

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	HO Overview Section Cleanup 7 — Network Re-entry Section	
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Re:	Response to IEEE 802.16e-04/06 (Call for Contributions on IEEE 802.16e/D1)	
Abstract	HO Overview Section Cleanup 7 — Network Re-entry Section	
Purpose	Correct overview section flow and language in HO Overview Section	
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HO Overview Section Cleanup 7

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Problem:

As currently defined, mechanics for hand-over are incomplete or poorly defined. Elements are out of order.

Remedy:

Revise hand-over process overview to more logical format and increase language clarity.

Remedy 1:

Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Replace 1.4.1.2.4 Termination with the Serving BS, page 12, lines 31-42, relocate modified/normative text for section to section 6.4 Data/Control Plane; editor will make appropriate allocation of numbering (??) for subsection:]

6.4.??4 Network Entry/Re-entry

Unless otherwise excepted in this section, MSS mobile network entry/re-entry is processed according to 6.4.9. For purposes of this process, MSS network re-entry and hand-over are synonymous.

MSS and Target BS shall conduct Ranging per 6.4.9.5 to begin network entry/re-entry except as MSS may take advantage of a non-contention based MSS Initial Ranging opportunity if present. If MSS RNG-REQ includes an unexpired Serving BS ID and Target BS had not previously received MSS information over the backbone (see section Backbone network HO procedures), then Target BS may make an MSS information request of Serving BS over the backbone network and Serving BS may respond. Regardless of having received MSS information from Serving BS, Target BS may request MSS information from an Authorizing Station via the backbone network. Network re-entry proceeds per 6.4.9.5 except as may be shortened by Target BS possession of MSS information obtained from Serving BS over the backbone network.

If Target BS had previously received an MSS-Info response message (see section Backbone network HO procedures) containing MSS information, Target BS may use the embedded TLV SBC-REQ information to build and send an unsolicited SBC-RSP message to MSS. Target BS may ignore only the first SBC-REQ message received if it sends an unsolicited SBC-RSP message. MSS is not required to send an SBC-REQ if it receives an unsolicited SBC-RSP prior to MSS attempt to send SBC-REQ.

If MSS RNG-REQ included an unexpired Serving BS ID and Target BS had previously received an MSS-Info response message (see section Backbone network HO procedures) containing MSS information, MSS and Target BS shall use the embedded TLV PKM-REQ information and the re-authorization process as defined in 7.2.

If Target BS had previously received an MSS-Info response message (see section Backbone network HO procedures), Target BS may use the embedded TLV REG-REQ & DSA-REQ information to build and send an unsolicited REG-RSP message. The REG-RSP message may include New_CID, Old_CID and Connection_Info TLVs. Target BS may ignore only the first REG-REQ message received if it sends an

unsolicited REG_RSP message. MSS is not required to send an REG-REQ if it receives an unsolicited REG-RSP prior to MSS attempt to send REG-REQ.

If Target BS had previously received an MSS-Info response message (see section Backbone network HO procedures) that included the MSS Network Address in the embedded TLV, and provided that MSS Network Address is compatible with Target BS network addressing scheme, Target BS may skip most of the Network Address allocation process and re-provision the same address through an unsolicited Network Address Response. Target BS may ignore only the first Network Address discover message received if it sends an unsolicited Network Address response message. MSS is not required to send an Network Address discover if it receives an unsolicited Network Address response prior to MSS attempt to send Network Address discover.

If MSS RNG-REQ included an unexpired Serving BS ID, MSS and Target BS may skip Time of day process.

If MSS RNG-REQ included an unexpired Serving BS ID, MSS may skip the MSS configuration file download procedure.

If MSS received a REG-RSP message that included New_CID, Old_CID, and Connection_Info TLVs, MSS and Target BS may skip the establish connections procedure.

Network entry/re-entry process completes with establishment of MSS Normal Operations.

Remedy 2:

Delete relocated section. Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Delete 1.4.1.2.4.3 Ranging and uplink parameters adjustment, page 13, lines 14-30:]

~~1.4.1.2.4.3 Ranging and uplink parameters adjustment~~

~~An MSS may perform an initial network entry as specified in 6.4.9. During this stage the MSS is assigned a new basic and primary management CID in the Target BS. If the MSS has used scanning interval(s) to do preliminary ranging with Target BS, and if the Target BS received HO pre-notification message that contains the MAC address of the MSS, (see Section Annex C, Backbone network HO procedures) the BS may choose, instead of waiting for initial ranging request in Initial Ranging Interval, to allocate a non-contention ranging opportunity for the MSS.~~

~~As opposed to regular network entry, where initial ranging is performed on contention basis, here the ranging opportunity may be allocated individually based on an MSS's 48-bit MAC address assuming this identifier was forwarded to the Target BS via the backbone network. Allocation of non-contention ranging opportunity is done using the Fast_UL_ranging_IE() (see Fast ranging (Paging) Information Element) in the UL-MAP.~~

Remedy 3:

Delete relocated section. Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Delete 1.4.1.2.4.4 MSS re-authorization, page 13, lines 32-39:]

1.4.1.2.4.4 MSS re-authorization

~~During this stage the MSS performs the re-authorization part of the PKM protocol used at initial network entry (see IEEE Standard P802.16 REVd/D3-2004, section 7.2). The BS authenticates the user and as the security context has not changed (it is transferred from the old BS via backbone, see Section Annex C, Backbone network HO procedures) the security sub-layer can continue in normal operation.~~

Remedy 4:

Delete relocated section. Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Delete 1.4.1.2.4.5 Re-register and re-establish provisioned connections, page 13, lines 40-56:]

1.4.1.2.4.5 Re-register and re-establish provisioned connections

~~This stage is equivalent to several stages performed during initial network entry. In this stage the MSS reregisters with the BS, and receives on the registration response a conversion table that maps the connections it had with its previous Serving BS to a new set of connections on the current Serving BS. In doing so, the MSS skips the establish IP connectivity stage, where it is assigned an IP address for management purposes. This stage is not really skipped during HO, instead it is postponed until the normal operation stage is reached. The transfer operational parameters and the time-of-day establishment stage are skipped as none of the information contained in the configuration file, nor the time-of-day is expected to change. The MSS attempts the re-registration by sending the normal REG-REQ MAC message. At this stage the MSS has already provided its 48-bit MAC address identifier, and the BS can recognize that the MSS is performing a HO. The BS REG-RSP shall include TLV values for re-establishing the active provisioned Service Flows.~~

Remedy 5:

Delete relocated section. Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Delete 1.4.1.2.4.6 Commence Normal Operation, page 13, lines 59-63:]

1.4.1.2.4.6 Commence Normal Operation

~~At this stage, normal operation commences. The MSS shall re-establish its IP connectivity as specified at initial network entry. Figure <TBD> shows how a complete HO process might look like in the time domain.~~

Remedy 6:

Modify section text since we relocated all subsections. Termination with the Serving BS previously relocated to 1.4.1.2.2.5. Move and consolidate content from **1.4.1.2.4.3 Ranging and uplink parameters adjustment**, **1.4.1.2.4.4 MSS re-authorization**, **1.4.1.2.4.5 Re-register and re-establish provisioned connections**, and **1.4.1.2.4.6 Commence Normal Operation**.

[Modify 1.4.1.2.4 Re-entry with the Target BS, page 12, lines 61-64, editor will make appropriate allocation of numbering (??) for subsection:]

1.4.1.2.4 Re-entry with the Target BS

Network re-entry is processed using the mechanics for HO process as detailed in 6.4.?? and At re-entry, the MSS performs the steps as shown in Figure 0f.