



Enabler Test Specification for Email Notification

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1. Scope

This document describes in detail the available test cases for testing OMA Email Notification version 1.0.

2. References

2.1 Normative References

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2.2 Informative References

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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.

The following numbering scheme is used:

xxx-y.z-int-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
'int'	Indicating this test is a interoperability test case
number	Leap number for the test case

3.2 Definitions

Application	A value-added data service provided to a WAP Client. The application may utilize both push and pull data transfer to deliver content
Client	in the context of push, a client is a device (or service) that expects to receive push content from a server. In the context of pull a client, it is a device initiates a request to a server for content or data. See also “device”.
Content	subject matter (data) stored or generated at an origin server. Content is typically displayed or interpreted by a user agent on a client. Content can both be returned in response to a user request, or being pushed directly to a client.
Content Encoding	when used as a verb, content encoding indicates the act of converting a data object from one format to another. Typically the resulting format requires less physical space than the original, is easier to process or store, and/or is encrypted. When used as a noun, content encoding specifies a particular format or encoding standard or process.
Content Format	actual representation of content.
Device	is a network entity that is capable of sending and/or receiving packets of information and has a unique device address. A device can act as either a client or a server within a given context or across multiple contexts. For example, a device can service a number of clients (as a server) while being a client to another server.
End-user	see “user”
E-Mail Client	is a client-side application capable of accessing e-mail. This may include both applications specifically designed to access e-mail (e.g. by using POP3 for mail retrieval) or more generic applications such as a XHTML Mobile Profile capable User Agent (e.g. for “web mail”).
E-Mail Server	is a server capable of handling e-mail.
EMN User Agent	is a client-side application capable of receiving E-Mail Notifications (EMN) and triggering the E-Mail Client for appropriate action. The EMN UA may be an integral part of the E-Mail Client, but may also be a separate application.
WAP Proxy	an intermediary program which acts as both a server and a client for the purpose of making requests on behalf of other clients. Requests are serviced internally or by passing them on, with possible translation, to other servers. It may provide functions of protocol enhancement, transcoding or any number of other optimisation or transformation functions and may be associated with any gateways, proxies or servers being used in the deployment architecture. WAP gateway is one of the optional functionalities of WAP proxy.
Push Access Protocol	a protocol used for conveying content that should be pushed to a client, and push related control information, between a Push Initiator and a Push Proxy/Gateway.
Push Initiator	the entity that originates push content and submits it to the push framework for delivery to a user agent on a client.
Push OTA Protocol	a protocol used for conveying content between a Push Proxy/Gateway and a certain user agent on a client.

Push Proxy Gateway	a proxy gateway that provides push proxy services.
Server	a device (or service) that passively waits for connection requests from one or more clients. A server may accept or reject a connection request from a client. A server may initiate a connection to a client as part of a service (push).
User	a user is a person who interacts with a user agent to view, hear, or otherwise use a rendered content. Also referred to as end-user.
User agent	a user agent (or content interpreter) is any software or device that interprets resources. This may include textual browsers, voice browsers, search engines, etc.

3.3 Abbreviations

DTD	Document Type Definition
EMN	E-Mail Notification
EMN UA	EMN User Agent
HTTP	Hypertext Transfer Protocol
IANA	Internet Assigned Numbers Authority
IMAP	Internet Message Access Protocol
IMAPS	Secure Internet Message Access Protocol
IOProc	Interoperability Procedure
MIME	Multipurpose Internet Mail Extensions
OMNA	Open Mobile Alliance Naming Authority
OTA	Over The Air
PAP	Push Access Protocol
PI	Push Initiator
POP	Post Office Protocol
POPS	Secure Post Office Protocol
PPG	Push Proxy Gateway
RFC	Request For Comments
SGML	Standard Generalized Markup Language
SMTP	Simple Mail Transfer Protocol
SSMTP	Secure Simple Mail Transfer Protocol
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTC	Universal Time Co-ordinated
WAP	Wireless Application Protocol
WBXML	WAP Binary XML
XML	Extensible Mark-up Language

4. Introduction

E-mail has become a vital part of everyday life. More than simple messaging, e-mail, like the telephone, has become an indispensable communication tool. E-mail has been adopted as a messaging standard because of its low cost, simplicity, ease-of-use, and global compatibility. In that light, there is a clear need for this communication tool to be used in a mobile environment, allowing users to have access to e-mail anywhere. Although there are many mobile e-mail implementations already in use today, there is no standard method to notify an e-mail client that new e-mail has been received.

The value of providing e-mail notification is the same as providing voicemail notification. E-mail notification will allow mobile users to be notified of incoming e-mail upon reception. Linking a notification feature with existing Internet e-mail creates a value added service for the end-user by offering an “always-connected” feature to e-mail.

The primary objective of the e-mail notification is to invoke the device to launch the e-mail client, which may then (depending on implementation and user settings) retrieve the e-mail. This will allow e-mail servers to send notifications in a standard way, without having to worry about various e-mail client implementations. The added value of specifying a notification mechanism is that it can be handled by the e-mail client transparently for the user, for example by retrieving the message before notifying the user, so that the e-mail is directly available for viewing.

Figure 1 below shows a typical flow of events as they may take place after an e-mail is received by the e-mail server. In this example, the mobile e-mail client supports the POP3 protocol.

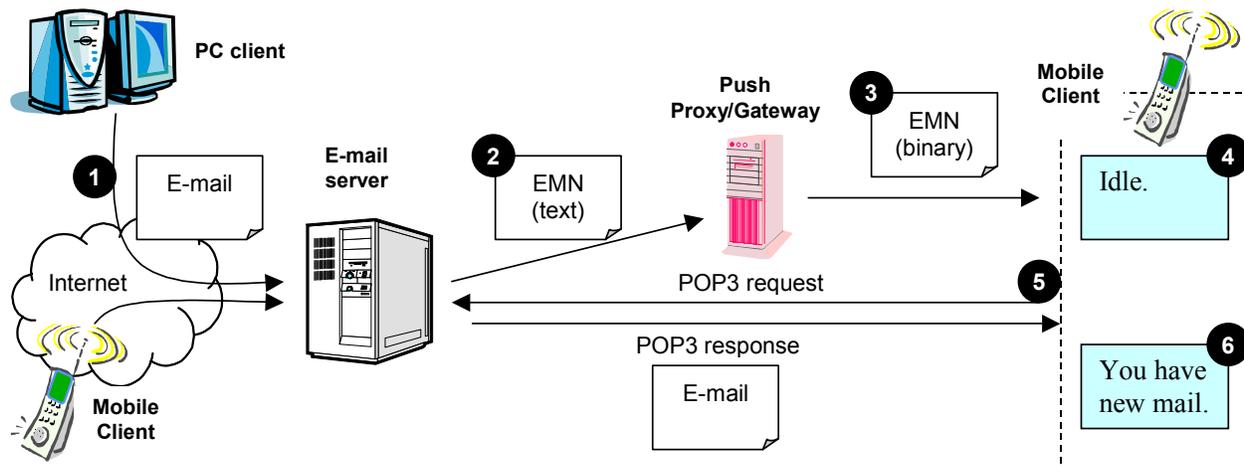


Figure 1: Example of automatic e-mail retrieval using EMN

The example illustrates how the e-mail client on the mobile phone is notified of the arrival of a new e-mail, retrieves the e-mail and then alerts the user that new e-mail has been received. Since the e-mail is already present on the handset, the user can immediately view it. The following steps are involved:

1. An Internet user sends an e-mail from his PC or his mobile e-mail client.
2. The e-mail server instructs the Push Proxy/Gateway to push an EMN to the mobile client using the Push Access Protocol [PushPAP].
3. The Push Proxy/Gateway sends the EMN to the EMN UA on the mobile device using the Push Over-The-Air protocol [PushOTA].
4. The EMN UA receives the EMN and passes an appropriate trigger to the e-mail client for further processing. For the user, the mobile client is still idle.
5. In this example, the e-mail client is set up by the user to automatically retrieve all new e-mails. The e-mail client retrieves the e-mail from the server by sending a POP3 request for all new mails.

The new e-mail is stored locally on the mobile client and the e-mail client displays an alert indicating that a new e-mail has been received. This is the first indication to the user that new e-mail is available, i.e. all previous steps occur transparently for the user.

4.1 Test Environment

The email client connection protocol can be setup over a secure or a non secure connection as defined by an S for secure in the Test cases.

The user case for the mailbox url protocol, allows a web server to host the email content for retrieval by the client, without the need for an formal email server. This allows for dynamic content to be created, as once retrieval has been completed the data is deleted. All the required access data ie username, password and email protocol format is self contained within the Mailbox URL.

5. Client Test Cases Mandatory

5.1 UTF-8 Encoded Email Notification

Test Case ID	EMN-1.0-int-1
Test Object	Client device
Test Case Description and Purpose	Verify that the client can support UTF – 8 encoding.
Specification Reference	[Email Notification Spec] Section 5.1
SCR Reference	EMN-CSE-C-001
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. The email notification is encoded in UTF8. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client initiates an email session to the Email server, upon receiving an email notification. The notification is encoded in UTF-8 Format
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.2 UTF-16 Encoded Email Notification

Test Case ID	EMN-1.0-int-2
Test Object	Client device
Test Case Description and Purpose	Verify that the client can support UTF – 16 encoding.
Specification Reference	[Email Notification Spec] Section 5.1
SCR Reference	EMN-CSE-C-002
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.

Test procedure	Set the correct Email Profile on your Client and select it as the current one. The email notification is encoded in UTF16. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass -Criteria	The Client initiates an email session to the Email server, upon receiving an email notification. The notification is encoded in UTF-16 Format
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.3 XML Schema Parsing

Test Case ID	EMN-1.0-int-3
Test Object	Client device
Test Case Description and Purpose	Verify that the client can parse the XML schema and process it properly by the device.
Specification Reference	[Email Notification Spec] Section 5.1
SCR Reference	EMN-CSE-C-003 [RFC 3023]
Tools	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. The notification is encoded in an XML Format. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client initiates an email session successfully to the Email server, upon receiving an email notification which is encoded in XML format.
Comments	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.4 Device defined Mailat URI

Test Case ID	EMN-1.0-int-4
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailat URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-001
Tool	None

Test Code/Files	TBD
Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile and protocol is setup on the device.</p> <p>The Email notification contains the Mailat URI and the device can accept and parse it successfully.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the correct Email Profile on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device uses the predefined Email URL and protocol of the email server which it connects to.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.5 DateTime encoding in Opaque data format

Test Case ID	EMN-1.0-int-5
Test Object	Client device
Test Case Description and Purpose	Verify that the Client handles Timestamp attribute –DateTime encoded in OPAQUE data format
Specification Reference	[Email Notification Spec] Section 5.2
SCR Reference	EMN-CF-C-005
Tools	None
Test Code/Files	TBD
Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>Ensure the client can parse the TimeStamp in UTC format YYYY-MM-DDThh:mm:ssZ</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the correct Email Profile on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria	<p>The Client initiates an email session to the Email server successfully upon checking the timestamp of the received email notification against the device time and any other notifications to determine the sequence order of the notifications.</p> <p>The Device will disregard any notifications that are older than a new one that has arrived that contains the same mailbox attributes.</p>
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.6 Valid EMN DTD

Test Case ID	EMN-1.0-int-6
Test Object	Client device
Test Case Description and Purpose	Verify that the Client handles a valid EMN Document Type Definition (DTD) data format.
Specification Reference	[Email Notification Spec] Section 8.2
SCR Reference	EMN-CF-C-001
Tool	None
Test Code/Files	TBD
Preconditions	Ensure that the Email DTD is hosted by OMA and the format is correct. //WAPFORUM//DTD EMN 1.0 //EN
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client initiates an email session to the Email server successfully upon checking the details of the EMN DTD parameters: Timestamp in ISO format. URI – Mail address and protocol
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.7 Non Valid EMN DTD

Test Case ID	EMN-1.0-int-7
Test Object	Client device
Test Case Description and Purpose	Verify that the Client handles a non valid EMN Document Type Definition (DTD) data format.
Specification Reference	[Email Notification Spec] Section 8.2
SCR Reference	EMN-CF-C-002
Tool	None
Test Code/Files	TBD
Preconditions	Ensure that the Email DTD is hosted by OMA and the format is correct. //WAPFORUM//DTD EMN 1.0 //EN
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client with a corrupt EMN DTD. The Client fails to download the email.
Pass-Criteria	The Client FAILS to initiate an email session to the Email server upon checking the details of the invalid EMN DTD parameters: Timestamp in ISO format. URI – Mail address and protocol
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.8 EMN in textual Format

Test Case ID	EMN-1.0-int-8
Test Object	Client device
Test Case Description and Purpose	Verify that the Client handles a valid EMN in Textual format.
Specification Reference	[Email Notification Spec] Section 8.1.2
SCR Reference	EMN-CF-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Ensure that the Email notification is sent in Textual format
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client will parse the email notification in textual format. header: <code>text/vnd.wap.emn+xml</code> Upon success of parsing the client will initiate an email session to the Email server using valid EMN DTD parameters: Timestamp in ISO format. URI – Mail server address and protocol
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.9 EMN in tokenised format

Test Case ID	EMN-1.0-int-9
Test Object	Client device
Test Case Description and Purpose	Verify that the Client handles a valid EMN in Tokenised format using a compact binary representation.
Specification Reference	[Email Notification Spec] Section 8.1.2
SCR Reference	EMN-CF-C-004
Tool	None
Test Code/Files	TBD
Preconditions	Ensure that the Email notification is sent in Tokenized format
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.

Pass-Criteria	<p>The Client will parse the email notification in tokenised format, checking that the source EMN is in XML format and that the attribute values are correct.</p> <p>The Tag and Attribute token are encoded into single byte tokens corresponding to the tags defined in the DTD and all others defined in the code page 0.</p> <p>header: <code>application/vnd.wap.emn+wbxml</code></p> <p>Upon success of parsing the client will initiate an email session to the Email server using valid EMN DTD parameters:</p> <p>Timestamp in ISO format.</p> <p>URI – Mail server address and protocol</p>
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

5.10 Push Application ID

Test Case ID	EMN-1.0-int-10
Test Object	Client device
Test Case Description and Purpose	Verify the Push application Accept ID announced in the User Agent Profile or the accept headers in absolute URI format
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-CF-C-005
Tool	None
Test Code/Files	TBD
Preconditions	Set the correct Email Profile on your Client and select it as the current one.
Test Procedure	<p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p> <p>Check that the Device Email User Agent can parse the application ID for EMN properly. ID: <code>x-wap-application:emn.ua</code> Send a different application ID type and ensure it is disregarded by the email client.</p>
Pass-Criteria	The Email client will use this application ID: <code>x-wap-application:emn.ua</code> as opposed to any other.
Comment	

5.11 Push Application Hex format ID

Test Case ID	EMN-1.0-int-11
Test Object	Client device
Test Case Description and Purpose	Verify the Push application Accept ID announced in the User Agent Profile or the accept headers in the Hex format as assigned by [OMNA] The hexadecimal code is (0x09)
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-CF-C-006
Tool	None
Test Code/Files	TBD
Preconditions	Set the correct Email Profile on your Client and select it as the current one.

Test Procedure	Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email. Check that the Device Email User Agent can parse the Hexadecimal application ID for EMN properly (0x09). ID: app-assigned code. Send a different application ID type and ensure it is disregarded by the email client.
Pass-Criteria	The Email client will use this Hexadecimal application ID: app-assigned code as opposed to any other.
Comment	

6. Client Test Cases Optional

6.1 Content-Type header

Test Case ID	EMN-1.0-int-12
Test Object	Client device
Test Description and Purpose	Verify that different character coding as set in the Content_Type field will be supported by the device ie: UTF8 UTF16 and US-ASCII.
Specification Reference	Email Notification] Section 5.2
SCR Reference	Content_Type Field
Tool	None
Test Code/Files	TBD
Preconditions	Set the correct Email Profile on your Client and select it as the current one.
Test Procedure	Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email. Check that the Device Character codes are transformed as defined in the Content type specified.
Pass-Criteria	The Email client will use an appropriate Character encoding and display the test in a readable format.
Comment	

6.2 Server defined Mailbox URI

Test Case ID	EMN-1.0-int-13
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can connect using the Mailbox URI with the Email server address. and compliant to [RFC 2396]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-002 RFC 2396
Tools	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device uses the predefined Email URL and protocol as defined in the mailbox URI of the email server which it connects to. If the Device does not support the email protocol it will discard the email Notification.

Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.
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6.3 Device defined Mailat POP2 URI

Test Case ID	EMN-1.0-int-14
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support POP2 protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile POP2 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol POP2 preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.4 Device defined Mailat POP2S URI

Test Case ID	EMN-1.0-int-15
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support POP2S protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD

Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the correct Email Profile POP2S on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria:	<p>The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol POP2S preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.</p>
Comment	<p>This test case should be executed both when the Client is in idle mode and when it has a WAP session active.</p>

6.5 Device defined Mailat POP3 URI

Test Case ID	EMN-1.0-int-16
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support POP3 protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the correct Email Profile POP3 on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria:	<p>The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol POP3 preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.</p>
Comment	<p>This test case should be executed both when the Client is in idle mode and when it has a WAP session active.</p>

6.6 Device defined Mailat POP3S URI

Test Case ID	EMN-1.0-int-17
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Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support POP3S protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile POP3S on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol POP3S preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.7 Device defined Mailat IMAP2 URI

Test Case ID	EMN-1.0-int-18
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support IMAP2 protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile IMAP2 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.

Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol IMAP2 preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.8 Device defined Mailat IMAP2S URI

Test Case ID	EMN-1.0-int-19
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support IMAP2S protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile IMAP2S on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol IMAP2S preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.9 Device defined Mailat IMAP4 URI

Test Case ID	EMN-1.0-int-20
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support IMAP4 protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD

Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile IMAP4 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol IMAP4 preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.10 Device defined Mailat IMAP4S URI

Test Case ID	EMN-1.0-int-21
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support IMAP4S protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile IMAP4S on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol IMAP4S preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.11 Device defined Mailat HTTP URI

Test Case ID	EMN-1.0-int-22
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Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support HTTP protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile HTTP on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol HTTP preset in the device. The URL contained within the notification message contains the appropriate email login, password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.12 Device defined Mailat HTTPS URI

Test Case ID	EMN-1.0-int-23
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support HTTPS protocol and uses the Mailat URI which specifies the email address details. This will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the correct Email Profile HTTPS on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.

Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email protocol HTTPS preset in the device. The URL contained within the notification message contains the appropriate email login , password and address to connect to the server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.13 Server defined Mailbox POP2 URI

Test Case ID	EMN-1.0-int-24
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol POP2 to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.14 Server defined Mailbox POP2S URI

Test Case ID	EMN-1.0-int-25
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD

Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol POP2S to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.15 Server defined Mailbox POP3 URI

Test Case ID	EMN-1.0-int-26
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to POP2 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol POP3 to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.16 Server defined Mailbox POP3S URI

Test Case ID	EMN-1.0-int-27
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol POP3S to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.17 Server defined Mailbox IMAP2 URI

Test Case ID	EMN-1.0-int-28
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.

Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol IMAP2 to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.18 Server defined Mailbox IMAP2S URI

Test Case ID	EMN-1.0-int-29
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol IMAP2S to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.19 Server defined Mailbox IMAP4 URI

Test Case ID	EMN-1.0-int-30
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3

SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol IMAP4 to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.20 Server defined Mailbox IMAP4S URI

Test Case ID	EMN-1.0-int-31
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol IMAP4S to use and the server address instead of the Device predefined URL and protocol of the email server.

Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.
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6.21 Server defined Mailbox HTTP URI

Test Case ID	EMN-1.0-int-32
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address and protocol this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol HTTP to use and the server address instead of the Device predefined URL and protocol of the email server.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.22 Server defined Mailbox HTTPS URI

Test Case ID	EMN-1.0-int-33
Test Object	Client device
Test Case Description and Purpose	Verify that the Client Required to test the Mailbox URI which specifies the email address this will comply with [RFC2822]
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-003
Tool	None
Test Code/Files	TBD

Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the default Email Protocol Profile to IMAP3 on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria:	<p>The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol HTTPS to use and the server address instead of the Device predefined URL and protocol of the email server.</p>
Comment	<p>This test case should be executed both when the Client is in idle mode and when it has a WAP session active.</p>

6.23 Device handling of Unsupported URI Mailbox scheme

Test Case ID	EMN-1.0-int-34
Test Object	Client device
Test Case Description and Purpose	Verify that the Client rejects an EMN that specifies a mailing protocol that the device does not support.
Specification Reference	[Email Notification Spec] Section 5.3
SCR Reference	EMN-SEM-C-004
Tool	None
Test Code/Files	TBD
Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	<p>Set the default Email Protocol Profile on your Client and select it as the current one.</p> <p>Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.</p>
Pass-Criteria:	<p>The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined Email Mailbox URL contained within the notification message for the appropriate Email protocol to use and the server address instead of the Device predefined settings of URL and protocol of the email server.</p> <p>But the Email Protocol used in the Mailbox URI is NOT supported by the Device. Therefore the Device will ignore the Email Message and optionally display an error message to the user of the unsupported email protocol.</p>
Comment	<p>This test case should be executed both when the Client is in idle mode and when it has a WAP session active.</p>

6.24 Device handling of Out of Order Email Notifications

Test Case ID	EMN-1.0-int-35
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support Out of Order notifications. So avoiding the Race condition
Specification Reference	[Email Notification Spec] Section 5.2
SCR Reference	EMN-SEM-C-005
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Set the default Email Protocol Profile on your Client and select it as the current one. Send a couple of email push message to the Client. Then change the time back on the email server so an older time stamp is used on further notification that will be sent from the server. Then send a few more notifications. When the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully upon checking the timestamp of the received email notifications against the device time and any other notifications to determine the sequence order of the notifications. The Device will disregard any notifications that are older than a new one that has arrived that contains the same mailbox attributes.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.25 Coordinated Universal time format (UTC)

Test Case ID	EMN-1.0-int-36
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support the Time stamp of the notifications in co-ordinated Universal Time Format (UTC). This avoids the use of different time zones.
Specification Reference	[Email Notification Spec] Section 5.2
SCR Reference	EMN-SEM-C-005
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.

Test Procedure	Set the default Email Protocol Profile to SSMTP on your Client and select it as the current one. Send the email push message to the Client and when the Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined email notification time stamp to determine the age and date stamp of the Email Notification.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.26 Encoding Support Format into Universal Character Set

Test Case ID	EMN-1.0-int-37
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support other character encoding sets as required by XML but all should be transformed into Universal character set.
Specification Reference	[Email Notification Spec] Section 5.1
SCR Reference	EMN-CSE-C-004 [RFC 3032] [Unicode] [ISO 10646]
Tool	None
Test Code/Files	TBD
Preconditions	Email notification inbox and cache content are empty Notification access user setting is either set to “Always ask”, “Always” or “Never”. Current date / time are correctly set on the Client. The correct Email profile is setup on the device. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	The EMN should be sent to the client in the encoding format chosen and changed to UCS format and the client can then parse the XML properly. The client must DISCARD the EMN silently if the XML document includes unknown characters.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification. The Device will use the defined email notification after parsing the EMN properly. If error are found the EMN is discarded.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

6.27 Device Security Checks

Test Case ID	EMN-1.0-int-38
Test Object	Client device
Test Case Description and Purpose	Verify that the Client can support some form of security to prevent against attack. Thus preventing the device from attaching to a fraudulent mailbox. Therefore a security Policy should be implemented
Specification Reference	[Email Notification Spec] Section 7

SCR Reference	
Tool	None
Test Code/Files	TBD
Preconditions	<p>Email notification inbox and cache content are empty</p> <p>Notification access user setting is either set to “Always ask”, “Always” or “Never”.</p> <p>Current date / time are correctly set on the Client.</p> <p>The correct Email profile is setup on the device.</p> <p>It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.</p>
Test Procedure	The EMN should be sent to the client and some form of security check take place that prevents the device from being directed to a fraudulent email box.
Pass-Criteria:	The Client initiates an email session to the Email server successfully, upon receiving an email notification and the security logic approved. The Device will use the defined email notification after parsing the EMN properly. If error are found the EMN is discarded.
Comment	This test case should be executed both when the Client is in idle mode and when it has a WAP session active.

7. Server Test Cases Mandatory

7.1 EMN to PPG

Test Case ID	EMN-1.0-int-39
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully.
Specification Reference	Section 4.0
Requirement:	EMN to PPG
Tool	None
Test Code/Files	TBD
Preconditions	Ensure there is no pending notification in the queue for the device. Ensure that the owner of the email box has activated Mobile email notification. Ensure the Email server has a bind to the PAP server.
Test Procedure	Send an email to the receiptant email box. The email server will then create an EMN for the message when the owner of the email box has activated Mobile notification. The Email Server will then send a notification via the PAP interface to the PPG which will in turn encode the notification for it to sent over the air to the device in question.
Pass-Criteria	The email server has successfully sent out via the Pap interface the notification for the receiptant mobile number. The Client should be able to load the EMN message and retrieve the email from the server successfully.
Comment	None

7.2 Wap push Email message Body

Test Case ID	EMN-1.0-int-40
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully.
Specification Reference	Section 4.0
Requirement:	EMN to PPG
Tool	None
Test Code/Files	TBD
Preconditions	Push inbox and cache content are empty. Push access user setting is set to either "Always ask", "Always" or "Never". Current date / time on the Client. The right PPG IP address is set in the Clients currently active WAP Profile. It is highly recommended to have a log analyzer to log traffic between the Client and the PPG.
Test Procedure	Send an email push message to the Push server. The Client displays reception feedback of the email notification message, choose download the email.
Pass-Criteria	The Client should be able to parse the EMN push content sent by the Wap Push Server

Comment	None
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7.3 Application ID Header format

Test Case ID	EMN-1.0-int-41
Test Object	Server
Test Case Description and Purpose	Verify the Email Server can send the proper Push application Accept ID announced in the User Agent Profile or the accept headers in absolute URI format
Specification Reference	Section 4.0
Requirement:	PPG Header X-Wap-Application-ID
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Client displays reception feedback of the email notification message, choose download the email. Check that the Device Email User Agent can parse the application ID for EMN properly. ID: x-wap-application-id Send a different application ID type and ensure it is disregarded by the email client.
Pass-Criteria	The Client should be able to load the EMN message
Comment	None

7.4 Absolute Application ID Header format

Test Case ID	EMN-1.0-int-42
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully.
Specification Reference	Section 4.0
Requirement:	EMN PPG Header X-Wap-Application-ID:emn.ua absolute form
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Client displays reception feedback of the email notification message, choose download the email. Check that the Device Email User Agent can parse the application ID for EMN properly. ID: x-wap-application-id:emn.ua Send a different application ID type and ensure it is disregarded by the email client.
Pass-Criteria	The Client should be able to load the EMN message
Comment	None

7.5 Hexadecimal App-Assign code

Test Case ID	EMN-1.0-int-43
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Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully. The format of the EMN content is encoded into a compact binary representation
Specification Reference	Section 4.0
Requirement:	EMN PPG Header encoded in hexadecimal format app-assigned-code
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Client displays reception feedback of the email notification message, choose download the email. Check that the Device Email User Agent can parse the application ID for EMN properly. ID: x-wap-application-id (0x09) Send a different application ID type and ensure it is disregarded by the email client. The application and attributes are encoded into a hexadecimal format.
Pass-Criteria	The Client should be able to load the EMN message in the hexadecimal format
Comment	None

7.6 EMN in textual format

Test Case ID	EMN-1.0-int-44
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully in a textual format.
Specification Reference	EMN-PPG-S-001
Requirement:	EMN PPG Header (text/vnd.wap.emn) form
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Push server accepts the EMN in textual format and acknowledges the Email Notification. Send a corrupt EMN in textual format and ensure you receive a Non Acknowledgement.
Pass-Criteria	The Push server should be able to accept the EMN message successfully
Comment	None

7.7 EMN in tokenised format

Test Case ID	EMN-1.0-int-45
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully in a tokenised format.

Specification Reference	EMN-PPG-S-002
Requirement:	EMN PPG Header (application/vnd.wap.emn+wbxml) form
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Push server accepts the EMN in tokenized format and acknowledges the Email Notification. Send a corrupt EMN in tokenized format and ensure you receive a Non Acknowledgement.
Pass-Criteria	The Push server should be able to accept the EMN message successfully
Comment	None

7.8 EMN Tokenised Table

Test Case ID	EMN-1.0-int-46
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully. The format of the tokenized elements has to comply with the Tokenized format Table.
Specification Reference	Section 4.0
Requirement:	EMN-PPG-S-003
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.

Test Procedure	Send an email push message to the Push server. The Push server accepts the EMN in tokenized format and acknowledges the Email Notification.																																													
	Send a corrupt EMN in tokenized format and ensure you receive a Non Acknowledgement.																																													
	The format of the EMN tokenized elements complies with the Tokenised Format Table. A token hexadecimal value is assigned to each attribute value.																																													
	<table border="1" style="margin: auto;"> <thead> <tr> <th>Attribute Name</th> <th>Token</th> </tr> </thead> <tbody> <tr> <td>Emn</td> <td>5</td> </tr> </tbody> </table> <table border="1" style="margin: auto;"> <thead> <tr> <th>Attribute Name</th> <th>Attribute Value prefix</th> <th>Token</th> </tr> </thead> <tbody> <tr> <td>Timestamp</td> <td></td> <td>5</td> </tr> <tr> <td>Mailbox</td> <td></td> <td>6</td> </tr> <tr> <td>Mailbox</td> <td>Mailat:</td> <td>7</td> </tr> <tr> <td>Mailbox</td> <td>Pop://</td> <td>8</td> </tr> <tr> <td>Mailbox</td> <td>Imap://</td> <td>9</td> </tr> <tr> <td>Mailbox</td> <td>http://</td> <td>A</td> </tr> <tr> <td>Mailbox</td> <td>Http://www</td> <td>B</td> </tr> <tr> <td>Mailbox</td> <td>https://</td> <td>C</td> </tr> <tr> <td>Mailbox</td> <td>https://www</td> <td>D</td> </tr> </tbody> </table> <table border="1" style="margin: auto;"> <thead> <tr> <th>Attribute Name</th> <th>Token</th> </tr> </thead> <tbody> <tr> <td>.com</td> <td>85</td> </tr> <tr> <td>.edu</td> <td>86</td> </tr> <tr> <td>.net</td> <td>87</td> </tr> <tr> <td>.org</td> <td>88</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Attribute Name	Token	Emn	5	Attribute Name	Attribute Value prefix	Token	Timestamp		5	Mailbox		6	Mailbox	Mailat:	7	Mailbox	Pop://	8	Mailbox	Imap://	9	Mailbox	http://	A	Mailbox	Http://www	B	Mailbox	https://	C	Mailbox	https://www	D	Attribute Name	Token	.com	85	.edu	86	.net	87	.org	88	
Attribute Name	Token																																													
Emn	5																																													
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Timestamp		5																																												
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Mailbox	Http://www	B																																												
Mailbox	https://	C																																												
Mailbox	https://www	D																																												
Attribute Name	Token																																													
.com	85																																													
.edu	86																																													
.net	87																																													
.org	88																																													
Pass-Criteria	The Push server should be able to accept the EMN message successfully																																													
Comment	None																																													

7.9 XML Parser

Test Case ID	EMN-1.0-int-47
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully.
Specification Reference	Section 9.0
Requirement:	EMN-VAL-S-001
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.

Test Procedure	Send an email push message to the Push server. The Push server accepts the EMN in XML format and acknowledges the Email Notification. Send a corrupt EMN in XML format and ensure you receive a Non Acknowledgement. The format of the EMN XML document complies to the Doctype declared in the EMN.
Pass-Criteria	The Push server should be able to accept the EMN message successfully
Comment	None

8. Server Test Cases Optional

8.1 Security measures

Test Case ID	EMN-1.0-int-48
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully. A security Policy can be applied if possible
Specification Reference	Section 9.0
Requirement:	EMN-VAL-S-001
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message from the Email Server to the Push server. The Push server then accepts the EMN in XML format and acknowledges the Email Notification. There after the Push server composed an EMN to send via a Wap push to the Device. The device can then apply a security rule to only accept notification from a trusted Push server or apply another security rule to avoid security risk.
Pass-Criteria	The Push server should be able to accept the EMN message successfully
Comment	None

8.2 XML Parser

Test Case ID	EMN-1.0-int-49
Test Object	Server
Test Case Description and Purpose	Verify that the Email Server can connect to the Wap Push Proxy Gateway (PPG). Once a connection is established then an EMN can be sent via the Push Access Protocol (Push PAP) to the PPG successfully.
Specification Reference	Section 9.0
Requirement:	EMN-VAL-S-001
Tool	None
Test Code/Files	TBD
Preconditions	The Push server should be configured to accept notifications from the email server.
Test Procedure	Send an email push message to the Push server. The Push server accepts the EMN in XML format and acknowledges the Email Notification. Send a corrupt EMN in XML format and ensure you receive a Non Acknowledgement. The format of the EMN XML document complies to the Doctype declared in the EMN.
Pass-Criteria	The Push server should be able to accept the EMN message successfully
Comment	None

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
OMA-ETS-V1_0-20050713-A	13/07/2005	Document approved

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
OMA-ETS-EMN-V1_0-20060525-C	25 May 2006	n/a	Inclusion of the changes described on OMA-IOP-BRO-2006-0079 OMA-TP-2006-0211-Notification-of-changes-to-ETS-EMN-V1_0