



# **TTCN-3 Test Code Developments - Request for Information**

Version – 1<sup>st</sup> May 2008

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**Open Mobile Alliance**  
OMA-BOD-IOP-2008-0007R04-INP\_TTCN\_3\_Test\_Code\_Developments\_RFI

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# 1. Scope

The mission of the Open Mobile Alliance (OMA) is to facilitate global user adoption of mobile data services by specifying market driven mobile service Enablers that ensure service interoperability across devices, geographies, service providers, operators, and networks, while allowing businesses to compete through innovation and differentiation.

As part of OMA's development of these Enablers, OMA also develops Enabler Test Specifications containing Test Cases that can be used to verify both the completeness and integrity of the Enabler Specification, as well as the interoperability of the implementations developed by Members.

To supplement the test strategies at OMA, the Alliance has recently adopted a strategy of using the Testing and Test Control Notation (TTCN-3) language to translate some of the Test Cases in an Enabler Test Specification into an executable representation, if this is appropriate for the Enabler.

OMA envisages that Test Tool companies will implement the Test Cases in their Test Tool for the market in general, and the market will thus provide a general set of test tools for each Enabler selected for TTCN-3 Test Case development. The anticipation is that the resulting Test Tools will be tested against member implementations at an OMA TestFest or other Bi-Lateral test event, and can then be used outside of OMA to verify the conformance of other implementations of the OMA Enabler.

In this Request for Information (RFI), OMA would like to understand from Test Development Vendors the types of services that are available to support the development of TTCN-3 Test Cases when they are needed.

OMA is also interested to understand the different commercial models that could apply for the development and provision of test cases to its members and in support of the interoperability TestFest events that it organises.

The end goal of this initiative is for OMA is to select one or more Test Development vendors through which to license the TTCN-3 Test Case Developments for review, implementation and use by OMA Member companies.

Should your company wish to provide a response to this document please send an email indicating your intent to respond to [OMA-Test-Tools@mail.openmobilealliance.org](mailto:OMA-Test-Tools@mail.openmobilealliance.org) by **16<sup>th</sup> May 2008**. Submitting an intent to respond does not obligate your company to make a response. Failure to submit an intent to respond by the **16<sup>th</sup> May 2008** will not prevent your company from responding to this RFI. However, you may not receive the responses to any questions asked, if OMA are not aware of your intention to respond.

If you have any questions regarding this RFI please send an email to the above address by **23<sup>rd</sup> May 2008**. OMA will respond to any questions asked by this date – circulating anonymous responses to all companies who have indicated an intent to respond to this RFI. OMA cannot guarantee to respond to any questions asked after **23<sup>rd</sup> May 2008**, but if such answers are possible, an anonymous response will be sent to all companies who have submitted an intent to respond.

Your final response is requested to be submitted by **Email to [OMA-Test-Tools@mail.openmobilealliance.org](mailto:OMA-Test-Tools@mail.openmobilealliance.org) by 5pm GMT on 16<sup>th</sup> June 2008**. All responses should be submitted as a password protected PDF or DOC file that allows printing of the document, but prevents any modification of the document.

As part of the RFI evaluation process, it may be required for the vendors to do a presentation to the OMA members at one of the already scheduled OMA meetings. The vendor shall be responsible for all travel costs associated with this presentation.

Nothing in this document should be construed as providing any commitment by OMA to enter into any license or purchase agreement with any respondent to this request for information.

**Any information provided will be treated in confidence by a group of OMA member company participants that are not directly part of the test industry and will not be used for any purpose other than the evaluation of Test Development requirements envisaged in this Request for Information.**

## 1.1 Instructions to Respondents

### 1.1.1 Response period and address

It is expected that all communication be in the English language. The response should be submitted as:

One (1) password protected PDF or Word document (Password to prevent modification of the document).

The response shall be marked "RFI. TTCN-3 Test Developments" and it is to be addressed to:

Open Mobile Alliance Ltd.  
Attn.: Howard Greenwell  
Director of Technical Programs  
Brook House, 60-62, Northbrook St.  
Newbury, Berkshire, UK RG14 1AH

Tel: (+44) 163 542 944

E-mail: hgreenwell@omaorg.org

Response by Email should be submitted no later than **5pm GMT on 16<sup>th</sup> June 2008**, at the latest.

If you choose to submit a Hard Copy response, this should be postmarked no later than the above date and time.

Suppliers whose responses have not been selected for further evaluation will be advised thereof in writing.

### 1.1.2 Time schedule

Initial Expression of Interest to Respond to this RFI	<b>16<sup>th</sup> May 2008</b>
Date for last questions where a response will be guaranteed	<b>23<sup>rd</sup> May 2008</b>
Publication of All Questions asked about the RFI	<b>30<sup>th</sup> May 2008</b>
Closing Date for all Responses to this RFI	<b>16<sup>th</sup> June 2008 – 5pm GMT</b>

### 1.1.3 Evaluation finalized

The evaluation of the submissions will be conducted from **23<sup>rd</sup> to 27<sup>th</sup> June 2008** and each supplier will be advised in writing of the outcome of that evaluation in **early July 2008**.

## 1.2 The OMA Contact Persons is:

For any technical, licensing or commercial questions you may have, please contact:

Open Mobile Alliance Ltd.  
Attn.: Howard Greenwell  
Director of Technical Programs  
Brook House, 60-62, Northbrook St.  
Newbury, Berkshire, UK RG14 1AH

Tel: (+44) 163 542 944

E-mail: [hgreenwell@omaorg.org](mailto:hgreenwell@omaorg.org)

### 1.3 Criteria for Evaluation.

The information will be evaluated from the following perspective (in alphabetical order):

- Commercial terms and conditions
- Supplier criteria
- Technical criteria

## 2. References

### 2.1 Normative References

[RFC2119] “Key words for use in RFCs to Indicate Requirement Levels”. S. Bradner. March 1997.  
URL:<http://www.ietf.org/rfc/rfc2119.txt>

[OMAIOPPROC] OMA Interoperability Policy and Process, <http://www.openmobilealliance.org/>

### 2.2 Informative References

None.

## 3. Terminology and Conventions

### 3.1 Conventions

This is an informative document, which is not intended to provide testable requirements to implementations.

### 3.2 Definitions

<b>OMA IOP WG</b>	The OMA Working Group in charge of Interoperability issues concerning the OMA specifications
<b>OMA IOP BRO</b>	A sub-working group of the OMA IOP WG responsible for issues relating directly to the OMA Browsing and related Content Enablers.
<b>OMA IOP MEC</b>	A sub-working group of the OMA IOP WG responsible for issues relating directly to the OMA Messaging and related Content Enablers.
<b>OMA IOP TTCN-3</b>	A sub-working group of the OMA IOP WG responsible for issues relating directly to the OMA TTCN-3 test case developments.
<b>TestFest</b>	An interoperability event where different manufacturers' servers and clients are tested towards each other to verify that they can interoperate correctly according to test classes
<b>Test Tool Vendor</b>	The author/supplier of a Test Tool, which can implement and execute TTCN-3 coded Test Cases

### 3.3 Abbreviations

ETG	Enabler Test Guidelines
ETP	Enabler Test Plan
EVP	Enabler Validation Plan
ETS	Enabler Test Specification
EICS	Enabler Implementation Conformance Statement
CSP	Client to Server Protocol
HTTP	Hyper Text Transfer Protocol
IOP	Interoperability
IOT	Interoperability Testing
IUT	Implementation Under Test
OMA	Open Mobile Alliance
SCR	Static Conformance Requirement
SSP	Server to Server Protocol



## 4. Overview of Responses Requested

OMA would like responses from respondents to cover three areas. These areas are:

- Company Background
- Commercial Overview of Services being proposed (Section 5)
- Technical Competence of the company to provide the services requested (Sections 6).

### 4.1 Company profile

The company background information sought should include the following information:

- Organisation structure,
- Owner structure,
- Partnering within the telecommunication industry,
- Size of development and support departments, and
- Published results from the previous financial year.

Respondents are asked to limit the information provided to not more than 4 pages of input.

### 4.2 Commercial Information

The commercial information sought should include sufficient detail for the OMA members to address the issues raised in section 5. Respondents are asked to limit the information provided to not more than 4 pages of input.

### 4.3 Technical Compliance

Respondents are asked to review all of the Technical Requirements defined in Section 6, and indicate their compliance or non-compliance to each of the requirements raised.

Where a respondent indicates a non-compliance to one of the Technical Requirements, the respondent is asked to provide some commentary related to the work required in their development environment to support this feature, including the expected timescale for the feature's implementation.

## 5. General and Commercial Overview

This section describes the general requirements that will be necessary of any Test Development Vendor that is recommended for implementing any development work by the member companies of OMA to be granted an OMA Framework Agreement that can be used to instruct the Test Development Vendor.

OMA may enter into zero or more OMA TTCN-3 Framework Agreements with Test Development Vendors. These agreements will provide an understanding of the commercial terms that will be available to OMA for the development of the TTCN-3 Test Cases for a particular OMA Enabler. Where OMA enter into more than one Agreement, a selection process that yet to be decided, will be used to determine which Test Development Vendor is appointed for each new TTCN-3 development.

### 5.1 Indicitive Nature of Responses

Respondents to this RFI are requested to note that all responses will be treated as “Indicitive in Nature”. As OMA are not requesting a formal proposal relating to a specific OMA Enabler, OMA expects there to be areas of each response that cannot be detailed.

OMA is looking to understand what Commercial and Technical requirements a Test Development Vendor will have in supporting OMA and its mission. Prior to any instruction to develop TTCN-3 Test Cases for an OMA Enabler, a formal Request for Proposal and agreement of terms will be concluded with the selected Test Development Vendor

### 5.2 Intellectual Property Rights

OMA require that any development undertaken by a selected Test Development Vendor will become the Intellectual Property of OMA and all Copyrights will reflect the ownership of OMA. While OMA will grant a non-exclusive, non-transferable, royalty free license to the Test Cases to the Test Development Vendor (see below), OMA will only enter into a Framework with a company that accepts this condition.

The arrangement that OMA will put in place for the development of Test Cases under a TTCN-3 Framework will be a “Work for Hire” agreement, where after completion of the Review of the delivery by OMA and the subsequent re-delivery of the Test Cases, the Test Development Vendor has no further rights or interest in the Test Cases developed.

### 5.3 Areas of Interest

As part of the submission, a Test Development Vendor is requested to provide OMA will some details on the specific areas of interest the company has with regard to the OMA Enablers. Knowledge of specific areas of expertise currently existing in a company that can help OMA when selecting with Test Development Vendor partner to work with in developing a group of Test Cases.

### 5.4 Test Development Vendor Terms and Conditions

As part of the response to this RFI, OMA would like to understand from respondents the terms and conditions under which the Test Development Vendor would enter into a business relationship with OMA.

These terms and conditions should note the above statements from OMA regarding the IPR and Work for Hire nature of the relationship that OMA envisages with the Test Development Vendor.

## 5.5 Timeline for Development

OMA envisage the timeline for any development of TTCN-3 Test Cases to include the following elements in the project:

- Selection of and contract with the Test Development Vendor
- Review of the Enabler Test Specification for the selected Enabler
- Coordinated Review (with OMA Members) and Update of the current OMA Testing Framework to encompass the new Enabler
- Coordinated Review (with OMA Members who will enhance their Test Tools) of the Framework in relation to the Test Tool company platforms
- Development of the TTCN-3 Test Cases
- Delivery of the TTCN-3 TestCases to OMA
- Review of the TTCN-3 Test Cases by OMA
- One Bug Fix Delivery of the TTCN-3 Test Cases from the Test Development Vendor

OMA would request that respondents to this RFI estimate the timeline that such a project might follow based on a request to implement approximate 20 Test Cases in TTCN-3. The estimate should include both an approximate number of person days of effort and the respondents daily charge rate in Euros or US Dollars.

## 5.6 Delivery of Test Cases

The Test Development Vendor will be required to deliver the TTCN-3 Test Cases in Source Code form. OMA will also require delivery of any supporting documents relating to changes that are necessary in the Test Framework and the Enabler Test Specifications.

## 5.7 License to Test Development Vendor

As part of the benefits for being selected as the Test Development Vendor for a particular Enabler, OMA will grant the Test Development Vendor a non-exclusive, non-transferrable, perpetual, royalty-free license to use and distribute the TTCN-3 Test Cases. As part of this license, the Test Development Vendor will be required to report any problems found in the Test Cases through use and distribution by the Test Development Vendor.

## 5.8 Distribution to OMA Members

OMA's current business model for TTCN-3 Test Case developments operates under the guidance of the Board Interoperability Committee of OMA and the IOP TTCN SWG group.

IOP TTCN SWG performs the review and analysis of the Test Cases as delivered by the Test Development Vendor. Once reviewed and updated by the Test Development Vendor, the TTCN-3 Test Cases are then made freely available to the OMA Members to be able to implement them in appropriate Test Tools.

OMA Members are automatically given a License to Distribute the accepted TTCN-3 Test Cases as part of their own Conformance Test Tools.

## 5.9 Warranty and Support

The Test Development Vendor is expected to provide at least a ninety (90) day Warranty Period that the TTCN-3 Test Cases delivered conform to the Enabler Test Specifications as provided by OMA. OMA does not expect that the TTCN-3 Test Cases will be entirely free of programming errors, but does expect that the Test Development Vendor will provide support to the OMA Members during the Warranty period.

There will be no Support requirement relating to the TTCN-3 Test Cases after the Bug Fix redelivery of the TTCN-3 Test Cases to OMA and its' Members.

## 6. Technical Requirements

### 6.1 Conformance Indicator

The Test Tool(s) that will implement the TTCN-3 Test Cases are to be used as a conformance indicator for the implementations of the OMA Enablers. The reports and test results generated by such a Test Tool will be used in demonstrating conformance testing as defined in the IOP Process [OMAIOPPROC].

### 6.2 ETS Review

Initially in any TTCN-3 Development, the selected Test Development Vendor will review and provide comment on the latest Enabler Test Specification from OMA in relation what information is missing with regard to the detail of each Test Case.

The outcome of such a review will a document provided to the appropriate OMA IOP SWGs that can be used to determine if the ETS needs to be updated with additional information. OMA may choose, at its' option to change either change the ETS document or provide a separate document with the missing information.

### 6.3 Review of OMA Testing Framework

OMA already have a Testing Framework developed as a result of a previous TTCN-3 project. It is required that the Test Development Vendor look to enhance this framework to incorporate any changes necessary to support the new TTCN-3 Test Cases that are envisaged by any new development.

OMA anticipate that a single common Framework will evolve that should support all or nearly all OMA Enablers in future.

The Test Development Vendor is expected to work with the involvement of interested OMA Members who feel they have experience to add to the development of the framework for the Enabler, arranging appropriate meetings and conference calls as necessary to permit the input of the OMA members.

### 6.4 Member Contribution

During the development of a new TTCN-3 Test Cases for an Enabler, the Test Development Vendor is expected to encourage and allow for the participation of the OMA Member companies interested in the Testing Framework and Test Tool Vendor platforms that the TTCN-3 Test Cases will run on.

The Test Development Vendor is expected to Co-ordinate the input from the OMA Members, represent these inputs in the TTCN-3 Test Cases and the supporting documentation.

### 6.5 Requirements of Test Cases

The Test Cases developed need to have the ability to be used for debugging and development purposes, as well as an aid in member preparation for a TestFest. Each Test Case must have sufficient allowance for reporting erroneous behavior and providing meaningful responses to a user when things go wrong.

This will be particularly relevant for Test Tools implementing the Test Cases at an OMA TestFest where engineers from many companies implementing products designed to comply with the Enabler specification meet in a single location to test the interoperability of their implementations across many different manufacturers. Conformance testing is an integral part of the OMA Interoperability Program and the Member company Test Tools implementing the Test Cases will be used to help the members to fulfil this requirement.

## 6.6 Participation in Test Case Review

Once the TTCN-3 Test Cases have been developed and delivered to OMA by the Test Development Vendor a period of review will take place within the OMA Members.

It is a requirement of any agreement with the Test Development Vendor that they make themselves available to participate in Conference Calls relating to any changes that may be necessary in the source code to allow OMA to accept the TTCN-3 Test Cases.

## 6.7 Bug Fix Release

At the conclusion of the Review of the TTCN-3 Test Cases by OMA, the Test Development Vendor is required to provide OMA with a coordinated release of the TTCN-3 Test Cases and supporting documentation that reflects all of the updates discussed within the OMA Review Period.

## 6.8 Deviation from OMA ETS Test Cases

The Test Development Vendor is not authorized to make any changes to the OMA Enabler Test Specifications and the resultant TTCN-3 Test Cases unless the changes have been discussed with the relevant IOP SWG groups that control the Enabler Test Specification. Changes to the OMA ETS will be approved by the OMA Members through the current agreed processes adopted by OMA.

Where the ETS contains an inconsistency that cannot be represented in the TTCN-3 Test Case, then it is required that the Test Development Partner raise an OMA Change Request to be discussed with the appropriate OMA IOP SWG responsible for that ETS. Only once the Change Request has been accepted, can the new requirement or behavior be reflected in the TTCN-3 Test Case.