

# **TREK DATA USER GUIDE**



**August 2025**

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## 1 Welcome

The Telescience Resource Kit (TReK) is a suite of software applications and libraries that can be used to monitor and control assets in space or on the ground.

The TReK Data application provides the capability to manage data services such as receiving data, processing data, recording data, forwarding data, and displaying data.

The topics in this user guide require an understanding of the topics covered in the TReK Concepts document. Please be sure you have read the TReK Concepts document before reading this user guide.

### 1.1 Getting Started

Start with the Introduction which provides an application overview. Next, try the Quick Start Guides for “How Tos” for common functions. For help with details, reference the Details section. See the FAQ and Troubleshooting section for helpful hints and solutions to the common “gotchas”.

## 2 Technical Support

If you are having trouble installing the TReK software or using any of the TReK software, please contact us for technical assistance:

E-Mail: [trek.help@nasa.gov](mailto:trek.help@nasa.gov)

Messages sent to this address are automatically forwarded to the TReK team.

The HOSC Help Desk (256-544-5066) can provide assistance as needed and is available 24x7.

## 3 Introduction

The TReK Data application provides the capability to manage data services such as receiving data, processing data, recording data, forwarding data, and displaying data. It can be configured to receive different types of data from multiple sources simultaneously. The configuration can be saved.

The Data application creates a TReK data store on application initialization. The data store is used by the application to store incoming data so it can be accessed using the TReK Telemetry Application Programming Interface (API). When using the TReK Telemetry API, you will need the data store name. The Data application uses “DefaultDataStore” as the default data store name. There is an option within the application to change the data store name. The application provides the capability to save the application configuration to a file. When you save the configuration to a file the data

store name is saved as part of the configuration. If you start another instance of the Data application, and the “DefaultDataStore” name is already in use, the application will prompt you to enter a new and unique name. If you start the Data application from the command line and pass in a configuration file that contains a data store name that is already in use the application will exit with an error.

## 4 Overview of the User Interface

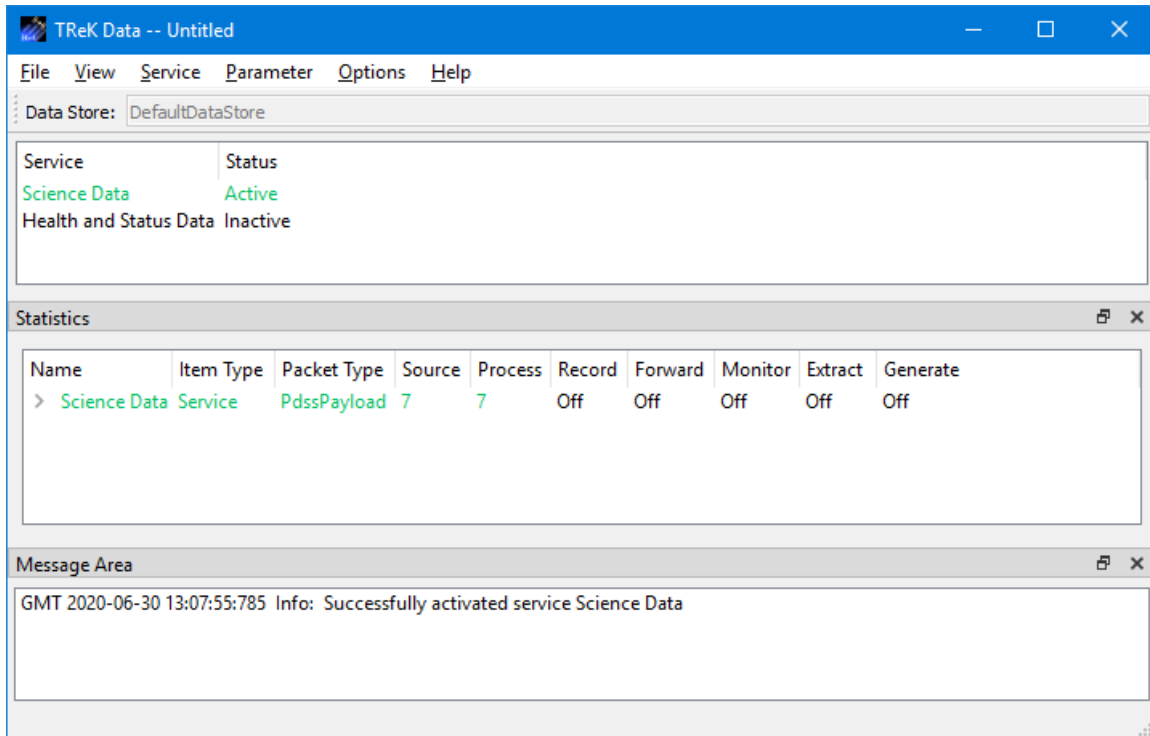
### 4.1 Main Window

The main window consists of three main areas as shown in Figure 1. The top part of the main window contains the list of services. A Service is used to define a set of functions to perform. When you start the Data application the list will be empty. The middle part of the window is the Statistics area. Once you activate one or more services, the Statistics area will display statistics information about each service. It will also provide information about the functions being performed like how many packets were recorded, how many packets were forwarded, etc. The Statistics area can be reconfigured to show several different views. The bottom part of the window is a message area that is used to display important status and information messages about the activities in progress.

You may have noticed that each service row has a color associated with it. The color provides information about the service. For example, when using the default colors, if the packet row is black, this indicates that the packet has not been activated. If the packet row is purple, this indicates that the service is initializing. If the packet row is blue, this indicates the packet has been activated but no data has arrived. If the packet row is green, this indicates that data packets are arriving. The colors are helpful in providing immediate information about the general configuration and status of each service in the list.

Figure 1 shows two services in the Service area. The first service in the list is named **Science Data**. The Science Data service is configured to receive a data stream containing science data. The status is Active and the color is green to indicate that data is arriving. The second service in the list is named Health and Status Data. The status is Inactive and the color is black. This indicates that the service has been configured but not activated. Until the service is active, the Data application is not prepared to handle the incoming data. When a service is activated, it creates all the network sockets and other support needed to support the services requested. As soon as a service goes Active, the application will start applying the configured services to support any data that arrives (processing, recording, etc.).

The Statistics area and the Message Area are dock windows that you can float or dock. To float a dock window, use your left mouse button to click and hold the title area while dragging the window to another area of the screen. To dock, use the title bar to drag the dock window over the main window and drop.



**Figure 1 Main Window**

#### Data Store Toolbar

The Data Store toolbar displays the name of the data store currently in use.

#### Service Area

The Service area provides a list of “Services”. A Service defines a set of functions to perform.

#### Statistics Area

The Statistics area provides real time statistics information for active services.

#### Message Area

The Message Area displays important information, warning and error messages. The message area can be cleared using the View menu.

## **4.2 Menus**

The application menus are: File, View, Service, Parameter, Options, and Help. Each of these menus is described in more detail below.

#### File Menu

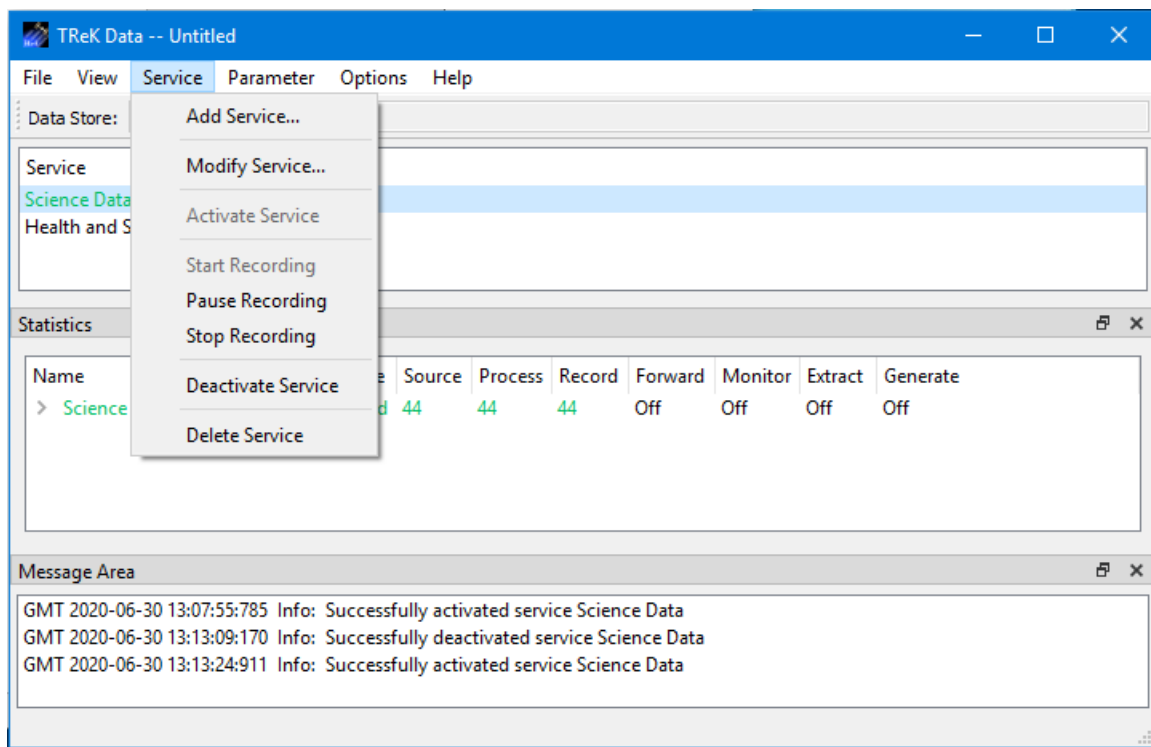
The File menu provides the capability to create a new configuration, open a configuration, save a configuration, and exit the application.

### View Menu

The View menu provides the capability to clear the main window message area and show and hide the main window statistics and message area.

### Service Menu

The Service menu provides the capability to perform functions associated with services such as adding a service, activating a service, or deleting a service. The service menu also shows context dependent menu items corresponding to the configuration of the service. The context menu items will only appear when the service is active. For example in Figure 2 there is a service selected that is configured to record data. Therefore, when the service is active and selected there will be additional service menu items to control recording.



**Figure 2 Service Menu Context Specific Menu Items**

### Parameter Menu

The Parameter menu provides access to parameter type capabilities such as displays and parameter monitoring.

### Options Menu

The Options menu provides the capability to access statistics, reset statistics, configure statistics snapshot recording, and change the data store. It provides access to the Messages dialog which can be used to display and filter application messages. It also provides access to the email/text settings available.

### Help Menu

The Help menu provides access to on-line help and application version information.

## **5 Quick Start Guides**

This section provides “How Tos” for common functions.

### **5.1 How to Add a Service**

This section describes how to add a service. For additional information and details about the Add Service dialog please reference section 6.1.

1. To add a service, go to the Service menu and select Add Service.
2. Enter a service name unique to this instance of the Data application.
3. To configure the application to receive incoming data, enter the information about how the data will arrive on the Data Source tab. Using this tab you can configure to receive data using a specific communication protocol such as UDP.
4. To define what data the service should accept, choose the packets on the Data Description tab. This tab provides a way to control what data will be accepted for processing, recording, or forwarding.
5. To process incoming data, enter the processing information on the Process Tab. You can identify which packets you would like to process along with configuration information such as the number of buffers to use and the length of the buffers.
6. To record incoming data, enter the recording information on the Record Tab. You can specify to record data in a single directory or multiple directories.
7. To forward incoming data, enter the forwarding information on the Forward Tab. You can specify to forward data to one or more destinations selecting the communication protocol to use for each destination.
8. To monitor incoming data for exceptions (e.g., value is too high), choose the parameters from the Monitor tab.
9. To extract data into a text file, choose the file type and parameter from the Extract tab.
10. To generate packets containing a subset of the parameters for an incoming packet, choose the Generate tab and select which parameters to include.

### **5.2 How to Activate a Service**

This section describes how to activate a service.

1. To activate a service, select the service in the Main Window Service Area. Then go to the Service menu and select Activate Service.

Note: There is also a context sensitive pop-up menu available in the Main Window Service Area. Select the service in the list and then use the right mouse button to access the pop-up menu and select Activate Service.

### **5.3 How to Deactivate a Service**

This section describes how to deactivate a service.

1. To deactivate a service, select the service in the Main Window Service Area. Then go to the Service menu and select Deactivate Service.

Note: There is also a context sensitive pop-up menu available in the Main Window Service Area. Select the service in the list and then use the right mouse button to access the pop-up menu and select Deactivate Service.

### **5.4 How to View Processed Data**

The following steps describe how to view processed data. For additional information and details please reference section 6.3. When a service is configured with processing turned on, the Data application will auto-generate pre-defined displays to view the processed data. The predefined displays can be accessed using the Manage Displays menu item on the Parameter menu. Custom Displays can also be defined. See section 6.3.3 for details.

1. Add a service with Processing set to on.
2. Activate the service.
3. Go to the Parameter menu and select Manage Displays.
4. Select a display in the list and push the Start button. The display is automatically started and will display data if data is being received.

### **5.5 How to Change the Data Store**

The following steps describe how to change the data store. For additional information and details about the Data Store dialog please reference section 6.10. The data store name can only be changed when all data processing services are off. If there are any active services that are processing data, the data store cannot be changed.

1. On the Options menu select Change Data Store.
2. Enter a valid Data Store name. It must be unique and not in use by any other instances of the TReK Data application.
3. Push the OK button to save the data store name and exit the dialog.

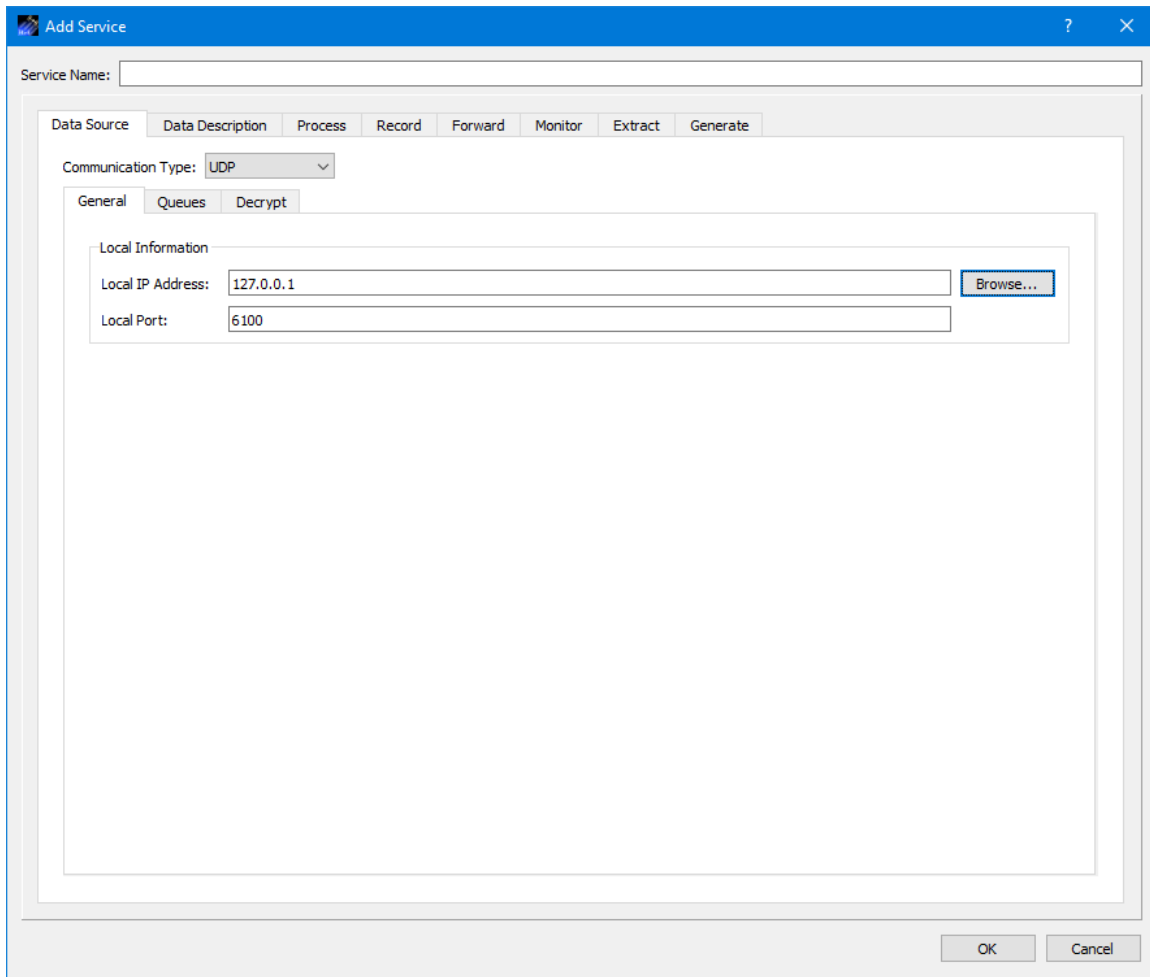
If successful, the Data Store toolbar will be updated to reflect the new data store name.

## 6 Details

This section covers various application details.

### 6.1 Service

The Service dialog is used to define a set of functions to perform. The Service configuration can only be modified when the Service is inactive. The Add Service dialog is shown in Figure 3. Details are provided below.



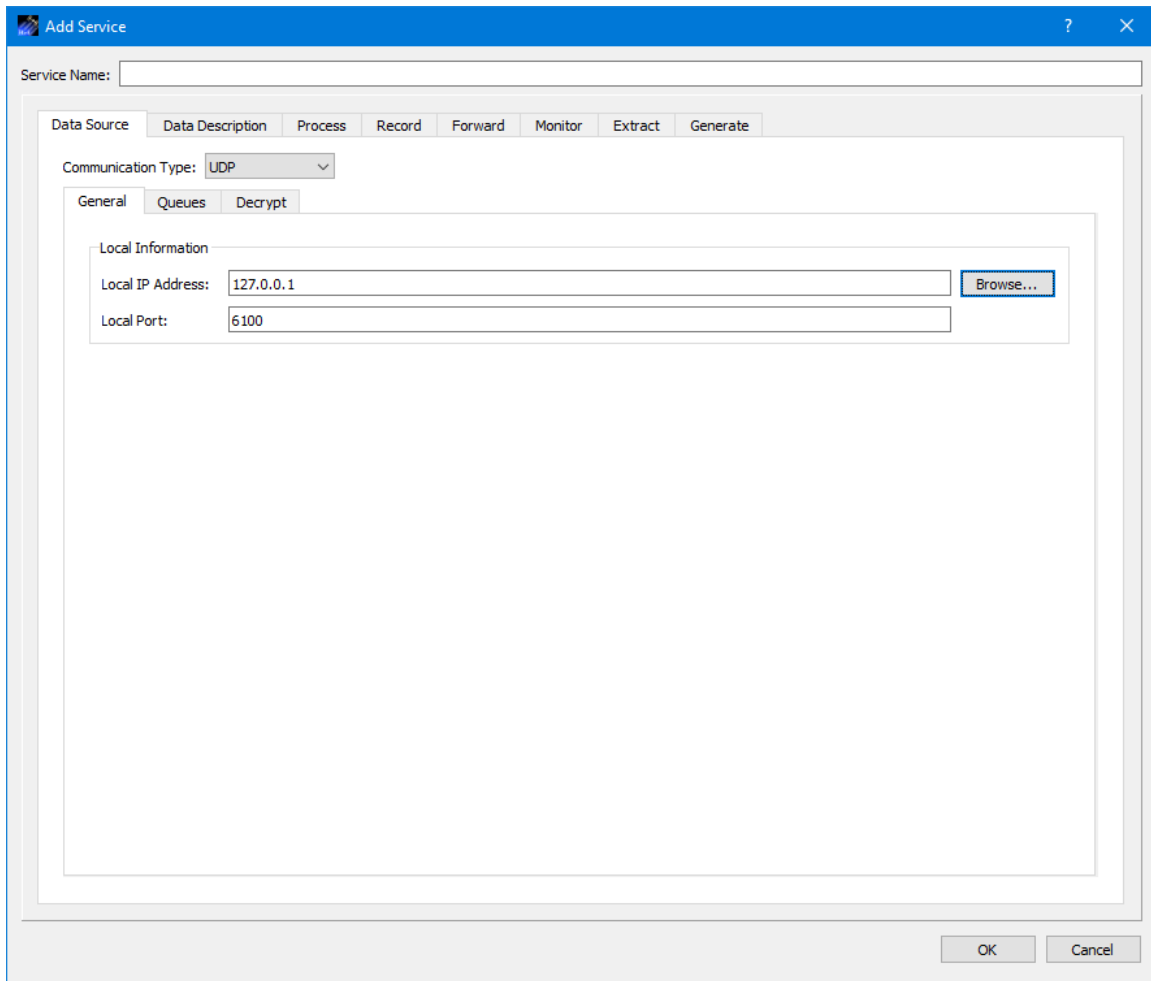
**Figure 3 Add Service Dialog**

#### Service Name

Each Service must have a unique name.

#### 6.1.1 Service Dialog (Data Source Tab)

The Service Dialog Data Source tab is shown in Figure 4.



**Figure 4 Service Dialog (Data Source General Tab)**

#### 6.1.1.1 Data Source General Tab

The Data Source General tab is used to enter information about how the data will be received. The fields that are displayed depend on the Communication Type setting. Communication Types include Bundle Protocol, Multicast, TCP Client, TCP Listener, UDP, and Unix Domain Socket (only available on Linux).

Each communication type configuration is described below.

##### 6.1.1.1.1 Bundle Protocol Configuration

The Bundle Protocol Configuration is shown in Figure 5.

The screenshot shows a Windows-style dialog box titled "Add Service". At the top, there is a "Service Name:" label followed by an empty text input field. Below this is a tabbed interface with tabs labeled "Data Source", "Data Description", "Process", "Record", "Forward", "Monitor", "Extract", and "Generate". The "Data Description" tab is currently selected. Within this tab, there is a "Communication Type:" label with a dropdown menu showing "Bundle Protocol". Below this, there are three sub-tabs: "General", "Queues", and "Decrypt". The "General" sub-tab is selected. It contains several configuration fields: "Source Service Number:" with an empty text box; "Lifespan (seconds):" with a text box containing "86400"; "Bundle Protocol Class of Service:" with a dropdown menu showing "Standard Priority"; "Expedited Priority Ordinal:" with a text box containing "0"; "Transmission Mode:" with a dropdown menu showing "Assured"; and "Criticality:" with a dropdown menu showing "Not Critical". At the bottom right of the dialog are "OK" and "Cancel" buttons.

**Figure 5 Service Dialog (Bundle Protocol Configuration)**

Each field is described below.

#### Source Service Number

The source service number is ION's configured BP service number. This number is used to receive packets from ION.

#### Lifespan

The lifespan is the bundle's "time to live" (TTL) in seconds. The bundle is destroyed if its TTL has expired and it has not reached its destination. Minimum value is 1, maximum value is 2,147,483,647 and the default value is 86400.



The screenshot shows a Windows-style dialog box titled "Add Service". At the top, there is a "Service Name:" text box. Below this is a tabbed interface with tabs for "Data Source", "Data Description", "Process", "Record", "Forward", "Monitor", "Extract", and "Generate". The "Data Source" tab is selected. Within this tab, there is a "Communication Type:" dropdown menu set to "Multicast". Below the dropdown are three sub-tabs: "General", "Queues", and "Decrypt". The "General" sub-tab is active. It contains two sections: "Local Information" and "Multicast Information". The "Local Information" section has two text boxes: "Local IP Address:" with the value "127.0.0.1" and a "Browse..." button, and "Local Port:" with the value "6100". The "Multicast Information" section features a large empty list box labeled "Multicast Address Group List" and two buttons, "Add" and "Delete", to its right. At the bottom right of the dialog are "OK" and "Cancel" buttons.

**Figure 6 Service Dialog (Multicast Configuration)**

Each field is described below.

Local IP Address

This is the local IP address used for the UDP socket used for the multicast communication.

Local Port

This is the local port used for the UDP socket used for the multicast communication.

Multicast Information

Use the Add and Delete buttons to add and delete multicast address groups to the Multicast Address Group List.

## 6.1.1.1.3 TCP Client Configuration

The TCP Client Configuration is shown in Figure 7.

The screenshot shows a Windows-style dialog box titled "Add Service". At the top, there is a "Service Name:" label followed by an empty text input field. Below this is a tabbed interface with tabs labeled "Data Source", "Data Description", "Process", "Record", "Forward", "Monitor", "Extract", and "Generate". The "Data Source" tab is currently selected. Within this tab, there is a "Communication Type:" dropdown menu set to "TCP Client". Below the dropdown are three sub-tabs: "General", "Queues", and "Decrypt". The "General" sub-tab is active. It contains two sections: "Local Information" and "Remote Information". The "Local Information" section has "Local IP Address:" with the value "127.0.0.1" and a "Browse..." button, and "Local Port:" with the value "6100". The "Remote Information" section has three fields: "Host Name:" (disabled), "IP Address:" (selected with a radio button), and "Port:" (empty). At the bottom right of the dialog are "OK" and "Cancel" buttons.

**Figure 7 Service Dialog (TCP Client Configuration)**

Each field is described below.

Local IP Address

This is the local IP address used for the TCP Client socket.

Local Port

This is the local port used for the TCP Client socket.

Host Name

This is the host name of the remote computer.

IP Address

This is the IP address of the remote computer.

Port

This is the port of the remote computer.

## 6.1.1.1.4 TCP Listener Configuration

The TCP Listener Configuration is shown in Figure 8.

The screenshot shows a Windows-style dialog box titled "Add Service". At the top, there is a "Service Name:" label followed by an empty text input field. Below this is a tabbed interface with tabs labeled "Data Source", "Data Description", "Process", "Record", "Forward", "Monitor", "Extract", and "Generate". The "Data Source" tab is currently selected. Within this tab, there is a "Communication Type:" dropdown menu set to "TCP Listener". Below the dropdown are three sub-tabs: "General", "Queues", and "Decrypt". The "General" sub-tab is active and contains a "Local Information" section. This section has two text input fields: "Local IP Address:" with the value "127.0.0.1" and a "Browse..." button to its right, and "Local Port:" with the value "6100". At the bottom right of the dialog box are "OK" and "Cancel" buttons.

**Figure 8 Service Dialog (TCP Listener Configuration)**

Each field is described below.

Local IP Address

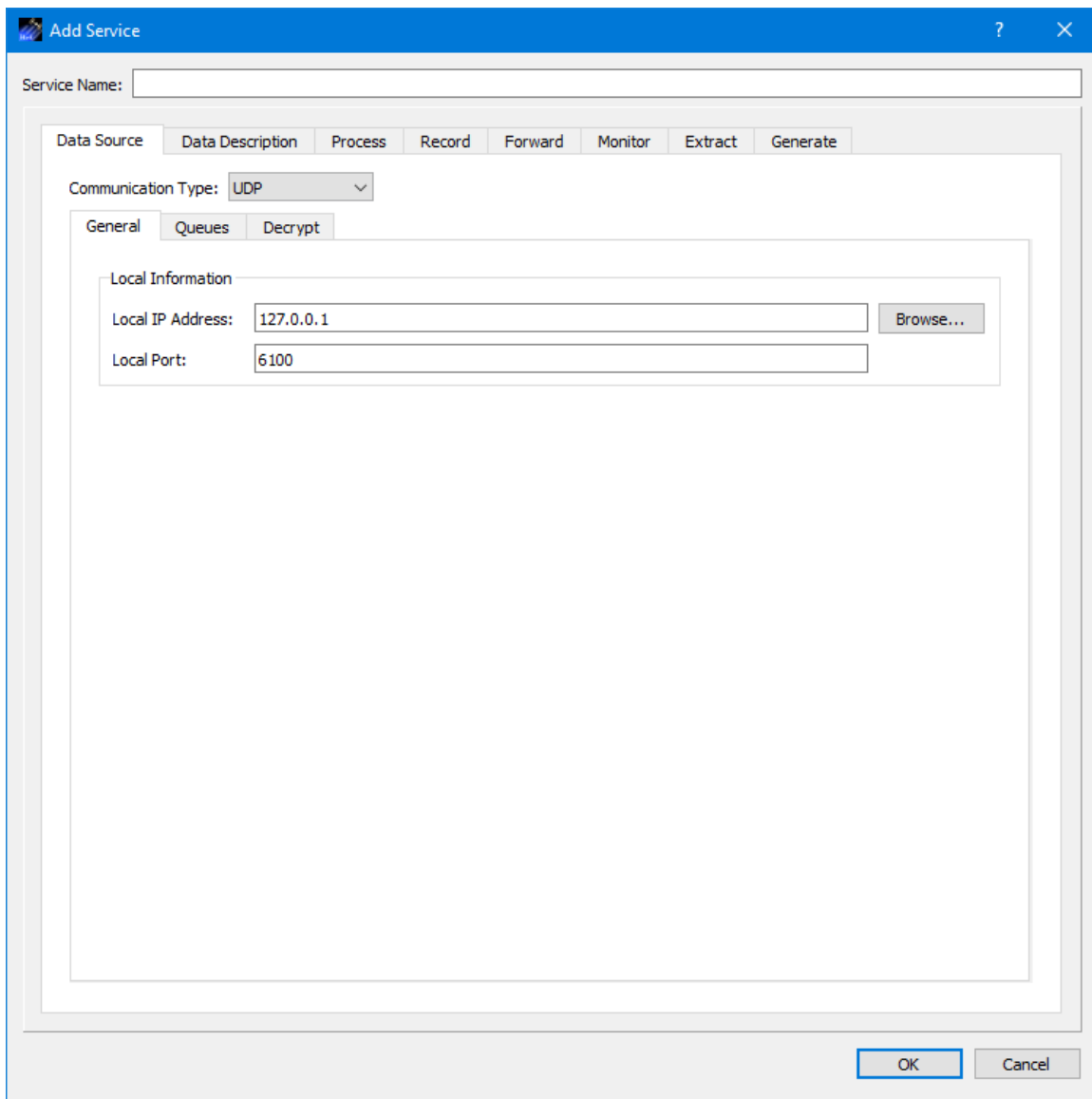
This is the local IP address used for the TCP Listener socket.

Local Port

This is the local port used for the TCP Listener socket.

6.1.1.1.5 UDP Configuration

The UDP Configuration is shown in Figure 9.



The screenshot shows a Windows-style dialog box titled "Add Service". At the top, there is a "Service Name:" label followed by an empty text input field. Below this is a tabbed interface with tabs labeled "Data Source", "Data Description", "Process", "Record", "Forward", "Monitor", "Extract", and "Generate". The "Data Description" tab is currently selected. Within this tab, there is a "Communication Type:" dropdown menu set to "UDP". Below the dropdown are three sub-tabs: "General", "Queues", and "Decrypt". The "General" sub-tab is active. It contains a "Local Information" section with two text input fields: "Local IP Address:" containing "127.0.0.1" and "Local Port:" containing "6100". A "Browse..." button is positioned to the right of the IP address field. At the bottom right of the dialog are "OK" and "Cancel" buttons.

**Figure 9 Service Dialog (UDP Configuration)**

Each field is described below.

Local IP Address

This is the local IP address used for the UDP socket.

Local Port

This is the local port used for the UDP socket.

6.1.1.1.6 Unix Domain Socket Configuration

The UNIX Domain Socket Configuration is shown in Figure 10.



Unix Domain Socket Information

Unix Domain Socket Name:

**Figure 10 Service Dialog (UNIX Domain Socket Configuration)**

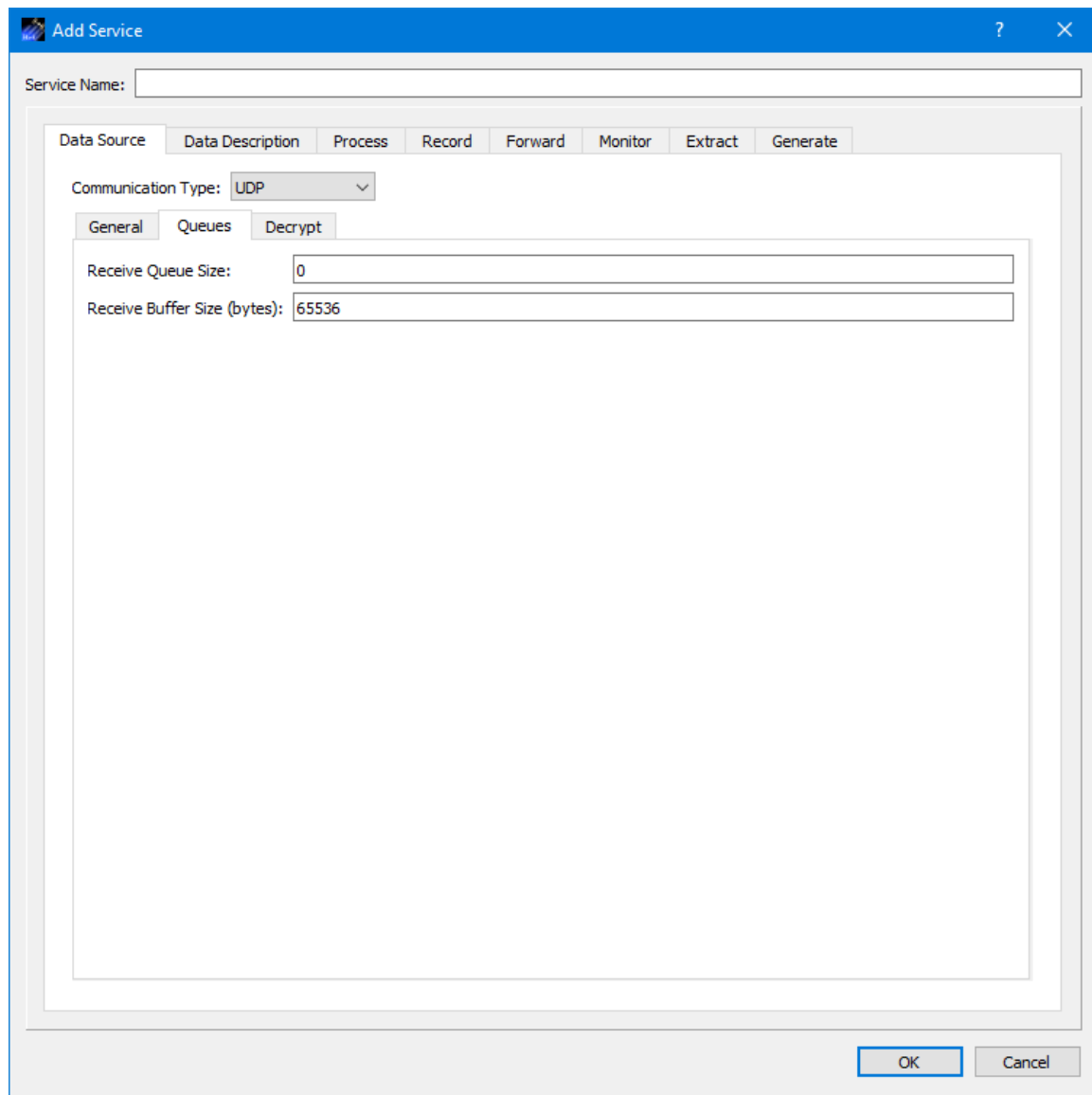
Each field is described below.

#### UNIX Domain Socket Name

This is the name to use when creating the UNIX Domain socket. The name will be NUL (\0) prefixed when the socket is created to use an abstract namespace.

#### *6.1.1.2 Data Source Queues Tab*

Each configuration includes the capability to configure properties associated with the memory queue used to hold incoming data. The Queues Tab is shown in Figure 11. Settings on the Queues tab are available for each communication type and provide the capability to size the queue and the buffer size of the queue. A queue size of zero implies no buffer for incoming data.



**Figure 11 Service Dialog (Data Source Queues Tab)**

#### 6.1.1.3 Data Source Decrypt Tab

The Decrypt Tab is shown in Figure 12. If the incoming data is encrypted, information provided on the Decrypt tab can be used to decrypt the data. To decrypt incoming data, the TReK software needs the Peer Public Key for the encrypted data. If all incoming encrypted data being received by the decryption service was encrypted using the same source Public and Private key pair, set the Sender IP Address or Sender Node Number to N/A (the default setting) and identify the absolute path to the one and only Peer Public Key (i.e., the Public key that was used to encrypt all the data). If the incoming encrypted data is being sent from sources with different IP addresses or node numbers, and the encryption sources are using different Public and Private key pairs, the decryption service may decrypt the various encrypted data streams by associating the correct Peer Public Key with the IP address or node number of the source that is sending the encrypted data.

To decrypt incoming data, the Decrypt Incoming Data checkbox should be checked and the Peer Public Key Pathname Information should be populated. The Add button is used to add an entry. The Delete button is used to Delete an entry. The Set Peer Public Key button is used to browse the local disk for a peer public key file. One or more rows must be selected to use the Delete and Set Peer Public Key buttons.

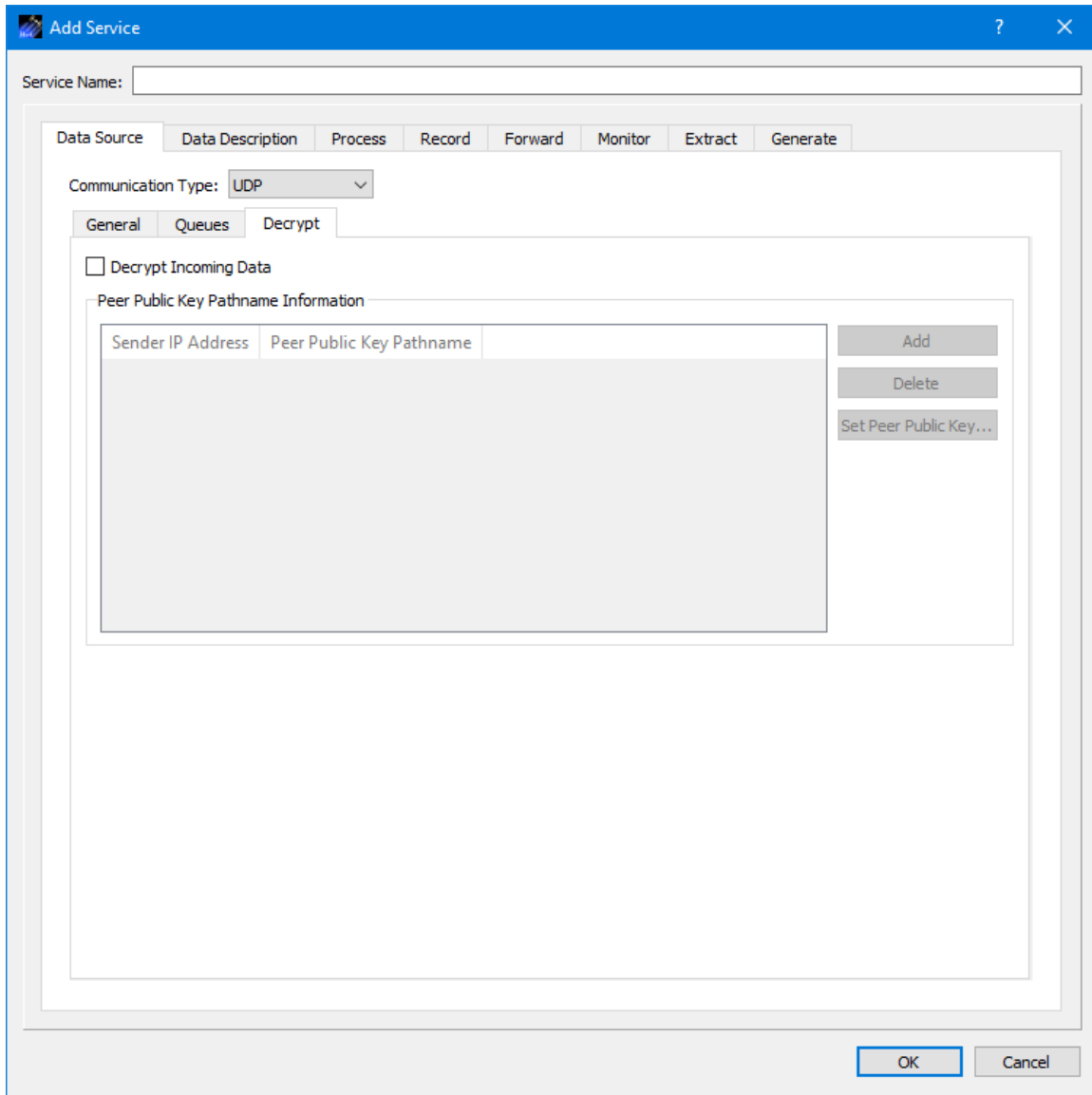
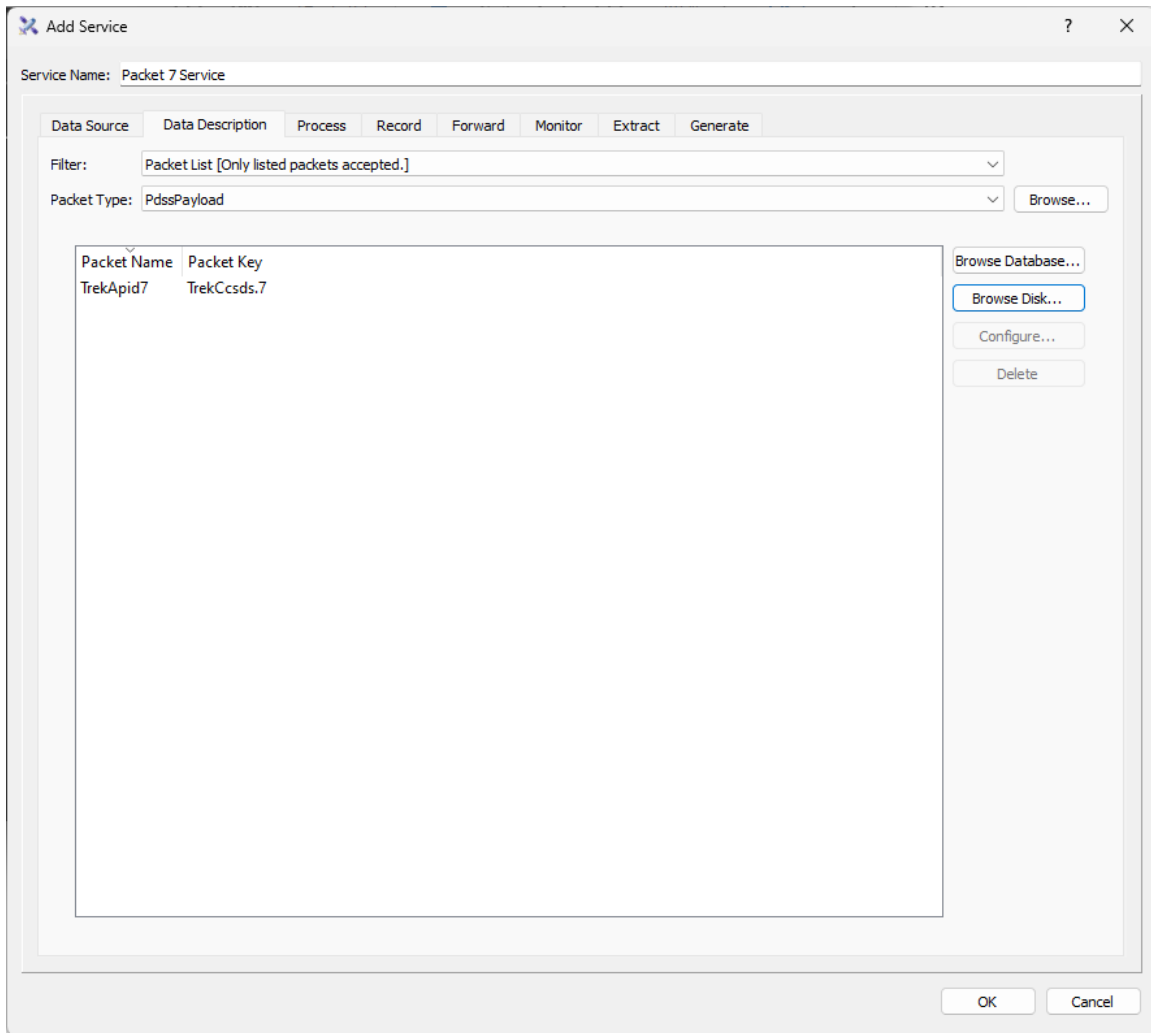


Figure 12 Service Dialog (Data Source Decrypt Tab)

#### 6.1.2 Service Dialog (Data Description Tab)

The Data Description tab is shown in Figure 13. The Data Description tab provides a way to filter incoming data that will be processed, recorded, or forwarded.

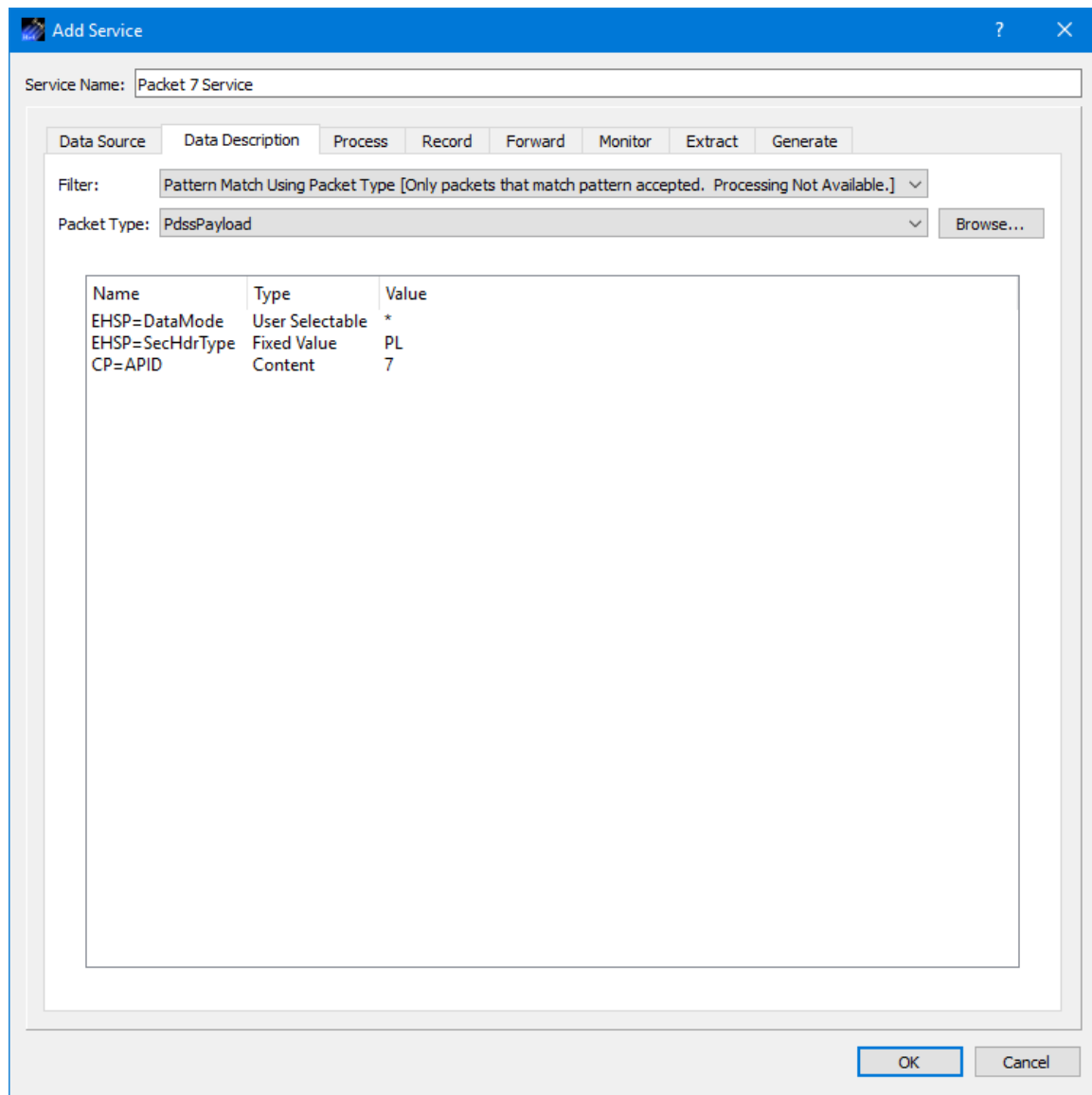


**Figure 13 Service Dialog (Data Description Tab)**

#### Filter

The Filter menu contains three choices. Each is described below.





**Figure 14 Pattern Match Using Packet Type**

*None [All arriving data accepted. Processing Not Available]*

None indicates no filtering should be used. If the Filter is set to 'None' all data received will be accepted. When 'None' is selected, processing is not available.

**Packet Type**

The Packet Type menu is used to provide information about the incoming data. Some services like processing require a Packet Type. Other services like recording and forwarding do not require a Packet Type. However, you may decide to select a Packet Type since it can be used to filter incoming data. For example, suppose you had two streams of data arriving on the same network socket. One data stream of packets all had CCSDS headers. The other data stream of packets had no header. Suppose you only wanted to record the packets that had a CCSDS header. In this case you could set the Packet Type to CCSDS and the Data application would assume the incoming packets are

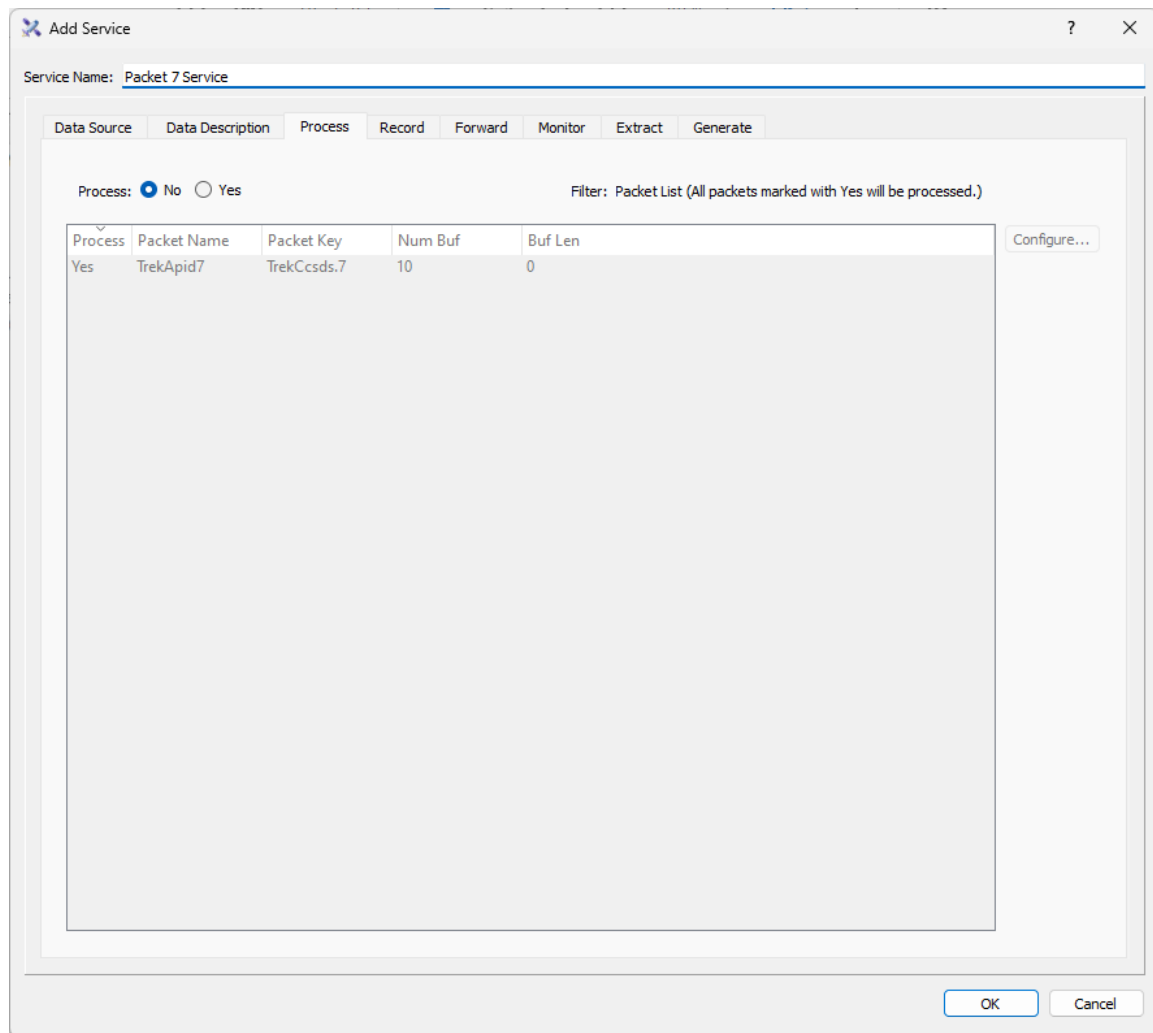
CCSDS packets and would only record the packets if the bits corresponding to APID were a match. [Note: If a non-CCSDS packet arrives the Data application will assume it is a CCSDS packet and attempt to handle it as such.] For more information about Packet Types, please reference the TReK Concepts document.

#### *Encrypted Data*

When the Filter Type is set to None, the Packet Type options are None and Encrypted. If you will be receiving encrypted data, and you do not want to decrypt the data, set the Filter Type to None and the Packet Type to Encrypted. The incoming encrypted data can be recorded or forwarded. If you will be receiving encrypted data and choose to decrypt the data, select the type of Filtering you would like to apply and the packet type that describes the decrypted data. The Packet Type should not be set to Encrypted since the data will be decrypted.

#### 6.1.3 Service Dialog (Process Tab)

The Service Dialog Process tab is shown in Figure 15. The Process tab is used to configure the service to process incoming data and identify the packets that should be processed.



**Figure 15 Service Dialog (Processing Tab)**

Each field is described below.

#### Process Radio Buttons

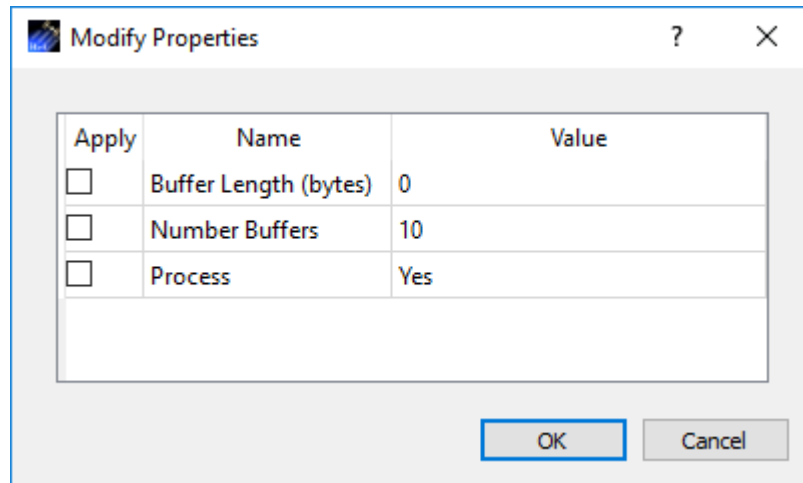
The No and Yes radio buttons disable or enable Processing.

#### Packet List

If processing is turned on, the packet list is used to identify the list of incoming packets that should be processed. The packets displayed in the Packet List are the ones that were entered on the Data Description tab. You may configure the service to receive multiple packets and use this list to limit the packets that are processed. The Process column Yes or No value indicates whether the packet should be processed. The Configure button is used to configure one or more properties associated with processing the packet. Multiple packets can be selected and modified at the same time. The 'Num Buf' column identifies the number of buffers to use for arriving packets and the 'Buf Len' column identifies the length of the buffers. These properties can be configured using the Configure dialog accessed by the Configure button.

### Configure

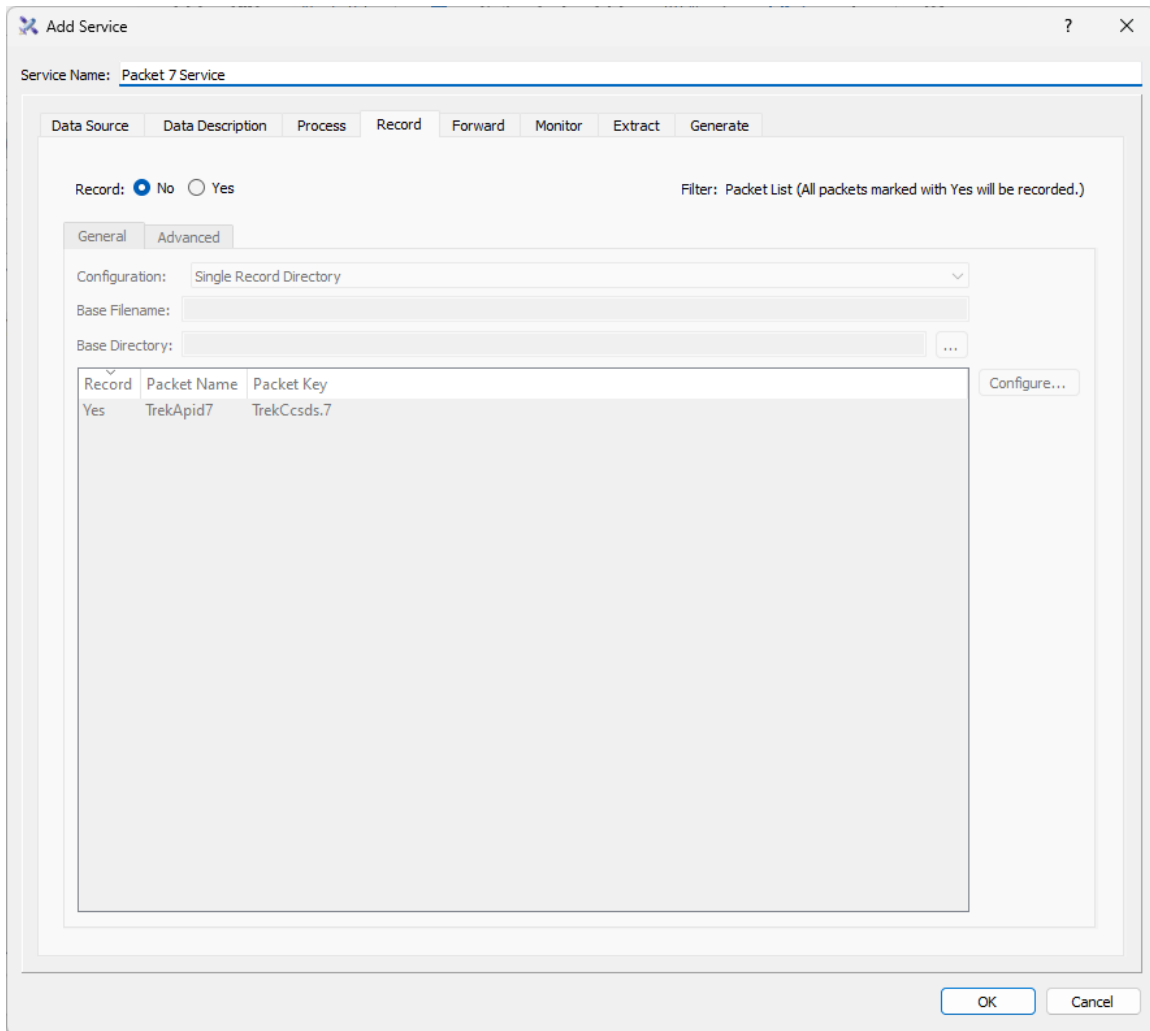
The Configure button is used to modify processing properties associated with the packets selected. This includes whether the packet should be processed, the Number of Buffers, and the Buffer Length. A value of 0 for the Buffer Length indicates the length should be calculated using information in the packet definition.



**Figure 16 Service Dialog Processing Tab Modify Properties Dialog**

### 6.1.4 Service Dialog (Record Tab)

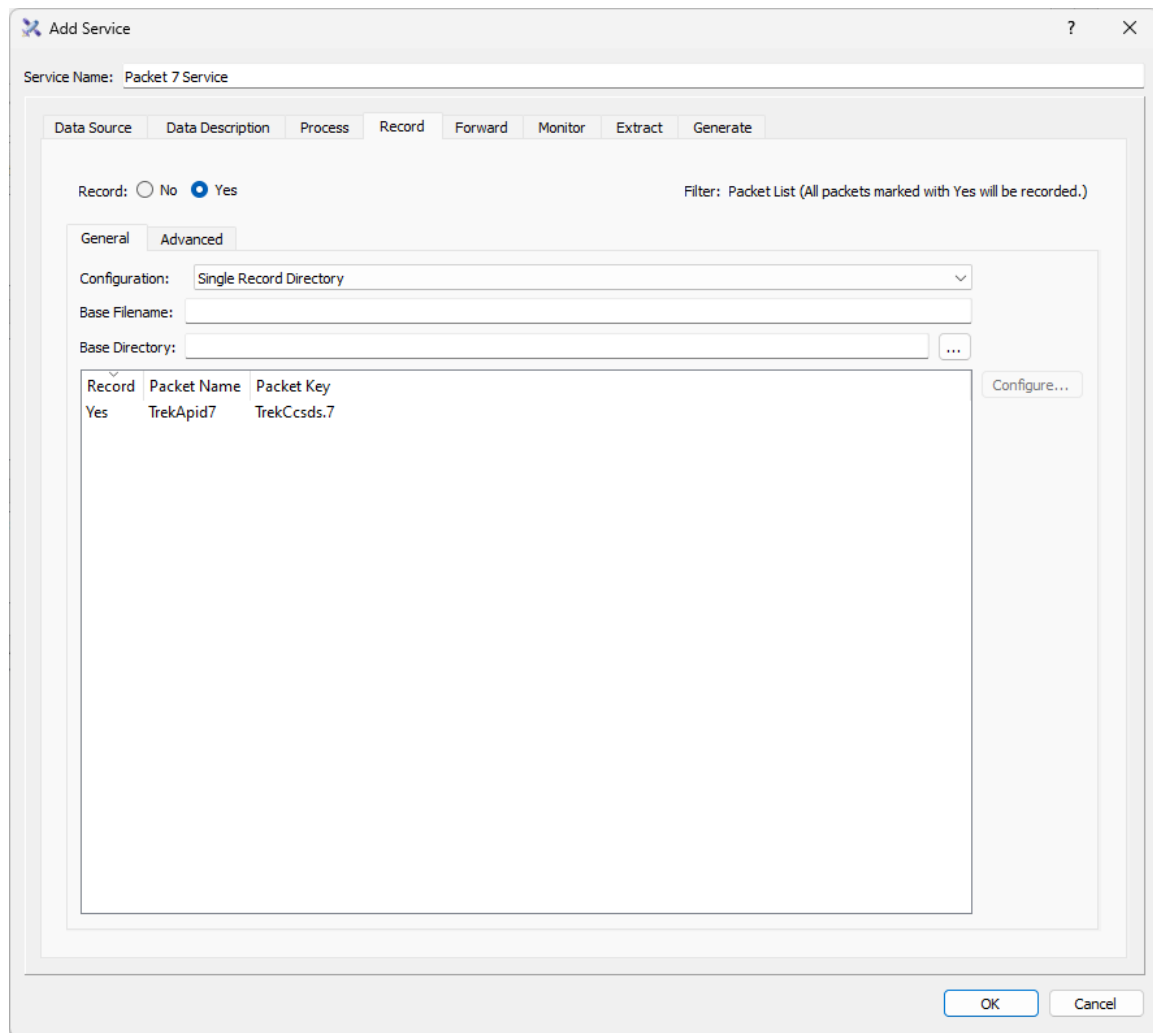
The Service Dialog Record tab is shown in Figure 17. The Record tab is used to configure the service to record incoming data and other properties associated with recording.



**Figure 17 Service Dialog (Record Tab)**

#### 6.1.4.1 Record Tab (General Tab)

The Record Tab General Tab is shown in Figure 18. It is used to enter general recording information. The Filter selection will determine which packets are recorded. The packets displayed in the Packet List are the ones that were entered on the Data Description tab. You may configure the service to receive multiple packets and use this list to limit the packets that are recorded. The Record column Yes or No value indicates whether the packet should be recorded. The Configure button is used to configure the Yes or No property. Multiple packets can be selected and modified at the same time.



**Figure 18 Service Dialog Record Tab (General Tab)**

Each field is described below.

#### Record

The No and Yes radio buttons disable or enable data recording. The Filter setting determines which packets are recorded. If the Filter is set to Packet List, the Record column determines which packets will be recorded.

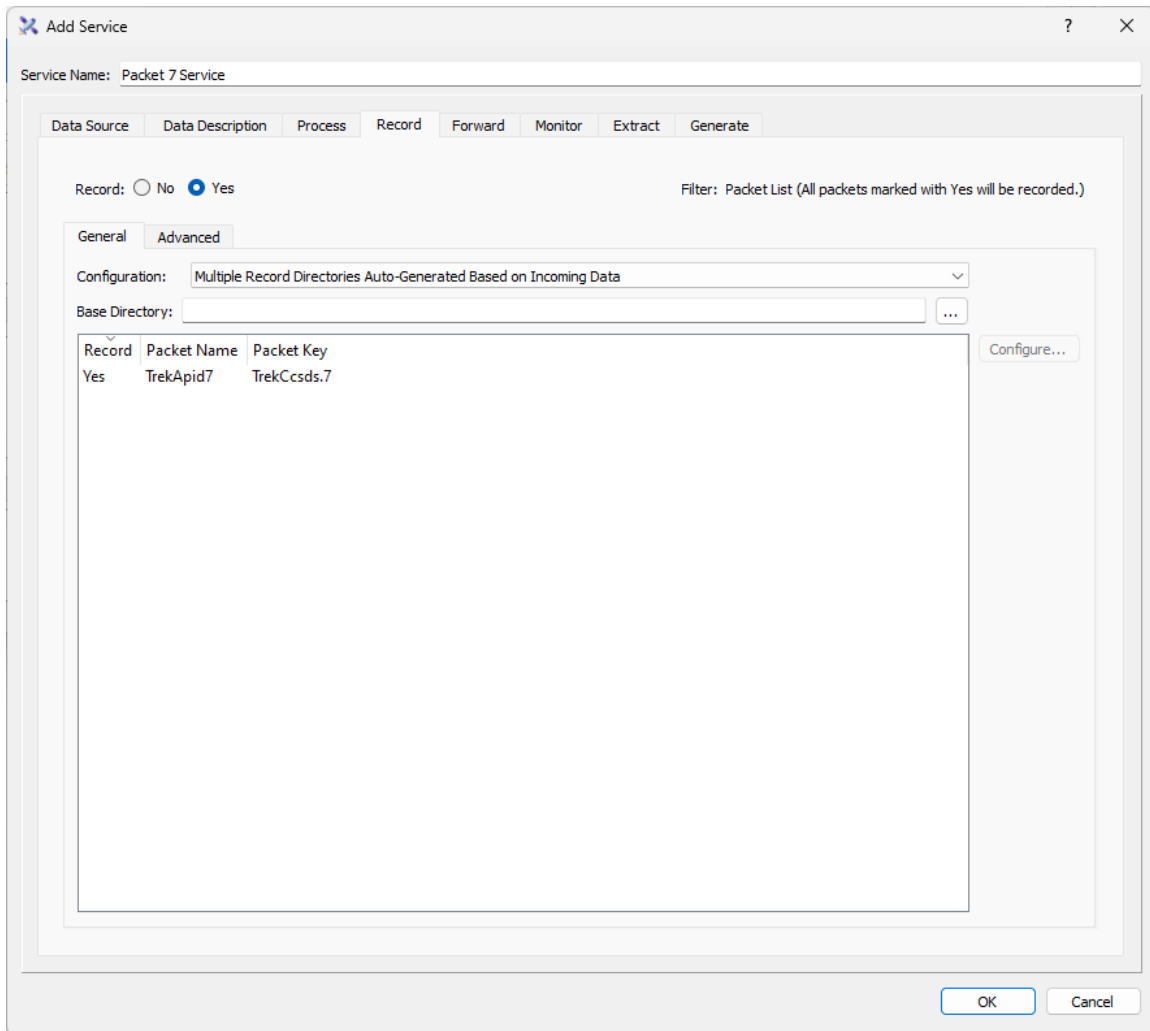
#### Configuration

The recording configuration identifies the configuration to use when recording the incoming data. The Configuration option menu contains three choices. Each is described below.

#### Single Record Directory

The Single Record Directory option will record all the data into a single directory. The configuration for this option is shown in Figure 18. This configuration requires an entry for Base Filename and Base Directory.

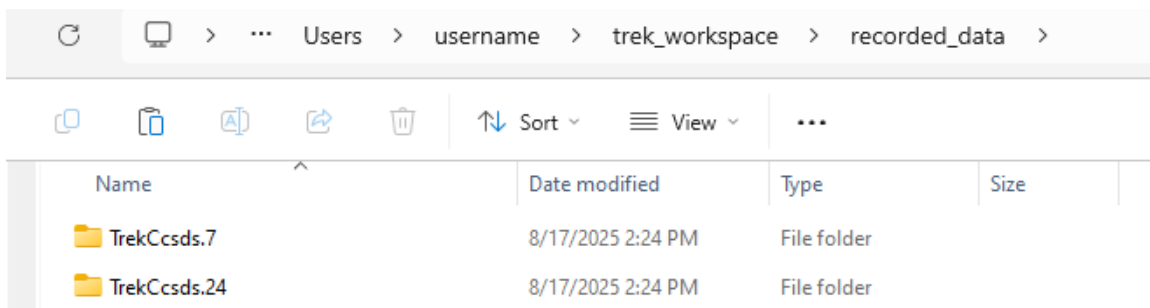




**Figure 19 Multiple Record Directories Auto-Generated on Incoming Data**

### Base Directory

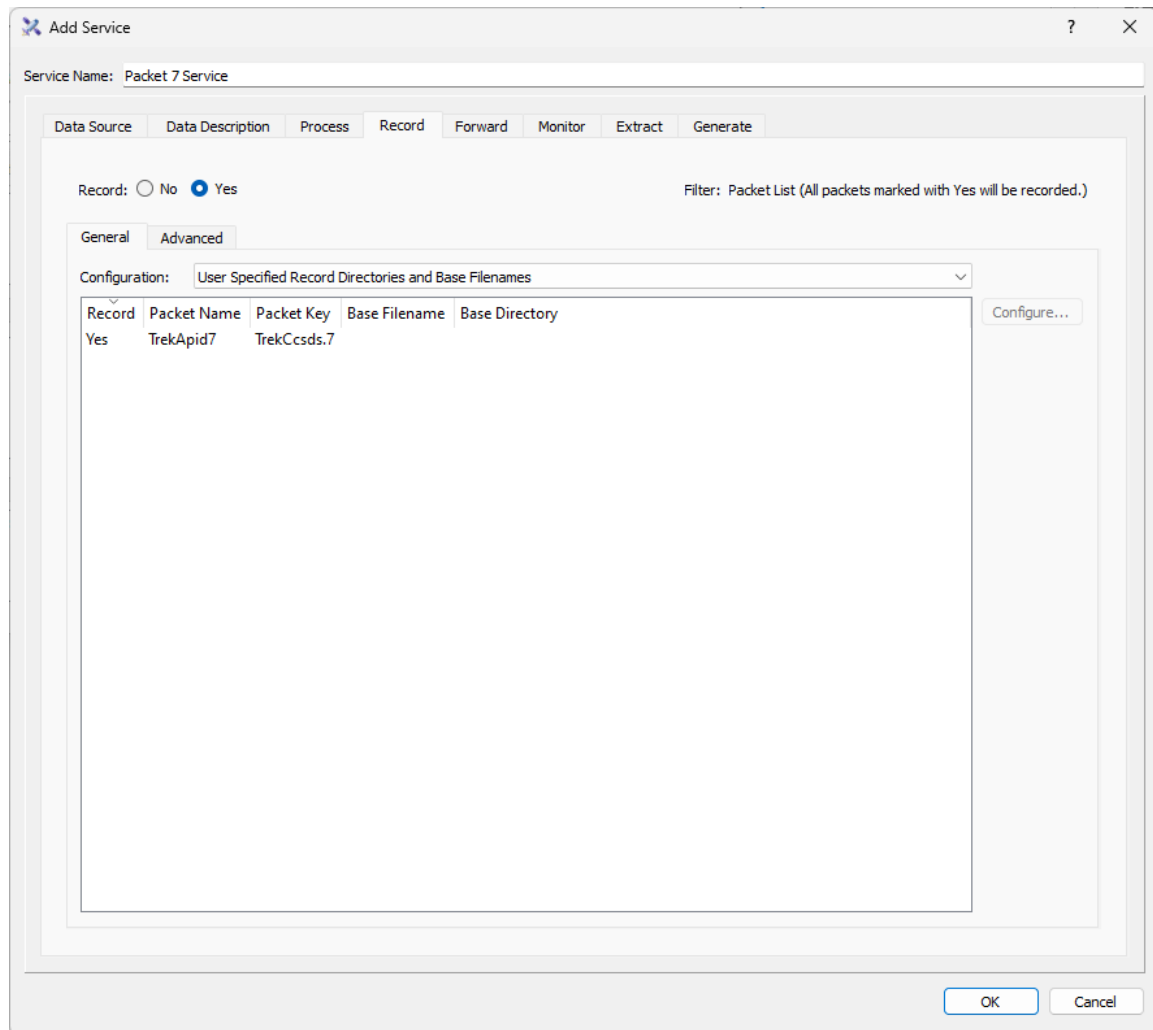
The Base Directory is used to identify the top level directory for the recorded data files that will be stored in subdirectories according to packet type. Figure 20 shows an example of Auto-Generated subfolders.



**Figure 20 Auto-Generated Folders for Recorded Data Files**

### User Specified Record Directories and Base Filenames

The User Specified Record Directories and Base Filenames option provide a way to enter a user specified directory and base filename for each individual packet in the list. The Filter option must be set to 'Packet List' to use this option. Figure 21 shows the configuration for this option. The Configure dialog is used to enter a Base Filename and Base Directory for each packet in the list.



**Figure 21 User Specified Record Directories and Base Filenames**

### 6.1.4.2 Record Tab (Advanced Tab)

The Record Tab Advanced Tab is shown in Figure 22. It is used to enter advanced recording information.

**Add Service**

Service Name:

Record: ☐ No ☒ Yes Filter: Packet List (All packets marked with Yes will be recorded.)

**General** **Advanced**

☒ Use Single Time Stamp When Naming Record Files

☐ Maximum File Size (bytes):

☐ Maximum Time File Is Open (minutes):

☐ Maximum Time Directory Is Open:

☐ Record Buffer (bytes):

Record Order: ☒ Record As Received ☐ Reorder Before Recording ☐ Reorder and Remove Duplicates Before Recording

Reorder Queue Size (bytes):

**Figure 22 Service Dialog Record Tab (Advanced Tab)**

Each field is described below.

#### Use Single Time Stamp When Naming Record Files

If this is checked, the recorded data files will use a single time stamp when adding timestamp information to the filename. If this is not checked, the recorded data files will contain a start time and a stop time when timestamp information is added to the filename.

#### Maximum File Size

The Maximum File Size information is used to determine when to close a recorded data file. A new record file is opened immediately after the current record file is closed.







The screenshot shows the 'Add Service' dialog box with the 'Forward' tab selected. The 'Service Name' is 'Packet 7 Service'. The 'Forward' section has 'Forward' checked and a filter of 'Packet List (All packets marked with Yes will be forwarded.)'. The 'Destination List' section has 'Network' selected, showing a table with three entries: 'University' (UDP, 192.168.50.3, 8000), 'Company' (TCP Listener, N/A, N/A), and 'Coworker' (TCP Client, 192.168.50.5, 7321). The table also includes columns for 'Local IP Address' and 'Local Port'. Buttons for 'Add', 'Delete', and 'Set Local IP Address...' are on the right. 'OK' and 'Cancel' buttons are at the bottom right.

Service Name:

Data Source | Data Description | Process | Record | **Forward** | Monitor | Extract | Generate

Forward: ☐ No ☒ Yes Filter: Packet List (All packets marked with Yes will be forwarded.)

Destination List | Packet List | Transform | Encrypt

Network | DTN

| Name       | Protocol     | Destination IP Address | Destination Port | Local IP Address | Local Port |
|------------|--------------|------------------------|------------------|------------------|------------|
| University | UDP          | 192.168.50.3           | 8000             | 192.168.50.1     | 0          |
| Company    | TCP Listener | N/A                    | N/A              | 192.168.50.1     | 5000       |
| Coworker   | TCP Client   | 192.168.50.5           | 7321             | 192.168.50.1     | 0          |

Add  
Delete  
Set Local IP Address...

OK Cancel

**Figure 24 Forward Network Destination List**

Service Name: Packet 7 Service

Data Source Data Description Process Record **Forward** Monitor Extract Generate

Forward: ☐ No ☒ Yes Filter: Packet List (All packets marked with Yes will be forwarded.)

Destination List Packet List Transform Encrypt

Network DTN

Destination Node List

| Node Number | Service Number |
|-------------|----------------|
| 2           | 3              |

Add Delete

Source Service Number: 3

Lifespan (seconds): 86400

Bundle Protocol Class of Service: Bulk Priority

Expedited Priority Ordinal: 0

Transmission Mode: Assured

Criticality: Critical

OK Cancel

**Figure 25 Forward DTN Destination List**

The Packet List tab is shown in Figure 26.































































































































































