[**F-01609 ISA On Demand Full User Plane Capture (E-01217 & E-01216 & E-01249)**](https://wiki.danahertm.com/pages/viewpage.action?pageId=147685538)

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Introduction

The feature allows the user to override the truncation for a specific user plane protocol for a specific subscriber while continue truncating other user plane protocol traffic.  This enables the user to perform on demand troubleshooting on specific subscriber activity.

Driver for the feature is that the user plane protocols are typically truncated for processing and storage efficiency.  But in 3 out of 10 trouble tickets, users have the need to analyze the user plane traffic of a specific protocol from a specific subscriber for deep analysis.  The duration for capturing the specific user plane traffic is between 30 minutes and 72 hours.  One of the use cases where the user must look into the user plane payload is when the subscriber session establishment fails due to the subscriber entering the wrong user name or password for access.

The option for overriding user plane protocol truncation shall only apply to a specific user plane protocol for a specific subscriber. The system shall continue truncating the same user plane protocol from other subscribers as well as the other user plane protocols. In other words, the truncation override option shall not apply to the whole system.

Feature Content

Enter the following fields for all features in the release:

         Feature ID - The feature ID assigned in CPLAN (e.g. F-01234)

         Feature Title - The feature Title assign in CPLAN

         Engineering Work Item ID in CPLAN (e.g. E-05678)

         JIRA ID - For features tracked in JIRA, list the ID assigned to the feature (eg. FEAT-1234)

         JIRA URL - For features tracked in JIRA, list the URL assigned to the feature

| **Feature #** | **Feature Title** | **Engineering #** | **JIRA ID** | **JIRA URL** |
| --- | --- | --- | --- | --- |
| F-01609 | ISA On Demand Full User Plane Capture | E-01216 | IRIS-4304 | <http://tekcomms-jira.global.tektronix.net:8085/browse/IRIS-4304> |
| F-01609 | ISA On Demand Full User Plane Capture | E-01217 | IRIS-4434 | <http://tekcomms-jira.global.tektronix.net:8085/browse/IRIS-4434> |
| F-01609 | ISA On Demand Full User Plane Capture | E-01249 | IRIS-5417 | <http://tekcomms-jira.global.tektronix.net:8085/browse/IRIS-5417> |

Approach

Testing will be organized into multiple areas:

         Feature validation - consists of testing features during each development sprint

         System Level Validation - verifies that the features introduced perform as expected from a end-to-end system level point of view

         FVO validation (if required) - executed on features that cannot be sufficiently tested in the internal lab. This activity is executed on either a customer's live network, a customer's lab network, a Tek-owned FVO test site located in a customer's network or with traffic captures provided by a customer

         Documentation validation - verifies internal installation and configuration guides as well as customer facing documentation

         Performance validation - verified performance targets are met and system limiting characteristics of the product are identified

         Installation validation - verifies the product can be installed on a new system.

         Upgrade validation - verifies the product can be upgraded from up to N-4 releases

         Rollback validation - verifies the product can be rolled back to a prior release

         Uninstallation validation - verifies the product can be uninstalled from a system

         Stability validation - verifies that normal operation of the applications does not introduce stability issues such as excessive memory or CPU consumption, task reboots, etc.

         Robustness validation - verifies that the system can automatically recover from abonormal condistions such as task reboots, loss of connectivity, etc.

         Regression validation - verifies that functionality introduced in prior releases continues to function properly in the current release

         Defect validation - verifies that all defect fixes properly resolve the reported defects

Testing comprehensiveness and completion is determined by the quality criteria detailed in the Release Level Test Plan.

         Feature level test plan includes only feature validation and the related defect validation during the development sprints.

         100% requirement validation

         100% test execution

         100% validation of all defects

         95% test pass rate

         All outstanding critical and major defects are resolved

         Feature level test activities are to be closed before QA run.

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Dependencies

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Following features must be finished as well before the testing of this feature:

E-01215 IIC: On demand full user payload capture

Pass / Fail Criteria

Each test case contains an expected result and if all conditions of that expected result are met, the test case is passed.

Suspension Criteria and Resumption Requirements

A feature with one or more unresolved defects must be removed from the release content before the release GA milestone can be declared. Once the feature defects are resolved, all remaining feature test cases must pass before the feature can be included in the release content. Features that were removed from a prior release due quality issues may be added to the current release when all the feature test cases are re-executed and passed on the current release.

Testing Tasks

         Upgrade PLAT and APPS on G10 probe to latest build.

         Upgrade IRIS Server to the latest build.

Environmental Needs

The following equipment is required for successful completion of this test plan:

         One real G10 probe is loaded up with the latest PLAT/APPS package.

         One IRIS server is loaded with the latest IRIS package

Traffic Generation Utility Needs

N/A

Traffic Development Needs

Need GTP, A11/A10 tunnel traffic.

Responsibilities

The following parties will represent their respective organizations for this test plan's feature content:

QA Engineer: Xie, Jiping  
QA Manager: Jian, Weicheng  
Dev Manager: Ouyang, Yingxiu  
PMO: Lou, Zhaoyi  
PLM: Xin, Yanhong

Staffing and Training Needs

The following minimum number of QA engineers are required to successfully complete the testing activities outlined in this test plan:

1 QA Engineer

Schedule

See the Release Level Test Plan for Release Milestones.

PP - 11/30/2012  
DP - 12/21/2012  
Sprint 1 Dev Complete - WK5 - 1/25/2013  
**Sprint 1 Test Complete - WK7 - 2/8/2013**  
Sprint 2 Dev Complete - W10 - 3/1/2013  
**Sprint 2 Test Complete - WK12 - 3/15/2013**  
Sprint 3 Dev Complete - W15 - 4/5/2013  
**Sprint 3 Test Complete - WK18 - 4/26/2013**  
Sprint 4 Dev Complete & DCD - W19 - 5/3/2013  
**Sprint 4 Test Complete - WK22 - 5/24/2013**  
GA - TBC?

See individual test scripts for estimates of time required by test activity.

**Testables are planned on the basis of story delivery throughout the sprints:**

| **WI** | **Title** | **Story Point** | **Delivered Dev Sprint** | **Available for Test** |
| --- | --- | --- | --- | --- |
| E-01216 | ISA Probe: On demand full user payload capture | 24 | Dev Sprint 4 | WK18 |
| E-01217 | ISA Server/Client: On demand full user payload capture | 20 | Dev Sprint 4 | WK19 |
| E-01217 | OAM: On demand full user payload capture | 1 | Dev Sprint 3 | WK15 |

**Test strategy:**

| **Test Points** | **Check Points** | **For Server/Probe/Both?** |
| --- | --- | --- |
| License / Privilege:  System Upgrade from with media license before.  There was media capture license isa\_schedulecapture and some user roles with Media Capture, Media Capture Admin and ISA Flow Packet Retrieval before upgrade.  Replace the media capture license with new  full\_user\_plane\_capture license after upgrade. | •New license name is full\_user\_plane\_capture.  •Remove the following user privileges:  Media Capture             Media Capture Admin       ISA Flow Packet Retrieval  •Add the following user privileges:  User Plane Capture  User Plane Analysis  User Plane Admin  •User roles that have the Media Capture or ISA Flow Packet Retrieval privileges will be assigned the User Plane Capture and User Plane Analysis privileges.  •User roles that have the Media Capture Admin privileges will be assigned the User Plane Admin, User Plane Capture, and User Plane Analysis privileges. | Server |
| License / Privilege:  System Upgrade from without media license before. There was some user roles with ISA Flow Packet Retrieval before upgrade.  Don't add full\_user\_plane\_capture license in the beginning.  Then add the license. | When no full UP capture license:  •Remove the following user privileges:  ISA Flow Packet Retrieval  •Add the following user privileges:  User Plane Analysis  •User roles that have the ISA Flow Packet Retrieval privileges will be assigned the User Plane Analysis privileges.   Then add the license:  Following user privileges are added:  User Plane Capture  User Plane Admin | Server |
| License / Privilege: User Plane Anaylsis privilege backward compatible | It replaces privious ISA Flow Packet Retrieval privilege.  With privilege: Expand / Collapse All for FLOW in diagram are enabled and the shortcuts work also.  Without privilege: They are removed from the memu, and shortcuts do not work either. | Server |
| License / Privilege:  Feature control.  Say:  User Plane Capture privilege: UPCp  User Plane Analysis privilege: UPAnp  User Plane Admin privilege: UPAdp | Have UPCp: User Plane Capture for both Mobile User Plane and Media types (Audio/Video/RTP/FAX), detach and attach/terminate his own User Plane Capture okay. Can't see other users' User Plane Capture session. Can't expand FLOW record or Anaylize Media.  Have UPAnp: Can expand FLOW record or Anaylize Media. Can't do User Plane Capture.  Have UPAdp: Have both UPCp and UPAnp. And he can view others' User Plane capture and attach/terminate it.  No UPCp:  In ISA wizard, User Plane Capture is removed from Advanced Options for G10 probe. But keep the list of UserDataType in Generic Filter / G10 untouched. | Server |
| License / Privilege:  Adapting Content Capture  Say:  Content Capture privilege: CCp | Content Capture does not interfere with User Plane Capture whether license or privilege.  Have CCp: Content Capture. Detach and attach/terminate his own User Plane Capture okay. Can't see other users'  Content Capture? - TBC.  Have UPAdp, no CCp: Cannot view and attach Content Capture Session in Session Summary.  No CCp: Remove Content Capture from Advanced Options for G10 probe.  ~~No UPCp: Remove User Plane Capture from Advanced Options for G10 probe.~~  ~~No CCp or UPCp: Remove the whole User Plane Capture from Advanced Options for G10 probe. But keep the list of UserDataType in Generic Filter / G10 untouched.~~ | Server |
|  |  |  |
| Capture Filter: GUI label and layout check | User Plane Capture    -Audio    -Video    -Any RTP    -Fax    -Mobile User Plane     Content Capture    -MSRP    -SIP SMS | Server |
| Capture Filter: User Plane Capture filter validation - single content type. | For each content type there is a list of filters that are supported:   - Audio (RTP): Called Party, Calling Party, IP+Port  - Video (RTP): Called Party, Calling Party, IP+Port  - Any RTP: Called Party, Calling Party, IP+Port  - Fax (T.38): Called Party, Calling Party, IP+Port  - MSRP (MSRP): SourceURI, DestURI  - SIP SMS (SIP): Called Party, Calling Party  - Mobile User Plane (GTP-U or eHRPD UP Tunnel): IMSI, MSISDN | Server |
| Capture Filter: User Plane Capture filter validation - multiple content type. | For each content type at least one supported filter is selected.  For example, select Mobile User Plane and RTP capture, follows are valid at ISA client side. Client just do relax check, and probe returns result based on the filter.  A. IMSI = 111 or Called party = 222  B. IMSI = 111 and Called party = 222 | Server |
| Capture Filter: User Plane Capture filter validation - Content type optional? - TBC | When User Plane Capture is checked, and none is selected in Content Type, it means it cpatures all content types. i.e. Any RTP, FAX and Mobile User Plane.  Or we require at least one type must be selected, and prompt error if not. | Server |
| Capture Filter: User Plane Capture filter validation - 100 max subscribers | When content type Mobible User Plane is select, up to 100 IMSI/MSISDN can be set in the Generic filter. | Server |
|  |  |  |
| UP on demand capture - GTP-U.  Set a truncation of upmost layer protocol of GTP-U, like DNS or HTTP to 100 bytes. And enable the User Plane Capture - UP. | Both IMSI and MSISDN work.  Both GTPv1-C and GTPv2-C work.  Other traffic not matching IMSI/MSISDN are still truncated. | Both |
| UP  on demand capture - A10.  Test at least on traffic type in each layer types of A10 tunnels. Say GRE is layer 0.  Layer 1(Direct over GRE):  DNS, HTTP, RTP (combined with Media Capture), ICMPV6.  Layer 2 (over PPP): None. VSNCP, LCP, EAP, CCP, VSNP all do not support truncation.  Layer 3(over VSNP): DNS, HTTP, ICMPV6, RSVP.  Note: Some upmost layer protocols do not support truncation , therefore they are not listed to test overriding, e.g. SIP in layer 1. | Both IMSI and MSISDN work.  Eevery type of A10 traffic is captured in full length.  Other traffic not matching IMSI/MSISDN are still truncated. | Both |
| UP on demand capture - Gi IP Flow  Set truncation for HTTP.  Send GTPv1-C + HTTP IP FLOW (not tunnelled) which have the same subscriber IP.  Send GTPv2-C + HTTP IP FLOW. | Both IMSI and MSISDN work.  Both GTPv1-C and GTPv2-C work.  IP Flow are data captured in full length.  Other traffic not matching IMSI/MSISDN are still truncated. | Both |
| UP on demand capture - Multiple subscriber support | Select multiple IMSI/MSISDN, and start a UP on demand capture. Each traffic matching the IMSI/MSISDN is captured in full length. | Both |
| UP on demand capture - Multiple GTP sessions support for one subscriber | Select one IMSI and start UP on demand capture.  Send several GTP sessions with same IMSI but different MSIP one by one.  All sessions are captured on full length.  Same for A11/A10. | Both |
| UP on demand capture - Open traffic session support  New traffic session is tested in normal cases. | Make a long GTP-C session, and keep sending GTP-U traffic.  Then start a Full UP Capture.  The ongoing GTP-U is captured in full length.  Same for A11/A10. | Both |
| UP on demand capture - Stop full UP capture once ISA session closed | Start a Full UP Capture.  Make a long GTP-C session, and keep sending GTP-U traffic.  Stop the UP Capture, and keep sending the traffic.  The GTP-U traffic with the same subscriber is not captured at full length after the ISA session is closed.  Same for A11/A10 traffic. | Both |
| UP on demand capture - Stop full UP capture once Control Plane session closed | Start a Full UP Capture with IMSI=111.  Send a GTP traffic with IMSI = 111 and MSIP = 1.1.1.1.  Stop the UP capture.  Send a GTP traffic with IMSI = 222 and MSIP = 1.1.1.1.  Second traffic is truncated, not full UP captured. | Both |
| Result Content Type Display - Mobile User Plane | Display Mobile User Plane in a column Content type in ISA result page - Session Summary pane, for any User Plane of GTP-U and A10 from G10 probe, regardless of whether the traffic was data captured or not.  IPFlow session records will not have the Mobile User Plane content type.  Both on demand and persistent capture returns the Content Type. | Both |
|  |  |  |
| UP on demand capture - Historical recall | Once it is ever content captured, it is stored in S2D at full length.  Make a historical search to recall the sessions to confirm. | Both |
| UP on demand capture: 100 max subscribers support | Mobible User Plane on demand capture supports 100 IMSI/MSISDN for one ISA capture session on one probe, and all UP Plane are captured in full length (unless IIC capture limit is reached) and returned and shown well in ISA client result page.  Both GTP and A11/A10 work. | Both |
| UP on demand capture - Handling IIC Capture Limit | •IAP sends a message to ISA server indicating the capture filter for which IMSI or MSISDN could not be added for which trace session.  •IAP periodically retried adding the filter again. When added successfully, IAP sends a message to ISA server indicating the capture filter for which IMSI or MSISDN has been added for which trace session.  • You see the capture filter adding failure and retry success in ISA client Event log.  • You see the captured records in full length in ISA result when retry is successfully. | Both |
|  |  |  |
| UP persistent capture - Configuration GUI check | GUI will be provided to populate plist entries for persistent Mobile User Plane Captures. The plist structure should be a simple structure where there is an entry per profile and each profile has attributes.  Attributes required for a persistent profile:  •Filter ID.  •IMSI or MSISDN.  •End time.  •Content Type  •Enabled  The configuration can live under the ISA Configuration tab as one of the options.  There should be the ability to create, edit and delete profiles. | Server |
| UP persistent capture - Content Type Support | Only Mobile User Plane will be allowed.  Media content types are not allowed for persistent capture.  [Jiping] SIP SMS  is excluded either for latest change on FOD. | Server |
| UP persistent capture - One Profile | Persistence capture works per setting. | Both |
| UP persistent capture - Two Profiles with same subscriber but different time. | Say Profile A: IMSI = 111, End Time = 1PM. Enable it on 1AM.  Profile B: IMSI = 111, End Time = 2PM. Enable it on 2AM.  UP captured for the subscriber is 1 AM to 2 PM. | Both |
| UP persistent capture - server reboot support. | Configure persistent capture.  RebootBC in Probe. It still captue after.  Reboot IRIS service in IRIS server. It still capture after. | Both |
| UP persistent capture - Delete profile | Once profile is deleted, the UP capture is stopped. | Both |
| UP persistent capture - 1000 max subscribers | Support up to 1000 IMSI/MSISDN in UP persistent capture profiles at IRIS system wide.  Count the enable profiles only. - TBC?  Count the total on multiple G10 probes. | Both |
| UP persistent capture - 1000 max subscribers function test on one probe  The aim is not to test the performance impact which should be conducted by performance team. | Configure 1000 IMSI/MSISDN UP persistent capture on one probe.  Send traffic match the 1000 IMSI/MSISDN on low bitrate.  They are all captured in full length unless IIC capacity limit is reached.  ISA server and probe behave normally without coredump or reboot etc. | Both |
| UP persistent capture - Handling IIC Capture Limit | For UP persisten capture, when IIC Capture Limit is reached and return an invalid handle. It should keep retries (every 30s) and write error or warning in log files. | Both |
|  |  |  |
| UP capture - Only CP/UP combined mode supported | CP/UP split mode is not supported.  The Mobile User Plane is still truncated.  It is better ISA client prompt a error or warning when user start a Mobile User Plane capture if split mode is set in Probe properties. - TBC? | Both |
| OAM activity log - UP on-demand Capture | For each capture, it should be logged in Activity log with following information:  It is User Plane Capture.  Its Content Type.  Its filters. | Server |
| OAM activity log - UP persistent Capture | Create/Edit/Deleted UP persistent Capture profile should be logged.  Note: Its Activity type should be added into Activity filter box. IFC profile has issue that its activity types are not added in. | Server |
| System health statistics on ISA session number of running on demand user plane captures. | Feed the ISA session number of running on demand user plane captures to system health process in proper format periodically or on change.  KPI format is not confirmed yet. - TBC | Server |
| SMS/MSRP is still stored as masked in UP capture. | Start an UP on-demand capture.  Send SIP SMS over GTP-U, and don't enable SMS Content Capture.  The SMS is still stored masked in probe as '0xff'. | Both |
|  |  |  |
| Data loss less than 2 seconds | Start an UP on-demand capture.  And send GTP traffic in the same time.  The UP packets which is still truncated in the bigining is less than 2 seconds after the ISA capture is started. It is because the delay to push the filter to probe and then IIC board. | Both |
| Document: Online help is updated | Updated before GA. | Server |
| Document: Online SFD is updated | Updated before GA. | Server |
| Document: Training document | Feature related document is sent to TEK training apartment as requested. | Server |
|  |  |  |
| Check the 1000 filters per-probe limit for on-demand filters. | When it reaches the limit, probe returns a message to server to indicate UP capture limit is reach, and truncation will not be overriden, but it will still return the session records truncated. | Both |
| new stats in aui TrafficProcessor-1-1 | It show Persistent Filter Stats. It includes a counter for the case where a filter expired before it's inserted to the filter digit tree, that is the counter of the filters failing to be sent to IIC for full user plance capture.  It may be not testable to check the expired filter counter in end to end QA test. | Probe |

Risk Analysis

Based upon review of this feature's requirements the following risk assessment will drive the test planning for this feature.

 E-01216

| **Risk** | **Level (H / M / L)** |
| --- | --- |
| Number of defects found in field the last year in this feature area | M |
| Expected customer usage of this feature | H |
| Size of the changes to the code base | H |
| Developer experience in this area of the code | M |
| Number of defects found in the previous release in this feature area | L |
| Risk to upgrades | L |
| Risk to backwards compatibility | M |
| Risk to robustness | M |
| Risk to documentation | L |
| Amount of integration required | M |
| Risk to capacity | H |
| Unit test Coverage | M |
| **Test Risk Score** | **77** |

 E-01217

| **Risk** | **Level (H / M / L)** |
| --- | --- |
| Number of defects found in field the last year in this feature area | M |
| Expected customer usage of this feature | H |
| Size of the changes to the code base | H |
| Developer experience in this area of the code | H |
| Number of defects found in the previous release in this feature area | L |
| Risk to upgrades | L |
| Risk to backwards compatibility | M |
| Risk to robustness | M |
| Risk to documentation | M |
| Amount of integration required | M |
| Risk to capacity | H |
| Unit test Coverage | H |
| **Test Risk Score** | **73** |

 E-01249

| **Risk** | **Level (H / M / L)** |
| --- | --- |
| Number of defects found in field the last year in this feature area | L |
| Expected customer usage of this feature | H |
| Size of the changes to the code base | L |
| Developer experience in this area of the code | M |
| Number of defects found in the previous release in this feature area | L |
| Risk to upgrades | L |
| Risk to backwards compatibility | M |
| Risk to robustness | M |
| Risk to documentation | L |
| Amount of integration required | M |
| Risk to capacity | M |
| Unit test Coverage | M |
| **Test Risk Score** | **59** |

Review Minutes

Date of Review:

Attendees:

1.

2.

3.

Actions:

1.

2.

3.