Telescience Resource Kit (TReK) Release Notes
The following release notes are for all operational releases since TReK Release 3.1.2. There is a section for each release. Please note that the install script checks only for a valid operating system and correct software versions during installation. It is possible to install TReK on a computer that does not meet the minimum recommended hardware.

Each section of the release notes corresponds to the changes contained in that release. Known problem or notes from a previous release are still valid if not contained in a fix.

Release 3.1.2
September 30, 2015

Note: TReK Release 3.1.2 is a complete TReK install. Any previous TReK Releases must be un-installed before installing TReK Release 3.1.2.

If you are installing on a computer that has not had TReK 3.1 installed on it before, you may need to install by right clicking on the install file and selecting "Run as Administrator". If this is not done you may have trouble using the report functionality in the database applications, because some registry information may not get set properly.

Make sure that the Microsoft .NET Framework Version 1.1 has been installed onto the computer. If it is not installed, then trying to bring up a report in the Command Database and Telemetry Database applications will result in an error message and the application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:
- Windows 7

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. Updates to add an interface between TReK and the Remote Advanced Payload Test Rig (RAPTR).

2. Based on a user request, TReK made changes to the Suitcase Simulator destination in the Command Processing application. By default, TReK does not change the sequence count, length, or time stamp of the command prior to sending it. This change allows the user to select to have TReK always set the sequence count, length, and time stamp prior to sending a command to the Suitcase Simulator destination. *Note: This feature requires selection of "Software Load SR1" when adding a Suitcase Simulator destination.* This feature

is only available by modifying the system registry and is off by default. If you need this feature, you will need to use the registry editor in Windows.

a. Select Run… from the Start Menu.
b. Type regedit in the dialog and press OK.
c. Navigate the registry to the HKEY_CURRENT_USER\Software\TReK\3.x.y\Properties tree. The version of TReK should be substituted for 3.x.y (e.g., 3.1.2).
d. Edit the scs_set_cntr_len_time string. Change the value from 0 to 1. Note: If the key does not appear, you can add it manually or start a TReK application which will add it automatically. You may have to refresh the list to see the key.
e. The next time you activate a Suitcase Simulator destination, the sequence count, length, and time stamp will be set by TReK prior to sending the command.

3. Updated software classification markings to reflect EAR classification.

EHS ECR Updates:

None

Fixes:

1. None

Non-TReK Things You Need To Know

1. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. If you need information about this software contact the HOSC Help Desk at 256-544-5066. You do not need the VPN client when using the Command Trainer application to simulate POIC commanding.
2. You should configure the CheckPoint SecuRemote VPN client to send keep alive packets as identified on the POIC web site.
3. If VPN is not running, activations involving ERIS in the POIC will fail.
4. All floating-point numbers cannot be represented exactly. For example, if you enter .3 for a 32-bit IEEE floating point value the actual bit pattern stored is 3e99999a. This bit pattern is equivalent to .29999999999999999.
5. When sending a remotely generated command from TReK to the POIC, your command will be rejected by the POIC as an incomplete command (ERR error number 45) if there are any fields in the command that do not have initial data in the POIC database. You can get around this by:
   - Setting an initial value for all of your commands in the POIC database.

- Updating the POIC database before sending the first remotely generated command for any mnemonic.

TReK Things You Need To Know

1. If you receive a packet that is not expected when using TCP, TReK will indicate that a packet has been lost. This is most likely to occur if you use the TReK Telemetry Trainer to send data via TCP. For example, if you add and activate a PDSS Payload packet and send the data from the Telemetry Trainer you will see this message when the Telemetry Trainer finishes sending data. The Telemetry Trainer will automatically generate a UDSM packet. Since Telemetry Processing is not expecting the packet, the packet lost message is generated. If you had activated the UDSM packet also, the message is not generated since TReK is expecting the packet. The above behavior is due to the way TCP works and is not true for data sent via UDP.
2. There are two fields in headers in the TReK database that are set to values that may not be what you expect. Changing these values will cause the POIC to reject commands sent using the BuildAndUplinkCommand and AddHeaderAndUplinkCommand functions in the Command API. The SEQUENCE_COUNT and TIME_ID fields in headers should be set to 0.
3. When you call the UplinkUserCommand function in the Command API to send a command to the POIC, TReK will reset the time in the CCSDS Secondary Header to be within +/- one minute of the POIC time. This is required to meet interface requirements with the POIC. The checksum for the command is also recalculated. No other data is changed. The time and checksum are not changed when sending to a Suitcase Simulator destination.
4. For the AddHeaderAndUplinkCommand function TReK expects that the command data you pass in will contain two bytes for the checksum. TReK will recalculate the checksum value after adding the header.
5. The POIC is currently setting the packet length for GSE packets to an incorrect value. This prevents TReK from properly receiving GSE packets forwarded via TCP. You should use UDP when forwarding GSE packets.
6. You should not use the Valid Mnemonic check on Non-Blocking destinations. This may cause the destination to not send commands. If this occurs, you can change the properties of the destination to not check for valid mnemonics and everything will work again.
7. Using a delimiter for Parameter Recording/Extraction that may appear in the value for one or more parameters may result in a useless output file. For example, the string “Hello, World” is put into a file that uses a comma as the delimiter.
8. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.
9. The Training Simulator does not support all data types.
10. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data

being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still "theoretically" possible.

11. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is "On", then Parameter_B is in the packet. Or if the state code of Parameter_A is "Off", then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.
12. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
13. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.
14. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Note: TReK Release 3.1.1 is a complete TReK install. Any previous TReK Releases must be un-installed before installing TReK Release 3.1.1.

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Operating Systems Supported:

- Windows 7

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New Features/Enhancements:

4. Several Command Destinations (EXPRESS, Suitcase Simulator, and PRCU) were updated so the default local port number defaults to zero. Zero indicates the operating system should select a port number. You can still specify a port number, but the default will be 0. Using zero provides a way to let the operating system select the next port that is available (vs you determining what port number is available). This capability is not available for other local port number fields in TReK – such as those specified in Telemetry Processing to receive and forward data or for the POIC and TReK command destinations in Command Processing.
5. TReK Documents are now being delivered as PDF documents.

EHS ECR Updates:

None

Fixes:

2. There was a problem with the Parameter form of the Telemetry Database application. If you tried to add or modify a parameter with the data type of "TISS", it would complain about the length value not being correct when you tried to save it. The code was not properly checking the length value and giving a false error.
3. There was a problem with the Telemetry Processing, Command Processing, and Remote Service applications in which file permissions were lost when saving a configuration file.
4. There was an error in the Telemetry .NET API Get_Packet_Arrival_Event_Name example code.
5. The Telemetry API GetPacketArrivalEventName example code was updated to align with the update made for the Telemetry .NET API.

6. Fixed the file extension associations so users can double click on a TReK configuration file and it will launch the correct TReK application.
7. Fixed the Telemetry Processing API GetPacketProperties method so it returns the correct information for `packet_rate_mode, expected_pkts_per_sec,` and `expected_bits_per_sec`.
8. Updated Command .NET API library functions that contain a string argument so the correct amount of memory is allocated for the string.
9. Updated the Command Bridge application so all application messages pop to the front.
10. Errors in examples for the Telemetry Processing .NET API Online Help were corrected.
11. Command Bridge was updated to fix a problem where a rapid succession of commands may fail to send the last command. Command Bridge will periodically check for incoming data to prevent this from occurring. The default check is every 1000 milliseconds and can be changed in the registry by editing the value for HKEY_CURRENT_USER/Software/TReK/3.1.1/Properties/cmd_bridge_timeout
12. The Telemetry Processing User API was updated to add a \\ to the end of a recording directory if the directory path passed in does not have a \\.
13. The Command Processing Statistics dialog has been updated so it refreshes automatically and the Reset button functions correctly.

Non-TReK Things You Need To Know

6. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. If you need information about this software contact the HOSC Help Desk at 256-544-5066. You do not need the VPN client when using the Command Trainer application to simulate POIC commanding.
7. You should configure the CheckPoint SecuRemote VPN client to send keep alive packets as identified on the POIC web site.
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16. There are two fields in headers in the TReK database that are set to values that may not be what you expect. Changing these values will cause the POIC to reject commands sent using the BuildAndUplinkCommand and AddHeaderAndUplinkCommand functions in the Command API. The SEQUENCE_COUNT and TIME_ID fields in headers should be set to 0.
17. When you call the UplinkUserCommand function in the Command API to send a command to the POIC, TReK will reset the time in the CCSDS Secondary Header to be within +/- one minute of the POIC time. This is required to meet interface requirements with the POIC. The checksum for the command is also recalculated. No other data is changed. The time and checksum are not changed when sending to a Suitcase Simulator destination.
18. For the AddHeaderAndUplinkCommand function TReK expects that the command data you pass in will contain two bytes for the checksum. TReK will recalculate the checksum value after adding the header.
19. The POIC is currently setting the packet length for GSE packets to an incorrect value. This prevents TReK from properly receiving GSE packets forwarded via TCP. You should use UDP when forwarding GSE packets.
20. You should not use the Valid Mnemonic check on Non-Blocking destinations. This may cause the destination to not send commands. If this occurs, you can change the properties of the destination to not check for valid mnemonics and everything will work again.
21. Using a delimiter for Parameter Recording/Extraction that may appear in the value for one or more parameters may result in a useless output file. For example, the string “Hello, World” is put into a file that uses a comma as the delimiter.
22. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.
23. The Training Simulator does not support all data types.
24. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a

single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still "theoretically" possible.

25. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is "On", then Parameter_B is in the packet. Or if the state code of Parameter_A is "Off", then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.
26. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
27. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.
28. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Release 3.1
November 16, 2012

Note: TReK Release 3.1 is a new series of TReK software. It is a complete TReK install. Any previous TReK Releases must be un-installed before installing TReK Release 3.1.

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application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:

- Windows XP
- Windows Vista
- Windows 7

For minimum recommended hardware and software, see the TReK web site http://trek.msfc.nasa.gov

New Features/Enhancements:

1. The TReK product has been re-classified under U.S. export control laws as International Traffic in Arms Regulations (ITAR) software as defined by 121.8f associated with category XV. This required document and software updates to display this classification.

EHS ECR Updates:

None

Fixes:

14. A fix was made to the Command Database convert EHS files process and the Telemetry Database convert EHS files process. If the records in some of the files are not in alphabetic order some of the data may not get converted properly. An update was put in to create temporary files that have been reordered. For the command files this included the poly_coef.txt, pt_pair.txt, state_code.txt, and cal_switch.txt and for the telemetry files this included the poly_cal.txt, point_pair.txt, state_code.txt, cal_switch.txt, limit.txt, limit_switch.txt, exp_state.txt, and es_switch.txt.

Non-TReK Things You Need To Know

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number 45) if there are any fields in the command that do not have initial data in the POIC database. You can get around this by:

- Setting an initial value for all of your commands in the POIC database.
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36. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.

37. The Training Simulator does not support all data types.
38. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still "theoretically" possible.
39. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is "On", then Parameter_B is in the packet. Or if the state code of Parameter_A is "Off", then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.
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Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

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New Features/Enhancements:

1. The Command Bridge application was enhanced to support the UFO packet type. This capability provides a way to use a single bridge to pass through multiple command APIDs.

EHS ECR Updates:

None

Fixes:

None

Non-TReK Things You Need To Know

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54. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
55. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.
56. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Make sure that the Microsoft .NET Framework Version 1.1 has been installed onto the computer. If it is not installed, then trying to bring up a report in the Command Database and Telemetry Database applications will result in an error message and the application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:

- Windows XP
- Windows Vista
- Windows 7

For minimum recommended hardware and software, see the TReK web site http://trek.msfc.nasa.gov

New Features/Enhancements:

2. The default behavior of the error control for preprocessed parameters can be changed by editing the cg_errors.txt file available in the <AppData>/TReK/configuration_files directory. The third column in the file indicates whether an error will prevent processing of a parameter. A value of 0 will not allow the error. Change the value to 1 to allow the error.

EHS ECR Updates:

1. HM-3395 – Updates to the command system status message for POIC destinations. The command system status message now contains information for Ku-Band AOS/LOS and User Inhibited (from commanding) Status. The Properties dialogs in Command Trainer and Command Processing were updated to include this information. The GetPOICCommandSystemStatus function in the Command API returns this information as part of the POIC_Command_System_Status structure. All associated documentation has been updated.

Fixes:

1. A rarely occurring problem was discovered in the Telemetry Processing application which could cause a configuration file to be corrupted. Additional checks are now provided for saves in all TReK applications to prevent this.
2. The EHS header packet size field in the telemetry trainer file for APID 6 was incorrect.
3. The Command Trainer had two messages that were incorrectly generated.

Non-TReK Things You Need To Know

21. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. If you need information about this software contact the HOSC Help Desk at 256-544-5066. You do not need the VPN client when using the Command Trainer application to simulate POIC commanding.
22. You should configure the CheckPoint SecuRemote VPN client to send keep alive packets as identified on the POIC web site.
23. If VPN is not running, activations involving ERIS in the POIC will fail.
24. All floating-point numbers cannot be represented exactly. For example, if you enter .3 for a 32-bit IEEE floating point value the actual bit pattern stored is 3e99999a. This bit pattern is equivalent to .29999999999999999.
25. When sending a remotely generated command from TReK to the POIC, your command will be rejected by the POIC as an incomplete command (ERR error number 45) if there are any fields in the command that do not have initial data in the POIC database. You can get around this by:
    - Setting an initial value for all of your commands in the POIC database.
    - Updating the POIC database before sending the first remotely generated command for any mnemonic.

TReK Things You Need To Know

57. If you receive a packet that is not expected when using TCP, TReK will indicate that a packet has been lost. This is most likely to occur if you use the TReK Telemetry Trainer to send data via TCP. For example, if you add and activate a PDSS Payload packet and send the data from the Telemetry Trainer you will see this message when the Telemetry Trainer finishes sending data. The Telemetry Trainer will automatically generate a UDSM packet. Since Telemetry Processing is not expecting the packet, the packet lost message is generated. If you had activated the UDSM packet also, the message is not generated since TReK is expecting the packet. The above behavior is due to the way TCP works and is not true for data sent via UDP.
58. There are two fields in headers in the TReK database that are set to values that may not be what you expect. Changing these values will cause the POIC to reject commands sent using the BuildAndUplinkCommand and AddHeaderAndUplinkCommand functions in the Command API. The SEQUENCE_COUNT and TIME_ID fields in headers should be set to 0.
59. When you call the UplinkUserCommand function in the Command API to send a command to the POIC, TReK will reset the time in the CCSDS Secondary Header to be within +/- one minute of the POIC time. This is required to meet interface requirements with the POIC. The checksum for the command is also recalculated. No other data is changed. The time and checksum are not changed when sending to a Suitcase Simulator destination.

60. For the AddHeaderAndUplinkCommand function TReK expects that the command data you pass in will contain two bytes for the checksum. TReK will recalculate the checksum value after adding the header.
61. The POIC is currently setting the packet length for GSE packets to an incorrect value. This prevents TReK from properly receiving GSE packets forwarded via TCP. You should use UDP when forwarding GSE packets.
62. You should not use the Valid Mnemonic check on Non-Blocking destinations. This may cause the destination to not send commands. If this occurs, you can change the properties of the destination to not check for valid mnemonics and everything will work again.
63. Using a delimiter for Parameter Recording/Extraction that may appear in the value for one or more parameters may result in a useless output file. For example, the string "Hello, World" is put into a file that uses a comma as the delimiter.
64. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.
65. The Training Simulator does not support all data types.
66. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still "theoretically" possible.
67. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is "On", then Parameter_B is in the packet. Or if the state code of Parameter_A is "Off", then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.
68. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
69. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.

70. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Release 3 Service Pack 8
October 21, 2011

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Make sure that the Microsoft .NET Framework Version 1.1 has been installed onto the computer. If it is not installed, then trying to bring up a report in the Command Database and Telemetry Database applications will result in an error message and the application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:

- Windows XP
- Windows Vista
- Windows 7

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. Two new TReK API libraries have been added: TReK Telemetry .NET API Library and TReK Command .NET API Library. These libraries were developed to provide a .NET compatible interface for TReK users working with Microsoft .NET. The TReK Telemetry .NET API Library contains the same functions that are in the TReK Telemetry API and the TReK Telemetry Processing API. The TReK Command .NET Library contains the same functions that are in the TReK Command API. Also included are the corresponding Reference Manuals, Tutorials, Example Programs, and OnLine Help materials for these libraries.
2. The TReK Watchdog message now includes information about the reason the TReK processes were shutdown – a background process stopped running, a GUI

process stopped running, no GUI processes were running, etc. When possible the specific process that stopped running will be identified.

3. The VPN client approved by the POIC for 64-bit Windows 7 computers uses an 'office mode' IP address and not one of the IP addresses associated with a network card. TReK now will search and find this IP address in addition to all network card IP addresses and display it in the IP address dialog.
4. Four new TReK registry values were added. These registry values provide the capability to show or hide Telemetry Processing Message Boxes associated with errors generated by four of the TReK background processes. The registry values can be set to 0 to hide message boxes or 1 to show message boxes. These are not error messages that are encountered during user interaction, but ones that occur during background work (such as processing data or recording data). Examples of these messages include "Telemetry Packet Queue Flushed" and "Warning – Packets May Be Lost". Even if the message boxes are turned off, the messages will still be written to the main window message area. This feature was added based on a user request. It is not a good idea to turn off these messages. The table below shows the registry key/message box mapping.

TReK Registry Key Name	Purpose
show_tp_wd_ns_messages	Shows/Hides Network Services Message Boxes
show_tp_wd_dcm_messages	Shows/Hides Data Processing Message Boxes
show_tp_wd_drr_messages	Shows/Hides Data Recording Message Boxes
show_tp_wd_dpb_messages	Shows/Hides Data Playback Message Boxes

EHS ECR Updates:

None

Fixes:

1. The AddHeaderAndUplinkCommand function in the TReK Command User API would fail if the header name was blank (""). The function will now use the header name defined in the database if it is not specified.
2. Calls to the TReK Telemetry Processing User API caused the Telemetry Processing main window to flicker. This occurred when there were a large number of packets in the main window packet list. This problem has been resolved.
3. The GetPacketProperties function in the Telemetry Processing User API now works correctly for playback data and Custom Data Packets.
4. The Telemetry Database Application was erroneously indicating an error when trying to add a format parameter that was already in the database. Now only a warning is issued.
5. GetNewest…Value, GetNext…Value, and GetSampePacket…Value functions calls in the TReK User API could cause a crash. This occurred when the number of samples requested was much larger than the actual number available. This problem has been resolved.
6. Minor update for TISS microseconds value to provide extension of 8-bit encoded value.

Release 3 Service Pack 7
September 1, 2010

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Make sure that the Microsoft .NET Framework Version 1.1 has been installed onto the computer. If it is not installed, then trying to bring up a report in the Command Database and Telemetry Database applications will result in an error message and the application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:

- Windows XP
- Windows Vista

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

None

EHS ECR Updates:

1. Updates to EHS Remote Interface Services (ERIS) interface to support changes due to HSPD-12. Changes include two factor authentication, support for roles, and user-initiated reauthentication.

Fixes:

1. The TISS time type was incorrectly calculating the milliseconds for the 40-bit version of the data type.
2. The TReK Data Playback application was incorrectly calculating the size of a sort array when merging data.

Release 3 Service Pack 6
June 19, 2009

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Make sure that the Microsoft .NET Framework Version 1.1 has been installed onto the computer. If it is not installed, then trying to bring up a report in the Command Database and Telemetry Database applications will result in an error message and the application will fail. The .NET Framework Version 1.1 redistributable is available for download from Microsoft's website.

Operating Systems Supported:

- Windows XP
- Windows Vista

For minimum recommended hardware and software, see the TReK web site http://trek.msfc.nasa.gov

New Features/Enhancements:

2. TReK is now delivered with Borland C++ Builder compatible.h, .dll, and .lib files. These files can be found in the Borland subdirectory in the TReK install.
3. TReK parameter recording and parameter extraction now supports the time format yyyy:ddd:hh:mm:ss. To use this time format:
    a. Start regedit
    b. Go to the HKEY_CURRENT_USER\Software\TReK\3.0\Properties folder.
    c. Change the value of the recording_time_format key to 1.
4. Added support for Network Address Translation to the Telemetry Processing Custom Data Packet capability.
5. Added a new application called Command Bridge. The Command Bridge application provides the ability to capture a command sent on a network and forward it to any TReK command destination. This application was originally developed for internal use at MSFC in support of Payload Operations Integration Center (POIC) cadre training. However, since this capability can also be beneficial in a payload test environment, the Command Bridge application has been added to the TReK installation to provide expanded capabilities for all users. This application can be useful if you have non-TReK software that generates flight commands for your payload. It allows a means of getting the commands to a destination (like a Suitcase Simulator or the POIC) without having to rewrite the code using TReK API calls.
   Note: The Command Bridge Tutorial uses the TReK telemetry and command databases (TelemetryDatabase.mdb and CommandDatabase.mdb) that are installed with TReK. These databases were updated as part of the release. If the databases do not already exist, TReK will automatically copy the databases into the default database folders (usually c:\Documents and Settings\<username>\Application Data\TReK\database and c:\Documents and Settings\<username>\Application Data\TReK\command_database). If a database with one of these names already exists, you can rename it and restart TReK to get the updated version.
6. The Telemetry Processing Parameter Recording capability has been enhanced to support parameter recording based on milliseconds.

EHS ECR Updates:

None

Fixes:

1. The Telemetry Processing Add Forward Address dialog no longer performs a check to determine if the source IP address is valid for the computer. It only performs a check to ensure the address is a valid IP address. This provides a way to enter an IP address that may be valid at a later time or on a different computer.
2. Packets larger than 8 kilobytes were not completely processed by TReK. Packets up to 64 kilobytes can be processed by TReK.
3. An invalid time stamp in the CCSDS secondary header no longer causes Telemetry Processing to crash when pushing the Pulse button in the View Packets dialog.

Non-TReK Things You Need To Know

26. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. If you need information about this software contact the HOSC Help Desk at 256-544-5066. You do not need the VPN client when using the Command Trainer application to simulate POIC commanding.
27. You should configure the CheckPoint SecuRemote VPN client to send keep alive packets as identified on the POIC web site.
28. If VPN is not running, activations involving ERIS in the POIC will fail.
29. All floating-point numbers cannot be represented exactly. For example, if you enter .3 for a 32-bit IEEE floating point value the actual bit pattern stored is 3e99999a. This bit pattern is equivalent to .29999999999999999.
30. When sending a remotely generated command from TReK to the POIC, your command will be rejected by the POIC as an incomplete command (ERR error number 45) if there are any fields in the command that do not have initial data in the POIC database. You can get around this by:
    - Setting an initial value for all of your commands in the POIC database.
    - Updating the POIC database before sending the first remotely generated command for any mnemonic.

TReK Things You Need To Know

71. If you receive a packet that is not expected when using TCP, TReK will indicate that a packet has been lost. This is most likely to occur if you use the TReK Telemetry Trainer to send data via TCP. For example, if you add and activate a PDSS Payload packet and send the data from the Telemetry Trainer you will see this message when the Telemetry Trainer finishes sending data. The Telemetry Trainer will automatically generate a UDSM packet. Since Telemetry Processing is not expecting the packet, the packet lost message is generated. If you had activated the UDSM packet also, the message is not generated since TReK is

expecting the packet. The above behavior is due to the way TCP works and is not true for data sent via UDP.

72. There are two fields in headers in the TReK database that are set to values that may not be what you expect. Changing these values will cause the POIC to reject commands sent using the BuildAndUplinkCommand and AddHeaderAndUplinkCommand functions in the Command API. The SEQUENCE_COUNT and TIME_ID fields in headers should be set to 0.
73. When you call the UplinkUserCommand function in the Command API to send a command to the POIC, TReK will reset the time in the CCSDS Secondary Header to be within +/- one minute of the POIC time. This is required to meet interface requirements with the POIC. The checksum for the command is also recalculated. No other data is changed. The time and checksum are not changed when sending to a Suitcase Simulator destination.
74. For the AddHeaderAndUplinkCommand function TReK expects that the command data you pass in will contain two bytes for the checksum. TReK will recalculate the checksum value after adding the header.
75. The POIC is currently setting the packet length for GSE packets to an incorrect value. This prevents TReK from properly receiving GSE packets forwarded via TCP. You should use UDP when forwarding GSE packets.
76. You should not use the Valid Mnemonic check on Non-Blocking destinations. This may cause the destination to not send commands. If this occurs, you can change the properties of the destination to not check for valid mnemonics and everything will work again.
77. Using a delimiter for Parameter Recording/Extraction that may appear in the value for one or more parameters may result in a useless output file. For example, the string “Hello, World” is put into a file that uses a comma as the delimiter.
78. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.
79. The Training Simulator does not support all data types.
80. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still “theoretically” possible.
81. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is “On”, then Parameter_B is in the packet. Or if the state code of Parameter_A is “Off”, then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not

the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.

82. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
83. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.
84. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Release 3 Service Pack 5
November 21, 2008

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

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Operating Systems Supported:

- Windows XP
- Windows Vista

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. TReK now runs on the Windows Vista operating system.
   - ⇒ Note: The file privileges in Vista are more restrictive than previous versions of Windows. The example files located in the TReK installation directory can be moved to a user directory for editing or compiling.
   - ⇒ TReK on-line help was developed using Microsoft Windows Help. If you are running TReK R3 SP5 on Vista, you need to install the Microsoft Windows Help Program (WinHlp32.exe) -- Visit http://support.microsoft.com/kb/917607 for more information.

EHS ECR Updates:

None

Fixes:

1. The month printed for time parameters in a parameter recording or parameter extraction file are now correct. Service Pack 3 introduced a bug that caused the month to be printed incorrectly.
2. If a command connection was lost, the "Activate Destinations" menu item on the Command Processing Destination menu was grayed out and the user could not choose this item to reestablish the connection. There menu item is now available.
3. If data forwarding was configured to forward to multiple destinations with the EHS or CCSDS packet header removed, the packets forwarded to all the destinations except the first destination in the list contained an incorrect data zone and overall packet length.
4. The Telemetry Processing application's Add A Playback Packet dialog did not post the duplicate packet error message when this error occurred.
5. The Pulse, Stop, and Clear buttons on the Recorded Data Viewer dialog should have been disabled when the dialog initialized on the screen.

Non-TReK Things You Need To Know

1. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. If you need information about this software contact the HOSC Help Desk at 256-544-5066. You do not need the VPN client when using the Command Trainer application to simulate POIC commanding.
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14. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Operating Systems Supported:

- Windows 2000
- Windows XP

For minimum recommended hardware and software, see the TReK web site http://trek.msfc.nasa.gov

New Features/Enhancements:

1. Based on a user request, TReK made changes to send a heartbeat message from TReK at a user specified interval to prevent a firewall from closing the port due to inactivity. Since the interface to the POIC does not provide for a heartbeat message, TReK requests that the POIC return a Command System Status message. This feature is only available by modifying the system registry and is off by default. If you need this feature, you will need to use the registry editor in Windows.

    a. Select Run… from the Start Menu.
    b. Type regedit in the dialog and press OK.
    c. Navigate the registry to the HKEY_CURRENT_USER\Software\TReK\3.0\Properties tree.
    d. Edit the poic_heartbeat string. Change the value from 0 to the number of minutes between "heartbeats". Note: If the key does not appear, you can add it manually or start a TReK application which will add it automatically. You may have to refresh the list to see the key.
    e. The next time you activate a POIC destination, the heartbeat will be sent as specified.
    f. To turn the feature off, reset the poic_heartbeat string to 0.

EHS ECR Updates:

None

Fixes:

None

Non-TReK Things You Need To Know

1. If your facility does not have a gateway to gateway VPN established with the POIC, you must have the VPN client installed on your computer before you can connect to the POIC for commanding. For instructions on installing this software see the POIC web page: https://aristotle.hosc.msfc.nasa.gov/POIC_Page/SecureRemote.htm. You

do not need the VPN client when using the Command Trainer application to simulate POIC commanding.

2. You should configure the CheckPoint SecuRemote VPN client to send keep alive packets as identified on the POIC web site.
3. If VPN is not running, activations involving ERIS in the POIC will fail.
4. All floating-point numbers cannot be represented exactly. For example, if you enter .3 for a 32-bit IEEE floating point value the actual bit pattern stored is 3e99999a. This bit pattern is equivalent to .29999999999999999.
5. When sending a remotely generated command from TReK to the POIC, your command will be rejected by the POIC as an incomplete command (ERR error number 45) if there are any fields in the command that do not have initial data in the POIC database. You can get around this by:
   - Setting an initial value for all of your commands in the POIC database.
   - Updating the POIC database before sending the first remotely generated command for any mnemonic.

TReK Things You Need To Know

1. If you receive a packet that is not expected when using TCP, TReK will indicate that a packet has been lost. This is most likely to occur if you use the TReK Telemetry Trainer to send data via TCP. For example, if you add and activate a PDSS Payload packet and send the data from the Telemetry Trainer you will see this message when the Telemetry Trainer finishes sending data. The Telemetry Trainer will automatically generate a UDSM packet. Since Telemetry Processing is not expecting the packet, the packet lost message is generated. If you had activated the UDSM packet also, the message is not generated since TReK is expecting the packet. The above behavior is due to the way TCP works and is not true for data sent via UDP.
2. There are two fields in headers in the TReK database that are set to values that may not be what you expect. Changing these values will cause the POIC to reject commands sent using the BuildAndUplinkCommand and AddHeaderAndUplinkCommand functions in the Command API. The SEQUENCE_COUNT and TIME_ID fields in headers should be set to 0.
3. When you call the UplinkUserCommand function in the Command API to send a command to the POIC, TReK will reset the time in the CCSDS Secondary Header to be within +/- one minute of the POIC time. This is required to meet interface requirements with the POIC. The checksum for the command is also recalculated. No other data is changed. The time and checksum are not changed when sending to a Suitcase Simulator destination.
4. For the AddHeaderAndUplinkCommand function TReK expects that the command data you pass in will contain two bytes for the checksum. TReK will recalculate the checksum value after adding the header.
5. The POIC is currently setting the packet length for GSE packets to an incorrect value. This prevents TReK from properly receiving GSE packets forwarded via TCP. You should use UDP when forwarding GSE packets.
6. You should not use the Valid Mnemonic check on Non-Blocking destinations. This may cause the destination to not send commands. If this occurs, you can

change the properties of the destination to not check for valid mnemonics and everything will work again.

7. Using a delimiter for Parameter Recording/Extraction that may appear in the value for one or more parameters may result in a useless output file. For example, the string "Hello, World" is put into a file that uses a comma as the delimiter.
8. There is a discrepancy between the Payload to Generic User Interface Definition Document (PGUIDD) and the current behavior of CDP in the POIC. If you request all samples and the number of samples returned is more than 255, TReK activation will fail.
9. The Training Simulator does not support all data types.
10. It is possible for an application using the GetPacketArrivalEventName function in the TReK API to retrieve the same data more than once. This is due to the data being retrieved by the user process before TReK can generate the event. A simple workaround is shown in the Packet Arrival Computation example code that is found in the Examples directory in the TReK installation. It involves checking the status character for stale data. This problem will probably only occur when a single packet has a very high data rate and is being processed on a slow computer. There have been no occurrences of this problem, yet it is still "theoretically" possible.
11. Range Dependent Sampling: You can identify whether a parameter is a part of a packet based upon the state code of another parameter. For example, if the state code of Parameter_A is "On", then Parameter_B is in the packet. Or if the state code of Parameter_A is "Off", then Parameter_B is not in the packet. When TReK is determining whether or not Parameter_B is in the packet, it will make the decision based upon the range of values associated with a state code and not the actual state code. Therefore, if a state code has more than one corresponding range, TReK will only use the first range when extracting the parameter from the packet.
12. There is an updated TReK telemetry database (TelemetryDatabase.mdb) delivered with this release that contains all of the new packet types. It is automatically copied into the user's default directory unless a file with that name already exists.
13. If a TCP connection is not cleaned up properly by TReK, there is a four-minute wait before you can use the port again. You may add a key to the registry to decrease this time. Add TcpTimedWaitDelay (DWORD) to

    HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Tcpip\Parameters

    The value should be set between 30 and 300 seconds.
14. TReK provides encryption only for the data zone of messages associated with Remote Services. If additional encryption is required, a VPN tunnel can be implemented at the user site.

Known Problems and Notes:

1. The capability for using the embedded time for merging GSE packets is not available if the packets are retrieved via FTP from Data Storage Manager (DSM) in the POIC. The TReK record files created when converting

these files to the TReK record file format do not contain the necessary information for the merging to work. If files are retrieved via FTP from DSM, you can playback the files on TReK and rerecord them to get the proper information for merging. This will be fixed in a subsequent service pack.

Release 3 Service Pack 3
April 1, 2007

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Operating Systems Supported:

- Windows 2000
- Windows XP

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. Data Recording of GSE and GSE Merge streams now provides the capability to create Spacecraft Time (SCT) time files based upon an embedded spacecraft time that is stored in the Ground Receipt Time (GRT) area of the EHS packet header. If the embedded spacecraft time is replacing the GRT in the EHS header of the GSE packet, Data Playback can reorder and remove duplicate GSE packets created from time overlapped real-time and dump streams using the SCT files.
2. TReK has the ability to communicate with EXPRESS payloads using the EXPRESS interface. A TCP client socket can be shared between an EXPRESS packet in Telemetry Processing and an EXPRESS destination in Command Processing.
3. TReK has added a UFO destination to Command Processing. A UFO destination allows commands to be sent to a network or device location. This provides the ability to define a command and its associated headers in the Command Database and send it to a destination that does not require any special communication (hand shaking).
4. The Telemetry Processing application now provides the capability to modify the following EHS header fields when forwarding a packet: Project Identifier, Operational Support Mode, and Mission/Increment.
5. The TReK User API has three new functions related to the logging of monitoring messages: SetMonitorLogFile, StartMonitorLogging, and StopMonitorLogging. See the Telemetry API Reference Manual for details.
6. Command Processing now allows the user to choose the terminating character for strings.
7. Command Processing now allows the user to choose a fill pattern for fixed length strings.

EHS ECR Updates:

1. HM-3239 – This ECR modified the strings associated with the first Command Acceptance Response (CAR1) returned from MCC-H. These changes included updating the TReK Command API, but no recompilation is needed.

Fixes:

1. TReK was using the Windows registry to check for valid IP addresses in Telemetry Processing, Command Processing, and Remote Services. If the registry did not contain the correct information, TReK would incorrectly reject a valid IP address. TReK no longer uses the registry to verify an IP address.
2. Floating point numbers no longer lose precision in the parameter recording/extraction files.
3. The time format written to parameter recording/extraction files now includes milliseconds. The format is *yyyy-mm-dd hh:mm:ss.sss*. If you use Microsoft Excel to view these files the time column will automatically update to show a different format. If you would like to maintain the above format, select the column and choose Cells from the Format menu in Excel. On the dialog choose the Number tab and select Custom in the Category list. Enter the following (without the quotes): "yyyy-mm-dd hh:mm:ss.000". The three zeros on the end should format the milliseconds correctly.
4. Parameter extraction can sometimes fail (hang) due to an internal timeout value. This problem is now fixed.
5. TReK was not properly processing parameter dependencies that contained a '<' or '<=' in the operator1 field in the Dependency table in the database if the operator2 field was blank. This problem is now fixed. The problem would most likely appear for counter dependent parameters which are not usually found in user packets. There are no database updates associated with this fix.
6. Telemetry Processing was incorrectly preventing source ports from being reused for UDP forwarding. This restriction only applies to TCP forwarding.
7. A problem with the Monitor Limit and Monitor ES tables in the Telemetry Database application which caused the form to error off and close if the Sample Flag was unused when trying to save the form has been fixed.

Release 3 Service Pack 2
December 2, 2005

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Operating Systems Supported:

- Windows 2000
- Windows XP

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. The forwarding feature in Telemetry Processing now supports adding and removing headers before forwarding. In previous versions of TReK, Telemetry Processing was able to remove the EHS and CCSDS headers before forwarding packets. Telemetry Processing can now also add CCSDS and EHS headers to packets before forwarding. For a complete description of this capabilities, see the Telemetry Processing User Guide.
2. Prior to this service pack, TReK could not use an embedded time for merging of GSE recorded data. The POIC provides a capability to select embedded time when starting GSE packets (see POIC documentation for details). If a user selects the embedded time for GSE packets, TReK can now merge (reorder and remove duplicates) GSE packet record files from different data modes during playback. The packet recording capability (Options tab when adding a packet) will now automatically create a shortcut file for GSE packet data (prefix is SCT). If you have recorded GSE data in previous versions of TReK and had the POIC send the data using the embedded time, you can have TReK create the SCT file by playing back the data and recording it again.

EHS ECR Updates:

1. HM-3136 – TReK now supports 32 and 40 bit TISS data types.

Fixes:

1. Users are allowed to type spaces for Destination names, but this caused problems for the Critical Command Prompt dialog and TReK destinations (sub node connecting to command node). The problem is now fixed and users may have spaces in destination names.
2. The default IP address in TReK dialog boxes would sometimes default to the loopback address. The problem is now fixed and the default will be the first network IP address found on the computer.
3. The Visual Basic tutorials contain minor updates.
4. The trek_user_api.bas and trek_user_api.vb files contained hard coded paths for the Windows system directory.
5. The Telemetry Database and Command Database applications would produce an error if the user wanted to overwrite a copy of the database. This happened when there had already been a copy made and the application tried to use the same name. This error occured in the Add Packet and Add GSE options of the Telemetry Database application and the Add Command option in the Command Database application.
6. If a packet contained more than 800 parameters, TReK would not include the 800^{th} parameter in the processed parameter list. TReK updates the parameter list in groups of 800 so if there were 1601 parameters in a packet, TReK's processed

parameter list would not include the 800th and 1600th parameters. This problem is now fixed. This was not a problem for packets with less than 800 parameters.

Release 3 Service Pack 1
February 28, 2005

Note: TReK Release 3 must be installed before applying the service pack. TReK service packs include changes for all previous service packs.

Operating Systems Supported:

- Windows 2000
- Windows XP

For minimum recommended hardware and software, see the TReK web site
http://trek.msfc.nasa.gov

New Features/Enhancements:

1. The Command Processing application has been enhanced to support connections back to TReK through firewalls. This includes both TReK to POIC and TReK to TReK connections.
2. The Add Packet option in the Telemetry Database application has been updated so that the last record of the file can be a variable length parameter.

EHS ECR Updates:
None.

Fixes:

1. Telemetry Processing was incorrectly using the incorrect data mode as a default for Add Corresponding UDSM Packet in some cases. This problem is now fixed.

Known Problems and Notes:
No new known problems or notes.

Release 3
September 30, 2004

Operating Systems Supported:

- Windows 2000
- Windows XP

Note: TReK no longer requires that Microsoft Access or Microsoft Word is installed prior to installing TReK. Microsoft .NET Framework version 1.1 or later is required to install TReK Release 3.

New Features/Enhancements:

This is a major TReK release. For more information on the contents of this release see the TReK web site http://trek.msfc.nasa.gov/release3.htm.

Fixes:

This is a major TReK release. See below for known problems and notes.

Known Problems and Notes:

1. CDP does not allow a user to request the unprocessed, converted, and calibrated value for a single parameter in the same CDP request. You can make multiple requests to get the data unprocessed, converted, and calibrated if necessary.
2. If you send a command that is not on a word boundary to a non-blocking destination, the Command API will return success, but the command will not be sent (will not show up in Command Track).
3. Currently, calibration switching and sensing switching will not be supported by the Process on Request Only and Process on Request Hybrid processing options unless you use one of the TReK API calls to request the Switch MSID. TReK will still process your data using the default calibration or sensing set.
4. Database Forms: The single quote character (‘) can cause problems when performing queries in the Telemetry Database Application. To workaround this problem do not use the single quote in queries, but use the * (match all characters) or ? (match single character).
5. The F1 key does not always bring up the help correctly. The help buttons should always work.
6. There is a memory leak in the Command Processing application that is associated with deleting destinations. It is not expected that this memory leak will cause any operational problems. It will be addressed in a subsequent service pack.