Release Notes, TransAct Packager 5.4

TAP v5.4 Build 23968
September 19, 2014

Part# 235- 0381-01 Rev. A

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1. Upgrade Designation

5.4 is a RECOMMENDED release for the TransAct Packager product line. Customers currently running previous versions should consider upgrading if they would like to take advantage of the new features listed in this document. Several bug fixes were also addressed.

These release notes provide the details of enhancements and defects addressed and will aid in your upgrade decision.

Upgrade Designation Definitions

Designation	Definition
Mandatory	A release is given this designation when RGB has addressed critical product defects that it believes all customers will experience on the currently deployed releases.
Recommended	A release is given this designation when RGB has addressed product defects that it believes some customers may experience on the currently deployed releases or there are important performance improvements that could benefit customers.
Optional	A release is given this designation when RGB has addressed product defects that it believes certain customers may experience or when an upgrade provides potential benefits over existing product releases.

2. Contacting RGB Customer Support

Contact RGB Customer Support by any of the following methods:

Customer Portal: http://www.rgbnetworks.com/support/rgb-customer-portal.php
Phone: 877.RGB.NETW (877.742.6389) or +1.408.701.2800
Email: support@rgbnetworks.com

3. Release Overview

The TransAct Packager 5.4 release is an enhancement release for RGB's TransAct Packager product. This release introduces several enhancements as well as addresses a number of product defects that are detailed in this document.

New Features and Enhancements

- Active/Active redundancy using unicast inter-packager communication
- GUI control to flush JITP cache
- File to file packaging faster than real time
- Support for 6 and 10 second segments for MSS
  (see note under Silverlight recommended settings)
- Add support for GPFS

Supported Upgrades

Upgrade is supported from releases 5.0.1p1, v5.2.1p2, v5.3 and v5.3.1.

Note that the OS build has been updated from 22525 to 23781.

Newly Resolved Issues

Issue	TAP-2465	FPS and bit rate stats showed 0
Resolution	Case:21977	Removed these stats since user can use 'segment generated' column to track packaging status.
Issue	TAP-2553	Missing streams in hls http asset causes JITP to stop
Resolution		Added handling of missing HLS profiles
Issue	TAP-2580	Input Stream Group index is corrupted after 5th input entry
Resolution	Case:22283	Fixed group ID logic that assumed ID's were sequential
Issue	TAP-2595	Encryption cert updates returns HTTP:200 with no content
Resolution	Case:22304	Software bug resolved
Issue	TAP-2608	Sometimes the sessionctrl crashes after complete multicast outage
Resolution	Case:22323	One off event that is not systemic
Issue	TAP-2802	Occasional observations of a memory leaking during Smooth Streaming packaging
Resolution	Case:22655	Fixed memory leak exposed by input.group.show() API call
Issue	TAP-2831	Reports of a HTTP error 409 when using WEBDAV
Resolution	Case:22663	Corrected syntax of directory path for nginx webdav interoperability
Issue	TAP-2909	Artifact seen in ID3 HLS subtitles
Resolution	Case:22098	DVB subtitle distortion was corrected while converting to png in HLS ID3 format
Issue	TAP-2917	Occasional core files when using TTML
Resolution	Case:22978	Fixed ffmpeg crash during DVB subtitle to png conversion

New Known Issues and Workaround

Description	TAP-2521	Packager redundancy not available when using external iiS for MSS.
Impact		Redundancy not avaialbe in this specific configuraiton
Workaround		Use either MSS with internal iiS with redundancy or with external iiS without redundancy
Description	TAP-2944	Cron daemon sometimes does not install properly with upgrade
Impact		Diagnostic corefiles may not be generated if there is an application crash
Workaround		Manually restart services after performing the software update

4. External Dependencies and System Interoperability

POIS Server

The Packager supports interaction to a POIS for ad insertion as well as blackout support. This interaction is across the P5 interface (version 0.91) and Cablelabs ESAM I03 (see note below).

Note: If a POIS is not configured the default ad insertion method used by the Packager will be the template method.

NOTE: Support for Cablelabs ESAM I03 is pre-release code. Therefore, lab integration and testing is recommended prior to rolling into a production environment.

NTP Server

The Packager application depends on NTP sync with an external NTP Server for date and time. Currently, there is a default set of Web-based NTP servers that the Packager application will look for. If the Internet is not accessible from your internal network, you will need to configure a local NTP Server IP address for the Packager application.

Syslog Server

The Packager application depends on an external Syslog Server for logging important events.

IIS Server

For one of the modes of Smooth Streaming support, the Packager application depends on an external iiS server. With 4.5.2 and greater, an additional mode of operation for Smooth Streaming is supported that does not require an external Microsoft® IIS server.

Appendix A: Product Specifications

Functional Specifications

- Stream- or file-input (H.264/AAC, DD, DD+ adaptive bitrate, DASH Packaged aligned streams or files) packaging/encryption, output as Live, VOD or Continuous Recordings (nDVR applications). Includes just-in-time (JIT) packaging mode.
- Packaged output formats: HLS, HDS, MSS, RTMP, MPEG-DASH (ISO and TS)
- Controlled via GUI, APIs and Command Line
- Audio support includes the following for HLS, HDS and MSS packaging:
    - AAC
    - DD and DD+
    - Late Binding audio
    - Multi-audio codecs
    - HLS Multi-audio tracks
- Active / Active Redundancy output support on a per package basis (with Unicast inter-packager communciations)
- Ability to provide thumbnails
- Integrated DRM encryption: AES-128 and Adobe Access for HLS, PlayReady for MSS, Adobe Access for HDS
    - Key servers supported: VerimatrixHLS, BuyDRM, CKM, Nagra, InternalHLS, VerimatrixPlayReady, InternalFlashAccess, Latens, SecureMedia (for HLSv2), Conax, NDS/Cisco, MSS /PlayReady using KeySeed method, KPN MSS type and Irdeto (limited support)
- Asset preparation option from files or streams, with resultant transport stream mezzanine files (RGB Packaged Asset format)
- nDVR-centric features
    - Continuous Record with active/muted active redundancy
    - JITP HLS ingest; un-encrypted and AES-128 encrypted from Recorder
    - Stitcher of Continuous Recording for JITP delivery
- CDN and origin server modes:
    - HTTP Post to downstream MS IIS
    - Direct to client MSS (no MS IIS server required, directory output)
    - HLS direct to client (directory output)
    - HLS, HDS WebDAV mount
    - HLS webdav-light output stream
    - RTMP streaming to Adobe FMS server
    - HDS File Output to NFS
    - MPEG-DASH direct to client (directory output)
- Closed captioning supported on HLS, HDS, and MSS
- DVB Subtitling for HLS using ID3 tags and MSS using TTML
- Support HDS 708 tunneling for closed captioning in JITP mode

- Trick Play modes for HLS and HDS
- Ad Insertion support (HLS, HDS)
    - HLS Explicit Initialization Vector Support
    - Manifest mark-up with SCTE-35 messages
    - Ad insertion with user defined template upon SCTE-35
    - Ad insertion with POIS exchange upon SCTE-35 (and key rotation for Blackout support)
- Cross Streaming prevention (pre-released in TAP v5.3)
- Support of over 700 client sessions for Just in Time Packaging (depending on HW)
- Support of over 800 linear packaging streams (depending on HW)
- Software or appliance
- Operating systems tested: Linux CentOS 6.5 build 23781

Limitations

- Audio and video from the input stream is segmented to the same time interval based on the segment duration.
- Once an input stream is part of a group, the audio and video PID values cannot change; if the PIDs change, the input stream will go out of service.
- A user can duplicate the packagers running independently in order to distribute the load.
- There is no support for relaying EBIF.
- When creating a local directory using a loop device, the Directory Name provided for that directory should be only 3 characters or less. If it is 4 or more characters long, the internal file creation will fail and the application will end up in a constant restart loop.
- For software-only installs that used any other installation media besides the RGB-provided OSDVD ISO, if creating a partition for /opt/localmnt, it must be given the label "/opt/localmnt". If the partition is not labeled, the application will not recognize it and it won't be made available as an option when creating local directories.
- CIFS mounts are supported, but generally exhibit lower performance than NFS, and are thus discouraged. For deployment scenarios, RGB recommends Network File System (NFS) protocol for all external storage mounts. Common Internet File Services (CIFS) can be used but is not recommend for performance reasons as illustrated in the capacity data below. CIFS if used should be limited to non-deployment situations.
- TTML tracks for MSS limited to one
- The "content" keyword shouldn't be used in the host name, path or asset name
- NDS/Cisco client limits Packager to HLSv2 usage only
- When Packaging and encrypting into an MSS output format, key rotation support is not available.
- The following UDP ports could be used by the system and should not be used for multicast inputs:
    - 0 thru 10000

- Support of up to 600 package definitions and 864 output streams (this was previously limited to 432)
- Development and unit testing has been accomplished for the following new features; however, end-to-end inter-operational validation is recommended prior to production rollout:
    - Adobe blackout support
    - Irdeto DRM integration
    - Cross Streaming Prevention
    - POIS interaction using ESAM I03
- Linear DASH MPD shouldn't use local disk

Scalability

The capacity of the RGB Packager is a function of the processing and I/O capabilities of the underlying hardware. Furthermore, the loading is directly dependent on packaging parameters such as segment sizing, number of profiles, bit rate, etc.

To help guide the hardware selection, see the following capacity examples.

Capacity examples:

Below are examples of *linear packaging* for 2 HW configurations: 3-core VM and an AMS platform. Note that your actual performance is dependent upon many factors including hardware, segment size, number and definition of output profiles. The information herein is provided as a guide to assist scaling in your unique environment.

Linear Packaging	Number of Linear services supported with 5-profile output using 2-second segments as observed on a 3-core Virtual Machine deployment.
HLSv4	25 services with 5 profiles each
Blend of HLSv4 and HDSv3	10 services with each service outputting: 5 profiles of HLS and 5 profiles of HDS
MPEG-DASH TS	27 services with 5 profiles each

Linear Packaging	Number of Linear services supported with 5-profile output using 2-second segments as observed on an AMS deployment.
Blend of HLSv4 and HDSv3	37 services with each service outputting: 5 profiles of HLS and 5 profiles of HDS

To get optimal scalability, streams from Packager should be fed to a Content Delivery Network (CDN). Scalability will depend on whether clients are being served directly or through an origin server or CDN.

Serving clients directly will cause capacity to reduce by up to 50% of that when using origin servers for output.

For *Just in Time Packaging mode*, the following illustrates the number of Just In Time client sessions supported.

Just In Time Packaging	Number of client sessions supported with 5-profile output using 2-second segments as observed on a 3-core Virtual Machine deployment.
HLSv4	236 sessions (note: this is a ~20% improvement from Packager v5.2)
Blend of HLSv4 and HDSv3	159 sessions

Below are the Just In Time Performance metrics when using AMS hardware:

Just In Time Packaging	Number of client sessions supported with 5-profile output using 2-second segments as observed in an AMS deployment.
Blend of HLSv4 and HDSv3	667 sessions

APPENDIX B: Previously Resolved Issues

Defect Resolution in TransAct 5.0.x and 5.1.x

- 13576 Packager could not process a multistep audio+video mixed w/ “audio-only”
- 21688 Multiple audios would not work for linear HDS VOD
- 22088 AMS_LCD_INIT failed to load LED on front panel
- 22126 Should not name a JITP source server as "1"
- 22162 “Expires & Cache-Control' header did not display in show GUI page
- 22676 If single audio stream is disabled, playback failed for HLSv4 linear pkg
- 22686 Escaping of ContentMediaId to allow characters that are currently not escaped
- 22714 Sustain site specific environment variables across Packager upgrade
- 22188 Post update Packager restart required
- 22869 Support JITP VOD key rotation
- 23010 Using bad characters with the Latens Key server did not error out
- 23114 AAC decoder detection errored with HE-AAC v2 asset with multiple language tracks
- 23159 GUI could not handle mounts with long names
- 23277 Web Server critical events occurred daily
- 23280 HDS Ad Cue information duration was incorrect
- 23347 JITP server did not release resource at the end of a C2 transfer
- 23451 HLS: CC error in between segments
- 23611 SNMP trap reported “RCEVENTS_CAT_SESSION_MGR.?” without a variable
- 23927 Packager did not re-initialize with Key server after key server connectivity is lost & restored. Verimatrix Content ID overwritten by Package name
- 23928 HLS encrypted to multiple publishing point was missing segments
- 24257 Core dump occurred during HLS VOD playback on iPad
- 24369 Only insert EXT-X-ENDLIST if stream is manually terminated, not on failure
- 24379 When using internal Flash Access encryption, sometimes HDS will not play
- 24625 HDS packaging performance was not optimum
- 24713 Changing HDS Ad Markup parameter did not clean JITP cache
- 24731 EXT-X-TARGETDURATION should be the max media segment duration
- 24762 Language codes used label="English" lang="en"
- 24786 The audiomap audio-only option is "Primary+AudioOnly" which makes a track be published with all video and also as audio-only, while the use case is purely audio-only
- 24789 Term "jitp profile" is used, except in the commands to manage them where the API itself says "config". This is confusing and is not consistent with the other API commands that have the name of the object affected right in front of the action
- 24805 HDS Trickplay in cDVR JITP was not working
- 24814 HLS files being written to NFS in "bursts"
- 24934 When moving services, URL change caused HLS core. Also seen when HLS linear live packages go disabled/enabled when 10th package is started
- 25006 HDS Multi-level manifest is incorrect with respect to the I-Frame
- 25058 CPS error while playback (JITP-C2)
- 25080 JITP HLS; ingests of assets where video was not in the first PID failed to return content
- 25087 JITP HLS I-frame playlist is not working when interfacing with the C2 recorder
- 25113 Potential core dump of HLS packaging process

- 25141 JITPK Live Index process sometimes failed when there was a JITP HLS request
- 25145 DB upgrade does not preserve SSM field
- 25149 Segments being written late during ads
- 25226 Modifying Output stream Host field does not update when package is started
- 25522 Packager taskman service to restart packages failed to restart successfully
- 25727 Duplicate Manifest entries in HLS manifest
- 25744 HLS TARGETDURATION mismatch between audio and video streams for same channel
- 25756 Playback failure for 1 stream asset
- 25816 HLS top level manifest missing and Zero Bit Rate entries in HLS manifest
- TAP-1786 Closed Captioning HDS Package sync delay
- TAP-1560 sysconfig.database.threshold.set gives invalid parameter
- TAP-1614 Memory leak caused by some input stream types
- TAP-1697 Linear Packager core dumps with bad inputs
- TAP-1716 NFS expired segments not always deleting
- TAP-1717 HLS packages get stuck in a started/disabled state
- TAP-1719 HLS and HDS Linear Packages required Ripcode restart before packages started
- TAP-1730 CPU Threshold setting reverts to default after service restart
- TAP-1779 Packager not creating correct i-frame data for trickplay
- TAP-1822 HLS packaging uses significantly more NFS resources than HDS
- TAP-1832 Large number of JITP asset logs cause checkLogs.sh script to take very long time to execute
- TAP-1917 SSP01 Log showing HDS Certificate errors
- TAP-1934 Eveman core dumps at midnight under certain environmental conditions
- TAP-1939 Incomplete HDS manifests causing playback failures
- TAP-1961 Some HLS packages not publishing 1 bitrate

Defect Resolution in TransAct 5.2.x

- TAP-1335 Ability to modify the “2x segment life span duration” segment deletion
- TAP-1498 Add DRM Label called 'RGB DRM API'
- TAP-1515 Segments being written late during ads under certain conditions
- TAP-1580 Package with one good audio and video
- TAP-1591 Log files show central time regardless of TimeZone configured
- TAP-1592 MPEG DASH Content not playing under certain conditions
- TAP-1662 RTMP automatic addition of the step number to the URL garbles URL arguments
- TAP-1682 RTMP result in -55 error occasionally
- TAP-1711 Need to remove debug flag from rcstartup for CacheManager
- TAP-1776 WebDAV-light publishing has double // in the PUT URL for manifests
- TAP-1854 Packager is compliant to v0.91 ESAM P5 spec
- TAP-1925 TimeFromSignalStart =${timeFromSignal} inserted into HLS manifests at P5
- TAP-1969 Cannot add multicast input with UDP 9008 to input stream
- TAP-1988 JITP Assets with "silver" in name return 404 errors
- TAP-2033 ID3 based DVB Subtitles for HLS are not displayed
- TAP-2074 Packages unable to start with 2nd audio missing
- TAP-2081 Linear DASH segments "drifting"
- TAP-2089 SegmentAlignment misspelling in DASH manifest
- TAP-2090 startWithSap parameter should be startWithSAP

- TAP-2145 Linear DASH output missing SegmentTemplate in last AdaptationSet
- TAP-2146 DASH schema availability Start time not correct
- TAP-2184 Nagra client does not handle explicit IV in manifest
- TAP-2220 Nagra client does not handle explicit IV in manifest
- TAP-2230 Adaptation Set elements are out of order in DASH manifests
- TAP-2234 Occasional core dump when tunneling HDS closed captioning data to 708
- TAP-2239 Occasional core dump when tunneling HDS closed captioning data to 708
- TAP-2241 Audio only profile using highest bit rate source
- TAP-2251 Observed CPU spikes on some packager instances
- TAP-2252 MSS encryption not always working correctly with JITP
- TAP-2266 Users experiencing playback issues in HLS from Cisco transcoders
- TAP-2268 Some Package definitions missing after update from v4.8
- TAP-2334 Some transcoded content did not play smoothly thru JITP
- TAP-2347 Linear DASH packager manifests are missing the element ext:DRMData
- TAP-2386 Occasional GUI timeouts
- TAP-2539 Flash encryption fails on Packagers
- TAP-2557 iOS Playback Crash on 1h24m (Segment 512) with Nagra encryption
- TAP-2612 UDP Threshold issue

Defect Resolution in TransAct 5.3.x

- TAP-1400 Need ability to set TTML on a per package basis
- TAP-1668 When package is restarted "old" or expired CKM files are not cleaned up
- TAP-1844 No clearing alarm when KeyServer restored
- TAP-1871 Logging enhancement – detail when NFS not reachable
- TAP-1892 Instances of redundant output drift after an input packet loss on one packager
- TAP-2101 Cannot add multicast input with UDP 9008 to input stream group
- TAP-2190 TAP VOD packaging customizable output directory
- TAP-2332 Audio "stuttering" on output of Packager on HLS
- TAP-2348 Linear DASH Packager Manifest for IndiePlex has incorrect value
- TAP-2359 XML-RPC API failing due to timer expired errors
- TAP-2376 HLS DVB ID3 Subtitles, Certain DVB subtitles appear as blank boxes
- TAP-2425 Internal HLS Keys not matching on redundant packages
- TAP-2435 Dash outputs display a audio "click"/"pause" every 2 seconds (segment length)
- TAP-2444 Content-Type sent from webdav-light is incorrect
- TAP-2450 Mux one audio with HLSv4 for backward capability to HLSv2 players
- TAP-2465 FPS and Bit Rate stats sometimes shows 0 results
- TAP-2591 Redundant Packages fail to recover after input interruption
- TAP-2615 Cannot modify packages using SecureMedia
- TAP-2627 Missing streams in HLS http asset causes JITP to fail
- TAP-2661 Packager restarts all packages due to input issues
- TAP-2668 Packaging systems stopped for unexpected reasons
- TAP-2669 Some DASH packages not updating manifest
- TAP-2671 Session Controller terminated by SCM
- TAP-2691 Some streams remain permantly out of sync
- TAP-2775 API key server requests failing at Nagra

Appendix C: Previously Known Issues and Workarounds

Description	TAP-1242	Loss of NFS Server – Packager cannot reconnect
Impact		Packager cannot rejoin the connection between to the NFS server without a specific workaround
Workaround		1. Edit the /etc/hosts file and change the output mount name which points to a currently valid NFS location. 2. Perform the re-configuration to the original server in the WebGUI of the packager.
Description	TAP-1687 TAP-1827	Irdeto has not completed full testing of this feature with RGB
Impact		Please contact RGB Sales prior to initial deployment and integration with an Irdeto DRM system
Workaround		See above
Description	TAP-1706	RTMP Packaging ignores audio map
Impact		Cannot use audio maps when packaging RTMP
Workaround		Do not use audio maps with RTMP
Description	TAP-2070	Occasionally some input PEG channel creates excessive use of memory.
Impact		Single processes may restart when memory thresholds are exceeded.
Workaround		None. Code automatically restarts failing process.
Description	TAP-2059	Unexpected error mgs in syslog on restart of service with 54x5 MDash TS configured
Impact		Confusing syslog messages at startup
Workaround		Ignore messages at initial startup in this scenario
Description	TAP-2442	Configurator: not all streams removed with configuration.input.stream.remove
Impact		Limitation on using this configurator command
Workaround		To remove a stream simply remove the whole group
Description	TAP-2480	Active/muted redundancy only works for VOD output (nDVR use case)
Impact		Cannot use this redundancy mode for linear packaging
Workaround		None

Appendix D: Configuration App Notes

Using ID3 HLS subtitling

The page that is used to extract the ID3 using the 'timedMetadata' event has to be served from the same location as the HLS source.

Setting-up the IIS Server & Player

The IIS server is available on Windows Server 2008, Windows VISTA and Windows 7.

IIS Server/Silverlight recommended setting

- IIS Server settings:
  - Number of look ahead fragments set to 3 (Assuming segment duration of 2 seconds)
- Silverlight player settings:
  - Buffering time set to 10 seconds
    - NOTE: With Packager version 5.4 and above, the MSS segment duration restriction has been removed. Now users can set the segment duration up to 10 seconds; however, this is not a recommended setting
  - Retry duration set to 60 seconds

In order to enable iiS server, please review the following websites from Microsoft:

- Installing IIS 7 on Windows Vista and Windows 7: http://learn.iis.net/page.aspx/28/installing-iis-7-on-windows-vista-and-windows-7/
- Installing IIS 7 on Windows Server 2008 or Windows Server 2008 R2: http://learn.iis.net/page.aspx/29/installing-iis-7-on-windows-server-2008-or-windows-server-2008-r2/

Once the IIS server is installed, you need to enable the Live Smooth Streaming on the IIS server:

- Getting Started with IIS Live Smooth Streaming: http://learn.iis.net/page.aspx/620/getting-started-with-iis-live-smooth-streaming/
  - Note 1: When you add the publishing point, unselect the "Archive Media" and "Allow server connections".
  - Note 2: When you add the publishing point, select the "Allow Client Connections" and "Enable DVR for recent content" and set it to 5 minutes to prevent your local hard drive from filling up.
  - Note 3: When you add the publishing point, set the "Number of look ahead fragments" to 3

Finally, you will need to copy the client policy, Silverlight client application along with the html page providing access to the Silverlight client application in the IIS server root directory. An example of this can be found in http://learn.iis.net/page.aspx/558/getting-started-with-iis-smooth-streaming/.

The IIS server doesn't support PTS rollover. As the PTS for smooth streaming is 64 bits and that the PTS for mpegts stream is 33 bits, the Packager will increase bits 34 to 64 to avoid a PTS rollover every 27 hours. The bits 34-64 are stored into a file on a per output basis. This means that when the Packager restarts, it will continue at the correct PTS value.

If you need to reset the PTS, then the Packager output needs to be removed and re-added. To do this, the IIS server publishing point needs to be restarted.

NFS Considerations

For HTTP Live Streaming to NFS, after a file has been packaged it is moved to the NFS mount where the file is cached temporarily. Performance of this NFS Server/Cache can have a significant impact on the performance of the overall system.

In configurations where local mounts are used from a system level, but the local mount directory is actually pointing to an NFS server, users need to set the O_DIRECT flag using a command line with the -d flag (overriding the source server setting). (The 'Allow OS Cache' flag still needs to be set to enabled for localmounts but it will be overridden by the flag in the rcstartup by adding the -d flag to asset manager.) Note that the an error will be generated if a true local mount is used.

Optimization Settings

When working with external NFS Servers, RGB Networks recommends changing the following settings on the NFS Server (assumes a Linux NFS Server):

- Packager operation requires many simultaneous NFS operations so the number of active threads used by the NFS server must be increased from the default of 8 (on Linux) to at least 32 (total number of simultaneous clients per Packager), however it may need to increase beyond that. We recommend at least 40 NFS threads should be created by default. On a Linux-based NFS server, this can be done with the RPCNFSDCOUNT=40 variable setting in the nfs init script.

  In CentOS by default the NFS daemon spawns up to 8 processes. Systems with heavily accessed NFS storage can experience compromised performance after 8 concurrent connections to the NFS store. To improve performance, increase the default RPCNFSDCOUNT setting:

  Create the file:

  /etc/sysconfig/nfs

  Increase the default setting:

  RPCNFSDCOUNT=32

32 is a starting point. You may wish to increase to 64 or 128 for heavily loaded systems.

In order for the change to take effect, restart NFS:

/etc/init.d/nfs restart

You can test the write performance via NFS from the command:

ssh root@frontend.system

su atmailcd /usr/local/atmail/userstime dd if=/dev/zero of=/usr/local/atmail/users/testfile bs=16k count=1000

This will return the performance and transfer rate between a frontend and the NFS server.

16384000 bytes (16 MB) copied, 5.20865 seconds, 3.1 MB/s

Performance below 1 MB/s will result in the NFS performance being degraded.

- The export command used to export the NFS mount used for the Packager must be configured to export the mount as "async." The default setting for most NFS mount is "sync." For Linux you can edit the /etc/exports file to configure this option. For example, if the Packager is /media then the export command in the /etc/exports file might look like this "/media *(rw,async,all_squash,anonuid=501,anongid=501) - the important thing is the "async." The other options are also needed but already defined elsewhere in the existing user documentation.

- Finally, on some Linux operating systems the default socket buffer size is too limited and may cause problems for an NFS server when heavily loaded. It is recommended that these socket buffers be increased to at least 256K. The following commands can be used to increase the buffers **just** for NFS. It may be safe to increase these buffers permanently for all processes. Please note the example here is only applicable for Linux and only increases the buffer temporarily for the NFS server–this solution will not last through reboots. If the system reboots, the previous setting will take effect again. To make these changes permanent, these commands must be executed prior to starting the NFS server (by modifying the startup sequence for Linux - see init.d and rc.d directories). NFS servers may process various commands differently. As such, it is not possible to document each method that might apply to your specific NFS server. The example below is but one of many options and is applicable to a Linux system. The following lines can be copied and pasted into a Shell window on the Linux server running the NFS server from which the Packager is being exported. The user executing the command must be logged in as **root**.

  rmemd=`cat /proc/sys/net/core/rmem_default`
  rmemm=`cat /proc/sys/net/core/rmem_max`

```
wmemd=`cat /proc/sys/net/core/wmem_default`
wmemm=`cat /proc/sys/net/core/wmem_max`

echo 262144 > /proc/sys/net/core/rmem_default
echo 262144 > /proc/sys/net/core/rmem_max
echo 262144 > /proc/sys/net/core/wmem_default
echo 262144 > /proc/sys/net/core/wmem_max

/etc/init.d/nfs restart

echo $rmemd > /proc/sys/net/core/rmem_default
echo $rmemm > /proc/sys/net/core/rmem_max
echo $wmemd > /proc/sys/net/core/wmem_default
echo $wmemm > /proc/sys/net/core/wmem_max
```

Environment variable changes in Packager v5.0+

Starting with Packager v5.0, the rcstartup has been changed to allow several environment variables sustain across upgrades:

- The Asset manager will move its -d parm to a config file that will survive a software update
- The workflowmager will change its code such that the m=2 par is no longer required
- The sessionctrl change is no longer needed in Packager 5.0 since the product now has a WebGUI to configure prefetching. By default, pre-fetching is enabled. Some existing customers will need to go into the WebGUI and turn off pre-fetching, if desired.

MSS URL changes Packager v5.0+

When using MSS locally, the URL format has changed with Packager v5.0+.

Example MSS link previous: http://10.10.88.81/mssl/1/MyPackage.isml/Manifest.
Same URL in TAP-5.0: http://10.10.88.81/mssl/1/MyPackage/MyPackage.isml/Manifest.

The extra “MyPackage” was needed in previous releases, but the web server was appending automatically internally.

Change in output mount configuration

To achieve optimal performance with the packager, it is no longer needed to provision one mount point per package.

Using Swift API

When using the swift client API for object storage the segment size should be 10 seconds for HLS. Otherwise, the content may not publish fast enough and the package could fail

Upgrading Redundant Packagers

When upgrading Packagers that are redundant:

1. Do not upgrade the non-master tap first
   (Note: the Master TAP is also always going to be the Active TAP, and non-master is always going to be the Standby)
2. Do not remove Master TAP from the redundancy group. Only the non-master TAP should be removed from the redundancy group while the master must continue to have the association to the group during upgrade.