

Mesh Endpoint Management Issues

This chapter explains some of the mesh endpoint issues and possible resolutions.

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Mesh Endpoints Not Registering with IoT FND

Procedure

Verify that the mesh endpoints have joined the FAR and are pingable from IoT FND over IPv6. If they are pingable, verify the following:

- The clock is in sync.
- The DHCP server used by the mesh endpoints is programmed with the correct IoT FND IP address.
- The mesh endpoints are running an image compatible with the current version of IoT FND.
- If HSM is used, HSM must be online and responding correctly.

Mesh Endpoint Registration Reason Codes

Registration Reason Code	Code	Event Type Name	Severity	Message	Description
REASON_UNKNOWN	0	unknownRegReason	INFO	Mesh node registered for unknown reason	N/A

Registration Reason Code	Code	Event Type Name	Severity	Message	Description
REASON_COLDSTART	1	coldBoot	INFO	Mesh node registered due to cold boot.	This message includes the new IP address of the mesh endpoint.
REASON_ADMIN	2	manualReRegistration	INFO	Mesh node registered due to manual registration.	The endpoint received an NMSRedirectRequest without a URL field.
REASON_IP_CHANGE	3	rejoinedWithNewIP	INFO	Mesh node registered with new IP address	This message includes the new IP address of the mesh endpoint.
REASON_NMS_CHANGE	4	nmsAddrChange	INFO	Mesh node registered due to NMS address change.	The IoT FND IP address changed OUTSIDE of an NMSRedirect (a new DHCPv6 option value was received)
REASON_NMS_REDIRECT	5	nmsNMSAddrChange	INFO	Mesh node registered due to manual NMS address change.	Endpoint received an error from IoT FND.
REASON_NMS_ERROR	6	nmsError	INFO	Mesh node registered due to NMS error.	Endpoint received an error from IoT FND.

Reasons for Mesh Endpoint WPAN Changes

In addition to generating events when mesh endpoints register with IoT FND, IoT FND also generates events after receiving a WPAN change TLV WPANStatus.

```
Event logged: Event(id=0, eventTime=1335304407974,
eventSeverity=0, eventSource=cgmesh,
evenMessage=WPAN change due to migration to better
PAN: [lastChanged: 0, lastChangedReason: 4],
NetElement, id=10044,
EventType, name=null, lat=1000.0,
lng=1000.0, geoHash=null)
```

Table 1: Reasons for Mesh Endpoint WPAN Changes

Registration Reason Code	Code	Event Name	Severity Type	Description
IEEE154_PAN_LEAVE_UNKNOWN	-1	unknownWPANChange	MAJOR	WPAN change for unknown reason.
IEEE154_PAN_LEAVE_INIT	0	meshInit	N/A	No event is generated for this code.
IEEE154_PAN_LEAVE_SYNC_TIMEOUT	1	meshConnectivityLost	MAJOR	WPAN change due to mesh connectivity loss.
IEEE154_PAN_LEAVE_GTK_TIMEOUT	2	meshLinkKeyTimeout	MAJOR	WPAN change due to mesh link key timeout.
IEEE154_PAN_LEAVE_NO_DEF_ROUTE	3	defaultRouteLost	MAJOR	WPAN change for no default route.
IEEE154_PAN_LEAVE_OPTIMIZE	4	migratedToBetterPAN	MAJOR	WPAN change due to migration to better PAN.

For these events, the message includes the time elapsed since the mesh endpoint left the network to when it rejoined. IoT FND displays the amount of time the mesh endpoint was offline since the event was logged (for example, 4 hours 23 minutes ago).