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1. Scope

The scope of this document is limited to the Enabler Release Definition of Mobile Codes (MC) according to OMA Release process and the Enabler Release specification baseline listed in section 5.
2. References

2.1 Normative References


2.2 Informative References


[NFCRTD] “NFC Record Type Definition (RTD) Technical Specification”, NFC Forum

[NTTDOCOMOGUIDE] “Rough Measures and criteria for creating QR codes compatible with all terminals”, NTT DoCoMo, http://www.nttdocomo.co.jp/english/service/imode/make/content/barcode/about/#p02


3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

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

3.2 Definitions

<table>
<thead>
<tr>
<th>Code Clearing House</th>
<th>The Code Clearing House performs Code Routing functions as part of the CMP; CCH exists in markets where the CMP role is not owned by a single entity.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Management Platform</td>
<td>The Code Management Platform performs a resolution service pertaining to Indirect Mobile Codes; specifically, it resolves Indirect Code Identifiers into corresponding addresses of target content or services as intended by the Code Publisher for appropriate further actions by the Mobile Code Client.</td>
</tr>
<tr>
<td>Code Resolution</td>
<td>The process of mapping an Indirect Code Identifier supplied from an Indirect Code into either content to be consumed directly by the handset, or the address of content (or a service) to be consumed by the handset. Typically, Code Resolution is performed by a network service.</td>
</tr>
<tr>
<td>Code Resolution Server</td>
<td>The Code Resolution Server performs the code resolution part of the CMP; CRS exists in markets where the CMP role is not owned by a single entity.</td>
</tr>
<tr>
<td>Code Transfer</td>
<td>The ability for a Code Publisher to change the resolving CMP (or CRS where applicable) for a single or multiple Indirect Code Identifiers.</td>
</tr>
<tr>
<td>Routing Prefix</td>
<td>That part of the Indirect Code Identifier that contains a value that is uniquely assigned to the CMP (or CRS, as applicable) and is used for routing.</td>
</tr>
<tr>
<td>Direct Code</td>
<td>A Mobile Code that contains either (1) content for direct consumption for the handset, or (2) the address of the service to be accessed (typically a URI [URI]).</td>
</tr>
<tr>
<td>Global Mobile Code Registry</td>
<td>The Global Mobile Code Registry is a singular and unique component within an Indirect Code eco-system that is entrusted to allocate, administer, and maintain global uniqueness of Routing Prefixes used in the given eco-system.</td>
</tr>
<tr>
<td>Indirect Code</td>
<td>A Mobile Code that contains an Indirect Code Identifier.</td>
</tr>
<tr>
<td>Indirect Code Identifier</td>
<td>An identifier in the Indirect Code that has to be resolved in order to access the intended content or service. See also Code Resolution.</td>
</tr>
<tr>
<td>Mobile Code</td>
<td>A 1D or 2D barcode as read by camera-equipped handsets</td>
</tr>
<tr>
<td>Mobile Code Client</td>
<td>The MC enabler software entity that resides in the device, and contains the functionality to acquire, decode, and extract the encoded information for further processing as required. This is often referred to as a Mobile Code Reader and these terms may be used synonymously.</td>
</tr>
<tr>
<td>Mobile Code Data Format</td>
<td>The syntactical description of the information contained within a Mobile Code.</td>
</tr>
<tr>
<td>Mobile Code Publisher</td>
<td>This is a brand (business, organisation or individual) who wants to distribute certain content or services (i.e. an advertising campaign) to a mass audience by using Mobile Code scanning as a channel.</td>
</tr>
<tr>
<td>Mobile Code Sales Agency</td>
<td>The Mobile Code Sales Agency ensures the best Mobile Code service or campaign success by coordinating business topics and related activities on behalf of the Mobile Code Publisher.</td>
</tr>
<tr>
<td>Mobile Code Scanning</td>
<td>The physical act of capturing a Mobile Code symbol and decoding the information contained within the Mobile Code into a Data Format.</td>
</tr>
<tr>
<td>Mobile Code Service Policy</td>
<td>A set of Policy Conditions [Ref: OMA Dictionary] that convey any service level constraints that are placed on Mobile Code Resolution. Mobile Code Service Policy is typically defined by the Mobile Code Publisher and is applicable to one or more Indirect Code Identifiers.</td>
</tr>
</tbody>
</table>
Resolution Identifier
That part of the Indirect Code Identifier that is used to index the content or service.

Symbology
The algorithm by which data is encoded as visual elements (typically arrangements of lines or squares), and the resultant “look and feel” for the user.

3.3 Abbreviations

1D 1-Dimensional
2D 2-Dimensional
CCH Code Clearing House
CMP Code Management Platform
CP Code Publisher
CRS Code Resolution Server
EAN European Article Number, see EAN/UPC
EAN/UPC Barcode symbology family including EAN-8, EAN-13, UPC-A, and UPC-E [EAN/UPC]
FTP File Transfer Protocol
GMCR Global Mobile Code Registry
IEC International Electrotechnical Commission
ISO International Organization for Standardization
JAN Japanese Article Number, a barcode of the EAN symbology family, used in Japan
MC Mobile Code
NDEF NFC Data Exchange Format
NFC Near Field Communications
OMA Open Mobile Alliance
QR Quick Response, a type of barcode symbology [QR]
SMS Short Message Service
UPC Universal Product Code, see EAN/UPC
URI Uniform Resource Identifier [URI]
4. Mobile Codes enabler description (Informative)

4.1 Introduction

Background:
Mobile 2D and 1D barcodes have emerged as a promising enabler of the mobile Internet in some markets. There is, however, still a lack of interoperability between different markets and players. The majority of consumers are unlikely to adopt the technology before it comes pre-installed on a large variety of devices and offers easy interoperability between different service providers. Similarly, marketing, publishing and other industries that are otherwise motivated to provide mobile codes will not adopt them without adequate potential for consumer take-up. The MC Enabler aims to define requirements and ecosystem architecture and functional component specifications to enable large scale deployment of the globally interoperable mobile codes eco-system.

Use case and justification:
Outside, in a café, a mobile handset camera is pointed at an advertisement, poster, leaflet or beer-mat. In just one or two click(s), the user arrives at a webpage designed specifically for that location. No struggle with the compromised navigational systems of mobile websites; no wait – just the instant fulfilment of the user’s needs. The spontaneity of the response encourages an internet connection there and then; the internet content is relevant to the precise time and location of the user. The advertiser can track exactly which piece of paper generated the user response – and the mobile handset has enabled a trouble-free and relevant experience of the web that is potentially more useful to website provider and user alike. And of course, the mobile industry benefits from increased usage of the internet over mobile handsets as well as potential participation in the online advertising opportunities.

4.1.1 Summary
As described in [OMAWP], two methods of encoding data in the mobile code are: a) Direct mobile codes, and b) Indirect mobile codes. In general, Direct mobile codes require relatively fewer actors and functional components than in the Indirect mobile codes eco-system.

The following summary indicates all the key actors identified in the Indirect mobile codes eco-system envisaged:

- Mobile Code Publisher (or Brand)
- End User
- Mobile Code Client (or Mobile Code Reader)
- Mobile Device
- Code Management Platform
- Code Clearing House
- Code Resolution Server
- Mobile Operator
- Global Mobile Code Registry
4.2 Version 1.0 Functionality

This version of the Mobile Codes Enabler contains support for a full ecosystem for both Direct and Indirect Codes. Technology is specified for:

- Symbology(ies)
- Mobile Code Data Format
- Direct encoding of content
- Encoding of Indirect Code Identifiers
- Resolution of Indirect Code Identifiers
- Security procedures
5. Document Listing for MC

This section is normative.

<table>
<thead>
<tr>
<th>Doc Ref</th>
<th>Permanent Document Reference</th>
<th>Description</th>
</tr>
</thead>
</table>

| Table 1: Listing of Documents in MC Enabler |
6. OMNA Considerations

The Version 1.0 release of the MC Enabler does not have any OMNA items for handling.

Note: This may change during the MC enabler development.
7. Conformance Requirements Notation Details

This section is informative; pending completion of the AD and TS.

The tables in following chapters use the following notation:

- **Item**: Entry in this column MUST be a valid ScrItem according to [SCRRULES].
- **Feature/Application**: Entry in this column SHOULD be a short descriptive label to the Item in question.
- **Requirement**: Expression in the column MUST be a valid TerminalExpression according to [SCRRULES] and it MUST accurately reflect the architectural requirement of the Item in question.
8. ERDEF for MC- Client Requirements

This section is normative.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature / Application</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not yet available; AD and TS design in progress.</td>
<td></td>
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</table>

Table 2: ERDEF for MC Client-side Requirements
9. ERDEF for MC- Server Requirements

This section is normative.

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature / Application</th>
<th>Requirement</th>
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<tbody>
<tr>
<td>Not yet available; AD and TS design in progress.</td>
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</table>

Table 3: ERDEF for MC Server-side Requirements
Appendix A. Change History  (Informative)

A.1 Approved Version 1.0 History

<table>
<thead>
<tr>
<th>Reference</th>
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<td>n/a</td>
<td>n/a</td>
<td>No prior version –or- No previous version within OMA</td>
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A.2 Draft/Candidate Version 1.0 History

<table>
<thead>
<tr>
<th>Document Identifier</th>
<th>Date</th>
<th>Sections</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>Draft Versions</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>OMA-ERELD-MC-V1_0</td>
<td>16 Dec 2008</td>
<td>all</td>
<td>Initial draft version for RD review</td>
</tr>
<tr>
<td></td>
<td>20 Jan 2009</td>
<td>all</td>
<td>Clerical changes only. Title of document was corrected to reflect Mobile Codes Enabler.</td>
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<tr>
<td></td>
<td>24 Mar 2009</td>
<td>all</td>
<td>Document updated after completion of the RDRR and the general update of the Mobile Codes RD.</td>
</tr>
<tr>
<td></td>
<td>18 Apr 2009</td>
<td>all</td>
<td>Document updated after MC RD was updated.</td>
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<td>Candidate Version:</td>
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<td></td>
<td></td>
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<tr>
<td>OMA-ERELD-MC-V1_0</td>
<td>12 May 2009</td>
<td>All</td>
<td>Status changed to Candidate by TP: OMA-TP-2009-0187-INP_MC_V1_0_RD_for_Candidate_Approval Editorial fix: History Box and Contents page</td>
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