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Deliverable D3 – Public Extract¹⁾

Definition of focus for threads B, C and D:

Areas of existing tests needing revised strategies and areas of new assertions

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Abstract:

This report focuses on the collection of practical experiences which the MHP Confidence project members have collected during the course of 2003 and during interoperability workshop in January 2004. The document lists the main problem areas found when those experiences were analysed. It analyses the fit between those problem areas and the existing test suite. It prioritises how to address those problems within the scope of WP 3.1, WP 3.2 and WP 4.

Keyword list:

Test assertions, test strategies, areas of tests

¹ For reasons of the legal framework of the DVB and Test Suite arrangements., the full version of Deliverable 03 cannot be made available as public document. This extract gives an overview on the areas for improvements to Conformance Testing that will be addressed by MHP-CONFIDENCE.

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Definition of focus for threads B,C,and D

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Document Notes

This document contains the first report of Areas of existing tests needing revised strategies and areas of new tests.

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1 Introduction

1.1 Purpose

This document contains an extract from the first report of a series of reports defining the focus of the future test generation.

This is a public sub-set of Deliverable 03 of the MHP CONFIDENCE project, Work Package 2.2.

Note: The complete version of Deliverable 03 cannot be made available for public access for a number of reasons including the following;

-  Some information is from the ongoing DVB process which is available to DVB members only
-  Some information concerns contributions to the DVB MHP Test Suite which have made available under DVB/MEG's confidentiality arrangements in order to enable a sufficient contributions to the MHP Test Suite
-  Some information is covered by ETSI's Test Suite licensing arrangements
-  Some of the information was obtained under NDA

1.2 Scope

This report focuses on the collection of practical experiences which the MHP_CONFIDENCE project members have collected during the course of 2003 and during an interoperability workshop in January 2004. The document lists the main problem areas found when those experiences were analysed. It analyses the fit between those problem areas and the existing test suite. It prioritises how to address those problems within the scope of WP 3.1, WP 3.2 and WP 4.

1.3 Definitions, Acronyms and Abbreviations

Term	Definition
MHP	Multimedia Home Platform
DVB	Digital Video Broadcasting Project
API	Application Programming Interface
WP	Work Package

1.4 References

[no public references]

1.5 Overview

Chapter 3 describes the reported problem areas categorized to identified problems, clarification needing ones and specification issues. Chapter 4 gives the prioritization .

2 Reported problem areas

2.1 Introduction

MHP_CONFIDENCE did a survey of selected MHP application developers to identify where they were having inter-operability problems between receivers. The purpose of that survey was to identify significant areas of the MHP specification which are not covered well enough by the current conformance tests and where this is causing problems in the market. This document summarises the results of that survey and the analysis done on the results.

2.2 Problems that are well known and identified

2.2.1 Text rendering and font metrics

It is well understood by most of the MHP community that there are inconsistencies in rendering the same piece of text on different receivers. It will come out to be very different widths and/or with different line spacings. This is contrary to the intention of the MHP specification which, while allowing manufacturers freedom about how they render text, was intended to guarantee developers consistent text flow and font metrics. This issue is partly a matter of specification – a number of improvements to the specification in this area were made between MHP 1.0.2 and 1.0.3 based on feedback from inter-operability activities in the German market. This issue also related to deficiencies in the MHP 1.0.2 conformance tests.

MHP 1.0.3 conformance tests for text should improve the coverage of the MHP 1.0.2 specification language as well as testing the improvements made between 1.0.2 & 1.0.3.

2.2.2 Access to DVB-SI

Comments were received that even conformant MHP 1.0.2 receivers did not support access to EIT schedule and to cross-carried DVB-SI. On further analysis, it turns out that the tests have reasonable coverage of the API but only for certain cases, e.g. where the data being read is carried in the most obvious table.

MHP 1.0.3 conformance tests should test for keyAPI calls, all the common tables which the data returned could be read from.

2.2.3 DSMCC Object Carousels

It was reported that not all boxes detect dynamic changes in object carousels. Some of these problems have settled during the market introduction phase, but only additional conformance tests can reliably exclude such problems in the future

MHP 1.0.3 conformance tests need to test that the correct version of a file is returned for each of the possible levels of cache transparency.

2.2.4 Scheduled Stream Events

Comments were received that DSMCC NPT and scheduled stream events are problematic. This fact is complicated by problems reported from the USA that NPT may be lost or broken as it passes through certain kinds of digital TV distribution network. The severity of these problems in DVB markets is less than clear. Solutions are being discussed in DVB which would replace NPT with a more resilient solution.

2.2.5 Specification Changes Between MHP 1.0.1, 1.0.2

A number of the issues reported concerned specification changes between MHP 1.0.1 and 1.0.2. This is caused by the fact that Conformance Test were developed in parallel with updates of the

MHP specification and that the development and verification of such tests need a significant and non-zero time period.

The MHP 1.0.3 conformance test suite needs to test the additional language added between MHP 1.0.1 and 1.0.2 as well as that added between 1.0.2 and 1.0.3.

2.2.6 JMF Players

There are a number of issues with the integration of MediaSelectControl from JavaTV into MHP and the DVB environment, e.g. problems passing some formats of the dvb locator as parameters.

Additional tests are needed for MediaSelectControl to validate the behaviour with the wide range of different locators with which it is required to work. This is a one aspect of a wider problem of testing the MHP APIs with the full range of locators they are required to support and not just one type of locator which is often the case today.

2.3 Reported problems that need further clarification

These problems were reported, but could not be identified or reproduced to the extent required to define assertions. Any user who is aware of enough detail concerning these issues is invited to contact MHP-CONFIDENCE and provide further information.

2.3.1 Service Selection and Application Management

Inconsistencies have been reported concerning service-bound and unbound applications and how their lifecycle changes are reported to other applications. Inconsistencies have been reported between implementations concerning the EntryChanged events and what events (if any) are generated when notifyPaused or notifyDestroyed are called.

There are already a significant number of tests for application lifecycle in the MHP 1.0.2b test suite.

2.3.2 Resource management in JMF

Some issues have been reported concerning resource management in JMF players.

2.3.3 I-Frames and “video drips”

Problems have been reported with background pictures (I-frames) and the video drips. In some cases this may be the known issue that boxes which decode I-frames & video simultaneously are not required by the MHP specification to show the background unless the video is stopped.

More detailed analysis needs to be done to evaluate if the reported problems are issues that can be addressed with new or existing tests.

2.3.4 Double buffering & Transparency

It has been reported that “Double buffering and paint modes always create problems”. More analysis is needed to understand whether this is an issue needing documentation for developers of how to write applications which work well in both double and single buffered displays or whether other solutions are needed.

2.4 Problems that are reported but regarded to be out of scope for conformance testing

2.4.1 Quality of Implementation Issues

A number of issues have been reported which are really quality of implementation issues rather than a conformance issue.

It is inevitable that there will be good and bad implementations and that bad implementations will have inter-operability problems with applications. While it is certainly possible to amend the MHP specification to exclude specific poor implementation choices and then to produce a conformance test for them, doing this for each possible situation where poor implementations may cause a problem is simply impractical.

3 Prioritization

3.1 Major Functional Areas

The results of the prior analysis by the partners and the new analysis performed in WP2.2 identify a number of major functional areas which need to be addressed at a high priority. These are summarised in the list below.

- Font Metrics and Text Rendering
- Access to DVB-SI
- Service selection and Application Management, Lifecycle
- DSMCC Object Carousels
- Locators
- Double buffering and graphics
- HAVi
- Conditional Access API and Common Interface
- Subtitling

3.2 Changes Between MHP 1.0.1, 1.0.2 and 1.0.3

Changes between MHP 1.0.1, 1.0.2 and 1.0.3 which impact already coded tests have been dealt with as part of the debugging of existing tests. Assertions have been sorted to identify those which are new for MHP 1.0.2 or 1.0.3. These have then been reviewed and prioritised. A summary of the results of this is as follows.

- A simple prioritisation of the assertions produced the following results:
 - ~ 40 % - low
 - ~ 45 % - medium
 - ~ 15 % - high(Some assertions were such a low priority as to be irrelevant and are omitted from these statistics)
- A number of the high and medium priority assertions fit into the major functional areas identified above. For example, 21 of the high priority issues relate to text. Some of the high priority issues relate to service selection, application management and lifecycle.

The high and medium priority assertions identified here will be considered for implementation in MHP-CONFIDENCE.

4 Summary

As introduced earlier, this document is a public extract from a larger document which will be used by MHP-CONFIDENCE as a basis to sub-contract the actual implementation of new Conformance Tests. As next steps, MHP-CONFIDENCE will identify and select companies for implementation of a selection of these tests and then enter into the debugging and quality evaluation phase in order to scrutinise these results.