GenFIT

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Support

Customer satisfaction is our number one priority at Genesis. We are here to provide you with the best software possible, and we want to know when you have any questions, concerns or problems with GenFIT for MOTOTRBO so that we can make it a better product for everyone. Please see the support chapter in this document for details on contacting support.

Document History

Revision	Description	Author
2.4	Initial Release	MSR
2.5	Revisions Before Release	CWF, REB
2.5	Added License Agreement screen	KIH
2.6	Revisions Before Release	CWF
2.7	Revisions Before Release	CWF
2.8	Revisions Before Release	ATG
2.9	Revisions Before Release	REB
2.10	Revisions Before Release	ATG
2.10	Added option to show or hide [LE] packets.	REB
2.12	Converted to Docx format	CWF
2.12	Revisions Before Release	ATG

Table of Contents

Goals

This manual describes the role and function of the GenFIT product.

Who Should Read This Manual?

This manual is written for the intended audience of novice to mid-level MOTOTRBO radio system users and novice to mid-level PC users.

How This Manual Is Organized

This manual is organized as follows:

- **Overview**: Describes briefly what GenFIT is and its intended use.
- **Installation**: Describes how to install GenFIT.
- **Getting Started**: Describes how to configure GenFIT for use.
- **Operation**: Describes how to utilize GenFIT's functionality.
- **Support:** Describes how to get support for GenFIT.

This manual contains the following images, used to indicate that a segment of text requires special attention:

- **Additional Information**: Additional information is used to indicate shortcuts or tips.

- **Warning**: Warnings are used to indicate possible problem areas, such as a risk of data loss or incorrect/unexpected functionality.

Chapter 1   Overview

This chapter briefly describes GenFIT, its functionality and its intended use.

This chapter contains the following sections:
- **What is GenFIT?** Describes GenFIT's purpose and functionality.
- **How is GenFIT used?** Describes GenFIT's intended use.

What is GenFIT?

The name GenFIT stands for **Gen**esis **F**ield **I**nvestigation **T**ool. GenFIT is a standalone diagnostic tool, designed to provide basic "in-the-field" system information. GenFIT can connect to the following TRBO connection types:
- RF Control Station: Up to 2 control stations.
- IP Site Connect: Wide-area only.
- Capacity Plus

How is GenFIT used?

GenFIT's compact design enables it to be installed on a laptop (or similar device) and used out in the field as a convenient diagnostic resource. GenFIT is used in conjunction with 1-2 USB-attached Control Stations or IP connectivity to a MOTOTRBO system in order to receive data.

Chapter 2   Installation

This chapter covers the process of installing GenFIT and contains the following sections:

- **Installation**: Describes the procedure for installing GenFIT.

Minimum Hardware Specifications

See http://www.genesisworld.com/GenFIT/

Installation

The GenFIT Installation package contains the following files:

- **GenFITInstaller.msi:** Contains the GenFIT installation files.

Double-click **GenFITInstaller.msi** to launch the GenFIT installation. The installation will first verify that the Microsoft .Net Framework 4.0 has been installed on the machine. GenFIT cannot be installed if this prerequisite is missing.

The first installation window is the *Welcome* window, as shown in Figure 2.1. Click **Next** to continue. Click **Cancel** on any window to exit the installation.
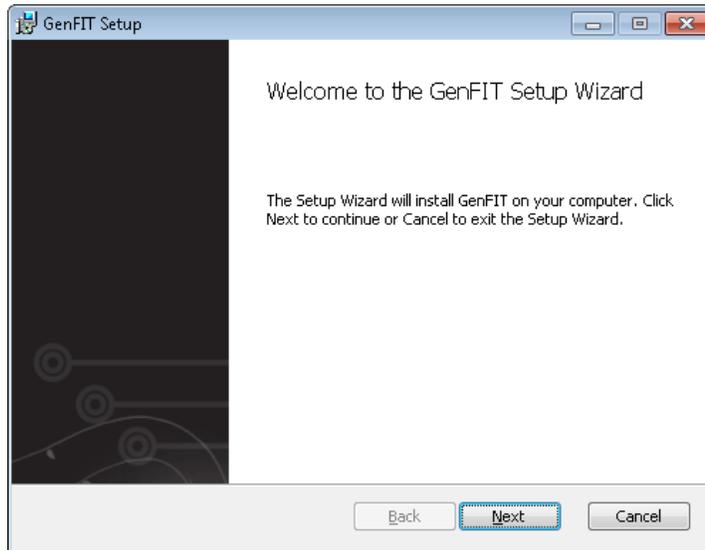

Figure 2.1 – Welcome Window

The *License Agreement* window, shown in Figure 2.2, displays the end user license agreement for GenFIT. After reviewing the agreement, select **I Agree** and click **Next** to continue.

Figure 2.2 – License Agreement Window

The *Destination Folder* window, shown in Figure 2.3, displays the installation folder. If you would like to change this folder, click the **Change...** button. Click **Next** to continue.
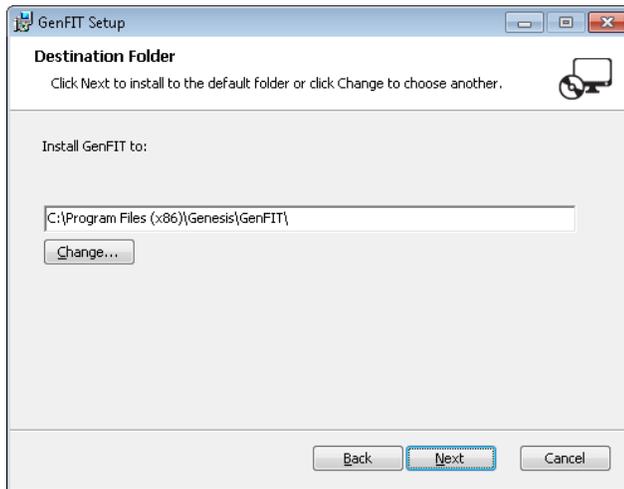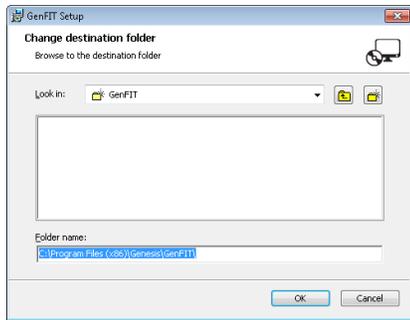

Figure 2.3 – Destination Folder Window

Figure 2.4 – Change Destination Folder Dialog

The *Ready to install GenFIT* window is shown in Figure 2.5. Click **Install** to proceed with the installation. Click **Back** to change installation options.
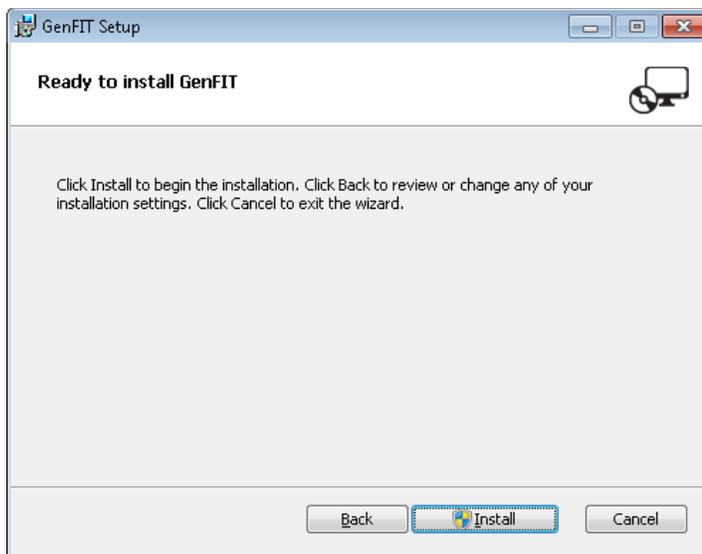

Figure 2.5 – Ready to install GenFIT Window

The *Installing GenFIT* window, shown in Figure 2.6, is displayed while program files are being transferred.
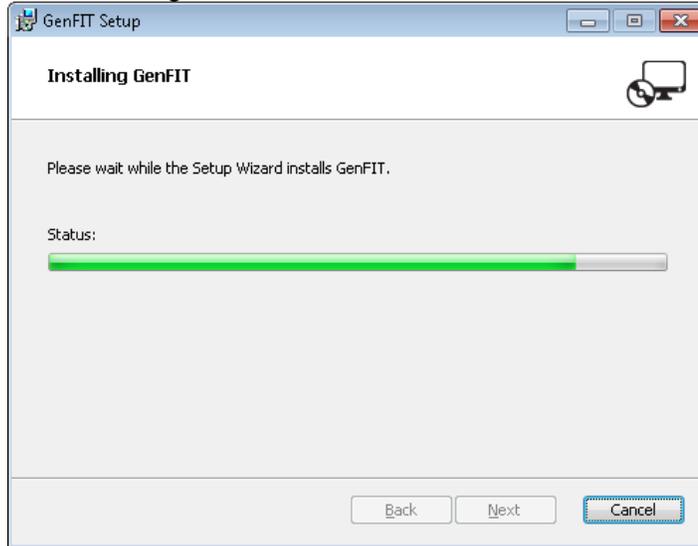

Figure 2.6 – Installing Window

Figure 2.7 shows the *Installation Complete* window. GenFIT program files have been installed and are ready to use. Click **Finish** to exit the installation.
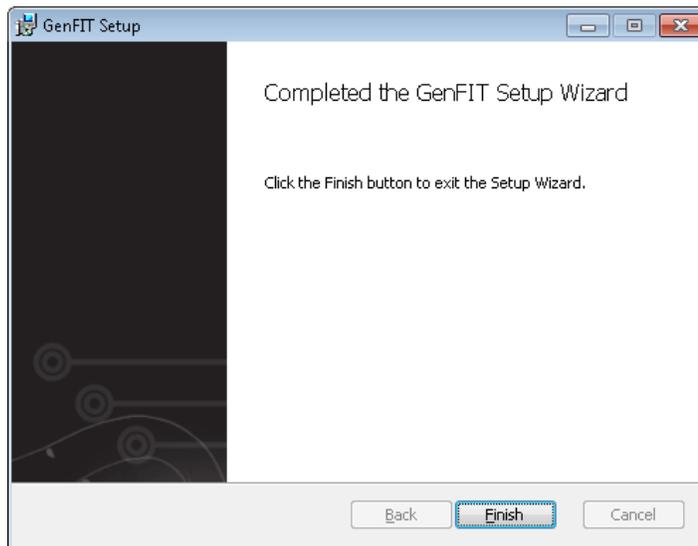

Figure 2.7 – Installation Complete Window

The GenFIT Installer package places a shortcut on the desktop for convenience.

This chapter describes how to properly start and connect GenFIT to either a USB-attached Control Station or MOTOTRBO system.

This chapter contains the following sections:

- **Starting a Connection**: Describes how to connect to your MOTOTRBO system.
- **Disconnecting**: Describes how to disconnect from your MOTOTRBO system.

The menu entry **File -> Select License** should be ignored. A license is not required for using GenFIT to connect to TRBO systems.

Starting a Connection

To receive packets from your MOTOTRBO system, you must set up a connection by taking the following steps:

1. Select **Connection** from the menu:
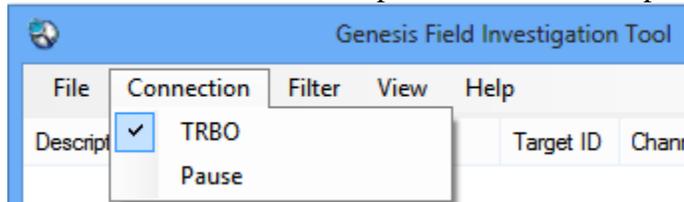2. Click on the **TRBO** option to start the setup.

Figure 3.1 – Connection Selection
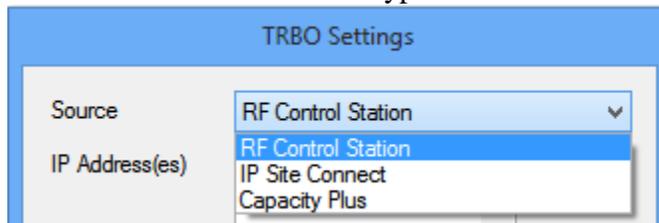
Select the source connection type.

Figure 3.2 – Source Selection

Settings:

- **Source**: One of the following options:
  - **RF Control Station**: Select this option to connect to one or two RF control stations for over-the-air monitoring.
  - **IP Site Connect**: Select this option to connect via Ethernet to an IP Site Connect system.
  - **Capacity Plus**: Select this option to connect via Ethernet to a Capacity Plus system.
- **IP Address and Port:** Static IP address and Port of the master peer repeater on the peer network.
- **IP Address(es)**: IP Address(es) of the RF control station(s).
- **Peer ID**: The peer ID used by GenFIT when connecting to the MOTOTRBO peer network.
- **Authentication**: The authentication key used by GenFIT to connect to a MOTOTRBO peer network.
- **Show Link Establishment (LE) Packets**: If checked, GenFIT will display link establishment packets between GenFIT and the repeaters. Unchecking this will reduce the amount of traffic shown on the *Activity* view.
- **OTA Logging**: If checked, the control station radio will use Motorola's OTA Logging feature to get a more complete view of system activity. This feature requires a radio using R01.06.00 or higher firmware. When using control stations to monitor the system, it is highly recommended to enable this option.

3. Click the **OK** button to start the connection.

IP Peer Connections

In an IP peer connection, as used for an IP Site Connect or Capacity Plus system, all repeaters must be accessible to the GenFIT computer via UDP. The GenFIT computer must be connected to the same network.

GenFIT will connect to the master peer repeater you specified by IP Address and Port in the TRBO connection settings. No additional configuration is needed for GenFIT to monitor activity on the other repeaters on the network.
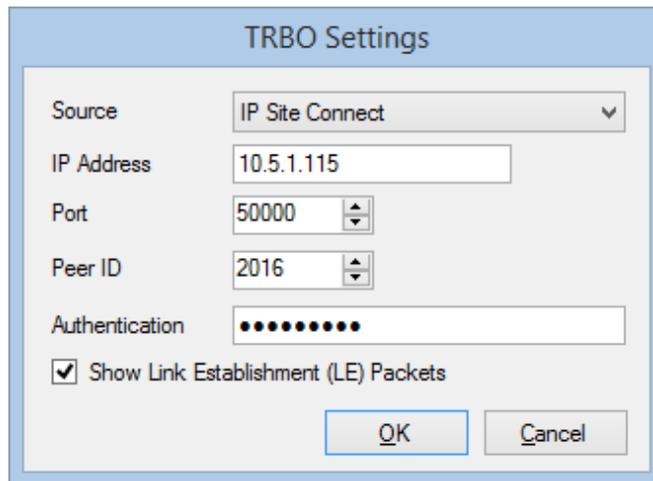
IP Site Connect

When connected via IP to an IP Site Connect system, GenFIT can monitor all activity on your system.

To create an IP Site Connect connection, select **IP Site Connect** from the **Source** drop-down list and enter the settings detailed above.

Capacity Plus

Monitoring a Capacity Plus MOTOTRBO system using GenFIT works in much the same way as on an IP Site Connect system.

To create your Capacity Plus connection, select **Capacity Plus** from the **Source** drop-down list and enter the settings detailed above.

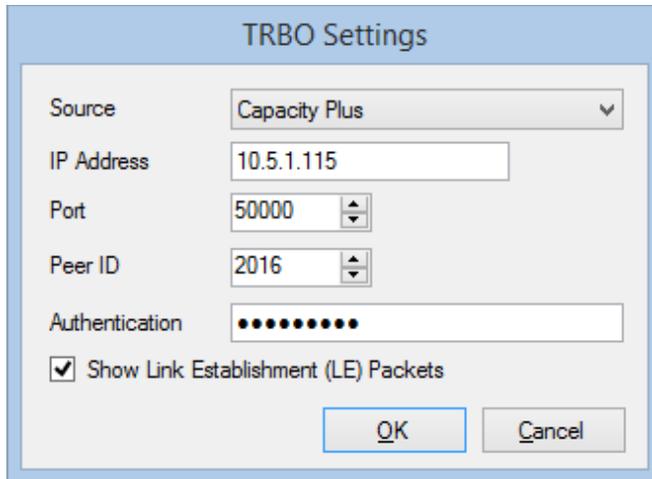**Figure 3.3** – IP Site Connect Connection Settings

Figure 3.4 – Capacity Plus Connection Settings

RF Control Station Connections

A *control station* is an ordinary radio (portable or mobile) that has been physically connected to the GenFIT computer to listen to activity on a system.

An RF Control Station connection in GenFIT allows you to use an ordinary MOTOTRBO radio to monitor activity on your system. You may use either a portable or mobile radio for this purpose. A local connection to a MOTOTRBO radio utilizes the same USB cable required for programming the radios with the Customer Programming Software (CPS); therefore, the MOTOTRBO radio must be located near the PC to connect the cable.

A control station is required for each timeslot you wish to monitor, up to two.
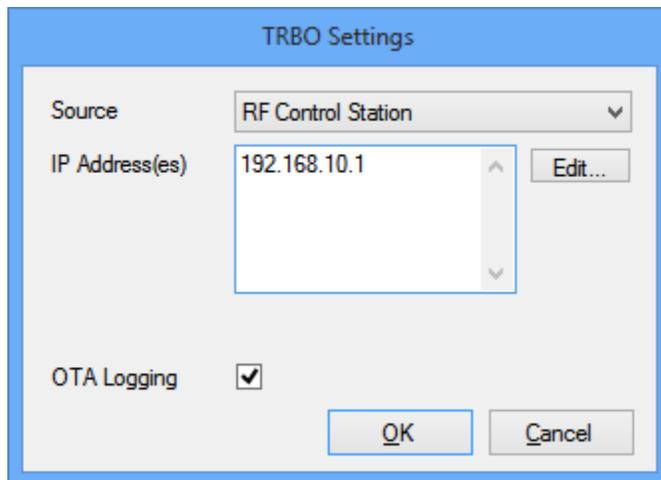

Figure 3.5 – RF Control Station Connection Settings

Configuring RF connection IP addresses

To set up a control station connection, select the **RF Control Station** option from the **Source** drop-down list. Click the **Edit…** box to bring up a window where you can enter the IP addresses of the control station radios (check the **Enabled** box to enter the IP address) . If you do not know the IP address of the radios, go to the Windows **Control Panel** and select **Network and Sharing Center** There will be a network for each radio plugged into the computer via USB. Click **View Status**, followed by **Details….** (See Figure 3.6). Then copy the address contained in the *IPv4 Default Gateway* field.
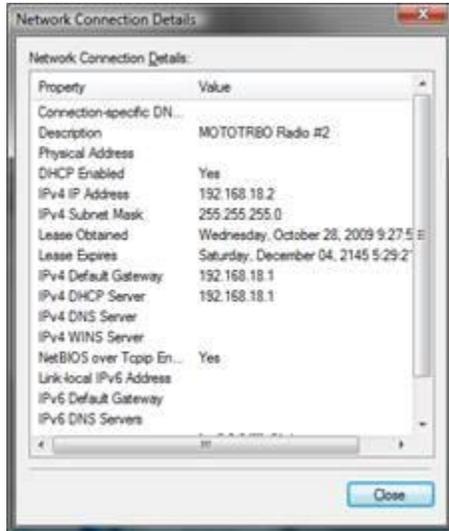

Figure 3.6 – Network Connection Details in Windows 7
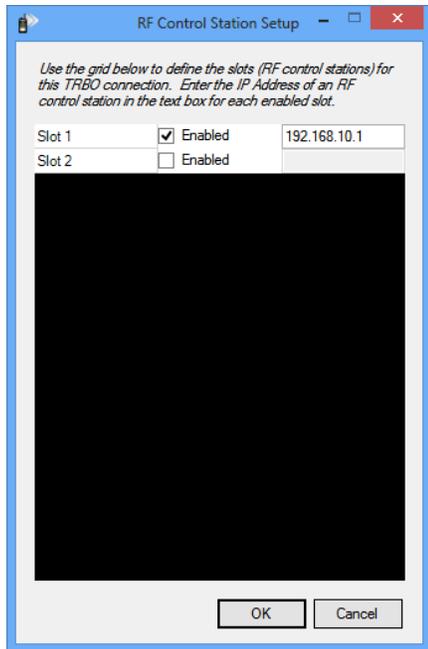
Figure 3.7 –RF Control Station setup

OTA Logging Feature

A radio that is using the R01.06.00 firmware version or higher can take advantage of MOTOTRBO's Over-The-Air Logging feature to receive a more complete view of radio system activity than is possible through a normal control station connection. Using OTA Logging allows a single control station to monitor all over-the-air activity — group or private, voice or data — on a single repeater timeslot.

One control station is required per logical channel to be monitored. Each control station must be programmed to listen for transmissions on the channel it will monitor and must be in range to receive those transmissions over the air.

OTA Logging is not supported for Capacity Plus systems.

To activate OTA Logging mode, check the box on the RF Control Station connection screen labeled **OTA Logging**.

The logged files can be found under the user documents *Genesis\GenFit\TRBO\0* directory.

Disconnecting

To disconnect from your MOTOTRBO system, navigate to and unselect **Connection → TRBO**, as shown in Figure 3.8.
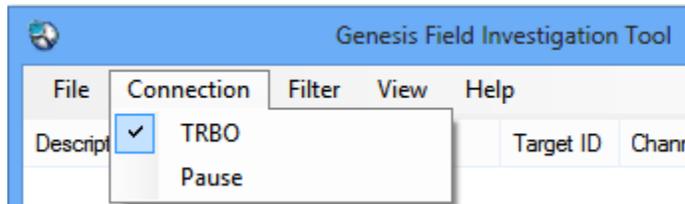

Figure 3.8 – Checked **TRBO** menu item, indicating a started connection.

This chapter describes the functionality of and information displayed by GenFIT.

This chapter contains the following sections:
- **Activity View**
- **Channel View**
- **Busies View**
- **Packet Information**

ⓘ The information visible in the *Activity* view is logged, but closing GenFIT or stopping a connection then starting a new connection will result in all visual elements (such as scrolling activity or channel blocks) being lost.
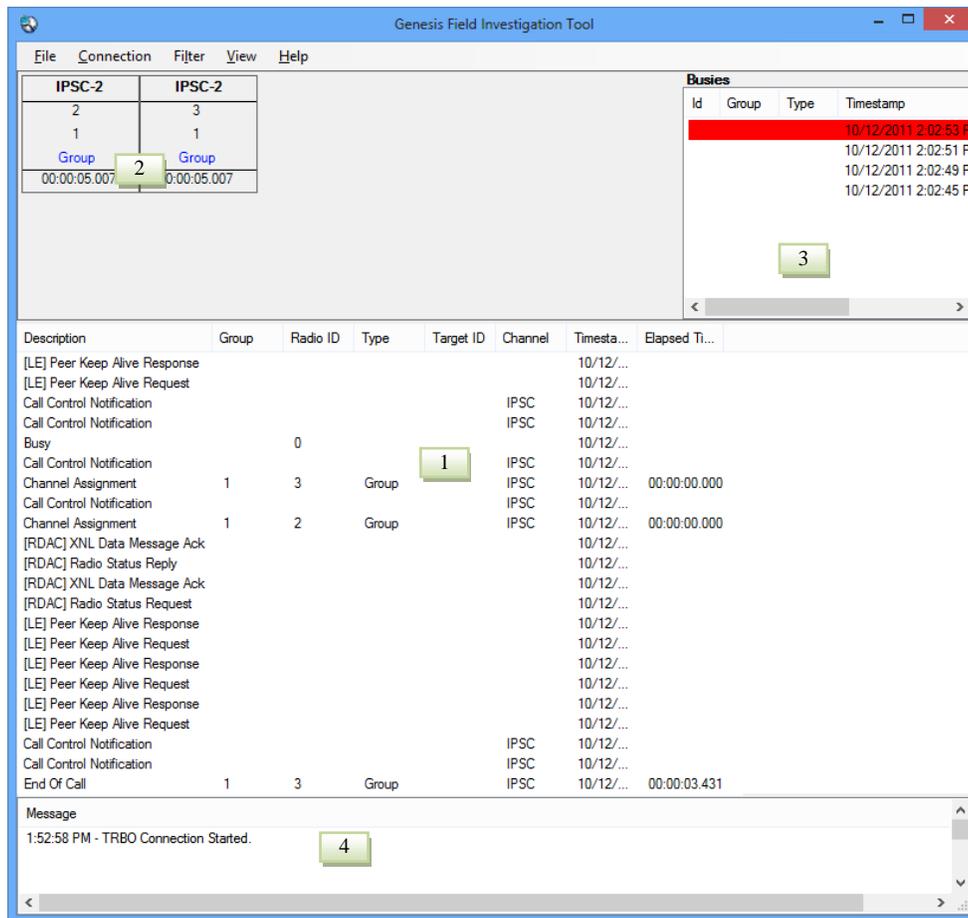

Figure 4.1 – GenFIT

Activity View

The *Activity* view, shown as area 1 in Figure 4.1, scrolls system activity packets in real time, displaying the following fields of information for each packet received on your MOTOTRBO system:

- **Description**: Broad category of the activity (i.e. Channel Assignments, Call Control Notifications, etc.).
- **Group**: Target group (if any) of the activity.
- **Radio ID** (if any):
  - o **Originating Radio ID**: For channel assignments, call alerts, etc.
  - o **Targeted Radio ID**: For radio-to-radio Inhibits, Radio Checks, etc.
- **Type**: Activity subcategory. Further describes the type of activity.
- **Target ID**: This will contain one of the following values, if the value is provided in the packet:
  - o **Target Radio ID:** For call alerts, private calls, etc.
  - o **Requester ID:** For Inhibits, Radio Checks, etc.
- **Channel**:
  - o IP Site Connect: Will contain the text *IPSC*.
  - o Capacity Plus: The repeater ID on which the activity occurred.
  - o RF Control Station: The IP address of the control station on which the activity occurred.
- **Timestamp**: The date and time when the activity was received or originated. This will be the packet timestamp for packets that include a timestamp. Otherwise it will be the date and time the packet was received by the input module.
- **Elapsed Time**: The duration of the activity. Only calls and busies provide an elapsed time value.

Use the pause feature in the activity view to immediately stop the scrolling of packet data and leave existing data in the activity list.

Activity Filtering

Suppressing Duplicate Packets

Some packets may be echoed in triplicate and quadruplicate. Showing more than one instance of each of these activities is rarely desired. To enable/disable duplicate packets check/uncheck the **Suppress Duplicates** menu option in the **Filter** menu by clicking on that menu option.

This option has no effect on many multisite packets, as these packets are generally not sent in duplicate, triplicate, etc.

Packet Throttling

Throttling ensures that GenFIT will not display a distinct input packet more than once per second. To enable/disable packet throttling check/uncheck the **Throttle** menu option in the **Filter** menu by clicking on that menu option.

This option has no effect on many multisite packets, as these packets are generally not sent in duplicate, triplicate, etc.

Filtering Packet Types

GenFIT maintains a list of **Packet Types** that shows all packet types encountered by GenFIT so far. This list will start off empty and will add new packet types as they are received by GenFIT. New packets types will default to checked (Included) in the **Packet Types** list. All checked packet types will appear in the *Activity List* as they are received. Packet types that are unchecked will not be shown in the *Activity List*. To open the Packet Type Filter Settings dialog, shown in figure 4.2, click **By Packet Type** in the **Filter** menu.
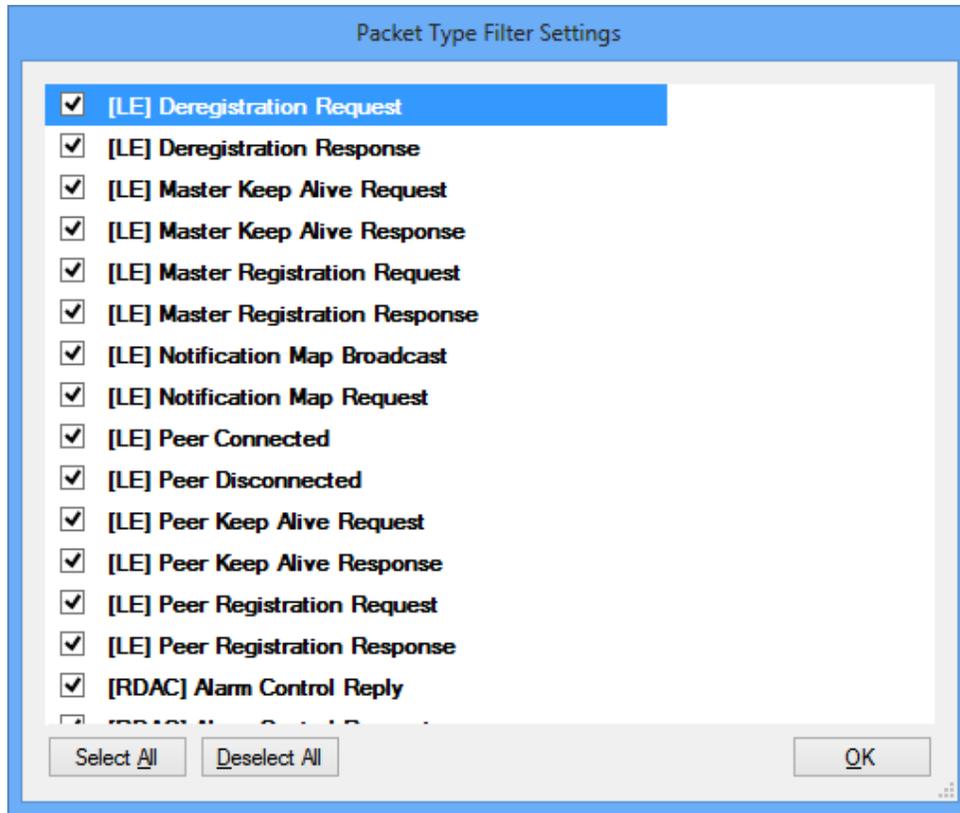
Figure 4.2 – *Packet Type Filter Settings* dialog

Channel View

The *Channel* view displays decoded channel activity and call information for each channel at a given site, shown as area 2 in Figure 4.1. The following fields of information for call activity are displayed on the appropriate channel block:

- **Channel**: The key of the channel the activity took place on. For IP Site Connect, this will be *IPSC* followed by the slot number. For Capacity Plus, this will be the repeater ID followed by the slot number. For RF Control Station, this will show the IP address of the control station used to monitor the slot on which the activity occurred.
- **Radio ID**: Originating radio ID (if any) of the activity.
- **Talkgroup ID**: Group (if any) on which the call took place.
- **Target ID:** Target of the Private call.
- **Call Type:** Group or Private. Data if applicable.
- **Elapsed Call Time**: The duration of the activity. Note that calls with extremely short durations, such as those consisting of a single data packet, may not appear on the channel block until they are over.

Busies View

The *Busies* view, shown as area 3 in Figure 4.1, displays a history of busy packets. The following fields of information for busies are displayed from each busy packet:
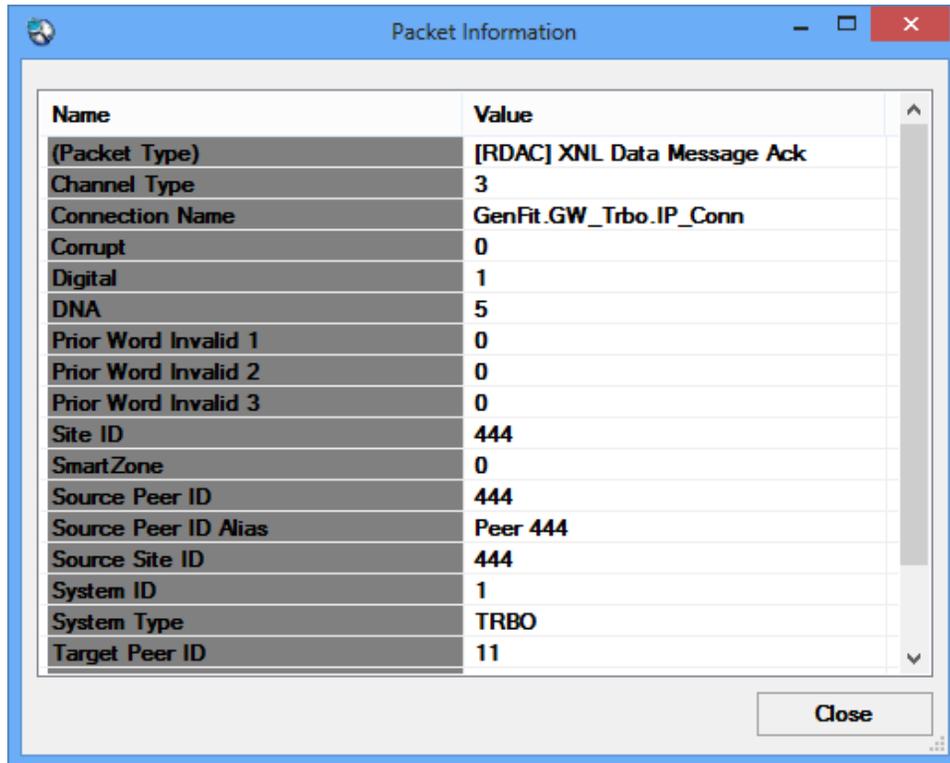
- **ID**: Originating radio ID (if any) of the busy. Always 0.
- **Group**: Group (if any) on which the busy call took place.
- **Type**: Activity subcategory. Further describes the type of activity.
- **Timestamp**: The date and time when the busy was received or originated. This will be the packet timestamp for packets that include a timestamp. Otherwise it will be the date and time the packet was received by the input module.
- **Elapsed Time**: The duration of the busy.

Message Panel

The *Message* panel, shown as area 4 in Figure 4.1, displays messages for errors, and indicates when a connection is started or stopped.

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Packet Information

In either *Activity* view or *Channel* view, it is possible to see additional information about a call or event by double-clicking on a list item or channel, respectively.

Figure 4.3 – Packet Information window

This window provides a list of all information that GenFIT knows about a decoded data packet. When opened in *Channel* view, information is shown pertaining to the current (or last known) activity happening on the double-clicked channel.

For information and support on how to configure your MOTOTRBO radios, contact your MOTOTRBO support.

For support on your GenFIT installation, please email Genesis at genfit_support@genesisworld.com.

GenFIT support is provided by Genesis through email only.