

TAP Testing Toolkit

In today's competitive wireless marketplace, a seamless service offering and accurate billing is the key to a company's success. Maintaining market share depends on providing new services to your subscribers - anywhere, both at home and while travelling.

The GSMA has worked closely with its membership to develop standards for the interfaces needed to provide and bill for these services. IDS (Interoperability Data specifications and Settlement Group) is the GSMA Working Group responsible for defining solutions for exchanging billing information. IDS prepares the permanent reference documents (PRDs) that define billing and testing standards, which are used for billing record exchanges between companies.

The IDS billing process uses two formats: Transferred Account Procedures (TAP), the GSMA standard for roaming call events, and Returned Account Procedure (RAP), the GSMA standard for rejecting and returning invalid call events. TAP and RAP files facilitate inter-company settlements and bill presentation on all call activity.

Testing the TAP and RAP processes

GSMA recommends the TADIG Testing Process, to test TAP and RAP processes, be used with each roaming partner for every new, or updated, agreement, service or billing system. The TAP Testing Toolkit (TTT) is designed to aid companies with this testing.

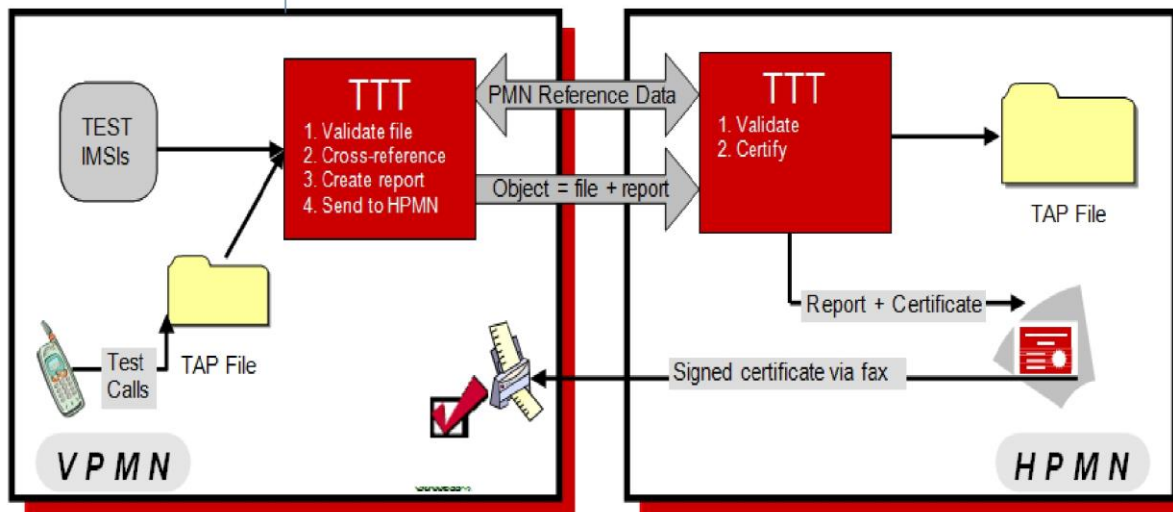


Figure 1: TADIG Testing Process using the TAP Testing Toolkit

Network tests are performed to test the provisioned services on the visited network (VPMN) using Test IMSIs. TAP files are created and validated in the TTT by the Visited Operator (VPMN). Call events are cross-referenced to test cases and results are sent to the Home Operator (HPMN).

The HPMN re-validates files in the TTT ensuring that commercial files will be successfully received by the HPMN. The HPMN can then certify the results using TTT reports

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TTT Benefits

Automated Testing Processes

Many companies have more than 200 roaming agreements. The TTT provides key features (such as cloning) that save time for companies allowing them to re-test interfaces with their partners in a short period of time.

Additionally the TTT automates the processes for validation, cross-referencing and exchange of test information. With the TTT a company can ensure their TAP and RAP compliance easily and effectively.

Faster 'Time to Market'

With the TTT, companies can launch more roaming agreements in a shorter timeframe allowing them to offer wider and more consistent service.

Consistent Standard Interpretations

TAP and RAP are complex standards and different interpretations can result in billing records to be rejected or delayed by partner companies. Using TTT, all participants are sure their TAP processes comply with industry standards avoiding record or file rejection.

Reduced Risk of Revenue Loss

Without proper testing of the wholesale billing interface there is a risk that TAP files may contain undetected errors. Revenue losses may occur directly if services are not charged correctly to subscribers, or indirectly through disputes resulting in old, un-billable call events.

Key Functionality Points

TAP file validation – Performs validation on TAP files based on the appropriate TADIG PRD and bilaterally agreed configuration (Note: TTT allows the user to turn on and off some basic TAP3 validations as bi-laterally agreed in roaming agreements)

File viewer – Allows the tester to easily view the details of any file (up to 200 Mb in size) in any format (TAP1, TAP2, NA TAP2, TAP2+, TAP3 or RAP)

Filtering events – Allows users to search for specific test cases using flexible search criteria (IMSI, service, APN, call date, time / call type and others) to make the process easy and fast.

Cross-referencing – Facilitates mapping of specific call events to exact TADIG specifications, and for TADIG test cases, the user can use 'point and click' to associate a test case with a call event or upload IREG test results or upload IREG test results and perform automated cross referencing.

Object creation – Creates 'objects', containing the TAP file, applicable cross-references, roaming agreement data and report – into one package sent via email to the HPMN. This information can be easily retrieved and certified.

Reporting – Generates reports in a standardized (or customised) format for easy accessibility. Reports are stored in an RTF file format for partner retrieval and viewing. Companies can match their needs with customised reports.

Cloning – Allows the copying of specific files for submission to additional HPMN partners as required. Confidential information (such as subscriber identifiers) is updated prior to file copy. This feature is valuable when billing systems are upgraded.

Test Management – Enables operators to efficiently manage the planning and scheduling of tests with each roaming partner.

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System Requirements

Processor	Pentium, 166 MHz or greater
RAM	32 Mb minimum
Disk Space	20 Mb plus the TAP file space
Operating System	Windows™ 95, 98, 2000, NT, ME, XP, Vista, Windows 7
Screen Resolution	1024 X 768 recommended

TTT Software

The TTT Software is available free of charge to GSMA Full Members and can be downloaded from the Infocentre [TTT Homepage](#) Other types of GSMA members and non-members can purchase the TAP Testing Toolkit for a small initial fee and annual maintenance fee.

Software Licence Fees

GSMA Associate Member/Rapporteur	
Base 1-10 Users	£5,000
Additional 10 User blocks	£2,500
Non-member	
Base 1-10 Users	£10,000
Additional 10 User blocks	£5,000

Annual Maintenance Fees

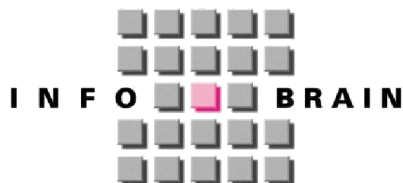
Associate Member/Rapporteur	
Base 1-10 Users	£2,000
Additional 10 User blocks	£1,000
Non-member	
Base 1-10 Users	£2,500
Additional 10 User blocks	£1,000

Notes:

1. All fees are charged in British Pounds (GBP)
2. The license fee and the first year's maintenance fee will be invoiced on delivery of software
3. Annual maintenance fees are invoiced on 1 January of each year
4. Prices are subject to change
5. The maintenance fee is invoiced on a full year and not prorated

Other Information

The TTT was developed on behalf of the GSM Association by INFOBRAIN AG.



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