White Paper on Mobile Codes

Draft – 19 Oct 2007

Open Mobile Alliance

OMA-WP-MobileCodes-20071019-D

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Tables

Table 1: Example Table ..... Error! Bookmark not defined.

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1. Scope

<< Define as it relates to Open Mobile Alliance Activity. If it adds clarity, define what is not in the scope. DELETE THIS COMMENT >>

This document concerns barcodes as enablers for camera-equipped handsets to access content and services. It identifies existing standards that are suitable for this purpose. It does not address other ways of encoding data in images, such as watermarks or glyphs. It does not address barcodes displayed on handsets as coupons or tickets (for reading by other devices).

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2. References

The policy for reference lists is:

1. OMA documents listed should have at least one approved version – draft-only docs should not be referenced. Exception exists for documents that will be approved with or after the referenced doc is approved (may be part of same enabler package). In short – approved docs should not reference unapproved docs.
2. When a reference is made to an OMA specification, then Open Mobile Alliance with the TM symbol (™) should be used in the description.
3. The name + version (no date) for OMA specifications are generally sufficient – dates should be used only if there is a specific reason to limit the usage.
4. For references to WAP Forum docs, dates should not be included as DID's for the old WAP Forum specifications are enough and the reference description should refer to WAP Forum™.
5. References to other affiliate docs should similarly provide sufficient information to uniquely determine the needed document and should provide the appropriate source information.
6. The URL for OMA material (new OMA and affiliate) should always be http://www.openmobilealliance.org (an exception is OMNA that is reached through http://www.openmobilealliance.org/tech/omna)

Models to use

[REFLABEL] <General Model> "Ref Title", Ref information (source, date, id), URL:http//<ref-source>/

[OMADOC] <OMA Model> "OMA Document Title",{ Version x.y,} Open Mobile Alliance™, OMA-<docname>{-<version>}, URL:http//www.openmobilealliance.org/

If there are no entries in the table – enter 'none' to be clear.

Check the version of the Dictionary you are using and update the reference below. Delete the [OMADICT] entry if the dictionary is not used. In general, use the latest available version unless seeking alignment with an existing set of specifications.

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[OMADICT] "Dictionary for OMA Specifications", Version x.y, Open Mobile Alliance™, OMA-ORG-Dictionary-Vx_y, URL:http://www.openmobilealliance.org/

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3. Terminology and Conventions

3.1 Conventions

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

<< If needed, describe or declare any additional conventions used. DELETE THIS COMMENT >>

3.2 Definitions

<< Add definitions in new rows of the following table as needed. The following examples show how dictionary references should be made as well as locally defined terms. This table should be maintained in sorted alphabetic order based on the labels of the terms.

Examples:

Entity	Use definition #1 from [OMADICT]
Interactive Service	Use definition from [OMADICT]
Local Term	The definition description would be presented directly

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3.3 Abbreviations

<< Add abbreviations as needed to the following table. No special notation should be made regarding terms copied from the Dictionary. This table should be maintained in alphabetic order.

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OMA	Open Mobile Alliance

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4. Introduction

<< Provide information to help readers understand why this document is being produced. For example, this section could be used to:

- Provide some background to the issue being covered
- Describe nature of the environment that requires a paper be presented
- Justify why OMA has a role to present information on the issue

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4.1 Motivations and usage scenarios for mobile codes

4.2 Benefits for consumers, marketing, mobile industries

4.3 The need to select from existing standards

4.4 The OMA's role

'Why the OMA has a role to present information on this issue'

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5. Symbologies

<<Sections for the descriptive informative text. Fill in as needed. The following validates the styles used for the headers. DELETE THIS COMMENT >>

This section deals exclusively with the choice of symbology (i.e. the barcode encoding scheme)

5.1 Standard symbologies

ISO 2D standards: QR, Datamatrix, Aztec

1D standards: UPC etc.

5.2 Comparison

This section compares the ISO standard symbologies with respect to factors such as IPR position (third-party holders of IP on the symbologies per se – TK to check whether this is appropriate), data capacity and density on page.

5.3 Required error correction levels

Some degree of error correction is required for a robust reading experience

5.4 Size constraints

Given the limitations of typical camera phone optics, how large should mobile codes be printed?

5.5 Printing and display considerations

Colour contrast, printing/imaging accuracy.

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6. Data Format

This section first describes the data required in mobile codes, and then describes the syntax for specifying it. Note: this is independent of the symbology choice.

6.1 Data requirements

6.1.1 Addressing: Direct, Indirect

This section covers (1) the 'Direct' case, in which either the address (URI) of the data is present, or the data is present in-line; and (2) the 'Indirect' case, where the mobile code contains an identifier that needs to be resolved to obtain the data.

In the Indirect case, the identifier must be unique to avoid ambiguity, and the creator of the mobile code must have the right to use that identifier. Several URI schemes have already dealt with those issues: URNs and 'tag' URIs.

6.1.2 User interface (in mobile code)

Experiments with the public and reactions from marketing support the provision of a small 'user interface' within the mobile code itself. This may be simply text to pop up when the user reads the code, or it may, for example, be a short menu of options.

6.2 Syntax

6.2.1 NDEF

This subsection motivates and describes the applicability of the NFC Forum's NDEF standard as appropriate syntax also for data in mobile codes.

6.2.1.1 URI record

This subsection describes how NDEF records can support both the Direct and Indirect models

6.2.1.2 Support for inline data

In-line content such as vCard, vCal

6.2.1.3 UI record

NDEF can also support either simple text or an HTML fragment for the mobile code's pop-up user interface

6.2.1.3.1 Support for multiple languages

… in the mobile code's UI

6.2.2 NTT DoCoMo

NTT DoCoMo's data standard for mobile codes is the only de facto standard in widespread use. NB: this data standard is applicable to symbologies other than QR, even though it is used exclusively with QR in Japan.

6.2.2.1 Marked-up data

MEBKM for URIs, MECARD for business cards, MATMSG for email messages, LAPL for applet invocations, CNTS for in-line content

See http://www.nttdocomo.co.jp/english/service/imode/make/content/barcode/about/s2.html

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6.2.2.2 Plain data

Mobile codes can also contain simply a URL, telephone number or email address

6.3 Examples

This section will provide example mobile codes for typical cases

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7. Application behaviours

Now that mobile codes themselves have been dealt with, we describe factors concerning the behaviour of the ‘code reader’ application on the handset.

7.1 Principles regarding user interaction

This subsection is intended to cover ground rules for the code reader’s operation, such as ‘the user’s permission will always be sought before accessing the network’. TK will check whether some such factors have already been stipulated elsewhere. However, the quality of the reading experience itself – which should occur at video-rate, with real-time feedback – also needs to be emphasised.

7.2 Support for Direct and Indirect architectures

This subsection will state the principle that both Direct and Indirect methods should be supported, since each has a business rationale; but that individual code reader implementations should not be mandated to support both.

In each case, this white paper will identify relevant existing specifications. It will examine two central questions: (1) how does the application process the URI it encounters according to its type (whether using the Direct or Indirect methods), and (2) how does it supply parameters such as subscriber ID from the application instance?

7.2.1 Direct method

Applications reading a URI from a mobile code that can be actioned directly in the handset will respond in accordance with OMA-TS-URI_Schemes-V1_0-20070718-D.

7.2.2 Indirect method

This white paper will identify requirements for a resolution service and briefly survey existing specifications that could be used for the interface to it.

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8. Options

This section will lay out a small number (1-3) of viable options for implementors, based on the above.

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9. Conclusions

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Appendix A. Change History (Informative)

Document Identifier	Date	Sections	Description
OMA-WP-MobileCodes-20071019-D	19 Oct 2007	all	initial outline added by Tim Kindberg (HP)

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Appendix B. <Additional Information>

If needed, add annex to provide additional information to support the document.

Note that the styles for the headers in the appendix (App1, App2, App3) are different than the main body. The use below is intended to validate the styles to be used. Remove if not needed.

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B.1 App Headers

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