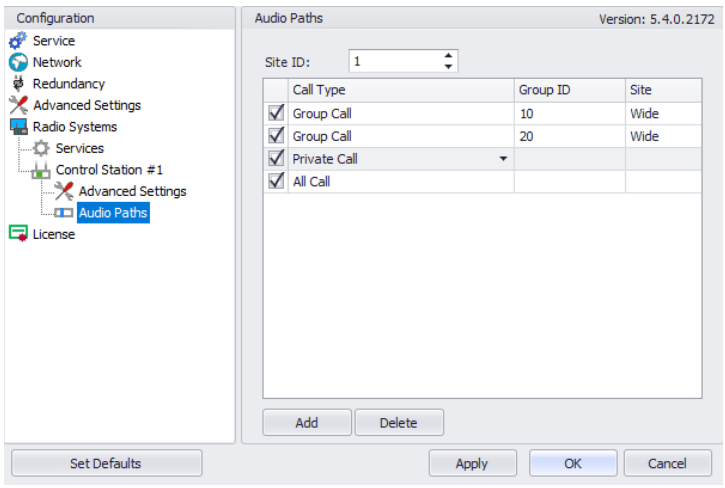
▪ **Allow CSBK Data**
Select this option so that GPS data is sent in a single CSBK.

3.6.5.2 Audio Paths

The Audio Paths are talk paths of the system to make and receive Voice Calls; in general, they are talk groups. TRBOnet Agent requires that all audio paths of a radio system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

Note: Audio paths are available only when one of the following modes is selected: **Capacity Plus**, **Linked Capacity Plus**, **Connect Plus**, or **Capacity MAX**.

- In the **Configuration** pane, under the corresponding **Control Station**, select **Audio Paths**.



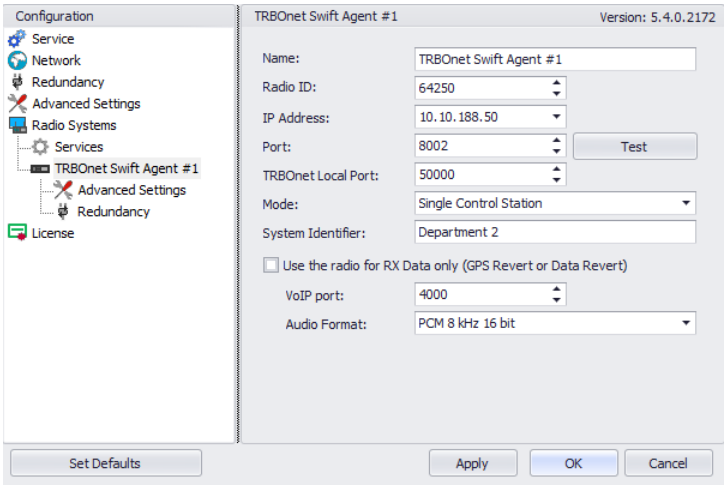
- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  ▪ To add an audio path to the system, click **Add**.
  ▪ Make sure the check box in the first column is selected to make and receive voice calls from the selected subscriber.

- From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
- Enter the **Group ID**, which is an ID of the talk group the dispatcher can make calls to. The Group ID is not applicable for Private Calls and All Calls.
- In the **Site** column, select either Local or Wide. The value Wide means that the audio path will be to all sites in the system and not just to the local site.

3.6.6 Adding a TRBOnet Swift Agent

The TRBOnet Swift Agent functions as a gateway to receive and transmit voice and data.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add TRBOnet Swift Agent**.



- In the **TRBOnet Swift Agent** pane, specify the following Swift Agent-related parameters:
  - **Name**
    Enter a name for the Swift Agent. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    This is the Radio ID of the control station connected to the Swift Agent. (for Capacity Plus and Linked Capacity Plus systems, the maximum value is 65535).

    Note: This box is populated automatically once you have successfully tested the Swift Agent by clicking the **Test** button.

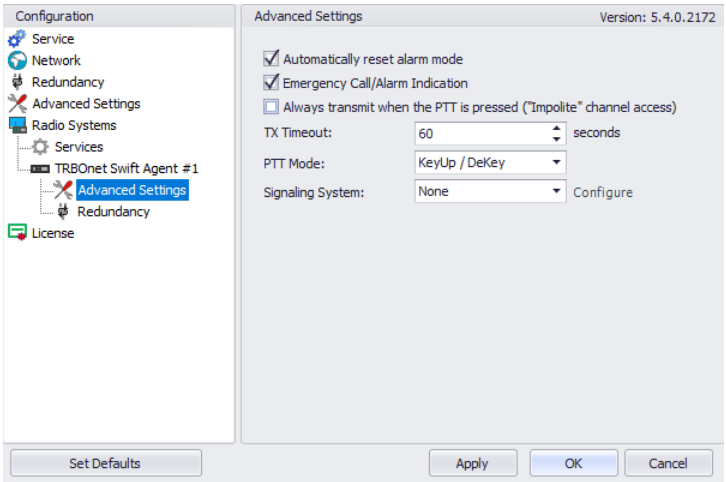
  - **IP Address**
    Enter the IP Address of the Swift Agent network interface.
  - **Port**
    Enter the port number of the Swift Agent connection (8002, by default).

- **TRBOnet Local Port**
  Enter the local port number that will be used by TRBOnet Agent to establish a connection to the TRBOnet Swift Agent. Use unique port numbers for each swift agent connection if there are several swift agents connected.
- **Test**
  Click this button to check the connection to the Swift Agent. If the test is successful, you'll see the information on the Swift Agent you are connected to, such as Serial number, Firmware version, and other relevant information.
- **Mode**
  From the drop-down list, select the connection mode for the Swift Agent being configured.
- **System Identifier**
  Enter the system identifier if the control station is used with a Capacity Plus or Linked Capacity Plus system. Note that the system identifier should be the same for all control stations used in the radio system.
- **Use the radio for RX data only (GPS Revert or Data Revert)**
  Select this option to configure the radio channel so that it will only receive data, thus having no transmission capability.
- **VoIP port**
  Enter the port number for audio communications (4000, by default).

  Note: This setting is used for older firmware versions of TRBOnet Swift Agent.
- **Audio Format**
  From the drop-down list, select the format to transmit audio data.

3.6.6.1 Advanced Settings

- In the Configuration pane, under the corresponding TRBOnet Swift Agent, select Advanced Settings.



- In the **Advanced Settings** pane, specify the following Swift Agent-related advanced settings:

- **Automatically reset alarm mode**
  Select this option to reset alarm mode on the control station radio automatically. It is recommended to enable this option.
- **Emergency Call/Alarm indication**
  Select this option so that audio and visual indication is given by the Control Station radio when an Emergency Call/Emergency Alarm is received.
- **Always transmit when the PTT is pressed ("Impolite" channel access)**
  Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

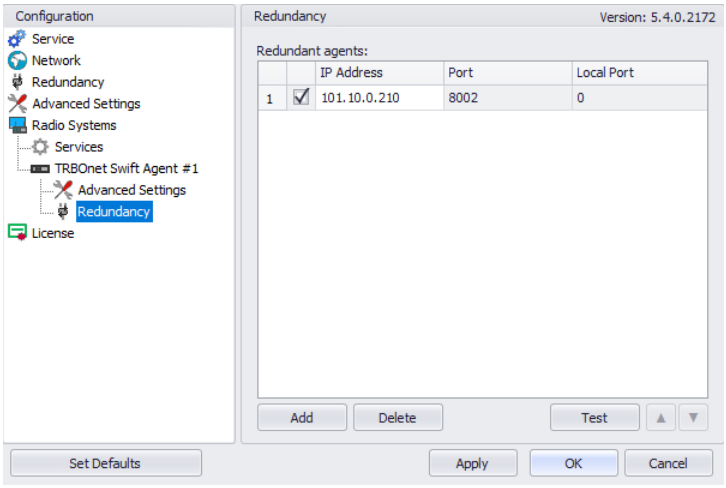
  Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.

- **TX Timeout**
  Enter the time, in seconds, to be used as a voice session limit. When a dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
- **PTT Mode**
  From the drop-down list, select the mode of pressing the PTT on the radio.
- **Signaling system**
  From the drop-down list, select the signaling system.
  - **MDC-1200** signaling is a Motorola data system using audio frequency shift keying (ASFK) using a 1,200 baud data rate. A general option is to enable or disable an acknowledgement (ACK) data packet.
  - **SELECT-5** (5 Tone Signaling System). In the 5 Tone Signaling Systems, each radio has a unique numeric identity (for example, 12345). To signal the number 12345, a sequence of 5 tones is sent. Sequences of audible tones of a very short duration are sent between radios. Most 5 tone sequences take less than half a second to send. Available for Voice Calls, Check Radio, Call Alert, and Enable/Disable Radio.
    Click the **Configure** link and specify desired SELECT 5 settings.
  - **Quick Call I**. Using this signaling system, the radio sends a pair of tones followed by 50 to 1,000 milliseconds of silence and then a second pair of tones.
    Click the **Configure** link and specify desired Quick Call I settings.
  - **Quick Call II**. Using this signaling system, the radio sends a single tone followed by 50 to 1,000 milliseconds of silence and then a second tone.
    Click the **Configure** link and specify desired Quick Call II settings.
  - **Quick Call II MOTOTRBO**
    When this system is selected, the parameters are configured for the radio units via the MOTOTRBO CPS.

3.6.6.2 Redundancy

A Redundant TRBOnet Swift Agent will be used when a connection to the Main TRBOnet Swift Agent is lost.

- In the **Configuration** pane, under the corresponding **TRBOnet Swift Agent**, select **Redundancy**.

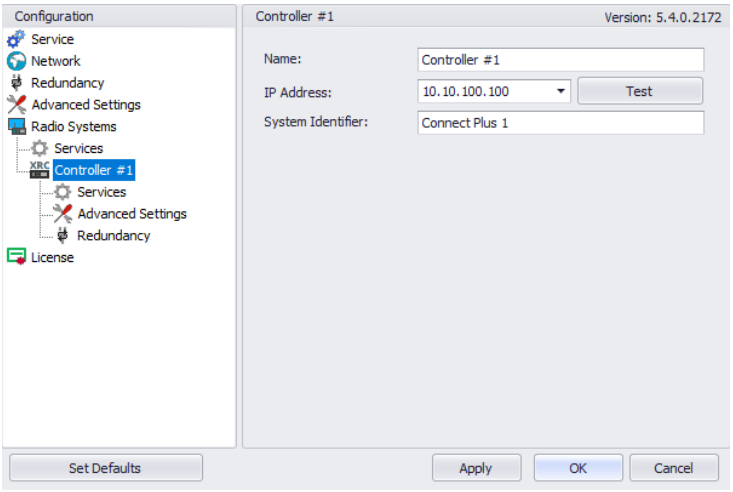


- In the **Redundancy** pane, specify the following Redundant Agent-related settings:
  - Click **Add** and specify the desired parameters for the Redundant Agent being added.
  - **IP Address**
    Enter the IP Address of the Swift Agent that will be used as a Redundant Swift Agent.
  - **Port**
    Enter the port number that will be used for connections between the server and the Redundant Swift Agent (8002, by default).
  - Click **Test** to check the connection to the Redundant Swift Agent.
    If the test is successful, you'll see the information on the Swift Agent you are connected to, such as Serial number, Firmware version, and other relevant information.
  - **Local Port**
    Enter the port number that will be used for connections from the Redundant Swift Agent. The value 0 (default) means that a random port will be used.

3.6.7 Adding an XRC Controller

The XRC Controller is a site controller that provides a channel for transferring data between sites and managing data flow.

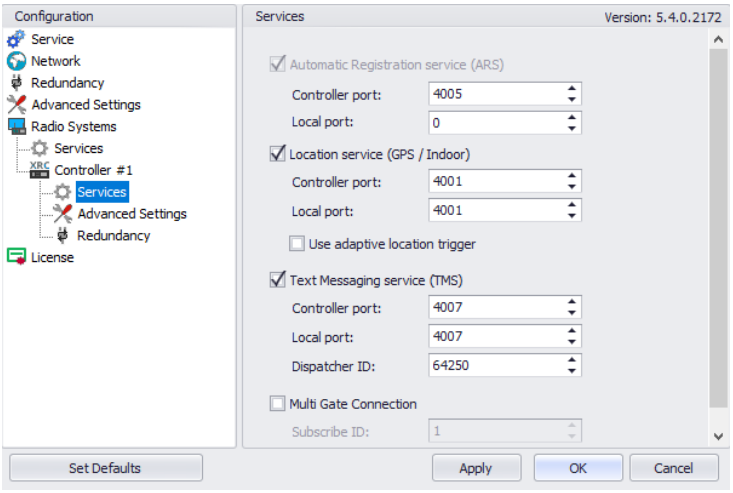
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add XRC-9000 Controller**.



- In the **Controller** pane, specify the following XRC controller-related parameters:
  - **Name**
    Enter a name for the XRC controller. This name will be displayed in the Dispatch Console.
  - **IP Address**
    Enter the IP Address of the XRC controller network interface.
  - Click **Test** to check the connection to the controller.
  - **System Identifier**
    Enter the system identifier. Note that the system identifier should be the same through all the controllers in a Connect Plus system.

3.6.7.1 Services

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Services**.

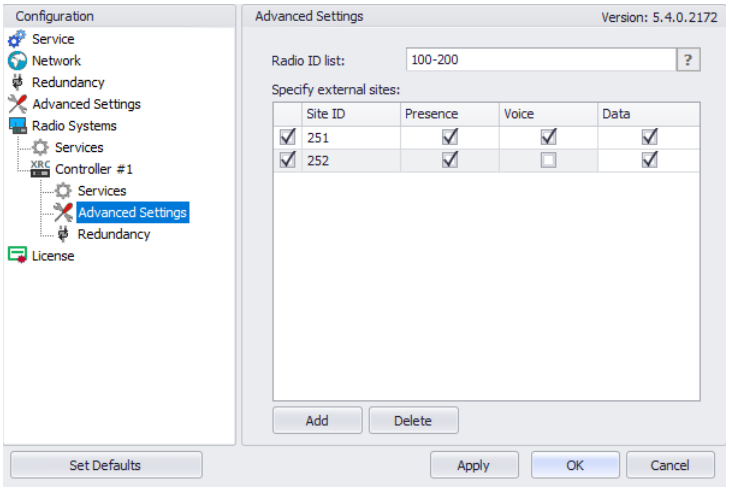


- In the **Services** pane, specify the following XRC controller-related services:

- **Automatic Registration service (ARS)** provides an automated data application registration for the radio. When the radio powers up, it automatically registers with the server. This feature is used with data applications, that is any data traffic on this channel is associated with an application server, such as MOTOTRBO Text Messaging or MOTOTRBO Location Service. This option is selected by default and cannot be cleared.
  - **Controller port**
    Enter the controller's port number for ARS service (4005, by default).
  - **Local port**
    Enter the local port of the PC with TRBOnet Dispatch Software. The value 0 (default) means that a random port will be used.
- **Location service (GPS)**
  Select this option to enable Location service on the controller. The radio can send its coordinates when it is in Global Positioning coverage area.
  - **Controller port**
    Enter the controller's port number for Location service (4001, by default).
  - **Local port**
    Enter the local port of the PC with TRBOnet Dispatch Software (4001, by default).
  - **Use adaptive GPS trigger**
    Select this option to use the adaptive GPS polling interval.
- **Text Messaging service (TMS)**
  Select this option to enable text message transmission on the controller.
  - **Port**
    Enter the controller's port number for Text Messaging service (4007, by default).
  - **Local port**
    Enter the local port of the PC with TRBOnet Dispatch Software (4007, by default).
  - **Dispatcher ID**
    Enter the Dispatcher ID. The Dispatcher ID should belong to TRBOnet Server account in a Connect Plus system.
- **Multi Gate Connection**
  Select this option to use a multi-gate connection and enter the corresponding **Subscribe ID.**

3.6.7.2 Advanced Settings

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Advanced Settings**.



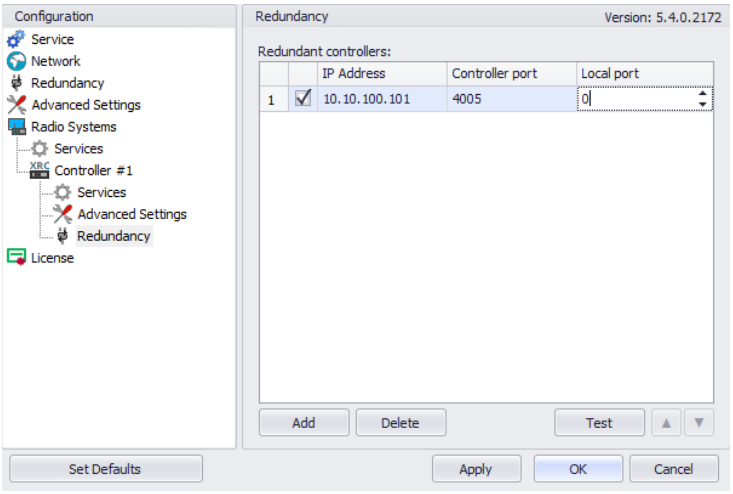
- In the **Advanced Settings** pane, specify the following XRC controller-related services:
  - **Radio ID list**
    Enter a list of the radios to receive data from according to the following rules:
    - To receive data from all radios in the system, leave this box blank.
    - To receive data from multiple radios, separate each Radio ID by a comma, for example, 105,106,111, and so on.
    - To receive data from a range of radios, enter the range using the following example: 105-111.

    Note: In the Radio ID list, enter Radio IDs only, without mentioning Radio Names and/or the word "Radio".
  - **Specify external sites**
    This is the list of Connect Plus sites that is used when the corresponding Connect Plus system has a MOTOROLA System Bridge to the current Capacity MAX system.
    - Click the **Add** button and add a site by specifying its **Site ID** and selecting the appropriate data types (**Presence**, **Voice**, and/or **Data**).

3.6.7.3 Redundancy

A redundant XRC controller will be used when a connection to the main XRC controller is lost.

- In the **Configuration** pane, under the corresponding **XRC Controller**, select **Redundancy**.

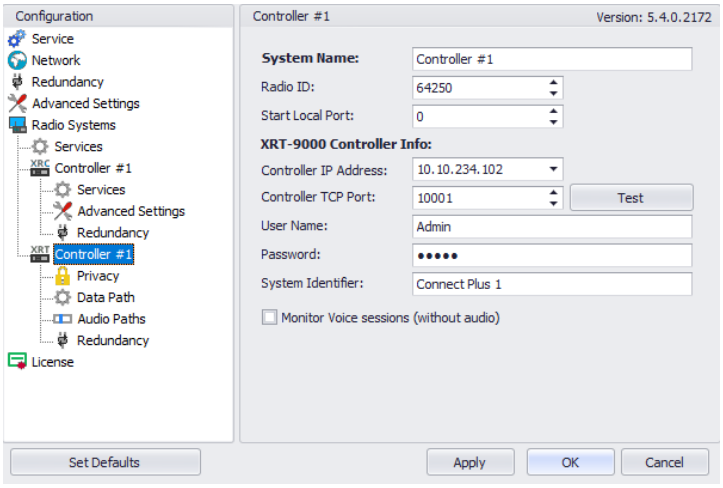


- In the **Redundancy** pane, specify the following redundant XRC controller-related settings:
  - Click **Add** and specify the desired parameters for the redundant XRC controller being added.
    - **IP Address**
      Enter the IP Address of the XRC controller that will be used as a redundant XRC controller.
    - **Controller Port**
      Enter the port number of the redundant XRC controller for incoming connections (4005, by default).
    - Click **Test** to check the connection to the redundant XRC Controller.
      If the test is successful, you'll see the information on the XRC controller you are connected to, such as serial number, firmware version, and other relevant information.
    - **Local Port**
      Enter the port number that will be used for incoming connections from the redundant XRC controller. The value 0 (default) means that a random port will be used.

3.6.8 Adding an XRT Controller

The XRT controller functions as a voice gateway connected to each XRC controller in a Connect Plus system.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add XRT-9000 Controller**.



- In the **Controller** pane, specify the following XRT Controller-related parameters:
  - **System Name**
    Enter a name for the XRT Controller. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    Enter the individual virtual radio ID. The virtual Radio ID is required to do the following:
    - Make all types of voice calls from XRT Controller to radios, dispatchers and groups.
    - Send commands (for example, Remote Monitor).
  - **Start Local Port**
    Enter the local port of the PC with TRBOnet Agent. The value 0 (default) means that a random port will be used.

  XRT Controller Info:

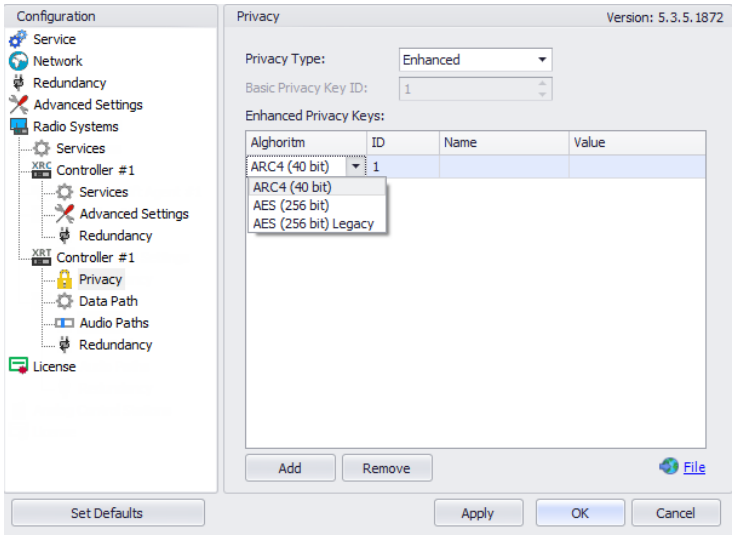
  - **Controller IP Address**
    Enter the IP Address of the XRT controller network interface.
  - **Controller TCP Port**
    Enter the port number of the XRT controller to be used for connections via TCP (10001, by default).
  - Click **Test** to check the connection to the XRT controller.
  - **User Name**
    Enter the user name. For the user name, refer to the XRT controller configuration.
  - **Password**
    Enter the password for the user. For the password, refer to the XRT controller configuration.

Note: The user name and password should belong to the same TRBOnet Connect Plus account and be appropriately configured.

- **System Identifier**
  Enter the system identifier. Note that the system identifier should be the same through all the controllers in a Connect Plus system.
- **Monitor Voice sessions (without audio)**
  This is the Billing feature. Select this option to monitor only PTT press events.

3.6.8.1 Privacy

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Privacy**.

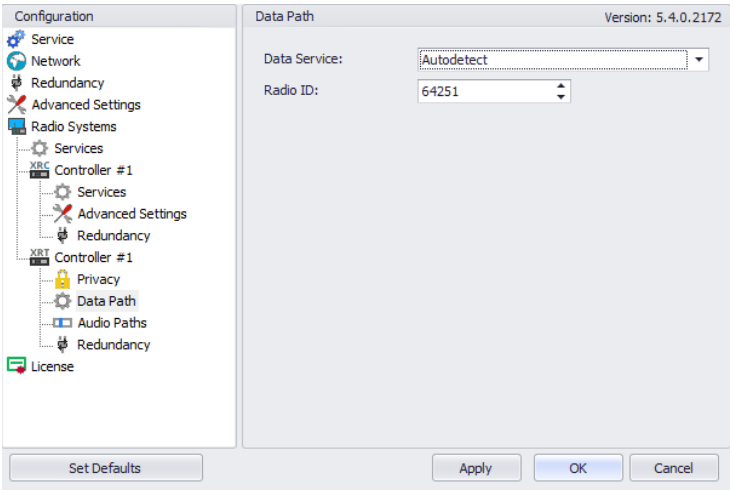


- In the **Privacy** pane, specify the following Privacy-related settings:
  - **Privacy Type**
    From the drop-down list, select one of the privacy types: **None**, **Basic**, or **Enhanced**.
  - **Basic Privacy Key ID**
    Enter the Privacy Key ID available for the **Basic** privacy type.
  - **Enhanced Privacy Keys**
    Here you add enhanced privacy keys when the **Enhanced** privacy type is selected.
    - Click **Add** and specify the required **Algorithm**, **ID**, **Name**, and **Value** for the privacy key being added.
      ✓ **Algorithm**
      From the drop-down list, select one of the enhanced algorithms if you are going to use additional encryption.

3.6.8.2 Data Path

The Data Paths are used to transmit data in a Connect Plus system.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Data Path**.

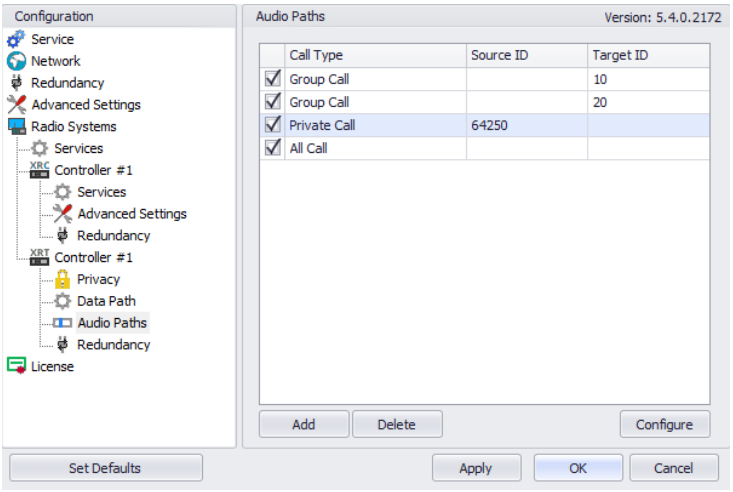


- In the **Data Path** pane, specify the following data path-related settings:
  - **Data Service**
    From the drop-down list, select the data service to be used to transfer data.
  - **Radio ID**
    Enter the Radio ID of the data service.

3.6.8.3 Audio Paths

The Audio Paths are talk paths of the system to make and receive voice calls; in general, they are talk groups. TRBOnet Agent requires that all audio paths of a Connect Plus system be registered in its configuration. If an audio path is not registered, the TRBOnet operator will not be able to receive and transmit to the corresponding talk group.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Audio Paths**.

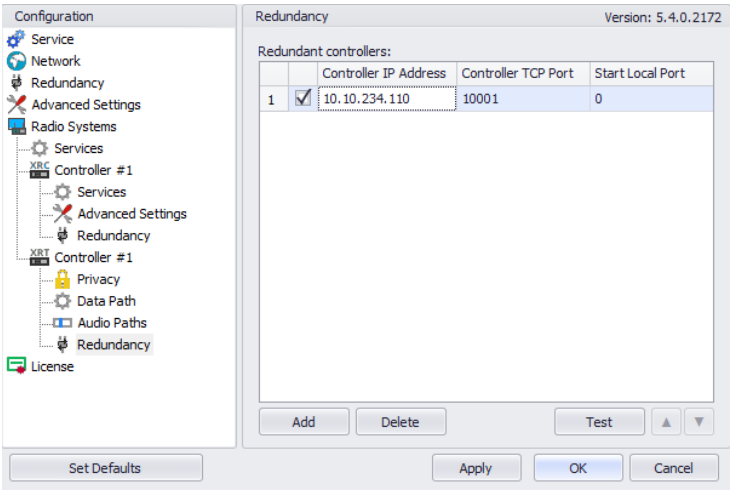


- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.
  - Make sure the check box in the first column is selected to make and receive Voice Calls from the selected subscriber.
  - From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
  - Enter the **Source ID** for Private Calls. In general, this is TRBOnet's Radio ID. If more than one Radio ID is specified in a Connect Plus system (for example, for different dispatchers), the corresponding talk paths should be added for all of them.
  - Enter the **Target ID** for Group Calls. This is the Radio ID of the talk group to make a call to. The Target ID is not applicable for Private Calls and All Calls.

3.6.8.4 Redundancy

A Redundant XRT Controller will be used when a connection to the Main XRT Controller is lost.

- In the **Configuration** pane, under the corresponding **XRT Controller**, select **Redundancy**.



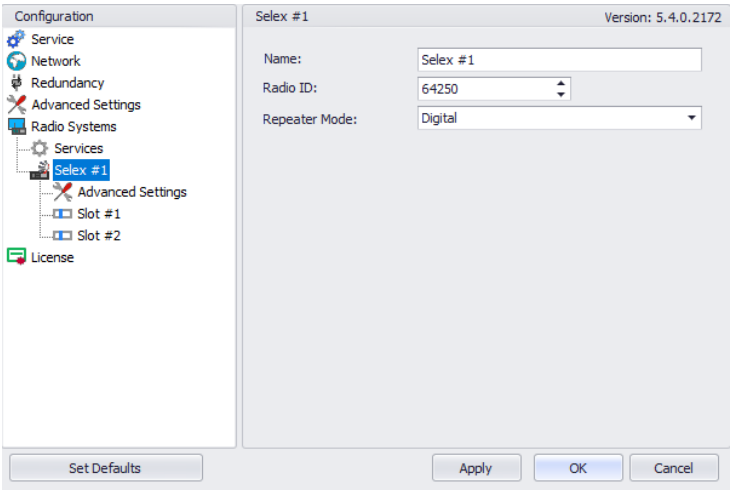
- In the **Redundancy** pane, specify the following Redundant XRT Controller-related settings:
  - Click **Add** and specify the desired parameters for the Redundant XRT Controller being added.
  - **Controller IP Address**
    Enter the IP Address of the XRT Controller that will be used as a Redundant XRT Controller.
  - **Controller TCP Port**
    Enter the port number of the Redundant XRT Controller to be used for connections via TCP (10001, by default).

- **Start Local Port**
  Enter the local port of the PC with TRBOnet Dispatch Software. The value 0 (default) means that a random port will be used.
- Click **Test** to check the connection to the Redundant XRT Controller.
  If the test is successful, you'll see the information on the XRT Controller you are connected to, such as Serial number, Firmware version, and other relevant information.

3.6.9 Adding a Selex Repeater

The **Selex** repeater is configured as a stand-alone repeater which supports connections to MOTOTRBO™ radios to transmit voice and data in digital, analog, and mixed modes.

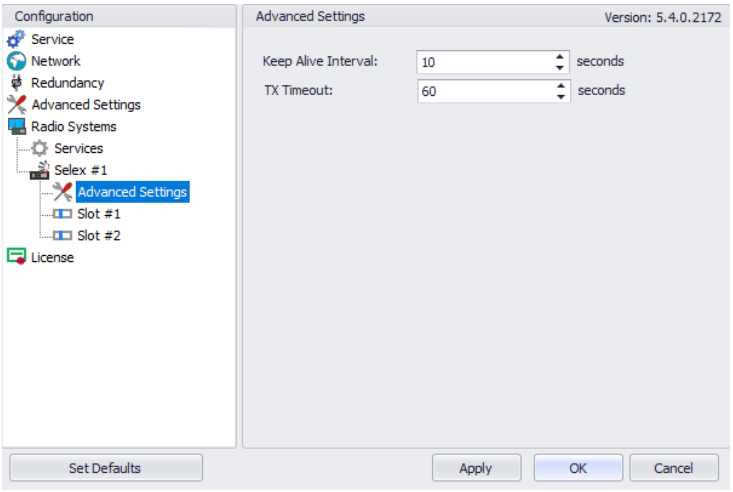
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add SELEX Repeater**.



- In the **Selex** pane, specify the following Selex Repeater-related parameters:
  - **Name**
    Enter a name for the Selex Repeater. This name will be displayed in the Dispatch Console.
  - **Radio ID**
    Enter the Radio ID for the Selex Repeater (for Capacity Plus systems, the maximum value is 65535).
    The Radio ID is an individual ID that uniquely identifies the radio. This ID is used by other calling radios when addressing the radio, for instance, when making a private call or sending a text message.
  - **Repeater Mode**
    From the drop-down list, select the mode. The available modes are Digital, Analog, Mixed, and Tier III.

3.6.9.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Selex**, select **Advanced Settings**.

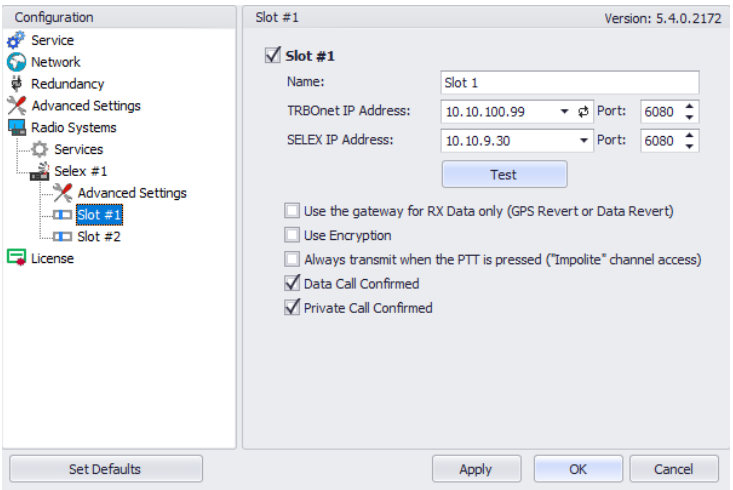


- In the **Advanced Settings** pane, specify the following Selex Repeater-related advanced settings:
  - **Keep Alive Interval**
    Enter the time interval, in seconds, for TRBOnet Agent to check the connection to the Selex repeater (10, be default).
  - **TX Timeout**
    Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any Voice Session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires (60, be default).

3.6.9.2 Slots

The Selex repeater has two available slots (in **Digital** or **Mixed** mode) to transmit voice and data.

- In the **Configuration** pane, under the corresponding **Selex**, select **Slot #1** or **Slot #2**.



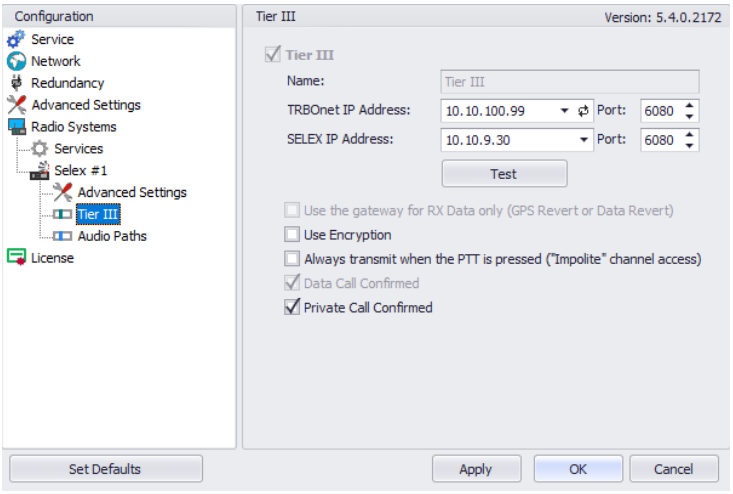
- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **SELEX IP Address**
    Enter the IP Address of the Selex Repeater (refer to the repeater configuration). Enter the **Port** number (6080, by default).
  - Click **Test** to check the connection to the repeater.
  - **Use the gateway for RX data only (GPS Revert or Data Revert)**
    Select this option to configure the channel so that it will only receive data, thus having no transmission capability.
  - **Use Encryption**
    Select this option to encrypt voice and data traffic over IP.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

    Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.
  - **Data Call Confirmed**
    Select this option to enable individual packets in data calls (ARS, GPS, and Text Message) on the current slot to be confirmed.
  - **Private Call Confirmed**
    Select this option to set Private calls on the current slot as confirmed.

3.6.9.3 Tier III and Audio Paths

The Selex repeater can be used in a **Tier III** mode. To configure this mode, do the following:

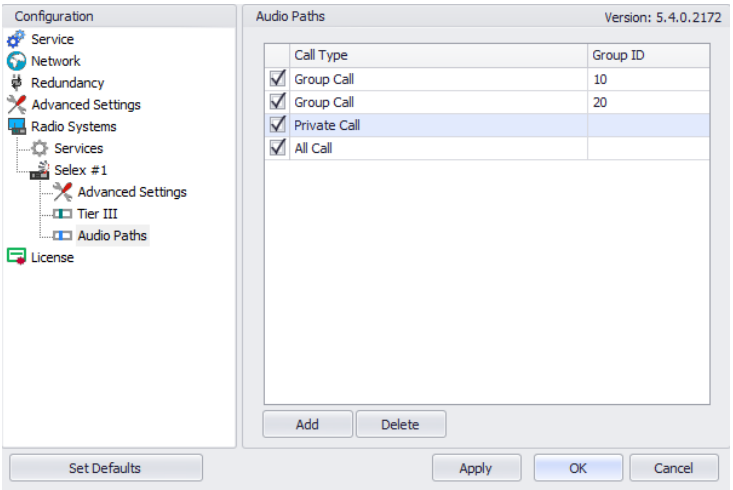
- While in the **Selex** pane, select **Tier III** from the **Repeater Mode** drop-down list.
- In the **Configuration** pane, under the corresponding **Selex**, select **Tier III**.



- In the **Tier III** pane, specify the following Tier III-related parameters:
  - **Use Encryption**
    Select this option to encrypt voice and data traffic over IP.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

    Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.
  - To configure Audio Paths:
- In the **Configuration** pane, under the corresponding **Selex**, select **Audio Paths**.

  Note: Make sure the **Tier III** mode has been selected as a Repeater Mode for the Selex repeater.



- In the **Audio Paths** pane, specify the following Audio Path-related settings:
  - To add an Audio Path to the system, click **Add**.

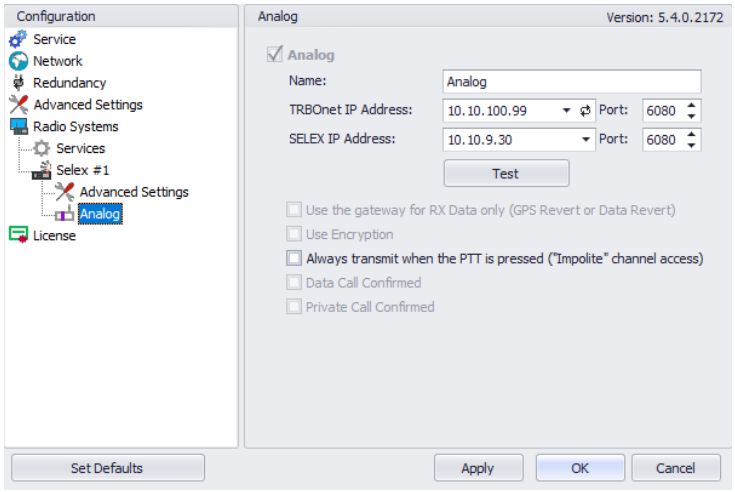
- Make sure the check box in the first column is selected to make and receive Voice Calls from the selected subscriber.
- From the drop-down list, select the **Call Type** for the audio path. The available call types are All Call, Group Call, and Private Call.
- Enter the **Group ID**, which is a radio ID of the talk group to make a call to. The Group ID is not applicable for Private Calls and All Calls.

3.6.9.4 Analog channel

The Selex repeater can also use the Analog channel.

- In the **Configuration** pane, under the corresponding **Selex**, select **Analog**.

Note: Make sure the **Analog** or **Mixed** mode have been selected as a Repeater Mode for the Selex repeater.



- In the **Analog** pane, specify the following Analog channel-related settings:
  - **Name**
    Enter a name for the Selex repeater in the analog mode. This name will be displayed in the Dispatch Console.
  - **TRBOnet IP Address**
    Enter the IP Address of the PC with TRBOnet Dispatch Software. Enter the **Port** number (6080, by default).
  - **SELEX IP Address**
    Enter the IP Address of the Selex Repeater (refer to the repeater configuration). Enter the **Port** number (6080, by default).
  - Click **Test** to check the connection to the repeater.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)**
    Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

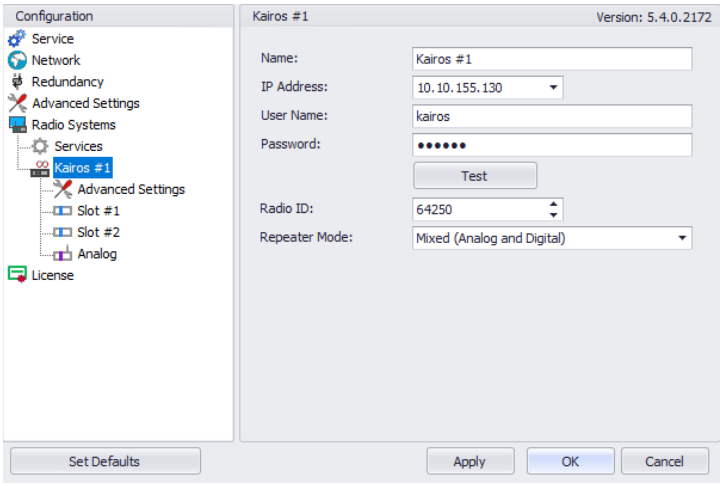
Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.

3.6.10 Adding a Kairos Repeater

The **Radio Activity Kairos** repeater is configured as a stand-alone repeater which supports connections to MOTOTRBO™ radios to transmit voice and data in digital, analog, and mixed modes.

Note: When the Kairos repeater is connected, the following TRBOnet Dispatch features are not supported: Remote Monitor, Disable Radio, Enable Radio, Kill Radio, and Telemetry.

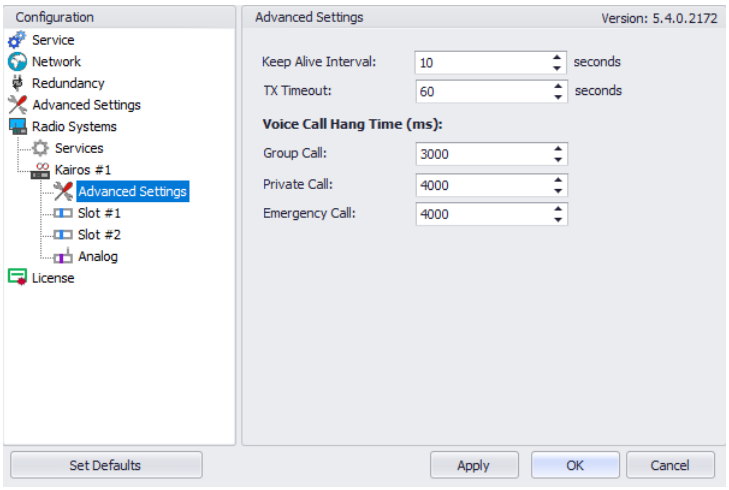
- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add KAIROS Repeater**.



- In the **Kairos** pane, specify the following repeater-related parameters:
  - **Name**
    Enter a name for the Kairos repeater. This name will be displayed in the Dispatch Console.
  - **IP Address**
    Enter the IP Address of the Kairos repeater network interface.
  - **User Name**
    Enter the user name. For the user name, refer to the Kairos repeater configuration.
  - **Password**
    Enter the password for the user. For the password, refer to the Kairos repeater configuration.
  - **Radio ID**
    Enter the Radio ID, which is a gateway for voice and data. The Radio ID must be unique in the radio system.
  - **Repeater Mode**
    From the drop-down list, select the mode. The available modes are Digital, Analog, and Mixed.

3.6.10.1 Advanced Settings

- In the **Configuration** pane, under the corresponding **Kairos**, select **Advanced Settings**.



- In the **Advanced Settings** pane, specify the following Kairos Repeater-related advanced settings:
  - **Keep Alive Interval**
    Enter the time interval, in seconds, for TRBOnet Agent to check the connection to the Kairos repeater (10, be default).
  - **TX Timeout**
    Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any Voice Session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires (60, be default).

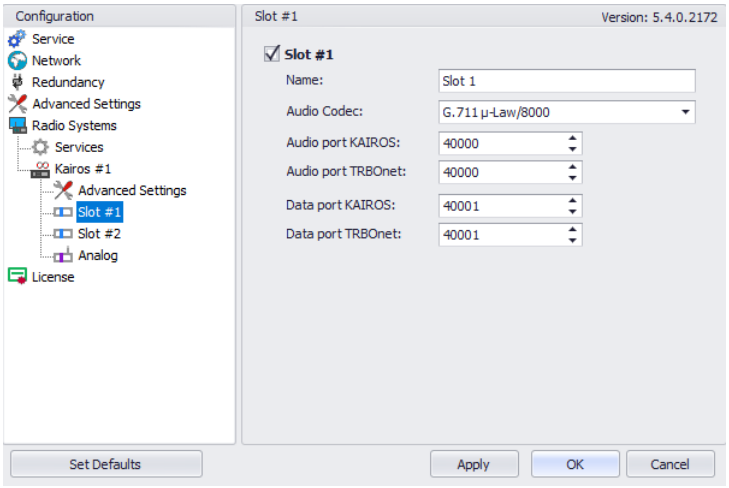
  Voice Call Hang Time (ms):

  - **Group Call**
    This value sets the duration the repeater reserves the channel after the end of a group call transmission. During this time, only members of the group that the channel is reserved for can transmit.
  - **Private Call**
    This value sets the duration a radio keeps the private call setup after a user releases the PTT button. This is to avoid setting up the call again each time a user presses the PTT button to transmit. During this time, other radios can still transmit since the channel is essentially idle. After the hang timer expires, the radio transmits using the *TX Contact Name* parameter specified for this channel in MOTOTRBO CPS.
  - **Emergency Call**
    This value sets the duration the repeater reserves the channel after the end of an emergency call transmission. During this time, only members of the Group that the channel is reserved for can transmit.

3.6.10.2 Slots

The Kairos repeater has two digital slots (in **Digital** mode) and one analog slot (in **Mixed** or **Analog** mode) to transmit voice and data.

- In the **Configuration** pane, under the corresponding **Kairos**, select **Slot #1** or **Slot #2** (or **Analog**, if you have selected **Mixed** or **Analog** mode).



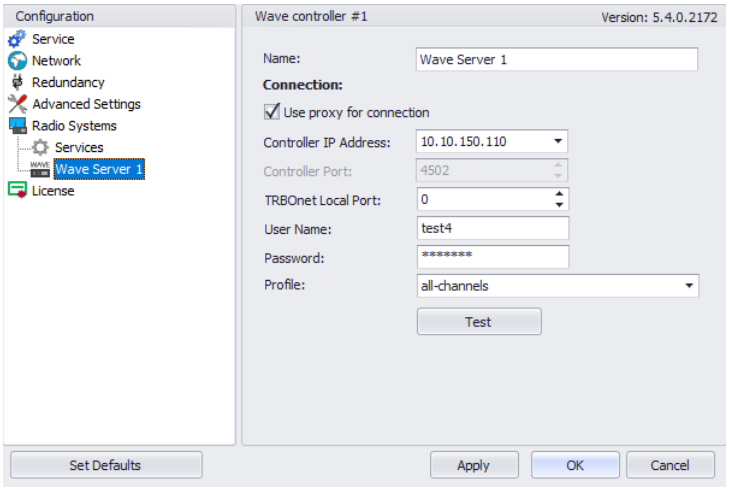
- In the **Slot #1** (or **Slot #2**) pane, specify the following slot-related parameters:
  - **Name**
    Enter a name for the slot. This name will be displayed in the Dispatch Console.
  - **Audio Codec**
    From the drop-down list, select the audio codec to be used to compress the audio files.
  - **Audio port KAIROS/ Audio port TRBOnet**
    Enter the port numbers to be used for KAIROS/TRBOnet audio ports.
  - **Data port KAIROS/ Data port TRBOnet**
    Enter the port numbers to be used for KAIROS/TRBOnet data ports.

Note: Use the matching port numbers for KAIROS and TRBOnet. The default audio and data port numbers are **40000** and **40001** for Digital slot 1, **40002** and **40003** for Digital slot 2, and **40004** and **40005** for the Analog slot.

3.6.11 Adding a Wave Controller

Before creating a connection to the Wave controller, make sure the Wave server is configured to allow 3rd party applications to connect with a Neocom Software-specified license key.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add WAVE Controller**.

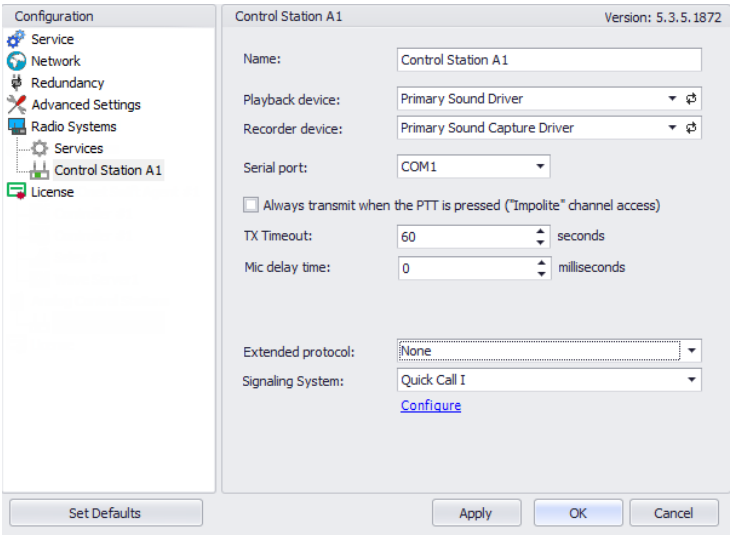


- In the **Wave Controller** pane, specify the following Wave controller-related parameters:
  - **Name**
    Enter a name for the Wave controller. This name will be displayed in the Dispatch Console.
  - **Use proxy for connection**
    Select this option to use a proxy server to connect to the Wave controller.
  - **Controller IP Address**
    Enter, or select from the list, the IP Address of the Wave controller.
  - **Controller Port**
    Enter the port number of the Wave controller.
  - **Local Port**
    Enter the local port number that will be used by TRBOnet Agent to establish a connection to the Wave controller.
  - **User Name**
    Enter the user name. For the user name, refer to the Wave server configuration.
  - **Password**
    Enter the password for the user. For the password, refer to the Wave server configuration.
  - **Profile**
    From the drop-down list, select the profile to be used on the Wave server.
  - **Test**
    Click this button to check the connection to the Wave controller.

3.6.12 Adding an Analog Control Station

TRBOnet Dispatch Software allows using analog radios as control stations.

- In the **Radio Systems** pane, click **Add**.
  Or, in the **Configuration** pane, right-click **Radio Systems**.
- In the drop-down menu, click **Add Analog Station**.



- In the **Control Station** pane, specify the following Analog Control Station-related settings:
  - **Name**
    Enter a name for the analog control station. This name will be displayed in the Dispatch Console.
  - **Playback device**
    From the drop-down list, select the playback device on the PC that the control station is connected to.
  - **Recorder device**
    From the drop-down list, select the recording device on the PC that the control station is connected to.
  - **Serial port**
    From the drop-down list, select the serial port the control station is connected to on the PC.
  - **Always transmit when the PTT is pressed ("Impolite" channel access)** - Select this option so that when the PTT button is pressed, the radio will start transmitting regardless of whether the channel is free or not (that is any transmission in progress will be interrupted).

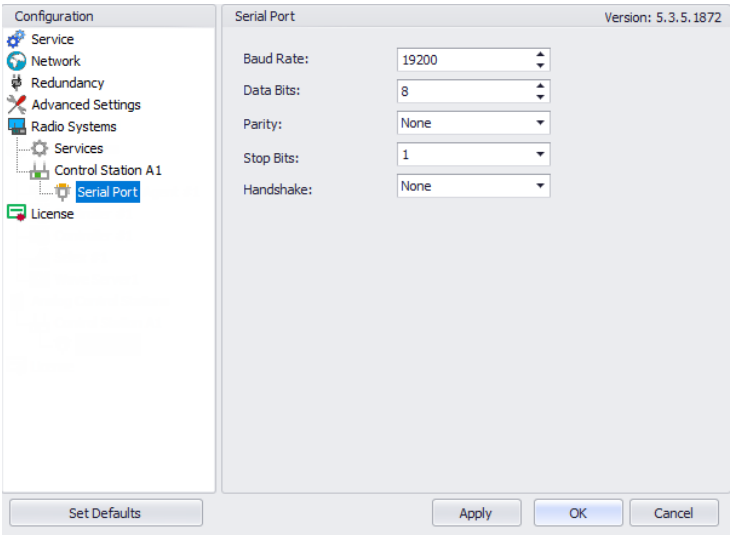
    Note: This feature is not available in Capacity Plus and Linked Capacity Plus systems.
  - **TX Timeout**
    Enter the time, in seconds, to be used as a voice session limit. When a Dispatcher starts any voice session in the Dispatch Console, transmission will be interrupted after this TX Timeout expires.
  - **Mic delay time**
    Enter the time, in milliseconds, to be used as a delay time interval between pushing the PTT and starting voice communication.

- **Extended protocol**
  From the drop-down-list, select either **None**, if your radio does not support the extended protocol, or **IC-F1721D v1.01** if the radio supports the extended protocol.
- **Signaling System**
  From the drop-down-list, select the signaling system (**Quick Call I** or **Quick Call II**). Click the **Configure** link and specify desired Quick Call settings. Selecting the signaling system is available only if **None** is selected in the **Extended Protocol** list.

Serial Port

Note: The serial port settings are available only when the extended protocol **IC-F1721D v1.01** is selected for the analog control station.

- In the **Configuration** pane, under the corresponding **Control Station**, select **Serial Port**.



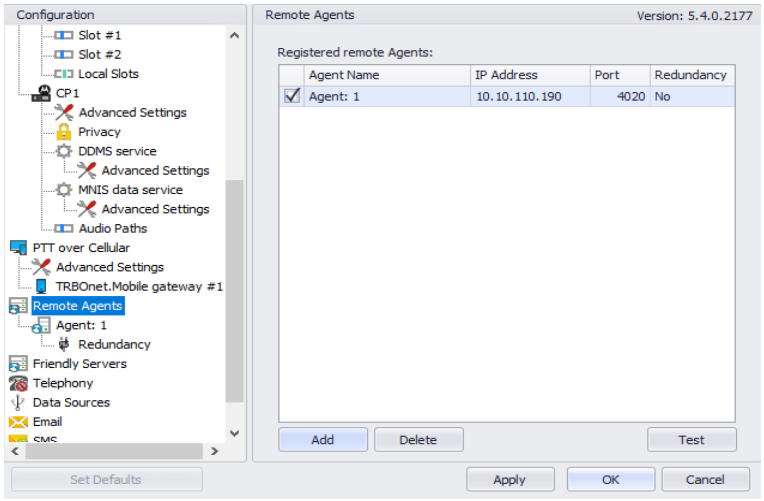
- In the **Serial Port** pane, specify the same serial port settings as those on the radio device connected to the serial port.

4 TRBOnet Server configuration

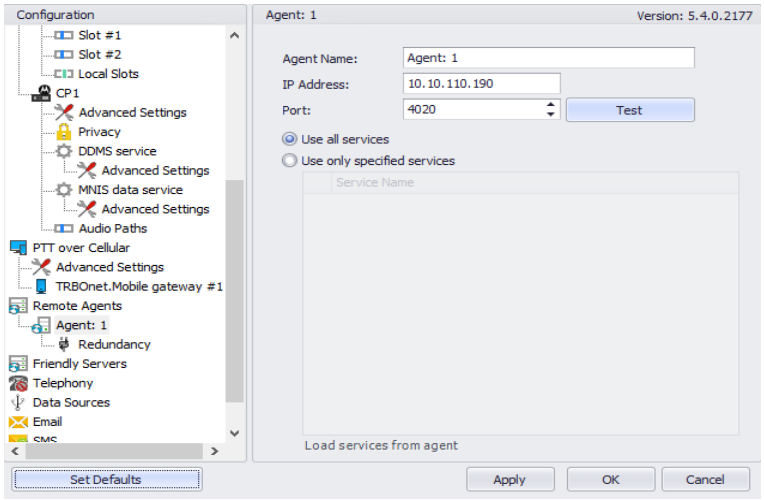
This section describes how to connect TRBOnet Agent to TRBOnet Server.

To start TRBOnet Server, click the corresponding shortcut on the desktop, or click **Start > All Programs > Neocom Software > TRBOnet Server x.x**

- In the **Configuration** pane, select **Remote Agents**.



- In the **Remote Agents** pane, click **Add**.



  - In the **Agent** pane, specify the following parameters:
    - **Agent Name**
      Enter a name for the remote agent. This name will be displayed in the Dispatch Console.
    - **IP Address**
      Enter the IP address of the agent.

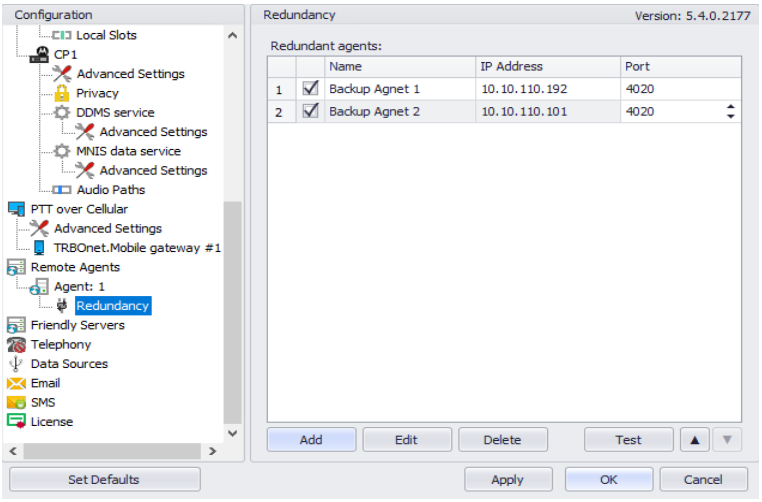
Note: If both TRBOnet Server and Agent are installed on the same PC, then select **`127.0.0.1`** (Loopback Pseudo-Interface).

- **Port**
  Enter the local port number that will be used by TRBOnet Server to accept connections from the remote agent.
- Click **Test** to check the connection to the remote agent.
- **Use all services**
  Choose this option so that all available services will be used on the remote agent.
- **Use only specified services**
  Choose this option and click the **Load services from agent** link to load services available on the remote agent.

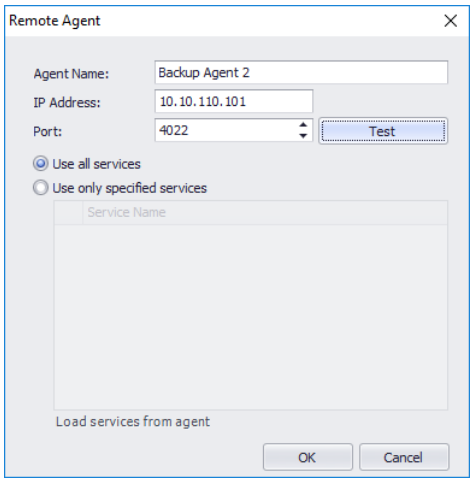
4.1 Redundancy

A Redundant remote agent will be used when a connection to the Main remote agent fails.

- In the **Configuration** pane, under the corresponding **Agent**, select **Redundancy**.



- In the **Redundancy** pane, click **Add**.



- In the **Remote Agent** dialog box, specify the following parameters:
- **Agent Name**
  Enter a name of the redundant remote agent.
- **IP Address**
  Enter the IP address of the redundant remote agent.
- **Port**
  Enter the local port number that will be used by TRBOnet Server to accept connections from the redundant remote agent.
- Click **Test** to check the connection to the redundant remote agent.
- **Use all services**
  Choose this option so that all available services will be used on the redundant remote agent.
- **Use only specified services**
  Choose this option and click the **Load services from agent** link to load services available on redundant the remote agent.
- Click **OK** to add a redundant remote agent to the system.