

# USB4 1.0 ENGINEERING CHANGE NOTICE FORM

**Title: Route String of Uninitialized Router**  
**Applied to: USB4 Specification Version 1.0**

**Brief description of the functional changes:**

A Read Response that originates from an Uninitialized Router should have the Route String field set to the Topology ID that was used to access the Router. A Notification Packet from an Uninitialized Router should have the Route string set to 0.

**Benefits as a result of the changes:**

When a Connection Manager accesses an Uninitialized Router, the response will include a predictable Router String allowing the Connection Manager to enumerate the Router more quickly.

**An assessment of the impact to the existing revision and systems that currently conform to the USB specification:**

None

**An analysis of the hardware implications:**

None

**An analysis of the software implications:**

None

**An analysis of the compliance testing implications:**

Need to verify that Control Packets from Uninitialized Router use the correct Route String.

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## Actual Change

### (a). Table 6-1, Control Packet Payload, Page 314

#### To Text:

DW	Field	Description
1	<i>Route String High</i>	<p><b>Route String High</b> – All Control Packets shall include a Route String. The format of the Route String is shown in Figure 6-5.</p> <p>For Control Packets that originate from the Connection Manager and target a Router:</p> <p><b>TopologyID [55:32]</b> – Shall contain the high 24 bits of the TopologyID of the target Router.</p> <p><b>Rsvd [62:56]</b> – Shall be set to 0.</p> <p><b>CM [63]</b> – Shall be set to 0b.</p> <p>For Control Packets that originate from an <b>Initialized</b> Router and target the Connection Manager:</p> <p><b>TopologyID [55:32]</b> – Shall contain the high 24 bits of the TopologyID of the Router that originates the Control Packet.</p> <p><b>Rsvd [62:56]</b> – Shall be set to 0.</p> <p><b>CM [63]</b> – Shall be set to 1b.</p> <p><u>For Read Responses that originate from an Uninitialized Router and target the Connection Manager:</u></p> <p><u><b>TopologyID [55:32]</b> – Shall be set to the high 24 bits of the TopologyID that was in the Read Request that the Router is responding to.</u></p> <p><u><b>Rsvd [62:56]</b> – Shall be set to 0.</u></p> <p><u><b>CM [63]</b> – Shall be set to 1b.</u></p> <p><u>For Notification Packets that originate from an Uninitialized Router and target the Connection Manager:</u></p> <p><u><b>TopologyID [55:32]</b> – Shall be set to 0.</u></p> <p><u><b>Rsvd [62:56]</b> – Shall be set to 0.</u></p> <p><u><b>CM [63]</b> – Shall be set to 1b.</u></p>
2	<i>Route String Low</i>	<p><b>Route String Low</b> – All Control Packets shall include a Route String. The format of the Route String is shown in Figure 6-5.</p> <p>For Control Packets that originate from the Connection Manager and target a Router:</p> <p><b>TopologyID [31:0]</b> – Shall contain the low 32 bits of the TopologyID of the target Router.</p> <p>For Control Packets that originate from an <b>Initialized</b> Router and target the Connection Manager:</p> <p><b>TopologyID [31:0]</b> – Shall contain the low 32 bits of the TopologyID of the Router that originates the Control Packet.</p> <p><u>For Read Responses that originate from an Uninitialized Router and target the Connection Manager:</u></p> <p><u><b>TopologyID [31:0]</b> – Shall be set to the low 32 bits of the TopologyID that was in the Read Request that the Router is responding to.</u></p> <p><u>For Notification Packets that originate from an Uninitialized Router and target the Connection Manager:</u></p> <p><u><b>TopologyID [31:0]</b> – Shall be set to 0.</u></p>

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## (b). Section 6.3.2, Uninitialized Plugged State, Page 225

### To Text:

When a Router is in the Uninitialized Plugged state, the values in the *Depth* and *TopologyID* fields of the Router Configuration Space are not valid.