



Refraction Technology

RTPD Release Notes

Release Notes: 2.1.6.0

2.1.6.0

7/18/2008



Refraction Technology
1600 Tenth Street
Suite A
Plano, Texas 75074

Tel: 214-440-1265
Fax: 972-578-0045
www.reftek.com

This REF TEK manual provides software release notes for RTPD that communicates with the 130 DAS Family.

About this manual:

This release notes manual provides a detailed overview of the software changes in each release of RTPD.

Copyright© 2008 Refraction Technology, Inc.

All rights are reserved. No part of this manual may be reproduced, copied or transmitted in any form outside the approved recipient's organization without written permission from Refraction Technology Inc.

Printed in USA.

RTPD Release Notes

Revision History:

Revision	Date	Reason for change	Pages
0.1	03/14/08	Initial release	All
A	05/21/08	Update to new format	All

CF Card Replacement:

Due to the large variability of CF cards available on the world market and the resulting problems with compatibility due to memory layout, signal structuring and power requirements, Refraction Technology cannot guarantee a CF card will work in a REFTEK data recorder unless it is sold through REFTEK itself. REFTEK ensures compatibility through communications with CF manufacturers and rigorous in-house testing. Some CF manufacturers refuse to provide adequate information or factory controls to ensure that the product being sold today is the same as the product sold earlier under the same part number. CF cards not purchased from REFTEK may work at one temperature but not at another, or may fail all together.

Software Version:

Current software and documentation is available on our web site. Some early units may require hardware modifications to use the latest software. Contact REF TEK if you have any queries on the compatibility of your unit(s) and the current software release.

Firmware Update:

To update firmware from the FTP site

1. Login to our FTP site at: <ftp.reftek.com/pub> as:
User name: Anonymous
Password: Your E-mail address
2. Find the 130 firmware at <ftp.reftek.com/pub/130/cpu/prom>.
3. Download the zip file of the most recently released firmware version.

Update firmware:

Updating firmware in a 130 DAS requires the presence of a firmware file on an installed Compact Flash device.

1. On power-up, the 130 checks the Compact Flash for the presence of 'main.s3' in the root directory.
2. If the 'main.s3' file is present on the Compact Flash, the 130:
 - a. Reads the file.
 - b. DELETES the file.
 - c. Re-programs the internal flash memory.

Note: DO NOT DISTURB THE UNIT DURING THIS PROCESS.

Follow these steps to update the firmware of a 130 DAS:

1. Unzip the 'main.s3' file from the downloaded zip file of the most recently released firmware.
2. Copy the desired firmware image to the root of the Compact Flash as 'main.s3' using a PC with a Compact Flash reader or ftp into the 130 DAS, with a Compact Flash installed, in binary mode.
3. With the Compact Flash with the main.s3 image installed in the 130 DAS, issue a reset command.

RTPD Release Notes

(a) If you are at the 130 DAS:

1. Issue a Reset command from a PDA running PFC_130 or Physically disconnect and reconnect power to the unit.
2. Observe the LCD for the following messages:

READING DISK DO NOT DISTURB
WRITING FLASH DO NOT DISTURB

3. The 130 DAS resets and returns to normal messaging.

(b) If you are remotely connected to a 130 DAS via telemetry mode:

1. If you are connecting remotely by a TCP connection:
 - a. **First connect**
 - b. **Discover the unit**
 - c. **Acquire status**
2. Issue a reset command from the Status screen.
3. Delete the unit from the Station List screen.
4. Wait at least 5 minutes.
5. At the Connections screen (reconnect id using a TCP connection) issue a Station Discovery again to discover the 130 DAS station.

Note: DO NOT DISTURB THE UNIT until the start-up LCD message reappears.

Notation Conventions

The following notation conventions are used throughout Ref Tek documentation:

Notation	Description
ASCII	Indicates the entry conforms to the American Standard Code for Information Interchange definition of character (text) information.
Binary	Indicates the entry is a raw, numeric value.
Hex	Indicates hexadecimal notation. This is used with both ASCII characters (0 – 9, A – F) and numeric values.
BCD	Indicates the entry is a numeric value where each four bits represents a decimal digit.
FPn	Indicates the entry is the ASCII representation of a floating-point number with n places following the decimal point.
<n>	Indicates a single 8-bit byte. When the contents are numeric, it indicates a hexadecimal numeric value; i.e. <84> represents hexadecimal 84 (132 decimal). When the contents are capital letters, it represents a named ASCII control character; i.e. <SP> represents a space character, <CR> represents a carriage return character and <LF> represents a line feed character.
MSB	Most Significant Byte of a multi-byte value.
MSbit	Most Significant Bit of a binary number.
LSB	Least Significant Byte of a multi-byte value.
LSbit	Least Significant Bit (bit 0) of a binary number.
YYYY	Year as a 4-digit number
DDD	Day of year
HH	Hour of day in 24-hour format
MM	Minutes of hour
SS	Seconds of minute
TTT	Thousandths of a second (milliseconds)
IIII	Unit ID number

n, nS	nano, nanoSecond; $10^{-9} = 0.000000001$
u, uS	micro, microSecond; $10^{-6} = 0.000001$
m, mS	milli, milliSecond; $10^{-3} = 0.001$
K, KHz	Kilo, KiloHertz; $10^3 = 1,000$
M, MHz	Mega, MegaHertz; $10^6 = 1,000,000$
G, GHz	Giga, GigaHertz; $10^9 = 1,000,000,000$
Kb, KB	Kilobit, KiloByte; $2^{10} = 1,024$
Mb, MB	Megabit, MegaByte; $2^{20} = 1,048,576$
Gb, GB	Gigabit, GigaByte; $2^{30} = 1,073,741,824$

RTPD Release Notes

Related Manuals:

130-SMA System Documents	Number	PDF file
130-SMA Startup (Command Line)	Doc-SMA-Ops	130SMA_startup.pdf
Data Utilities Users Guide	Doc-Datautils	130_utilities.pdf
130-SMA Command Interface	Number	PDF file
130 Cmd Line - Theory of Operations	Doc-CmdL-Theory	130_CLtheory.pdf
130 Cmd Line - Release Notes	Doc-CmdL-Release	130_CLRN.pdf
130 Cmd Line - Reference	Doc-CmdL-Ref	130_CLcmd.pdf
130 Cmd Line - Recording Format	Doc-CmdL-Record	130_CLrecord.pdf
130-SM GUI Users Guide	Doc-130-SMGui	RT130SM.pdf
130-SMA Board Documents	Number	PDF file
RT608-B01 3 Channel 24-Bit A/D	Doc-130-RT608	RT608r.pdf
RT608-B02 6 Channel 24-Bit A/D	Doc-130-RT608	RT608r.pdf
RT506-B04 - CPU	Doc-130-RT506	RT506r.pdf
RT530 - B01 Lid Interconnect	Doc-130-RT530	RT530r.pdf
RT570 - B01 MicroDrive/Flash	Doc-130-RT570	RT570rB01.pdf
RT535 - Mass Memory Board	Doc-130-RT535	RT535rB01.pdf
Optional Manuals	Number	PDF file
SNDP Installation and Users Guide	SNDP-OP-003	SNDPUser.pdf
SNDP Reference Guide	SNDP-S-002	SNDPRef.pdf
RTCC Command / Control Users Guide	RTCC-S-006	RTCC.pdf
RT_Display Users Guide	RTD-S-007	RTDisplay.pdf
RT_View Users Guide	RTV-S-005	RTView.pdf
RTPMonitor Installation and Users Guide	RTPM-S-008	RTPM.pdf
RTPD Installation and Users Guide	RTPD-OP-005	RTPD.pdf
(part of RTPD manual) RTP Protocol		
Accelerometers		
131A-02/3 3G Triaxial Accelerometer	Doc-131A-03/2	131A023.pdf
131A-02/2 3G Triaxial Accelerometer	Doc-131A-02/2	131A022.pdf
131A-01/3 4G Triaxial Accelerometer	Doc-131B-01/3	131B013.pdf
131B-01/1 4G Unixial Accelerometer	Doc-131B-01/1	131B011.pdf

REF TEK Support and update notifications

As a valued user of REF TEK equipment we would like to provide the best support possible by keeping you up to date with our product updates.

If you would like to be notified of any REF TEK product updates please spend a couple of minutes to register with the REF TEK customer support team.

To register, either send an email to updates@reftek.com giving us your name and REF TEK product you currently have or fill out our online registration form at www.reftek.com/registration

Once we register your contact we will only send necessary notifications via email. The same notifications will be shown on our website's www.reftek.com/support page

Thanks,

Your REF TEK support team



Contents

1	Version 2.1.6.0 (July 18, 2008)	1
1.	Modification to RTPD to Simulate burst of Sync packets to 130	2
2.	Modification to RTPD to Log System Type	2
3.	Modification for Compiler Consistency	2
4.	Modification to Archive Locking Logic	2
5.	Modification to RTPD to remove confusing logs of unit "0000"	2
6.	Modification to RTPD to log clearer indication of sequence number errors	2
7.	Modification sl2rtpd to be non-server	3
8.	Modification to prevent RTPD from stopping when it gets data from a unit 0.	3
9.	Added utilities to assist in failsafe operations	3
10.	Modification to rtp2rtpd	3
11.	Modification to Arcutils to properly filter units starting with hexadecimal digits	3
2	Version 2.1.5.0 (Nov. 26, 2007)	5
1.	Modification to RTPD to Purge Multiple Files at One Time	6
2.	Correction to arcinfo on Solaris for Empty Archives	6
3.	Modification to arcreate on Solaris	6
4.	Modification to RTPD to Add Console Capability	6
3	Version 2.1.4.0 (Mar. 7, 2007)	7
1.	Correction to remove 130 command response forwarding to NCI	8
4	Version 2.1.3.0 (Feb 27, 2007)	9
1.	Modification to RTPD and utilities to override lock	10
2.	Modification to log archive size	10
3.	Addition of rtp2rtpd client program	10
4.	Correction to 72A command forwarding in RTPD	10
5	Version 2.1.2.0 (Nov. 01, 2006)	11
1.	Modification to RTPD and utilities for 18 channels and double EH/ET packets	12
2.	Modifications to RTPD to aid in problem solving	12
3.	Modification to allow RTPD to accept data for Multiple ID addresses.	12
4.	Modification to RTPD and client connection libraries to remove memory leaks.	12
5.	Modification to RTPD to smooth out transmission of packets to clients	12
6.	Modification to RTPTRIG event list and batch fetch list	13
7.	Modification to log library version	13
8.	Modification to Version Numbers	13
9.	Correction to handling of NCI response	13
10.	Correction to rtpudpsvc on XP pro	13
6	Version 2.0.0 (October 6, 2005)	15
1.	Modification to Support Auxiliary Data Stream	16
2.	Modification to Support 0.1 SPS Sample Rate	16

RTPD Release Notes

3.	Modification to Recognize FD Packets.....	16
4.	RTPC: Modification to Trigger Display.....	16
5.	RTPC and CHKDATA: Modification to Channel Display.....	16
6.	RTPC and CHKDATA: Addition of Support for High Data Compression	16
7	Version 1.10.8 (December 16, 2004).....	17
1.	Correction to Remote Server Timeout	18
2.	Correction to Client Shutdown	18
3.	Correction to Archive Purge.....	18
4.	Correction to Eliminate Memory Leak.....	18
5.	Modification to RTPID Retry Count	18
6.	Modification to RTPID Retry Interval	18
7.	Addition of RTPTRIG.....	18
8.	Addition of RTPAUX	19
8	Version 1.10.6 (October 08, 2004)	21
1.	Correction to Handling of Lone ET packet	22
2.	Addition of Log Messages for Write Errors.....	22
3.	Correction to use of Mutex for syslogd	22
9	Version 1.10.5 (January 08, 2004)	23
1.	Correction to Handling of Unit ID.....	24
10	Version 1.10.4 (May 23, 2003)	25
1.	Correction to RTP Library Log Functions	26
2.	Correction to RTP Library Internal Variable	26
3.	Correction to RTPD Log File	26
4.	Update of RTPC	26
5.	Update of CHKDATA	26
6.	Addition of RTPID Program	26
11	Version 1.10.3 (February 06, 2003)	27
1.	Correction to Resolve Protocol Errors	28
2.	Correction to Unit ID Numbers in Log File	28
3.	Modification to Start Behavior for Invalid Switch.....	28
4.	Modification to Require Log File.....	28
5.	Modification to Default Location of RTPD.INI (Windows only)	28
6.	Addition of RTPD.INI Location Option to Help Screen.....	28
7.	Addition of Current Directory to Log File.....	28
8.	Addition of RTPD.INI Location to Log File.....	29
9.	Addition of Command Line to Log File	29



1 Version 2.1.6.0 (July 18, 2008)

This section of this manual lists and describes the functional modifications made to the REF TEK RTPD software version 2.1.5.0 to create version 2.1.6.0 follows:

1. Modification to RTPD to Simulate burst of Sync packets to 130
2. Modification to RTPD to Log System Type
3. Modification for Compiler Consistency
4. Modification to Archive Locking Logic
5. Modification to RTPD to remove confusing logs of unit "0000"
6. Modification to RTPD to log clearer indication of sequence number errors
7. Modification sl2rtpd to be non-server
8. Modification to prevent RTPD from stopping when it gets data from a unit 0
9. Added utilities to assist in failsafe operations
10. Modification to rtp2rtpd
11. Modification to the Arcive Utilities to properly filter units starting with hexadecimal digits

Programs affected and their new versions:

RTPD	2.1.6.0
Archive Utilties	2.1.3.0
Sl2rtpd	2.1.1.0
Rtp2rtpd	2.1.4.0

Please review all release notes between the firmware version you are running and the version you wish to install.

1. Modification to RTPD to Simulate burst of Sync packets to 130

For debug purposes, the interface to the **rtpd_console** was modified to allow the user to set the number of extra syncs to send. The code will send extra syncs, paced 300 milliseconds apart.

2. Modification to RTPD to Log System Type

To aid in identifying problems in the field, the system type is now logged when the system is powered up.

3. Modification for Compiler Consistency

The cross compiler for the PXA270 interprets a "char" as unsigned. All other systems interpret it as "signed". This causes problems when comparing sequence number in the RTP protocol. To remove ambiguity, an INT8 was redefined as a "signed char".

4. Modification to Archive Locking Logic

The archive is locked to prevent two processes from modifying the archive at the same time. Unfortunately, if the system crashed, the archive stays locked on power up. Special considerations were made to detect this situation. The locking algorithm sets the IP address and Process ID in the archive status file when it opens the archive for write. If another process tries to open the archive for write it would be denied, unless the process ID in the file was not currently running on the system, or it is the current processes ID. However, in the case of automatic restart of RTPD on power up, there is a high likelihood that another process, unrelated to the archive, may get the process ID that **RTPD** ran under before the system crashed. Therefore, it is also important to try and determine if the process which has the archive "locked" is a REF TEK program which locks the archive.

Modifications were made to determine the name of the process if it is running, and not allow the current process to open it for write if the running process is **RTPD**, **arcwrite** or **arcbuild**.

5. Modification to RTPD to remove confusing logs of unit "0000"

There are places in the **RTP** protocol when processing timeout events, that a unit is marked for removal from the list of units to keep track of. After being marked for deletion by setting the unit ID to zero, the code fell thru and continued to process other timeout event for this units. This resulted in log information for a unit "0000". The code was modified to not process other timeout events, if the unit was marked for removal.

6. Modification to RTPD to log clearer indication of sequence number errors

To better debug systems with communication errors, the logging of **rtp** sequence number problems was modified to include more information.

7. Modification sl2rtpd to be non-server

The original **sl2rtpd** was a server to **RTPD**, requiring **RTPD** to connect to it and receive data. The new **sl2rtpd** connects to the seedlink server to get seedlink data, then converts the data and sends it to the requested **RTPD** using the same **RTP** protocol that a DAS 130 uses. **Sl2rtpd** can now be stopped and restarted without affecting **RTPD**.

8. Modification to prevent RTPD from stopping when it gets data from a unit 0.

If **RTPD** gets a packet from a unit 0, it would shutdown. This code was removed.

9. Added utilities to assist in failsafe operations

Two utilities, **verifycont** and **setdashost** are used to assist in implementing failsafe systems.

The **verifycont** utility runs as an **RTPD** client. It verifies that DT, ET or EH packets are being sent to a given **RTPD** host. If none are sent within a specified timeout period, it calls a batch file and aborts. The usage is "verifycont hostIP:port timeout batchfile".

The **setdashost** utility is used to change the host IP for a specified DAS. Its usage is "setdashost DASID DASIP connection HOSTIP" The connection is E for Ethernet and S for serial ppp.

Typical usage of these two utilities would be to set up the **verifycont** to connect to an **RTPD**. If no data is received, then a batchfile will be called. That batch file can then perform any other tests required to determine the state of the network., such as ping etc. It can then call **setdashost** to change the HOST IP address any DAS that is sending data to that **RTPD**.

10. Modification to rtp2rtpd

The **rtp** connections that were made to the secondary **RTPD** host did not always get re-established when the secondary **RTPD** went down and came back up. This problem has been corrected.

11. Modification to Arcutils to properly filter units starting with hexadecimal digits

It was noted that filtering of units with **arcinfo** utility did not properly work if the unit criteria started with a hexadecimal 'A'. A modification to the archive library was made to correct this. It affects all utilities which use the filtering criteria.

2 Version 2.1.5.0 (Nov. 26, 2007)

This section of this manual lists and describes the functional modifications made to the REF TEK RTPD software version 2.1.4.0 to create version 2.1.5.0 follows:

1. Modification to RTPD for Purge multiple files at one time
2. Correction to arcinfo on Solaris for empty archives
3. Modification to arcreate on Solaris
4. Modification to add console capability

Programs affected and their new versions:

Rtpd	2.1.5.0
Archive utilities	2.1.2.0
Rtpdconsole	2.1.0.0

Please review all release notes between the firmware version you are running and the version you wish to install.

1. Modification to RTPD to Purge Multiple Files at One Time

Now that disks have become so large and archives have grown to take advantage of that space, the time taken to purge files from the disk has grown. In previous versions, the only one file would be purged when the archive size grew past its threshold. A lot of time was spent searching for this file. Now **RTPD** will try to purge a requested number of files until it surpasses a defined number of megabytes removed. The user specifies the maximum number of files to be purged in the "ini" file as `MaxPurgeFiles` and the maximum megabytes to be purged as `"MaxPurgeMBytes"`. When the purge threshold is reached, **RTPD** will build a list of files containing the number specified in `MaxPurgeFiles`, and will then try and delete these files until the `MaxPurgeMBytes` has been exceeded. The number of files deleted may be less than that specified. If a file in the list is opened (as stream 0 is until the next day) that file deletion will fail. If the purge reaches the end of a day's directory, only that directory's files will be deleted. If small archives with less than one day's worth of data are maintained, then the number of files should be larger than the number of DAS units collecting data. This ensures that open state of health files are not the only ones to populate the deletion list. If no parameters are specified in the "ini" file, 10 is the maximum number of files deleted and 1 megabyte is the maximum amount purged.

2. Correction to `arcinfo` on Solaris for Empty Archives

A problem existed if an archive had no data in it, **RTPD** was started, and then the user performed `arcinfo` on that archive. `Arcinfo` would give errors when **RTPD** was executed because **RTPD** opened the state file to modify its write privileges and update the state file, but a flush was not performed when there were no streams in the file. On Solaris systems the OS took longer to perform a system flush and this left the state file temporarily in a strange state which `arcinfo` could not handle. The code was modified to flush the file when no streams were detected.

3. Modification to `arcreate` on Solaris

When creating an archive, Solaris systems required the `"/"` to be specified when creating an archive in the current directory. This was changed to not be required.

4. Modification to RTPD to Add Console Capability

The ability to have a console application connect to **RTPD** to get information or change parameters was added. Currently the only commands available are to change the debug level, the get DAS units `rtp` link status and to get the unit address map. The qt-program `"rtpdconsole"` is the program created to send these commands. It will only run with **RTPD** 2.1.5.0 and above. The following section can be added to the INI file to control the console functionality:

```
# Maximum number of console clients - default is 2
ConMaxClient 2
# Optional separate port for console messages to come thru. Standard port can
be used.
ConPort 2544
# How many minutes of no activity to see before removing connection
ConMinTimeout 10
# Console clients that can change RTPD settings
ConCmdClientIPAddr 127.0.0.1 # localhost
```

3 Version 2.1.4.0 (Mar. 7, 2007)

This section of this manual lists and describes the functional modifications made to the REF TEK RTPD software version 2.1.3.0 to create version 2.1.4.0 follows:

1. Correction to remove 130 command response forwarding to NCI .

Programs affected and their new versions:

Rtpd	2.1.4.0
------	---------

RTPD Release Notes

Note: Please review all release notes between the firmware version you are running and the version you wish to install.

1. Correction to remove 130 command response forwarding to NCI

The 130 responses to 72A commands were being sent to the NCI system. The NCI program did not handle these responses well. RTPD was changed to not place responses from the 130 into the NCI file.



4 Version 2.1.3.0 (Feb 27, 2007)

This section of this manual lists and describes the functional modifications made to the REF TEK RTPD software version 2.1.2.0 to create version 2.1.3.0 follows:

1. Modification to RTPD and utilities to override lock
2. Modification to log archive size
3. Addition of rtp2rtpd client program
4. Correction to 72A command forwarding in RTPD

Programs affected and their new versions:

Rtpd	2.1.3.0
Arccopy,arccreate,arcfetch,arcinfo,arcbuild,arcwrite	2.1.1.0
Rtp2rtpd	2.1.1.0

Note: Please review all release notes between the firmware version you are running and the version you wish to install.

1. Modification to RTPD and utilities to override lock

Version 2.1.2.0 added the IP address and PID address of the program which locked the archive. **RTPD** version 2.1.3.0 and version 2.1.1.0 utilities now allow use of the archive if the IP address is the same and the process which locked the archive is no longer running. In previous versions, archiving would simply shutdown because the archive was locked. To operate properly, the IP address for a system must be fixed.

2. Modification to log archive size

The **RTPD** log will now log the size of the archive when a purge is initiated and when it is complete.

3. Addition of rtp2rtpd client program

RTP2RTPD is a program whose primary function is to forward recording packets from the primary local **RTPD** to a secondary **RTPD**. Although the **RTPD** program can connect to a remote **RTPD** and have packets forwarded to it, when the link goes down packets are immediately dropped. **RTP2RTPD** solves this problem by mimicking a DAS connection to the secondary **RTPD**. This **RTP2RTPD** connection to a secondary **RTPD** uses the **RTP** protocol which waits for acknowledgements to ensure data is received.

4. Correction to 72A command forwarding in RTPD

RTPD did not forward commands to 72As that were connected across a 112 "router". In addition, responses from 130 units were being written to the NCI file. This version of **RTPD** forwards the commands to the 112 router. In order for this to work, the rtpd.ini file must be changed to bump the UDPStartID to 8501. The addr.map should be deleted so that it can be built from scratch. The 130 responses are not placed in the NCI file.

5 Version 2.1.2.0 (Nov. 01, 2006)

This section of this manual lists and describes the functional modifications made to the REF TEK RTPD software version 2.0.0 to create version 2.1.2.0 follows:

1. Modification to RTPD and utilities for 18 channels and double EH/ET packets
2. Modifications to RTPD to aid in problem solving
3. Modification to allow RTPD to accept data for Multiple ID addresses.
4. Modification to RTPD and client connection libraries to remove memory leaks.
5. Modification to RTPD to smooth out transmission of packets to clients
6. Modification to RTPTRIG event list and batch fetch list
7. Modification to log library version
8. Modification to Version Numbers
9. Correction to handling of NCI response
10. Correction to rtpudpsvc on XP pro

Programs affected and their new versions:

Rtpd	2.1.2.0
Arccopy,arccreate,arcfetch,arcinfo,arcbuild,arcwrite	2.1.0.0
Chkdata	2.1.0.0
Rtpc	2.1.0.0
Rtpdrum	2.1.0.0
Rtpid	2.1.0.0
Rtptrig	2.1.0.0
Rtcc	2.1.0.0
Rtpmonitor	2.1.0.0
Rtpaux	2.1.0.0
Rtpftp	2.1.0.0
Rtppipe	2.1.0.0

Please review all release notes between the firmware version you are running and the version you wish to install.

WARNING: Version 2.1.2.0 is **INCOMPATIBLE** with REF TEK data archives created prior to version 2.1.2.0 of RTPD and Archive Utilities. The user must run **ARCREBUILD** version 2.1.0.0 or later on older archives before this version of RTPD will connect to it. Likewise, archives created and written to with RTPD and Archive Utilities version 2.1.0.0 or later are **INCOMPATIBLE** with earlier versions. The user must run the earlier version of **ARCHREBUILD** before using an earlier version of RTPD.

1. Modification to RTPD and utilities for 18 channels and double EH/ET packets

Some versions of the 130 code can have a maximum of 18 channels. The format of packets was changed to accommodate 18 channels. EH and ET packets only accommodate 16 channels, so an extra eh/et packet is used to accommodate channels 17 and 18. The utilities which manipulate these packets were modified to handle these changes. The archive structure changed, therefore an arc rebuild is required before using this release.

2. Modifications to RTPD to aid in problem solving

In order to better identify client connections, the client is passes its name to RTPD for logging. In order for the client to know if it has client privileges, its command privileges are returned during the connection sequence. In order to avoid huge files to search thru, the logs have been split into daily files. The changes affect the following utilities: chkdata, rtpc, rtpdrum, rtpid, rtptrig, rtpaux, rtpftp, rtcc, rtpmonitor

3. Modification to allow RTPD to accept data for Multiple ID addresses.

RTPD only accepts data if the IP address if the message matches its address. The user can now specify more than one DiscoveryAddr in the ini file which RTPD will accept data for.

4. Modification to RTPD and client connection libraries to remove memory leaks.

The library routines used to connect and disconnect RTPD to a client created mutexes which were not subsequently destroyed. Modifications were made to destroy the mutexes. Also, on Solaris and Linux systems, threads are created and exited as a client connects and disconnects. These OSes do not release memory for a thread until a pthread_join is called. RTPD was modified to ensure the joins are made.

5. Modification to RTPD to smooth out transmission of packets to clients

RTPD loops thru all clients connected and forwards all packets it has for a client. RTPD used to sleep for one second before sending any new data packets it received. This means large amounts of data can build up before being sent to the client. Some clients did not perform well when receiving large amounts of data at once. In order to smooth out the flow of data, this wait has been reduced to 500ms. The client will now receive less data more often and RTPD will consume slightly more process time.

6. Modification to RTPTRIG event list and batch fetch list

Networks, which had many events generated and many triggers, were overflowing the event items list, while waiting on a single batch fetch to be executed. Modifications were made to keep event information in a variable sized linked list rather than a limited fixed size list. An event item is deleted if it is over an hour old, or if the event start lies within a window defined to be deleted after a trigger is detected. The window of time used is (the starttime of the fetch - .1 x Latency) to (the starttime of the fetch + .4 x RecLength). This window can be modified by the user by specifying a "CleanPrntTime" other than the .4 default used above. When a trigger is detected, the information to run the batch file is placed in a linked list of fetch information. Multiple fetches can now be queued. These two changes have been made to prevent event items, which might cause triggers, from being deleted before fetches for their associated triggers are generated.

7. Modification to log library version

Most clients use common library functions. To better identify changes to client software, the library versions used will be logged in clients that use the library logging functions.

8. Modification to Version Numbers

The version numbers of RTPD, the archive utilities and the clients have been modified to provide a more consistent way to track compatibilities. The first two numbers in the version are the base number. These two numbers will be the same for all programs in a release. The third number is used to denote bug fixes to individual programs. The fourth number is used for varying reasons. It may be used to denote development versions of client and archive programs. It may be used by RTPD to simply denote a release in which clients or the archive utilities have changed, but RTPD has not changed.

9. Correction to handling of NCI response

If a 130 was connected to a network and the NCI program (used for 72As) broadcast an Identify command to the DASes, then RTPD would crash when it received the 130's response. This was due to a bad logging statement. That statement has been corrected.

10. Correction to rtpudpsvc on XP pro

After upgrading to XP professional (from home edition) it was noted that the rtpd service died after a short period of time. The code was modified to change the communication to Windows so that an error with the services would not be generated, and a shutdown would not occur.



6 Version 2.0.0 (October 6, 2005)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.8 to create version 2.0.0, as follows:

1. Modification to Support Auxiliary Data Stream
2. Modification to Support 0.1 SPS Sample Rate
3. Modification to Recognize FD Packets
4. RTPC: Modification to Trigger Display
5. RTPC and CHKDATA: Modification to Channel Display
6. RTPC and CHKDATA: Addition of Support for High Data Compression

IMPORTANT: Please review all release notes between the firmware version you are running and the version you wish to install.

WARNING: This version of RTPD is **INCOMPATIBLE** with Ref Tek data archives created prior to v2.0.0 of RTPD and Archive Utilities. You **MUST** run ARCREBUILD v2.0.0 or later on older archives before this version of RTPD will connect to it. Likewise, archives created and written to with RTPD and Archive Utilities v2.0.0 or later are **INCOMPATIBLE** with earlier versions. You must run the earlier version of ARCREBUILD before using an earlier version of RTPD

1. Modification to Support Auxiliary Data Stream

Modifications were made to support the Auxiliary Data Stream (stream 9) of a Ref Tek 130 DAS.

2. Modification to Support 0.1 SPS Sample Rate

Modifications were made to properly recognize and handle a 0.1 sps sample rate.

3. Modification to Recognize FD Packets

Modifications were made to recognize Filter Description (FD) packets generated by a Ref Tek 130 DAS. These packets are archived with other parameter packets in the State of Health data stream (stream 0).

4. RTPC: Modification to Trigger Display

Modifications were made to display all valid trigger types.

5. RTPC and CHKDATA: Modification to Channel Display

Modifications were made to display up to 16 active channels in the standard display.

6. RTPC and CHKDATA: Addition of Support for High Data Compression

Support was added for the high data compression recording format of a Ref Tek 130 DAS



7 Version 1.10.8 (December 16, 2004)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.6 to create version 1.10.8, as follows:

1. Correction to Remote Server Timeout
2. Correction to Client Shutdown
3. Correction to Archive Purge
4. Correction to Eliminate Memory Leak
5. Modification to RTPID Retry Count
6. Modification to RTPID Retry Interval
7. Addition of RTPTRIG
8. Addition of RTPAUX

IMPORTANT: Please review all release notes between the firmware version you are running and the version you wish to install.

1. Correction to Remote Server Timeout

A correction was made to properly parse the timeout value for connecting to a remote RTPD from the initialization file (rtpd.ini).

2. Correction to Client Shutdown

A correction was made in handling the client connection information for display after the connection has been shut down.

3. Correction to Archive Purge

Corrections were made in the purge functions of the archive library to prevent over-purging when RTPD starts and to eliminate misreporting of file sizes.

4. Correction to Eliminate Memory Leak

A correction was made to eliminate a memory leak that occurred when DAS units are listed in the addr.map file but are no longer connected to RTPD.

5. Modification to RTPID Retry Count

Modifications were made to RTPID to give the user control over the number of times RTPID will send an ID request to a DAS. Previously the count was fixed at 5. Now the count is defaulted to 9999 and can be changed with a command line switch.

6. Modification to RTPID Retry Interval

Modifications were made to RTPID to increase the retry interval each time it sends an ID request without receiving a response from a DAS. The interval is capped at one hour.

7. Addition of RTPTRIG

A new client program, RTPTRIG was added to the RTPD distribution. RTPTRIG is used to detect a network trigger.

8. Addition of RTPAUX

A new client program, RTPAUX was added to the RTPD distribution. RTPAUX requests auxiliary data status from a list of DAS units and stores the information in a local file.



8 Version 1.10.6 (October 08, 2004)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.5 to create version 1.10.6, as follows:

1. Correction to Handling of Lone ET packet
2. Addition of Log Messages for Write Errors
3. Correction to use of Mutex for syslogd

IMPORTANT: Please review all release notes between the firmware version you are running and the version you wish to install.

1. Correction to Handling of Lone ET packet

Previously, the file name for an event was only constructed when an EH or DT packet arrived. Therefore, if an ET packet arrived, with no previous EH or DT packets, no filename would exist for the event, an error would occur upon opening the file, and the archiver would shutdown. A correction was made to ensure that the filename is constructed on an ET packet if the name does not exist. Therefore, the archive will not be shutdown if it receives a lone ET packet

2. Addition of Log Messages for Write Errors

Additional messages were added to give more information upon any write error. For example , the filename and path of the file trying to be written are output.

3. Correction to use of Mutex for syslogd

A mutex is unlocked only when not using syslogd.



9 Version 1.10.5 (January 08, 2004)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.4 to create version 1.10.5, as follows:

1. Correction to Handling of Unit ID

IMPORTANT: Please review all release notes between the firmware version you are running and the version you wish to install.

1. Correction to Handling of Unit ID

A correction was made to ensure proper handling and display of Unit ID numbers from 72A series DAS units as well as the 130 series DAS units.

10 Version 1.10.4 (May 23, 2003)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.3 to create version 1.10.4, as follows:

1. Correction to RTP Library Log Functions
2. Correction to RTP Library Internal Variable
3. Correction to RTPD Log File
4. Update of RTPC
5. Update of CHKDATA
6. Addition of RTPID Program

IMPORTANT: Please review all release notes between the software version you are running and the version you wish to install.

1. Correction to RTP Library Log Functions

Corrections were made to several functions in the RTP library related to log file creation and handling.

2. Correction to RTP Library Internal Variable

A correction was made in the declaration of an internal variable in one of the RTP library routines. The incorrect declaration caused unpredictable behavior under Solaris 9.

3. Correction to RTPD Log File

Corrections were made to ensure that the program name is properly included in the RTPD.LOG file.

4. Update of RTPC

RTPC was rebuilt due to modifications in the RTP library.

5. Update of CHKDATA

CHKDATA was rebuilt due to modifications in the RTP library.

6. Addition of RTPID Program

A new program was added to the RTPD distribution for all supported platforms. **RTPID** connects to RTPD and monitors incoming transmissions. When it detects that a 130 DAS has not communicated for a designated time out period, it issues an ID request through RTPD. It stops monitoring a particular DAS after 5 unanswered requests.



11 Version 1.10.3 (February 06, 2003)

This section of this manual lists and describes the functional modifications made to the Ref Tek RTPD software version 1.10.0 to create version 1.10.3, as follows:

1. Correction to Resolve Protocol Errors
2. Correction to Unit ID Numbers in Log File
3. Modification to Start Behavior for Invalid Switch
4. Modification to Require Log File
5. Modification to Default Location of RTPD.INI (Windows only)
6. Addition of RTPD.INI Location Option to Help Screen
7. Addition of Current Directory to Log File
8. Addition of RTPD.INI Location to Log File
9. Addition of Command Line to Log File

IMPORTANT: WARNING: Please review all release notes between the software version you are running and the version you wish to install.

1. Correction to Resolve Protocol Errors

Corrections were made to resolve the occurrence of protocol errors. Protocol errors occur when RTPD detects invalid sequence numbers for the incoming packets. In some cases, RTPD was getting confused when packet errors occurred.

2. Correction to Unit ID Numbers in Log File

Corrections were made to ensure that Unit ID numbers for 72A DAS instruments are entered properly in the RTPD.LOG file.

3. Modification to Start Behavior for Invalid Switch

RTPD was modified to display the help screen and shut down if an invalid command line switch is detected. Previously, RTPD ignored the error and continued.

4. Modification to Require Log File

RTPD was modified to shut down and output an error message if it cannot open its log file on start up.

5. Modification to Default Location of RTPD.INI (Windows only)

The default location of the RTPD.INI file under Windows was changed from C:\REFTEK to the directory containing the executable program (rtudpsvc.exe or rtudpcon.exe). (The location of RTPD.INI can be overridden by a command line option.)

6. Addition of RTPD.INI Location Option to Help Screen

The command line option for specifying the location of the RTPD.INI file was added to the help screen. This option has been available, but was left off the help screen.

7. Addition of Current Directory to Log File

The current working directory is now logged to RTPD.LOG when RTPD starts.

8. Addition of RTPD.INI Location to Log File

The location of RTPD.INI is now logged to RTPD.LOG when RTPD starts.

9. Addition of Command Line to Log File

The command line invocation of RTPD is now logged to RTPD.LOG when RTPD starts.