

## 6.2 Fabric Configuration Server

### 6.2.1 Overview

The Fabric Configuration Server provides a way for a management application to discover Fibre Channel Fabric topology and attributes.

Requests for the Fabric Configuration Server are carried over the Common Transport (see clause 4).

The Fabric Configuration Server is intended to be distributed among Switches, making the Fabric Configuration Server immediately available to an Nx\_Port once it has successfully completed Fabric Login. However, the Fabric Configuration Server is not restricted or required to be part of a Fabric, and may be located in any Nx\_Port.

### 6.2.2 Protocol

#### 6.2.2.1 Overview

Fabric Configuration Server registration, deregistration and queries are managed through protocols containing a set of Request CT\_IUs and Response CT\_IUs supported by the Fabric Configuration Server.

For a Fabric Configuration Server request, the payload shall be transported from the requestor to the Fabric Configuration Server using a Request CT\_IU. The corresponding Fabric Configuration Server response is transported from the Fabric Configuration Server to the requestor, in the Exchange established by the requestor, using a Response CT\_IU.

The action of the Fabric Configuration Server is unaffected by Server Sessions.

#### 6.2.2.2 CT\_IU preamble values

The following values shall be set in the CT\_IU preamble for Fabric Configuration Server request and their responses; fields not specified here shall be set as defined in 4.3.2:

- a) GS\_Subtype: as indicated in table 125; and
- b) Command Code: see table 127 for Request command codes.

**Table 127 – Fabric Configuration Server - Request Command Codes**

Code	Mnemonic	Description	Reference subclause
0100h	GTIN	Get Topology Information	6.2.5.2
0101h	GIEL	Get Interconnect Element List	6.2.5.3
0111h	GIET	Get Interconnect Element Type	6.2.5.4
0112h	GDID	Get Domain Identifier	6.2.5.5
0113h	GMID	Get Management Identifier	6.2.5.6
0114h	GFN	Get Fabric Name	6.2.5.7

**Table 127 – Fabric Configuration Server - Request Command Codes (Continued)**

<b>Code</b>	<b>Mnemonic</b>	<b>Description</b>	<b>Reference subclause</b>
0115h	GIELN	Get Interconnect Element Logical Name	6.2.5.8
0116h	GMAL	Get Interconnect Element Management Address List	6.2.5.9
0117h	GIEIL	Get Interconnect Element Information List	6.2.5.10
0118h	GPL	Get Port List	6.2.5.11
0121h	GPT	Get Port Type	6.2.5.12
0122h	GPPN	Get Physical Port Number	6.2.5.13
0124h	GAPNL	Get Attached Port Name List	6.2.5.14
0126h	GPS	Get Port State	6.2.5.15
0127h	GPSC	Get Port Speed Capabilities	6.2.5.16
0128h	GATIN	Get Attached Topology Information	6.2.5.17
0129h	GPSCE	Get Port Speed Capabilities Extended	6.2.5.18
0130h	GSES	Get Switch Enforcement Status	6.2.5.19
0140h	GIEAG	Get Interconnect Element Attribute Group	6.2.5.20
0141h	GPAG	Get Port Attribute Group	6.2.5.21
0142h	GPAGE	Get Port Attribute Group Extended	6.2.5.22
0191h	GPLNL	Get Platform Node Name List	6.2.5.23
0192h	GPLT	Get Platform Type	6.2.5.24
0193h	GPLML	Get Platform Management Address List	6.2.5.25
0197h	GPAB	Get Platform Attribute Block	6.2.5.26
01A1h	GNPL	Get Platform Name - Node Name	6.2.5.27
01A2h	GNPL	Get Platform Name List	6.2.5.28
01A4h	GPFCP	Get Platform FCP Type	6.2.5.29
01A5h	GPLI	Get Platform OS LUN Mappings	6.2.5.30
01B1h	GNID	Get Node Identification Data - Node Name	6.2.5.31
0215h	RIELN	Register Interconnect Element Logical Name	6.2.5.32
0280h	RPL	Register Platform	6.2.5.33
0291h	RPLN	Register Platform Node Name	6.2.5.34

**Table 127 – Fabric Configuration Server - Request Command Codes (Continued)**

Code	Mnemonic	Description	Reference subclause
0292h	RPLT	Register Platform Type	6.2.5.35
0293h	RPLM	Register Platform Management Address	6.2.5.36
0298h	RPAB	Register Platform Attribute Block	6.2.5.37
029Ah	RPFCP	Register Platform FCP Type	6.2.5.38
029Bh	RPLI	Register Platform OS LUN Mappings	6.2.5.39
0380h	DPL	Deregister Platform	6.2.5.40
0391h	DPLN	Deregister Platform Node Name	6.2.5.41
0392h	DPLM	Deregister Platform Management Address	6.2.5.42
0393h	DPLML	Deregister Platform Management Address List	6.2.5.43
0394h	DPLI	Deregister Platform OS LUN Mappings	6.2.5.44
0395h	DPAB	Deregister Platform Attribute Block	6.2.5.45
039Fh	DPALL	De-Register All Platform Information	6.2.5.46
0400h	FTR	FC Trace Route	6.2.5.47
0401h	FPNG	FC Ping	6.2.5.48
other	reserved		

### 6.2.2.3 Registration

The registration requests defined for the Fabric Configuration Server are summarized in table 127. Some attributes do not have a corresponding registration request; this standard does not define the registration of those attributes.

The Fabric Configuration Server may reject registrations due to Fabric Configuration Server resource limitations. However, the Fabric Configuration Server shall support registration of all attributes, once registration of a single attribute has been accepted for a given Name\_Identifier (see FC-FS-4).

The Fabric Configuration Server may reject any registration requests for reasons not specified in this document.

If overlapping registrations for the same attribute are performed, then the Fabric Configuration Server shall, when all registrations have completed, leave the attribute as one of the registered attribute values. However, it is indeterminate which of the overlapping registration requests take precedence.

### 6.2.2.4 Queries

The Fabric Configuration Server may reject any query requests for reasons not specified in this document. The queries defined for the Fabric Configuration Server are summarized in table 127.

### 6.2.3 Fabric Configuration Server Objects and Attributes

#### 6.2.3.1 Overview

Figure 5 illustrates the physical Fabric, consisting of one or more Interconnect Elements, that each have some number of physical Ports (i.e., LCFs). These Ports are then connected either to other Ports on other Interconnect Elements, or to Nx\_Ports outside of the physical Fabric.

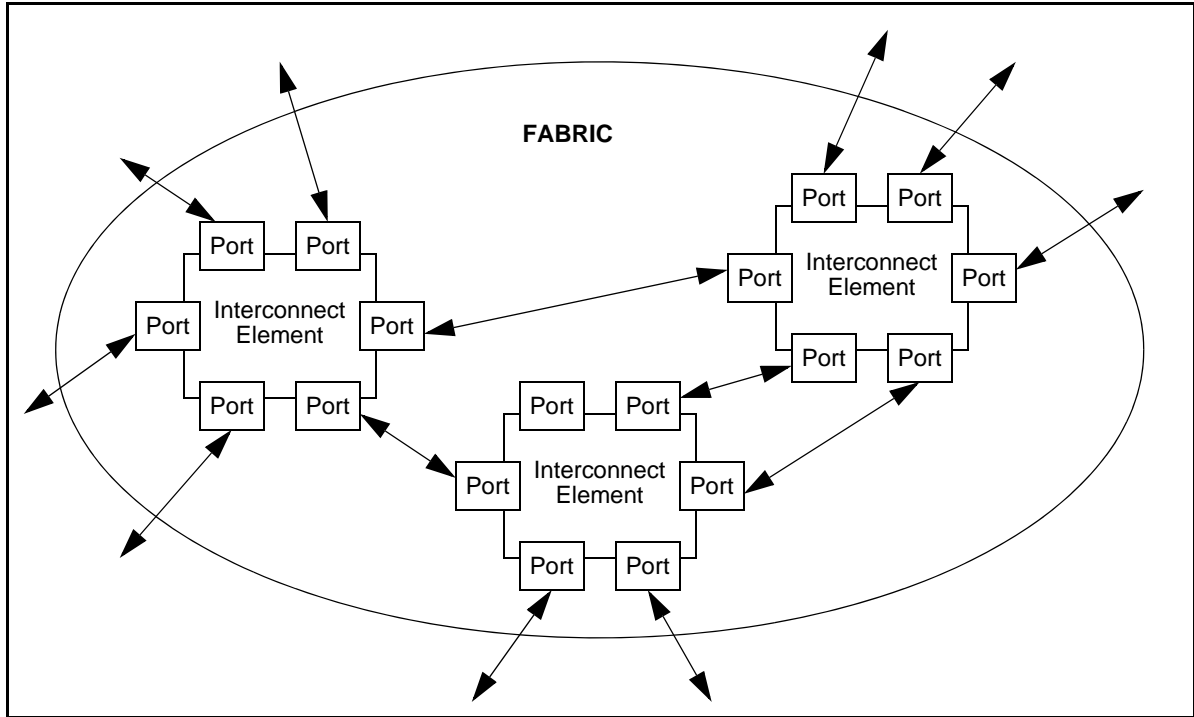
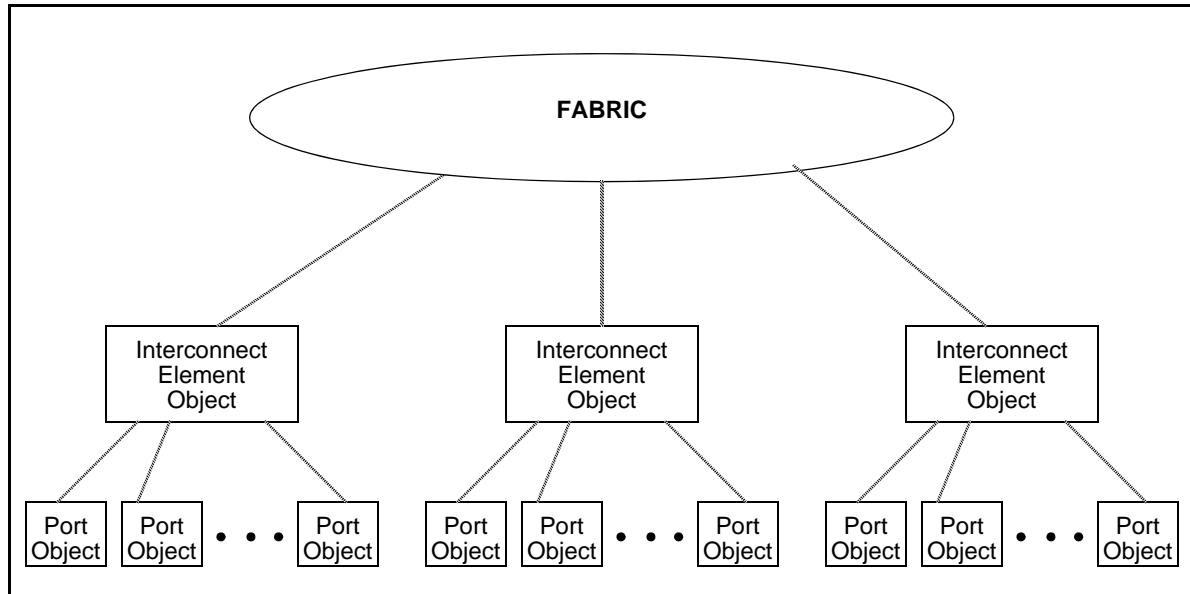


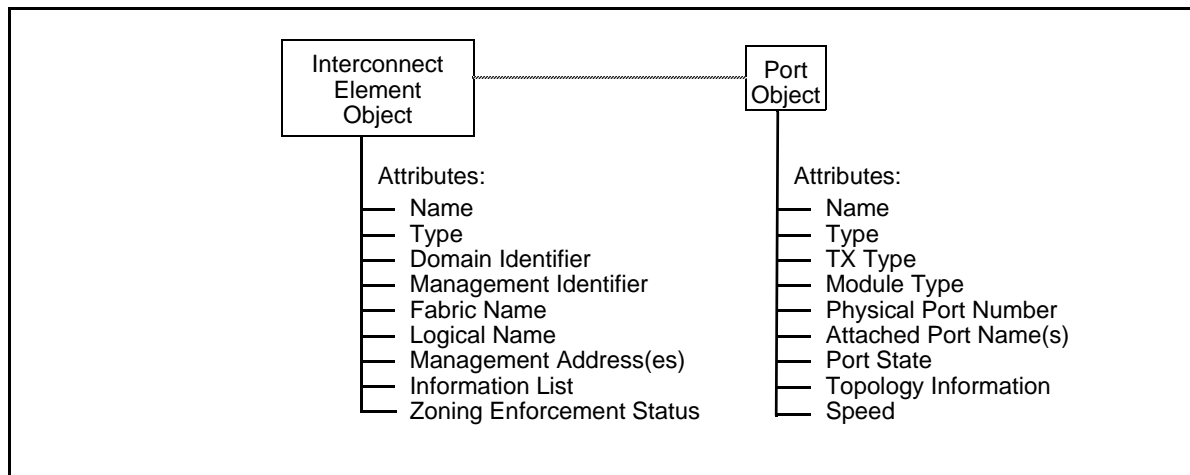
Figure 5 – Physical Fabric Illustration

The Fabric Configuration Server object model is shown in figure 6.



**Figure 6 – Fabric Configuration Server Object Model**

The base object class managed by the Fabric Configuration Server is the Interconnect Element object. Interconnect Element objects have one or more associated Port objects. One or more Interconnect Element objects belong to a Fabric. Interconnect Element objects and Port objects may have attributes associated with them, as shown in figure 7.



**Figure 7 – Interconnect Element and Port attributes**

### 6.2.3.2 Interconnect Element Object

#### 6.2.3.2.1 Interconnect Element Name

The format of the Interconnect Element Name attribute shall be identical to the Name\_Identifier format. If the Interconnect Element is a Switch (see FC-SW-6), the Interconnect Element Name attribute shall be the Switch\_Name of the Switch.

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Interconnect Element Name attribute is 00 00 00 00 00 00 00 00h.

**6.2.3.2.2 Interconnect Element Type**

The values of the Interconnect Element Type attribute shall be as shown in table 128.

**Table 128 – Interconnect Element Type- encoding**

Encoded value	Description
00h	Unknown
01h	Switch
02h	Hub
03h	Bridge
all others	Reserved

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null Interconnect Element Type attribute value is set to 'Unknown'.

**6.2.3.2.3 Interconnect Element Domain Identifier**

The format of the Interconnect Element Domain Identifier attribute shall be identical to the Domain Identifier format (see FC-SW-6).

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Interconnect Element Domain Identifier attribute is 00h.

**6.2.3.2.4 Interconnect Element Management Identifier**

The format of the Interconnect Element Management Identifier attribute shall be identical to the address identifier format (see FC-FS-4). If the Interconnect Element is a Switch (see FC-SW-6), the Interconnect Element Management Identifier attribute shall be the Domain Controller identifier of the Switch.

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Interconnect Element Management Identifier attribute is 00 00 00h.

**6.2.3.2.5 Interconnect Element Fabric Name**

The format of the Interconnect Element Fabric Name attribute shall be identical to the Name\_Identifier format and the value shall be Fabric\_Name (see FC-SW-6).

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Interconnect Element Fabric Name attribute is 00 00 00 00 00 00 00 00h.

### 6.2.3.2.6 Interconnect Element Logical Name

The format of the Interconnect Element Logical Name attribute shall be as shown in table 129. The contents of these bytes are not defined and shall not be restricted by the Fabric Configuration Server.

**Table 129 – Logical Name Format**

Item	Size (Bytes)
Logical Name length (m)	1
Logical Name	m
Reserved	255-m

This attribute may be registered using the protocol described in 6.2.2.3. The null value for the Interconnect Element Logical Name attribute is a zero-length Interconnect Element Logical Name.

### 6.2.3.2.7 Interconnect Element Management Address

The format of the Interconnect Element Management Address attribute shall be as shown in table 130. Zero or more Management Address attributes shall be associated with an Interconnect Element object.

**Table 130 – Management Address Format**

Item	Size (Bytes)
Management Address length (m)	1
Management Address value	m
Reserved	255-m

The format of the Management Address shall use the format of the Uniform Resource Locator (URL) as defined in RFC2396, RFC1738 and RFC2732. The scheme field shall be as registered at <http://www.iana.org/assignments/uri-schemes> (see RFC2396). A null management address entry is specified as a Management Address length value of zero followed by 255 reserved bytes.

This standard does not define how this attribute is registered with the Fabric Configuration Server. The contents of the Management Address shall not be restricted by the Fabric Configuration Server.

NOTE 30 – Some legacy implementations may return a null management address of the format “snmp://0.0.0.0”. Applications should check for an IP address of 0.0.0.0 and if detected not use it.

### 6.2.3.2.8 Interconnect Element Information List

The format of the Interconnect Element Information List attribute shall be as shown in table 131. This standard does not define how this attribute is registered with the Fabric Configuration Server.

**Table 131 – Information List Format**

Item	Size (Bytes)
Reserved	3
List Length	1
Vendor name	w
Model name/number	x
Release code	y
Vendor-specific information	z

**List Length (n):** Specifies the length of the list in bytes, up to a maximum of 252.

**Vendor name:** A printable ASCII character string, terminated with a null (00h), that specifies the vendor name of the designated Interconnect Element.

**Model name/number:** A printable ASCII character string, terminated with a null (00h), that specifies the model name and/or model number of the designated Interconnect Element.

**Release code:** A printable ASCII character string, terminated with a null (00h), that specifies the release code or release level of the designated Interconnect Element.

**Vendor-specific information:** Zero or more printable ASCII character strings, each terminated with a null (00h), that contain other vendor-specific information regarding the designated Interconnect Element.

### 6.2.3.3 Port Object

#### 6.2.3.3.1 Port Name

The format of the Port Name attribute shall be identical to the Name\_Identifier format. The value of the Port Name attribute shall be the same as the value Port\_Name in the Fabric Login ELS Accept payload.

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Port Name attribute is 00 00 00 00 00 00 00 00h.



### 6.2.3.3.2 Port Type

The values of the Port Type attribute shall be as shown in table 132.

**Table 132 – Port Type encoding**

Encoded value	Description
00h	Unidentified
01h	N_Port
02h	NL_Port
03h	F/NL_Port
7Fh	Nx_Port
81h	F_Port
82h	FL_Port
84h	E_Port
85h	B_Port
86h	A_Port
C0h to FFh	Vendor Specific
all others	Reserved

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null Port Type attribute value is set to 'Unknown'.

### 6.2.3.3.3 Port TX Type

This attribute describes the technology that is incorporated in the transmitter of the module. The values of the Port TX Type attribute shall be as shown in table 133.

**Table 133 – Port TX Type encoding**

Encoded value	Description
01h	Unknown
02h	Long wave laser - LL (1 550 nm)
03h	Short wave laser - SN (850 nm)
04h	Long wave laser cost reduced - LC (1 310 nm)
05h	Electrical - EL
06h	10GBASE-SR 850nm laser <sup>a</sup>
07h	10GBASE-LR 1310nm laser <sup>a</sup>
08h	10GBASE-ER 1550nm laser <sup>a</sup>
09h	10GBASE-LX4 WWDM 1300nm laser <sup>a</sup>
0Ah	10GBASE-SW 850nm laser <sup>a</sup>
0Bh	10GBASE-LW 1310nm laser <sup>a</sup>
0Ch	10GBASE-EW 1550nm laser <sup>a</sup>
0Dh	10GBASE-CX4 <sup>a</sup>
0Eh	Long wave laser - LZ (1 490 nm)
all others	Reserved
<sup>a</sup> See IEEE 802.3-2005.	

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null Port TX Type attribute value is set to 'Unknown'.

### 6.2.3.3.4 Port Module Type

This attribute describes the form factor of the module. The values of the Port Module Type attribute shall be as shown in table 134.

**Table 134 – Port Module Type encoding**

Encoded value	Description
01h	Unknown
02h	Other
03h	Obsolete
04h	Embedded
05h	GLM
06h	GBIC with serial ID
07h	GBIC without serial ID
08h	SFP with Serial ID
09h	SFP without Serial ID
0Ah	XFP
0Bh	X2 Short
0Ch	X2 Medium
0Dh	X2 Tall
0Eh	XPAK Short

**Table 134 – Port Module Type encoding(Continued)**

Encoded value	Description
0Fh	XPAK Medium
10h	XPAK Tall
11h	XENPAK
12h	SFP-DWDM
13h	QSFP
14h	X2-DWDM
15h	CFP
16h	CFP2
17h	CFP4
18h	QSFP+
19h	QSFP28
all others	Reserved

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null Port Module Type attribute value is set to 'Unknown'.

**6.2.3.3.5 Physical Port Number**

The format of the Physical Port Number attribute shall be as shown in table 135. The contents of this field are not defined and shall not be restricted by the Fabric Configuration Server, due to vendor specific methods for numbering physical ports.

**Table 135 – Physical Port Number Format**

Item	Size (Bytes)
Physical Port Number	4

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null value for the Physical Port Number attribute is 00 00 00 00h.

**6.2.3.3.6 Attached Port Name**

The format of the Attached Port Name attribute shall be as shown in table 136. Zero or more Attached Port Name attributes may be associated with a Port object.

**Table 136 – Attached Port Name Format**

Item	Size (Bytes)
Port Name	8
Reserved	2
Port Flags	1
Port Type	1

**Port Name:** As defined in 6.2.3.3.1.

**Port Flags:** As shown in table 137.

**Table 137 – Port Flags field bits**

Bit Position	Description
7 to 2	Reserved
1	A value of one indicates that the Port supports the Get Topology Information Extended (GTIN) Link Service. A value of zero indicates that the Port does not support this ELS.
0	Obsolete

**Port Type:** As defined in 6.2.3.3.2.

This standard does not define how this attribute is registered with the Fabric Configuration Server. A Port object with a Port Type attribute value of “N\_Port” or “NL\_Port” shall have a null Attached Port Name List. The null value for the Attached Port Name List attribute shall be a zero length Attached Port Name List.

**6.2.3.3.7 Port State**

The values of the Port State attribute shall be as shown in table 138.

**Table 138 – Port State encoding**

Encoded value	Description
00h	Unknown
01h	Online - a frame may be passed through the FC_Port
02h	Offline - a frame is not able to be passed through the FC_Port
03h	Testing - FC_Port is in a test state
04h	Fault - FC_Port is not operational
E0h to FFh	Vendor specific
all others	Reserved

This standard does not define how this attribute is registered with the Fabric Configuration Server. The null Port State attribute value is set to 'Unknown'.

**6.2.3.3.8 Port Speed Capabilities Object**

The Port Speed Capabilities Object identifies the data transfer rate capabilities of the LCF within the FC\_Port. The format of the Port Speed Capabilities Object shall be as shown in table 139.

**Table 139 – Port Speed Capabilities Object Format**

Item	Size (Bytes)
Port Speed Capabilities	2

All the LCF's potential data transfer speed operating points are indicated by setting the appropriate bit to one. More than one bit may be set at a time. ~~Valid bits and~~ are ~~as shown~~specified in table 140.

**Table 140 – Port Speed Capabilities ~~field bits~~**

Bit Position	Description	Bit Position	Description
15	1 GFC	7	40 GFC <sup>a</sup>
14	2 GFC	6	10 GE
13	4 GFC	5	40 GE
12	10 GFC <sup>a</sup>	4	100 GE
11	8 GFC	3	128 GFC
10	16 GFC	2	25 GE
9	20 GFC	1	Incomplete <sup>b</sup>
8	32 GFC	0	Unknown

<sup>a</sup> Legacy implementations may have used this bit for Ethernet.  
<sup>b</sup> Complete Port Speed Capabilities information cannot be provided. Use GPSCE to obtain the complete set of Port Speed Capabilities.

**6.2.3.3.9 Port Operating Speed ~~Object~~**

The Port Operating Speed ~~Object~~ identifies the current operating data transfer rate of the LCF within an FC\_Port. The format of the Port Operating Speed ~~Object~~ shall be as shown in table 141.

**Table 141 – Port Operating Speed ~~Object~~ ~~F~~format**

Item	Size (Bytes)
Port Operating Speed	2

When a bit is set to one, it indicates the LCF is operating at the designated speed. Only one bit shall be set at a time. If the operating speed has not been established, then the “Speed not established” bit is set to one. If the LCF’s operating speed is not listed in table 142 or is not identifiable, then the “Unknown” bit is set to one. Valid bits are as shown in table 142.

**Table 142 – Port Operating Speed ~~field bits~~**

Bit Position	Description	Bit Position	Description
15	1 GFC	7	40 GFC <sup>a</sup>
14	2 GFC	6	10 GE
13	4 GFC	5	40 GE
12	10 GFC <sup>a</sup>	4	100 GE
11	8 GFC	3	128 GFC
10	16 GFC	2	25 GE
9	20 GFC	1	Unknown <sup>b</sup>
8	32 GFC	0	Speed not established
<sup>a</sup> Legacy implementations may have used this bit for Ethernet. <sup>b</sup> The Port Operating Speed is not in this list. <del>Use GPSCE to</del> obtain the Port Operating Speed.			

**6.2.3.3.10 Zoning Enforcement Status Object**

The format of the Zoning Enforcement Status Object is depicted in table 143.

**Table 143 – Zoning Enforcement Status Object**

Item	Size (Bytes)
F_Port_Name	8
Port enforcement status	4

**F\_Port\_Name:** This field contains the F\_Port\_Name of the Fx\_Port that the enforcement status object is referencing.



**Port Enforcement Status:** This is a 32 bit wide bit field that reports the actual enforcement status of the named Fx\_Port. The defined bits are depicted in table 144.

**Table 144 – Port Enforcement Status Bit Definitions**

Bit	Interpretation
0	1 = Soft Zoning enforcement on 0 = Soft Zoning enforcement off
1	1 = Hard Zoning enforcement on 0 = Hard Zoning enforcement off
2	1 = Broadcast Zoning enforcement (see FC-SW-6) on 0 = Broadcast Zoning enforcement off
all others	Reserved

**6.2.3.3.11 Port Speed Capabilities Extended object**

The Port Speed Capabilities Extended object identifies the data transfer rate capabilities of the LCF within the FC Port. The Port Speed Capabilities Extended object is formatted into multiple pages. The FC Port returns the appropriate page that contains the applicable information for the FC Port. Each page contains Speed Capabilities values and a Control field (see table 146) that the LCF may use to refine the scope of the capabilities returned. The Page bits in the Control field indicate which page the LCF is returning.

All the LCF's potential supported data transfer speeds are indicated by setting the appropriate bit in the Speed Capabilities field to one. More than one bit may be set at a time. The format of the Port Speed Capabilities Extended object is specified in table 145.

**Table 145 – Port Speed Capabilities Extended object format**

<u>Item</u>	<u>Size (Bytes)</u>
<u>Speed Capabilities</u>	<u>3</u>
<u>Control</u>	<u>1</u>

**Speed Capabilities:** supported data transfer speeds.

**Control:** characteristics of the Port Speed Capabilities Extended object (see table 146).

**Table 146 – [Control field bits](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">7 to 6</a>	<a href="#">Reserved</a>
<a href="#">5 to 4</a>	<a href="#">Page</a>
<a href="#">3</a>	<a href="#">Parallel</a>
<a href="#">2</a>	<a href="#">Transport Type</a>
<a href="#">1</a>	<a href="#">Administratively configured</a>
<a href="#">0</a>	<a href="#">Unknown</a>

**Page:** [see table 147.](#)

**Table 147 – [Page values](#)**

<a href="#">Encoded Values</a>	<a href="#">Description</a>
<a href="#">00b</a>	<a href="#">Page zero</a>
<a href="#">01b</a>	<a href="#">Reserved</a>
<a href="#">10b</a>	<a href="#">Reserved</a>
<a href="#">11b</a>	<a href="#">Reserved</a>

**Parallel:** [a value of one indicates the link is operating in parallel lane mode. A value of zero indicates the link is operating in serial lane mode.](#)

**Transport Type:** [a value of one indicates the Ethernet transport type. A value of zero indicates the Fibre Channel transport type.](#)

**Administratively configured:** [a value of one indicates the capabilities have been administratively assigned. A value of zero indicates the capabilities have not been administratively assigned.](#)

**Unknown:** [a value of one indicates that the Speed Capabilities are not identifiable. A value of zero indicates that the Speed Capabilities are identifiable and provided in the Speed Capabilities field.](#)

A list of references for Speed Capabilities object pages based on the Transport Type is shown in table 148.

**Table 148 – [Speed Capabilities based on Transport Type](#)**

<a href="#">Page</a>	<a href="#">Transport Type</a>	<a href="#">Reference</a>
<a href="#">0</a>	<a href="#">0 (i.e., Fibre Channel)</a>	<a href="#">table 149</a>
	<a href="#">1 (i.e., Ethernet)</a>	<a href="#">table 150</a>

The Port Speed Capabilities Extended page zero values for the Fibre Channel transport type are shown in table 149.


**Table 149 – [Page Zero Fibre Channel Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GFC</a>	<a href="#">15</a>	<a href="#">Reserved Speed Capabilities</a>
<a href="#">30</a>	<a href="#">2 GFC</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">4 GFC</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">8 GFC</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">10 GFC</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">16 GFC</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">20 GFC</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">32 GFC</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">40 GFC</a>	<a href="#">7</a>	<a href="#">Control (see table 146)</a>
<a href="#">22</a>	<a href="#">64 GFC</a>	<a href="#">6</a>	
<a href="#">21</a>	<a href="#">128 GFC</a>	<a href="#">5</a>	
<a href="#">20</a>	<a href="#">256 GFC</a>	<a href="#">4</a>	
<a href="#">19</a>	<a href="#">Reserved Speed Capabilities</a>	<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	

The Port Speed Capabilities Extended page zero values for the Ethernet transport type are shown in table 150.

**Table 150 – Page Zero Ethernet Transport Type values** 

<u>Bit Position</u>	<u>Description</u>	<u>Bit Position</u>	<u>Description</u>
<u>31</u>	<u>1 GE</u>	<u>15</u>	<u>Reserved Speed Capabilities</u>
<u>30</u>	<u>10 GE</u>	<u>14</u>	
<u>29</u>	<u>25 GE</u>	<u>13</u>	
<u>28</u>	<u>40 GE</u>	<u>12</u>	
<u>27</u>	<u>50 GE</u>	<u>11</u>	
<u>26</u>	<u>100 GE</u>	<u>10</u>	
<u>25</u>	<u>200 GE</u>	<u>9</u>	
<u>24</u>	<u>400 GE</u>	<u>8</u>	
<u>23</u>	<u>Reserved Speed Capabilities</u>	<u>7</u>	<u>Control (see table 146)</u>
<u>22</u>		<u>6</u>	
<u>21</u>		<u>5</u>	
<u>20</u>		<u>4</u>	
<u>19</u>		<u>3</u>	
<u>18</u>		<u>2</u>	
<u>17</u>		<u>1</u>	
<u>16</u>		<u>0</u>	

**Editor’s Note:** [Add 2.5 GE and 5 GE?](#) 

**6.2.3.3.12 Port Operating Speed Extended object**

The Port Operating Speed Extended object identifies the current operating data transfer rate of the LCF within an FC Port. The Port Operating Speed Extended object is formatted into multiple pages. The FC Port returns the appropriate page that contains the applicable information for that FC Port. Each page contains the Operating Speed value and a Control field (see table 152) that the LCF may use to refine the scope of the Operating Speed returned. The Page bits in the Control field indicate which page the LCF is returning.

If a bit in the Operating Speed field is set to one, it indicates the LCF is operating at the designated speed. Only one bit shall be set at a time. The format of the Port Operating Speeds Extended object is shown in table 151.

**Table 151 – Port Operating Speed Extended object format**

<u>Item</u>	<u>Size (Bytes)</u>
<u>Operating Speed</u>	<u>3</u>
<u>Control</u>	<u>1</u>

**Operating Speed:** possible operating data transfer speeds.

**Control:** characteristics of the Port Operating Speed Extended object (see table 152).

**Table 152 – Control field bits**

<u>Bit Position</u>	<u>Description</u>
<u>7 to 6</u>	<u>Reserved</u>
<u>5 to 4</u>	<u>Page</u>
<u>3</u>	<u>Parallel</u>
<u>2</u>	<u>Transport Type</u>
<u>1</u>	<u>Speed not established</u>
<u>0</u>	<u>Unknown</u>

**Page:** see table 153.

**Table 153 – Page values**

<u>Encoded Values</u>	<u>Description</u>
<u>00b</u>	<u>Page zero</u>
<u>01b</u>	<u>Reserved</u>
<u>10b</u>	<u>Reserved</u>
<u>11b</u>	<u>Reserved</u>

**Parallel:** a value of one indicates the link is operating in parallel lane mode. A value of zero indicates the link is operating in serial lane mode.

**Transport Type:** a value of one indicates the Ethernet transport type. A value of zero indicates the Fibre Channel transport type.

**Speed not established:** a value of one indicates that the speed is not established (e.g., the LCF is not in the Active State (see FC-FS-6)). A value of zero indicates the speed is established and provided in the Operating Speed field.

**Unknown:** a value of one indicates the speed is not able to be provided (e.g., the LCF is in the Active State, but the Operating Speed cannot be determined). A value of zero indicates the speed is known and provided in the Operating Speed field.

A list of references for Port Operating Speed object pages based on the Transport Type is shown in table 154.

**Table 154 – Port Operating Speeds based on Transport Type**

<u>Page</u>	<u>Transport Type</u>	<u>Reference</u>
0	<u>0 (i.e., Fibre Channel)</u>	<u>table 155</u>
	<u>1 (i.e., Ethernet)</u>	<u>table 156</u>

The Port Operating Speed Extended page zero values for the Fibre Channel transport type are shown in table 155.

**Table 155 – [Port Operating Speed Page Zero Fibre Channel Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GFC</a>	<a href="#">15</a>	<a href="#">Reserved Operating Speed</a>
<a href="#">30</a>	<a href="#">2 GFC</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">4 GFC</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">8 GFC</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">10 GFC</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">16 GFC</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">20 GFC</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">32 GFC</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">40 GFC</a>	<a href="#">7</a>	<a href="#">Control (see table 152)</a>
<a href="#">22</a>	<a href="#">64 GFC</a>	<a href="#">6</a>	
<a href="#">21</a>	<a href="#">128 GFC</a>	<a href="#">5</a>	
<a href="#">20</a>	<a href="#">256 GFC</a>	<a href="#">4</a>	
<a href="#">19</a>	<a href="#">Reserved Operating Speed</a>	<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	

The Port Operating Speed Extended page zero values for the Ethernet transport type are shown in table 156.

**Table 156 – [Port Operating Speed Page Zero Ethernet Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GE</a>	<a href="#">15</a>	<a href="#">Reserved Operating Speed</a>
<a href="#">30</a>	<a href="#">10 GE</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">25 GE</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">40 GE</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">50 GE</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">100 GE</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">200 GE</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">400 GE</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">Reserved Operating Speed</a>	<a href="#">7</a>	<a href="#">Control (see table 152)</a>
<a href="#">22</a>		<a href="#">6</a>	
<a href="#">21</a>		<a href="#">5</a>	
<a href="#">20</a>		<a href="#">4</a>	
<a href="#">19</a>		<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	

**Editor’s Note:** [Add 2.5 GE and 5 GE to table 156?](#)



**Editor’s Note:** [What if the Parallel or Transport Type bit is set in the Port Speed Capabilities, but NOT set in the Port Operating Speed \(or vice versa\)?](#)



### 6.2.3.4 Platform Object

#### 6.2.3.4.1 Overview

Platform objects are defined to provide the basic ability to associate one or more nodes with a single Platform for discovery and management. Platform objects may have attributes associated with them, as shown in figure 8.



Platform objects may support multiple FC-4 types, however, the only FC-4 specific Platform object currently defined is the FCP-4 Platform object as shown in figure 8.

The node attributes and the port attributes are identical to the name server objects (see 5.2).

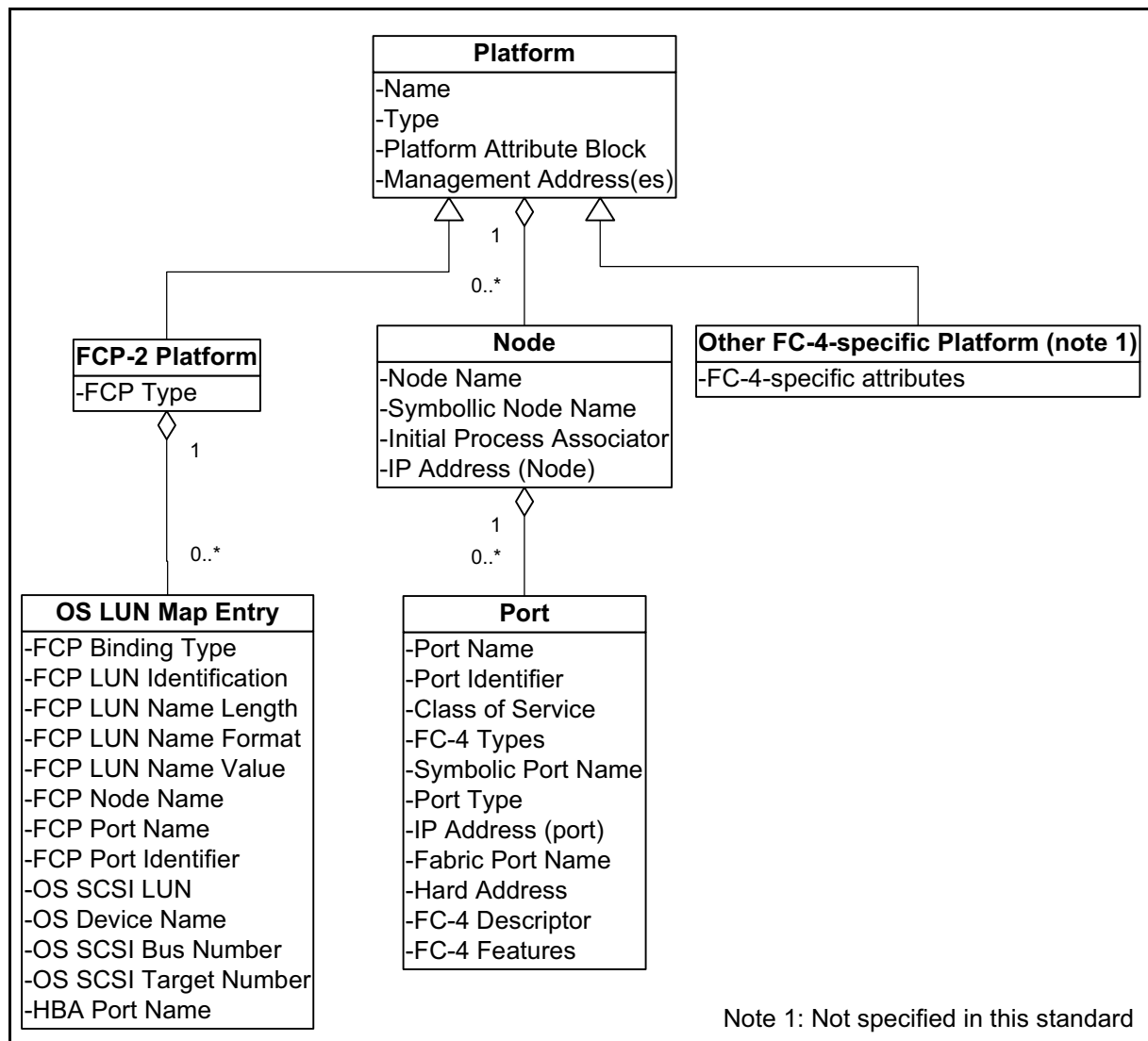


Figure 8 – Platform objects and attributes

#### 6.2.3.4.2 Platform Name

The Platform Name attribute may be registered using the protocol described in 6.2.2.3. The null value for the Platform Name attribute is a zero-length Platform Name.

The format of the Platform Name attribute shall be as shown in table 157.

**Table 157 – Platform Name Format**

Item	Size (Bytes)
Platform Name length (m)	1
Platform Name	m
Platform Name Format	1
Reserved	254-m

The Platform Name length contains the length in bytes of the Platform Name. If the Platform Name length is equal to 255 then the Platform Name Format shall not be included in the Platform Name attribute and the Platform Name shall be 255 bytes and the Platform Name Format shall be assumed to be zero.

If the Platform Name Format equals zero then the Platform Name is not defined and shall not be restricted by the Fabric Configuration Server. If the Platform Name Format contains valid information the Platform Name format shall be as indicated by the Platform Name Format (see table 158).

The Platform Name Format contains a Platform Name Type field and a Code Set field that define the format of the Platform Name (see table 158).

**Table 158 – Platform Name Format**

Bit Byte	7	6	5	4	3	2	1	0
m+1	Platform Name Type				Code Set			

The Code Set field specifies the code set used for the Platform Name, as described in table 159.

**Table 159 – Code set**

Value	Description
0h	Reserved
1h	The Platform Name shall contain binary values.
2h	The Platform Name shall contain printable ASCII characters
3h to Fh	Reserved

The Platform Name Type field specifies the format and assignment authority for the Platform name, as described in table 160.

**Table 160 – Platform Name type**

Value	Description
0h	No assignment authority was used and consequently there is no guarantee that the Platform name is globally unique.
1h	The first eight bytes of the Platform Name field is a T10 Vendor ID (see 3.6). The organization associated with the T10 Vendor ID is responsible for ensuring that the remainder of the identifier field is unique.
2h	The Platform Name field contains a canonical form IEEE Extended Unique Identifier, 64-bit (EUI-64). In this case, the identifier length field shall be set to eight. Note that the IEEE guidelines for EUI-64 specify a method for unambiguously encapsulating an IEEE 48-bit identifier within an EUI-64.
3h	The Platform Name field contains an FC-FS-4 Name_Identifier. Any FC-FS-4 identifier may be used, including one of the four based on a Canonical form IEEE company_id.
4h	The Platform Name field contains a UUID. UUIDs are generated and formatted as described in RFC 4122.
5h to Fh	Reserved

### 6.2.3.4.3 Platform Type

The values of the Platform Type attribute shall be as shown in table 161.

**Table 161 – Platform Type - encoding**

Encoded value	Description
00 00 00 01h	Obsolete
00 00 00 02h	Other - none of the following
00 00 00 05h	Gateway
00 00 00 06h	Obsolete
00 00 00 07h	Obsolete
00 00 00 08h	Obsolete
00 00 00 09h	Obsolete
00 00 00 0Ah	Host
00 00 00 0Bh	Storage subsystem (see FC-LS-3)
00 00 00 0Ch	Obsolete
00 00 00 0Dh	Obsolete
00 00 00 0Eh	Storage access device (see FC-LS-3)
00 00 00 0Fh	Wavelength division multiplexer (see FC-LS-3)
00 00 00 11h	NAS server
00 00 00 12h	Bridge
00 00 00 13h	Virtualization device (see FC-LS-3)
00 00 00 14h	N_Port Virtualizer
xx xx xx FFh	Multi-function device (see table 162 for values to fill in for xx xx xx)
all others	Reserved

**Table 162 – Multi-function device bit definitions**

Bit position	Function
29	Gateway
27	Host
26	Storage subsystem
25	Storage access device
24	Wavelength division multiplexer
23	NAS server
22	Bridge
21	Virtualization device
20 to 8	Reserved

This attribute may be registered using the protocol described in 6.2.2.3. The null Platform Type attribute value is set to 00 00 02h 'Other'.

**6.2.3.4.4 Platform Attribute Block**

The Platform Attribute Block is a variable length structure that contains attributes registered for the specified Platform. The format of the Platform Attribute Block is depicted in table 163.

**Table 163 – Platform Attribute Block**

Item	Size (Bytes)
Number of Platform Attribute Entries (n)	4
Platform Attribute Entry 1	w
Platform Attribute Entry 2	x
...	
Platform Attribute Entry n-1	y
Platform Attribute Entry n	z

**Number of Platform Attribute Entries:** This field specifies the number of Platform Attribute Entries contained in the Platform Attribute Block. This value shall be greater than or equal to one.

**Platform Attribute Entry:** A Platform Attribute Entry specifies a particular attribute registered with a Platform object.

#### 6.2.3.4.5 Attribute Entry Format

The Fabric Configuration Server defines a general format to be used for attributes associated with Platform objects. The general format of the Attribute Entry is depicted in table 164.

**Table 164 – Attribute Entry**

Item	Size (Bytes)
Attribute Entry Type	2
Attribute Entry Length (n)	2
Attribute Entry Value	(see table 165)

**Attribute Entry Type:** This field indicates the Attribute Entry Type. Valid Attribute types are specific to the object to which they are associated. The Type codes are defined in table 165.

**Attribute Entry Length:** This field indicates the total length of the Attribute Entry. The total length in bytes shall be a multiple of four and includes the Attribute Entry Type, Attribute Entry Length, and Attribute Value fields.

**Attribute Entry Value:** This field specifies the Attribute Entry Value. Attribute Entry Values shall be at least four bytes in length and the length shall be a multiple of four. For variable length Attribute Value fields, fill bytes are added as necessary to the end of the actual value in order to ensure that

the length of the value field is a multiple of four. Fill bytes shall be 00h. Attribute Entry types are defined in table 165.

**Table 165 – Attribute Entry Types and their associated Values**

Type	Value				
	Description	Length (Bytes)	Type	Required	Multiples allowed <sup>a</sup>
0001h	Vendor ID	12	ASCII	Yes	No
0002h	Product ID	20	ASCII	Yes	No
0003h	Product revision level	4 to 32	ASCII	No	No
0004h	Description	4 to128	ASCII	No	No
0005h	Label	4 to 64	ASCII	No	No
0006h	Location	4 to128	ASCII	No	No
0007h	System ID	4 to 64	ASCII	No	No
0008h	System management address	4 to128	ASCII	No	Yes
0009h	Cluster ID	4 to 64	ASCII	No	No
000Ah	Cluster management address	4 to 128	ASCII	No	Yes
000Bh	Supported FC-4 types	32	Binary	No	No
other values	Reserved				

<sup>a</sup> If a Platform Attribute Block contains multiple types for a type that does not allow multiples the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Platform Attribute Block Contains Multiple Attributes of the Same Type".

**Vendor ID:** An ASCII value that uniquely identifies the vendor. It is required that this value be the same as defined by the T10 SCSI Primary Commands -2 standard.

**Product ID:** An ASCII value that identifies the specific product and/or model for this vendor. It is required that this value be the same as defined by the T10 SCSI Primary Commands -2 standard.

**Revision Level:** An ASCII value that identifies the revision level for this Platform. It is required that this value be the same as defined by the T10 SCSI Primary Commands -2 standard.

**Description:** A textual description of the Platform.

**Label:** An administratively assigned symbolic name for the Platform.

**Location:** The physical location of the Platform (e.g., telephone closet, 3rd floor).

**System ID:** An identifier for a hosting system that this platform is associated with. This identifier is used to associate Platforms of logical types (e.g., logical partition) with a physical system. There is no requirement that this identifier be a fibre channel Name\_Identifier.

**System Management Address:** A management address for the system. The format of this address is identical to the Interconnect Element Management Address attribute, and shall be as defined in 6.2.3.2.7.

**Cluster ID:** An identifier for a cluster that this Platform is associated with. Where a cluster is a set of independent Platforms that are managed together to provide increased performance capabilities, fail-over, etc. There is no requirement that this identifier be a fibre channel Name\_Identifier.

**Cluster Management Address:** A management address for the cluster. The format of this address is identical to the Interconnect Element Management Address attribute, and shall be as defined in 6.2.3.2.7.

**Supported FC-4 Types:** This is an 8 word (256 bit) bit mask that indicates what FC-4 types are supported on this Platform (see 5.2.3.6). FCP-4 (FC-4 type 08h) is represented by bit 8 of word 0. The Fabric Configuration Server shall not attempt validation of the FC-4 Types attribute, and any value shall be accepted for this attribute.

#### 6.2.3.4.6 Platform Node Name

The format of the Platform Node Name attribute shall be identical to the Name\_Identifier format. Zero or more Platform Node Name attributes may be associated with a Platform object. Node\_Names are registered to associate a Platform with the nodes.

This attribute may be registered using the protocol described in 6.2.2.3. The null value for the Platform Node Name attribute is 00 00 00 00 00 00 00 00h.

#### 6.2.3.4.7 Platform Management Address

The format of the Platform Management Address attribute is identical to the Interconnect Element Management Address attribute, and shall be as defined in 6.2.3.2.7.

#### 6.2.3.4.8 FCP-4 Platform Object

##### 6.2.3.4.8.1 FCP-4 Platform Object Overview

The FCP-4 Platform may contain zero or more OS LUN Map Entries where each OS LUN Map Entry maps the operating systems representation of a LUN to the FCPs representation of a LUN.



### 6.2.3.4.8.2 FCP Type

This is a FC-4 specific attribute for Platforms that support FC-4 type of FCP-4. This a 4-byte encoded value, of which two bits are used to indicate the FCP-4 features for the Platform (see table 166).

**Table 166 – FC-4 Specific Attributes**

Bit Position	Description
31 to 4	Reserved
3 to 2	Reserved
1	1 = FCP initiator function supported (see INCITS T10 project FCP-4) 0 = Not supported
0	1 = FCP target function supported (see INCITS T10 project FCP-4) 0 = Not supported

### 6.2.3.4.9 OS LUN Map Entry Object

The OS LUN Map Entry contains a list of attributes that map the operating systems representation of a LUN to the FCPs representation of a LUN.

One or more OS LUN Map Entry attributes may be registered for Platforms that have the initiator bit set to a one in the FCP Type attribute. The OS LUN Map Entry contains Nx\_Port information for both the mapped OS LUN and FCP LUN. It is based directly on the content of the HBA\_FCPBindingEntry structure defined in the Common HBA API; however, it represents what is referenced as a Target Mapping in the Common HBA API (see FC-HBA). If there is an OS LUN Map Entry then all the

attributes are required, however, some of the attributes may contain null values (i.e., hex zeros) (see table 167).

**Table 167 – OS LUN Map Entry format**

Item	Size (Bytes)	Required	Null Value (if not required)
FCP Binding Type	4	Yes	
FCP LUN	8	Yes	
FCP LUID Length	2	Yes	
Reserved	2	Yes	
FCP LUID	8 to 256	Yes	
FCP Node Name	8	Yes	
FCP Port Name	8	Yes	
Reserved	1	Yes	
FCP Port Identifier	3	Yes	
OS Device Name Length (y) <sup>a</sup>	4	Yes	
OS Device Name	y	Yes	
OS SCSI Bus Number	4	No	0000 0000h
OS SCSI Target Number	4	No	0000 0000h
OS SCSI LUN	4	Yes	
HBA Port Name	8	Yes	
<sup>a</sup> The OS Device Name Length (y) field includes the length of the OS Device Name, plus 4 bytes for the field preceding the OS Device Name field (i.e., OS Device Name Length (y)).			

**FCP Binding Type:** The FCP Binding Type attribute describes the type of binding for the LUN mapping, or if the FCP LUN is unmapped. All values except zero (i.e., not mapped) are defined by the Common HBA API HBA\_Bind\_Type declaration (see FC-HBA).

**FCP LUN:** The 64-bit SCSI LUN of a SCSI logical unit accessed by a SCSI Service Delivery Subsystem (see SAM-2).

**FCP LUID Length:** The length in bytes of the FCP LUID field plus four.

**FCP LUID:** An identification descriptor of association zero for the logical unit to which the OS LUN maps (see SPC-3). If the length of the identification descriptor is not a multiple of four bytes, it shall be padded with trailing zero bytes to the next multiple of four bytes. Any necessary padding shall be reflected in the value of the FCP LUID Length field but shall not cause adjustment to the length field

embedded in the FCP LUID. A Platform that supports FC-HBA Target Mapping (see FC-HBA) shall register the same identification descriptor for a mapping as it returns via the FC-HBA interface, varying only by padding required by this subclause.

**FCP Node Name:** The Name\_Identifier (see FC-FS-4) of the node in the target device that the initiator OS LUN maps to.

**FCP Port Name:** The Name\_Identifier (see FC-FS-4) of the Nx\_Port in the target device that the initiator OS LUN maps to.

**FCP Port Identifier:** The port identifier of the Nx\_Port in the target device that the initiator OS LUN maps to.

**OS Device Name Length (y):** The length (in bytes) of the OS Device Name. The OS Device Name Length (y) field includes the length of the OS Device Name, plus 4 bytes for the field proceeding the OS Device Name field (i.e., OS Device Name Length (y))

**OS Device Name:** This is a symbolic device name assigned for the target device by the HBA device driver.

Example: /dev/sd3

**OS SCSI Bus Number:** A SCSI bus number assigned for the target device by the HBA device driver.

**OS SCSI Target Number:** A SCSI target number assigned for the target device by the HBA device driver.

**OS SCSI LUN:** A SCSI LUN assigned to the logical unit on the target device by the HBA device driver.

**HBA Port Name:** The HBA N\_Port\_Name (see FC-FS-4) that corresponds to this LUN mapping.

#### **6.2.3.4.10 Platform Description**

A textual description of the Platform. This value should include the full name and version identification of the Platform's hardware type and software operating system. The Platform Description shall only contain printable ASCII characters.

#### **6.2.3.4.11 Platform Label**

An administratively assigned symbolic name for the Platform. The Platform Label shall only contain printable ASCII characters.

#### **6.2.3.4.12 Platform Location**

The physical location of the Platform (e.g., telephone closet, 3rd floor). The Platform Location shall only contain printable ASCII characters.

### **6.2.4 Reason code Explanations**

A Reject CT\_IU (see 4.4.4) shall notify the requestor that the request has been unsuccessfully completed. The first error condition encountered shall be the error reported by the Reject CT\_IU.

If a Fabric Configuration Server request is not supported, the request shall be rejected with a Reject CT\_IU reason code of "Command not supported" and a reason code explanation of "No additional explanation".

If a valid Fabric Configuration Server request is not received, the request is rejected with a reason code of "Invalid command code" and a reason code explanation of "No additional explanation".

If a Fabric Configuration Server request is rejected with a reason code of 'Unable to perform command request', then one of the reason code explanations, shown in table 168, are returned.

**Table 168 – Reject CT\_IU Reason code Explanations**

<b>Encoded value</b>	<b>Description</b>
00h	No additional explanation
01h	Invalid Name_Identifier for Interconnect Element or Port
10h	Interconnect Element List not available
11h	Interconnect Element Type not available
12h	Domain Identifier not available
13h	Management Identifier not available
14h	Fabric Name not available
15h	Interconnect Element Logical Name not available
16h	Management Address List not available
17h	Interconnect Element Information List not available
30h	Port List not available
31h	Port Type not available
32h	Physical Port Number not available
34h	Attached Port Name List not available
36h	Port State not available
50h	Unable To register Interconnect Element Logical Name
60h	Platform Name does not exist
61h	Platform Name already exists.
62h	Platform Node Name does not exist
63h	Platform Node Name already exists.
64h to 6Fh	Vendor Specific
70h	Platform register operation failed - resource unavailable.

**Table 168 – Reject CT\_IU Reason code Explanations (Continued)**

Encoded value	Description
71h	Zero entries in OS LUN Map
72h	Invalid OS Device Name Length
73h	Platform Attribute Block Contains Multiple Attributes of the Same Type
74h	Invalid Platform Attribute Block Length
75h	Required Platform Attributes Not Present
76h	Command already in progress
Others	Reserved

If a Fabric Configuration Server Query request other than GIEL and GPL is rejected by the Fabric Configuration Server because the attribute specified in the request is not found in the Fabric Configuration Server data base, then the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation that indicates the specified attribute is not available.

## 6.2.5 Commands

### 6.2.5.1 Overview

The commands defined for the Fabric Configuration Server are summarized in table 127.

### 6.2.5.2 Query - Get Topology Information (GTIN)

The Fabric Configuration Server shall, if it receives a GTIN request, return topology information for the specified Interconnect Element Domain. The format of the GTIN Request CT\_IU is shown in table 169.

**Table 169 – GTIN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	5
Interconnect Element Domain ID	1
Reserved	6

If the GTIN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GTIN request is shown in table 170, table 171, and table 172.

**Table 170 – Accept CT\_IU to GTIN Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	8
Interconnect Element Name	8
Reserved	8
Interconnect Element Domain ID	1
Reserved	3
Reserved	1
Number of Interconnect Elements	1
Number of Ports on the Interconnection Element (i.e., E_Ports, F_Ports, and FL_Ports)	2
Interconnect Element Domain ID #1	1
...	
Interconnect Element Domain ID #n (n = Number of Interconnect Elements)	1
Pad (Padded to word boundary)	0,1,2, or 3
Topology Information Descriptor #1 (see table 171)	68 + (72 x Number of attached Ports)
...	
Topology Information Descriptor #n (n = Number of Fx_Ports)	68 + (72 x Number of attached Ports)

**Table 171 – Topology Information Descriptor**

Item	Size (Bytes)
Interconnect Element Port Name	8
Vendor Specific	8
Vendor Specific	16
Reserved	3
Interconnect Element Port Type (see table 132)	1
Interconnect Element Physical Port Number	4
Number of Attached Ports	4
Vendor Specific	24
Attached Port Descriptor #1	72
...	
Attached Port Descriptor #m (m = Number of Attached Ports)	72

**Table 172 – Attached Port Descriptor**

Item	Size (Bytes)
Vendor Specific	4
Attached Port Name	8
Attached Node Name	8
Vendor Specific	16
Reserved	3
Attached Port Type (see table 132)	1
Attached Physical Port Number (see 6.2.3.3.5))	4
Vendor Specific	28

### 6.2.5.3 Query - Get Interconnect Element List (GIEL)

The Fabric Configuration Server shall, if it receives a GIEL request, return all Interconnect Element Names in the Fabric. The format of the GIEL Request CT\_IU is shown in table 173.

**Table 173 – GIEL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

If the GIEL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GIEL request is shown in table 174.

**Table 174 – Accept CT\_IU to GIEL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Interconnect Element entries (n)	4
Interconnect Element Name #1	8
Reserved	3
Interconnect Element Type #1	1
Interconnect Element Name #2	8
Reserved	3
Interconnect Element Type #2	1
...	
Interconnect Element Name #n	8
Reserved	3
Interconnect Element Type #n	1

One or more Interconnect Element entries are returned, and the Interconnect Element entries may be returned in any order, and the order may be different for every request even if the same Interconnect Element entries are returned and the requestor is the same.



#### 6.2.5.4 Query - Get Interconnect Element Type (GIET)

The Fabric Configuration Server shall, if it receives a GIET request, return the Interconnect Element Type for the specified Interconnect Element Name. The format of the GIET Request CT\_IU is shown in table 175.

**Table 175 – GIET Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GIET request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GIET request is shown in table 176.

**Table 176 – Accept CT\_IU to GIET Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	3
Interconnect Element Type	1

#### 6.2.5.5 Query - Get Interconnect Element Domain Identifier (GDID)

The Fabric Configuration Server shall, if it receives a GDID request, return the Interconnect Element Domain Identifier for the specified Interconnect Element Name. The format of the GDID Request CT\_IU is shown in table 177.

**Table 177 – GDID Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GDID request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GDID request is shown in table 178.

**Table 178 – Accept CT\_IU to GDID Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	1
Interconnect Element Domain Identifier	1
Reserved	2

**6.2.5.6 Query - Get Interconnect Element Management Identifier (GMID)**

The Fabric Configuration Server shall, if it receives a GMID request, return the Interconnect Element Management Identifier for the specified Interconnect Element Name. The format of the GMID Request CT\_IU is shown in table 179.

**Table 179 – GMID Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GMID request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GMID request is shown in table 180.

**Table 180 – Accept CT\_IU to GMID Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	1
Interconnect Element Management Identifier	3

**6.2.5.7 Query - Get Interconnect Element Fabric Name (GFN)**

The Fabric Configuration Server shall, if it receives a GFN request, return the Interconnect Element Fabric Name for the specified Interconnect Element Name. The format of the GFN Request CT\_IU is shown in table 181.

**Table 181 – GFN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GFN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GFN request is shown in table 182.

**Table 182 – Accept CT\_IU to GFN Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Fabric Name	8

**6.2.5.8 Query - Get Interconnect Element Logical Name (GIELN)**

The Fabric Configuration Server shall, if it receives a GIELN request, return the Interconnect Element Logical Name for the specified Interconnect Element Name. The format of the GIELN Request CT\_IU is shown in table 183.

**Table 183 – GIELN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GIELN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GIELN request is shown in table 184.

**Table 184 – Accept CT\_IU to GIELN Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Logical Name	256

**6.2.5.9 Query - Get Interconnect Element Management Address List (GMAL)**

The Fabric Configuration Server shall, if it receives a GMAL request, return all Interconnect Element Management Address attributes for the specified Interconnect Element Name. The format of the GMAL Request CT\_IU is shown in table 185.

**Table 185 – GMAL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GMAL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GMAL request is shown in table 186.

**Table 186 – Accept CT\_IU to GMAL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Management Address entries (n)	4
Management Address #1	256
Management Address #2	256
...	
Management Address #n	256

One or more Interconnect Element Management Address entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.

If no management addresses are supported, the Number of Management Address entries field shall be set to zero.

If management addresses are supported but no management address entries are registered, the Number of Management Address entries field shall be set to one, and one null management address entry (see 6.2.3.2.7) shall be returned.

**6.2.5.10 Query - Get Interconnect Element Information List (GIEIL)**

The Fabric Configuration Server shall, if it receives a GIEIL request, return the Interconnect Element Information List for the specified Interconnect Element Name. The format of the GIEIL Request CT\_IU is shown in table 187.

**Table 187 – GIEIL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GIEIL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GIEIL request is shown in table 188.

**Table 188 – Accept CT\_IU to GIEIL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Information List	m
Reserved	256-m

**6.2.5.11 Query - Get Port List (GPL)**

The Fabric Configuration Server shall, if it receives a GPL request, return all Port Names and their associated Port Types, Port TX Types, and Port Module Types, for the specified Interconnect Element Name. The format of the GPL Request CT\_IU is shown in table 189.

**Table 189 – GPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GPL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPL request is shown in table 190.

**Table 190 – Accept CT\_IU to GPL Request**

<b>Item</b>	<b>Size (Bytes)</b>
CT_IU preamble	see 4.3
Number of Port entries (n)	4
Port Name #1	8
Reserved	1
Port Module Type #1	1
Port TX Type #1	1
Port Type #1	1
Port Name #2	8
Reserved	1
Port Module Type #2	1
Port TX Type #2	1
Port Type #2	1
...	
Port Name #n	8
Reserved	1
Port Module Type #n	1
Port TX Type #n	1
Port Type #n	1

One or more Port entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.

### 6.2.5.12 Query - Get Port Type (GPT)

The Fabric Configuration Server shall, if it receives a GPT request, return the Port Type for the specified Port Name. The format of the GPT Request CT\_IU is shown in table 191.

**Table 191 – GPT Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GPT request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPT request is shown in table 192.

**Table 192 – Accept CT\_IU to GPT Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	3
Port Type	1

### 6.2.5.13 Query - Get Physical Port Number (GPPN)

The Fabric Configuration Server shall, if it receives a GPPN request, return the Physical Port Number for the specified Port Name. The format of the GPPN Request CT\_IU is shown in table 193.

**Table 193 – GPPN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GPPN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPPN request is shown in table 194.

**Table 194 – Accept CT\_IU to GPPN Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Port Number	4

**6.2.5.14 Query - Get Attached Port Name List (GAPNL)**

The Fabric Configuration Server shall, if it receives a GAPNL request, return all Attached Port Name attributes for the specified Port Name. The format of the GAPNL Request CT\_IU is shown in table 195.

**Table 195 – GAPNL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GAPNL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GAPNL request is shown in table 196.

**Table 196 – Accept CT\_IU to GAPNL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Attached Port entries (n)	4
Attached Port Name #1	12
Attached Port Name #2	12
...	
Attached Port Name #n	12

One or more Attached Port entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.



**6.2.5.15 Query - Get Port State (GPS)**

The Fabric Configuration Server shall, if it receives a GPS request, return the Port Type and Port State for the specified Port Name. The format of the GPS Request CT\_IU is shown in table 197.

**Table 197 – GPS Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GPS request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPS request is shown in table 198.

**Table 198 – Accept CT\_IU to GPS Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Reserved	3
Port Type	1
Reserved	3
Port State	1

**6.2.5.16 Query - Get Port Speed Capabilities (GPSC)**

When the Fabric Configuration Server receives a Get Port Speed Capabilities (GPSC) request, it shall get the current Port Operating Speed and Port Speed Capabilities. The format of the GPSC request is shown in table 199.

**Table 199 – GPSC Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GPSC request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPSC is shown in table 200.

**Table 200 – GPSC Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Speed Capabilities <sup>a</sup>	2
Port Operating Speed <sup>b</sup>	2

**6.2.5.17 Query - Get Attached Topology Information (GATIN)**

The Fabric Configuration Server shall, if it receives a GATIN request, return the topology information descriptor (see table 171) for the specified Port Name. The format of the GATIN Request CT\_IU is shown in table 201.

**Table 201 – GATIN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Port Name	8

If the GATIN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GATIN request is shown in table 202.

**Table 202 – Accept CT\_IU to GATIN Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Topology Information Descriptor (see table 171)	68 + (72 x Number of attached Ports)

NOTE 31 – This request may be used to discover topologies “behind” a Port, such as arbitrated loops or bridges to other interconnects. A typical approach might be to collect all of the Ports within an Interconnect Element using GPL (see 6.2.5.11), then issue this command to each Port in turn to discover the additional topologies.

### 6.2.5.18 Query - Get Port Speed Capabilities Extended (GPSCE)

When the Fabric Configuration Server receives a Get Port Speed Capabilities Extended (GPSCE) request, it shall get the current Port Operating Speed and Port Speed Capabilities. The format of the GPSCE request is shown in table 203.

**Table 203 – GPSCE Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Name	8

If the GPSCE request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPSCE is shown in table 204.

**Table 204 – GPSCE Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Port Speed Capabilities <a href="#">Extended Object</a>	4
Port Operating Speed <a href="#">Extended Object</a>	4

### 6.2.5.19 Query - Get Switch Enforcement Status (GSES)

The Zoning enforcement status of an Fx\_Port is implicitly managed through the Fabric Zone Server by using the Hard Zoning or the Broadcast Zoning attributes, but it may be explicitly read through the Fabric Configuration Server by using the Get Switch Enforcement Status (GSES) request.

The Fabric Configuration Server shall, if it receives a GSES request, return the actual Zoning enforcement status for each Fx\_Port of the specified Switch. The GSES request payload shall specify the Switch Name identifying the Switch for which the Zoning enforcement status information is sought. The GSES accept payload contains the Zoning enforcement status for each Fx\_Port of the Switch specified in the request.

If the GSES request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the GSES request payload is depicted in table 205.

**Table 205 – GSES Request Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

**Interconnect Element Name:** The Name of the Interconnect Element that the enforcement status is being sought.

The format of the GSES accept payload is depicted in table 206.

**Table 206 – GSES Accept Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Zoning enforcement status objects (n)	4
Zoning enforcement status object #1	see table 143
Zoning enforcement status object #2	see table 143
...	
Zoning enforcement status object #n	see table 143

**6.2.5.20 Query -- Get Interconnect Element Attribute Group (GIEAG)**

The Fabric Configuration Server shall, if it receives a GIEAG request, return all the Interconnect Element attributes defined in this standard. The format of the GIEAG request is shown in table 207.

**Table 207 – GIEAG Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the GIEAG request is not supported a Reject CT\_IU shall be returned and the reason code should be Command Not Supported, no further explanation.

If a GIEAG request contains an Interconnect Element name that is no longer associated with the Fabric, a Reject CT\_IU with the reason code Unable to Perform Command, and the reason code explanation of Invalid Name\_Identifier for the Interconnect Element or Port shall be returned (see table 168).

If no attributes are available for the interconnect element name then all the defined GIEAG Accept Invalid Field bits set shall be returned and the attribute fields shall be filled with the null value appropriate for each Interconnect Element attribute. If any particular Interconnect Element attribute can not be returned, the field Invalid Field Flags bit corresponding to that attribute shall be set. In this way, it is possible to get partial information about an Interconnect Element if other information is not available.

The format of the Accept CT\_IU to a GIEAG request is shown in table 208.

**Table 208 – GIEAG Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Invalid Field Flags	2
Interconnect Element Type	1
Interconnect Element Domain Identifier	1
Reserved	1
Interconnect Element Management Identifier	3
Interconnect Element Fabric Name	8
Interconnect Element Logical Name	256
Interconnect Element Management Address	256
Interconnect Element Information List	m
Reserved	256-m

**Invalid Field Flags:** The Invalid Field Flags shall be defined as shown in table 209.

**Table 209 – Invalid Field Flags**

Bit	Description	Value
0	Invalid Interconnect Element Type	1 = The Interconnect Element Type field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
1	Invalid Interconnect Element Domain Identifier	1 = The Interconnect Element Domain Identifier field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
2	Invalid Interconnect Element Management Identifier	1 = The Interconnect Element Management Identifier field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
3	Invalid Interconnect Element Fabric Name	1 = The Interconnect Element Fabric Name field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
4	Invalid Logical Name	1 = The Interconnect Element Logical Name field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
5	Invalid Management Address	1 = The Interconnect Element Management Address field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
6	Invalid Information List	1 = The Interconnect Element Information List field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
7 to 15	Reserved	

**6.2.5.21 Query -- Get Port Attribute Group (GPAG)**

The Fabric Configuration Server shall, if it receives a GPAG request, return a group of Port attributes defined in this standard for the designated Port Names. The format of the GPAG request is shown in table 210.

**Table 210 – GPAG Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8
Number of Port Names	4
Port Name 1	8
...	
Port Name n	8

If the GPAG request is not supported a Reject CT\_IU shall be returned and the reject reason should be Command Not Supported, no further explanation.

If a GPAG request contains an Interconnect Element name that is no longer associated with the Fabric, a Reject CT\_IU with the reason code Unable to Perform Command, and the reason code explanation of Invalid Name\_Identifier for the Interconnect Element or Port shall be returned (see table 168).

If a GPAG request contains a Port Name that is no longer associated with the Interconnect Element Name specified in the request, the Port Name with all the Port Attribute Group field invalid bits set shall be returned and the “Port Name not found” bit in the Invalid Field Flags will be set and the attribute group fields shall be filled with the null value appropriate for each attribute. If any particular Port attribute can not be returned, the field invalid bit corresponding to that attribute shall be set. In this way, it is possible to get partial information about an FC\_Port if other information is not available.

The format of the Port Attribute Group is shown in table 211.

**Table 211 – Port Attribute Group**

<b>Item</b>	<b>Size (Bytes)</b>
Reserved	1
Invalid Field Flags	2
Port Type	1
Reserved	3
Port State	1
Physical Port Number	4
Port Speed Capabilities <sup>a</sup>	2
Port Operating Speed <sup>b</sup>	2



**Invalid Field Flags:** The Invalid Field Flags field shall be set as shown in table 212.

**Table 212 – Invalid Field Flags**

Bit	Description	Value
0	Port Name Not Found	1 = The Port Name was not associated with the Interconnect Element Name. 0 = At least one valid attribute is returned for the Port Name.
1	Invalid Port Type	1 = The Port Type field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
2	Invalid Port State	1 = The Port State field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
3	Invalid Physical Port Number	1 = The Physical Port Number field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
4	Invalid Port Speed Capabilities	1 = The Port Speed Capabilities field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
5	Invalid Port Operating Speed	1 = The Port Operating Speed field is invalid and the field is set to the NULL value for that field. 0 = Field is valid.
6 to 15	Reserved	

The format of the GPAG Accept CT\_IU is shown in table 213.

**Table 213 – GPAG Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Port Names	4
Port Name 1	8
Port Attribute Group 1	16
...	
Port Name n	8
Port Attribute Group n	16

**6.2.5.22 Query -- Get Port Attribute Group Extended (GPAGE)**

The Fabric Configuration Server shall, if it receives a GPAGE request, return a group of Port attributes defined in this standard for the designated Port Names. The format of the GPAGE request is shown in table 214.

**Table 214 – GPAGE Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8
Number of Port Names	4
Port Name 1	8
...	
Port Name n	8

If the GPAGE request is not supported a Reject CT\_IU shall be returned and the reject reason should be Command Not Supported, no further explanation.

If a GPAGE request contains an Interconnect Element name that is no longer associated with the Fabric, a Reject CT\_IU with the reason code Unable to Perform Command, and the reason code explanation of Invalid Name\_Identifier for the Interconnect Element or Port shall be returned (see table 168).

If a GPAGE request contains a Port Name that is no longer associated with the Interconnect Element Name specified in the request, the Port Name with all the Port Attribute Group field invalid bits set shall be returned and the “Port Name not found” bit in the Invalid Field Flags will be set and the attribute group fields shall be filled with the null value appropriate for each attribute. If any particular

Port attribute can not be returned, the field invalid bit corresponding to that attribute shall be set. In this way, it is possible to get partial information about an FC\_Port if other information is not available.

The format of the Port Attribute Group is shown in table 215.

**Table 215 – Port Attribute Group**

Item	Size (Bytes)
Reserved	1
Invalid Field Flags	2
Port Type	1
Reserved	3
Port State	1
Physical Port Number	4
Port Speed Capabilities <a href="#">Extended Object</a>	4
Port Operating Speed <a href="#">Extended Object</a>	4

**Invalid Field Flags:** The Invalid Field Flags field shall be set as shown in table 212.

The format of the GPAGE Accept CT\_IU is shown in table 216.

**Table 216 – GPAGE Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Port Names	4
Port Name 1	8
Port Attribute Group 1	16
...	
Port Name n	8
Port Attribute Group n	16

### 6.2.5.23 Query - Get Platform Node Name List (GPLNL)

The Fabric Configuration Server shall, if it receives a GPLNL request, return all Node Name attributes for the specified Platform Name. The format of the GPLNL Request CT\_IU is shown in table 217.

**Table 217 – GPLNL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

If the GPLNL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPLNL request is shown in table 218.

**Table 218 – Accept CT\_IU to GPLNL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Platform Node Name entries (n)	4
Platform Node Name #1	8
Platform Node Name #2	8
...	
Platform Node Name #n	8

One or more Platform Node Name entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.

### 6.2.5.24 Query - Get Platform Type (GPLT)

The Fabric Configuration Server shall, if it receives a GPLT request, return the Platform Type attribute for the specified Platform Name. The format of the GPLT Request CT\_IU is shown in table 219.

**Table 219 – GPLT Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

If the GPLT request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPLT request is shown in table 220.

**Table 220 – Accept CT\_IU to GPLT Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Type	4

**6.2.5.25 Query - Get Platform Management Address List (GPLML)**

The Fabric Configuration Server shall, if it receives a GPLML request, return all Interconnect Element Management Address attributes for the specified Platform Name. The format of the GPLML Request CT\_IU is shown in table 221.

**Table 221 – GPLML Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

If the GPLML request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPLML request is shown in table 222.

**Table 222 – Accept CT\_IU to GPLML Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Management Address entries (n)	4
Management Address #1	256
Management Address #2	256
...	
Management Address #n	256

One or more Platform Management Address entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.

### 6.2.5.26 Query - Get Platform Attribute Block (GPAB)

The Fabric Configuration Server shall, if it receives a GPAB request, return the Platform Attribute Block for the specified Platform. The GPAB request payload shall specify the Platform Name that identifies the Platform for which attributes are sought. The GPAB accept payload contains the Platform Attribute Block for the Platform specified in the request.

If the specified Platform has not been registered with the Fabric Configuration Server, then the request is rejected with the appropriate reason code explanation.

If the GPAB request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the GPAB Request payload is depicted in table 223.

**Table 223 – GPAB Request Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

**Platform Name:** The format of the Platform Name is described in 6.2.3.4.2.

The format of the GPAB Accept payload is depicted in table 224.

**Table 224 – GPAB Accept Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Attribute Block	see 6.2.3.4.4

**Platform Attribute Block:** The format of the Platform Attribute block is described in 6.2.3.4.4.

### 6.2.5.27 Query - Get Platform Name - Node Name (GNPL)

The Fabric Configuration Server shall, if it receives a GNPL request, return the Platform Name attribute for the specified Platform Node Name. The format of the GNPL Request CT\_IU is shown in table 225.

**Table 225 – GNPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Node Name	8

If the GNPL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GNPL request is shown in table 226.

**Table 226 – Accept CT\_IU to GNPL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

**6.2.5.28 Query - Get Platform Name List (GPNL)**

The Fabric Configuration Server shall, if it receives a GPNL request, return a list of all registered Platform Names. If no Platform Names are Registered, an GPNL Accept CT\_IU shall be sent with the Number of Platform Name entries field set to zero, and with no Platform Names in the payload. The format of the GPNL Request CT\_IU is shown in table 227.

**Table 227 – GPNL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

If the GPNL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPNL request is shown in table 228.

**Table 228 – Accept CT\_IU to GPNL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Platform Name entries (n)	4
Platform Name #1	256
Platform Name #2	256
...	
Platform Name #n	256

**6.2.5.29 Query - Get Platform FCP Type (GPFCP)**

The Fabric Configuration Server shall, if it receives a GPFCP request, return the FCP-4 Feature Bit Mask (see 6.2.3.4.8.2) for the specified Platform Name. The format of the GPFCP Request CT\_IU is shown in table 229.

**Table 229 – GPFCP Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

If the GPFCP request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the Accept CT\_IU to a GPFCP request is shown in table 230.

**Table 230 – Accept CT\_IU to GPFCP Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
FCP-4 Features Bit Mask	4

**6.2.5.30 Query - Get Platform OS LUN Mappings (GPLI)**

The Fabric Configuration Server shall, if it receives a GPLI request, return all OS LUN Map entry attributes for the specified Platform Name. The format of the GPLI Request CT\_IU is shown in table 231.

**Table 231 – GPLI Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

If the GPLI request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.



The format of the Accept CT\_IU to a GPLI request is shown in table 232.

**Table 232 – Accept CT\_IU to GPLI Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of LUN Map entries (n)	4
OS LUN Map Entry #1	variable
OS LUN Map Entry #2	variable
...	
OS LUN Map Entry #n	variable

One or more OS LUN Map entries are returned, and the entries may be returned in any order, and the order may be different for every request even if the same entries are returned and the requestor is the same.

The format of the OS LUN Map entries is shown in table 167.

**6.2.5.31 Query - Get Node Identification Data (GNID)**

The Fabric Configuration Server shall, if it receives a GNID request, return the Topology Information for the specified destination. The format of the GNID Request CT\_IU is shown in table 233.

**Table 233 – GNID Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Node Name	8
Node Identification Data format	1
Reserved	3

If the GNID request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

See the Request Node Identification Data ELS in FC-FS-4 for the definition of the Node Identification Data format.

The format of the Accept CT\_IU to a GNID request is shown in table 234.

**Table 234 – Accept CT\_IU to GNID Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
RNID accept payload	see text

The RNID accept payload shall contain the accept payload for the Request Node Identification Data ELS. See FC-FS-4 for the definition and length of this payload.

**6.2.5.32 Register Interconnect Element Logical Name (RIELN)**

The RIELN Fabric Configuration Server request shall be used to associate a Logical Name with a given Interconnect Element.

The Fabric Configuration Server shall not attempt validation of the Logical Name attribute. This means that any Logical Name value shall be accepted.

Deregistration may be accomplished by registering a null Logical Name (see 6.2.3.2.6).

If the RIELN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RIELN Request CT\_IU is shown in table 235.

**Table 235 – RIELN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8
Logical Name	256

The format of the RIELN Accept CT\_IU is shown in table 236.

**Table 236 – RIELN Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

**6.2.5.33 Register Platform (RPL)**

The RPL Fabric Configuration Server request shall be used to associate a Platform Name with its Platform Node Names and key Platform attributes. This request allows the registration of a Platform, associated Platform Node Names, and key attributes using a single transaction.

The Platform Name field of the Request CT\_IU shall not be equal to a currently registered Platform Name.

If the value of the Platform Name is equal to a currently registered Platform Name maintained by the Switch to which the Request CT\_IU is addressed, the Fabric Configuration Server of the Switch responding to the CT\_IU request shall reject this request; the Reject CT\_IU reason code shall be "Unable to perform command request", with a reason code explanation of "Platform Name already exists".

If the device (e.g., Switch) from which the Request CT\_IU is sent is part of the Fabric Configuration Server and the Request CT\_IU is rejected the sending device shall deregister the Platform specified in the Request CT\_IU.

No Platform Node Name field of the Request CT\_IU shall be equal to a currently registered Platform Node Name. If the value of any Platform Node Name is equal to a currently registered Platform Node Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform Node Name already exists'

In the absence of a reject condition, the Fabric Configuration Server shall create a new Platform object and register the Platform attributes with the new Platform.

The Fabric Configuration Server shall not attempt validation of the Platform Type or Platform Management Address attributes. This means that any value shall be accepted for these attributes.

Deregistration may be accomplished by a DPL request (see 6.2.5.40).

If the RPL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPL Request CT\_IU is shown in table 237.

**Table 237 – RPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform Type	4
Number of Management Address entries (n)	4
Management Address #1	256
Management Address #2	256
...	
Management Address #n	256
Number of Platform Node Name entries (n)	4
Platform Node Name #1	8
Platform Node Name #2	8
...	
Platform Node Name #n	8

The format of the RPL Accept CT\_IU is shown in table 238.

**Table 238 – RPL Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

#### 6.2.5.34 Register Platform Node Name (RPLN)

The RPLN Fabric Configuration Server request shall be used to associate a Platform Node Name with a Platform.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform Node Name with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall create a new Platform object and register the Platform Node Name with the new Platform.

No Platform Node Name field of the Request CT\_IU shall be equal to a currently registered Platform Node Name. If the value of any Platform Node Name is equal to a currently registered Platform Node

Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform Node Name already exists'.

The Fabric Configuration Server shall reject this request if the Platform Node Name attribute is currently assigned to another Platform.

Deregistration may be accomplished by a DPLN request (see 6.2.5.41).

If the RPLN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPLN Request CT\_IU is shown in table 239.

**Table 239 – RPLN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform Node Name	8

The format of the RPLN Accept CT\_IU is shown in table 240.

**Table 240 – RPLN Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

### 6.2.5.35 Register Platform Type (RPLT)

The RPLT Fabric Configuration Server request shall be used to associate a Platform Type with a Platform.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform Type with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall create a new Platform object and register the Platform Type with the new Platform.

The Fabric Configuration Server shall not attempt validation of the Platform Type attribute. This means that any value shall be accepted for this attribute.

Deregistration may be accomplished by registering a null Platform Type (see 6.2.3.4.3).

If the RPLT request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPLT Request CT\_IU is shown in table 241.

**Table 241 – RPLT Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform Type	4

The format of the RPLT Accept CT\_IU is shown in table 242.

**Table 242 – RPLT Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

### 6.2.5.36 Register Platform Management Address (RPLM)

The RPLM Fabric Configuration Server request shall be used to associate a Platform Management Address with a Platform.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform Management Address with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall create a new Platform object and register the Platform Management Address with the new Platform.

The Fabric Configuration Server shall not attempt validation of the Platform Management Address attribute. This means that any value shall be accepted for this attribute.

Deregistration may be accomplished by a DPLML request (see 6.2.5.43).

If the RPLM request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPLM Request CT\_IU is shown in table 243.

**Table 243 – RPLM Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform Management Address	256

The format of the RPLM Accept CT\_IU is shown in table 244.

**Table 244 – RPLM Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

**6.2.5.37 Register Platform Attribute Block (RPAB)**

The Fabric Configuration Server shall if it receives an RPAB request, register the Platform attributes for the specified Platform. The RPAB request payload shall specify the Platform Name and the Platform Attribute Block.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform Attribute Block with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request. The Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform name does not exist'.

The Vendor ID and Product ID attributes shall be required in the Platform Attribute Block. If the Vendor ID or the Product ID attribute are not specified in the Platform Attribute Block then the request is failed with the appropriate reason code explanation.

If a Platform Attribute Block is already registered for the Platform indicated in the Platform Name field then that Platform Attribute Block shall replace the existing Platform Attribute Block.

If the RPAB request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPAB Request payload is depicted in table 245.

**Table 245 – RPAB Request Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform Attribute Block	see 6.2.3.4.4

**Platform Name:** The format of the Platform Name is described in 6.2.3.4.2.

**Platform Attribute Block:** The format of the Platform Attribute block is described in 6.2.3.4.4.

The format of the RPAB Accept payload is depicted in table 246.

**Table 246 – RPAB Accept Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3

**6.2.5.38 Register Platform FCP Type (RPFCP)**

The RPFCP Fabric Configuration Server request shall be used to associate a Platform FCP Type with a Platform.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform FCP Type with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request. The Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform name does not exist'.

The Fabric Configuration Server shall not attempt validation of the Platform FCP Type attribute. This means that any value shall be accepted for this attribute.

Deregistration may be accomplished by registering a null Platform FCP Type (see 6.2.3.4.8.2).

If the RPFCP request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPFCP Request CT\_IU is shown in table 247.

**Table 247 – RPFCP Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256
Platform FCP Type	4

The format of the RPFCP Accept CT\_IU is shown in table 248.

**Table 248 – RPFCP Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3



### 6.2.5.39 Register Platform OS LUN Mappings (RPLI)

The RPLI Fabric Configuration Server request shall be used to associate a Platform Name with one or more OS LUN mappings.

The Platform Name field of the Request CT\_IU may be equal to a currently registered Platform Name. If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall register the Platform OS LUN mapping(s) with the existing Platform. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request. The Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform name does not exist'.

If an OS LUN Map Entry is already registered for the Platform indicated in the Platform Name field then the requested OS LUN Mapping(s) shall add to the existing OS LUN mapping. Checking for duplicate OS LUN Map Entry attributes is not required by the Fabric Configuration Server.

The Fabric Configuration Server shall reject this request if the number of LUN map entries is set to zero. The Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Zero entries in OS LUN map block'.

Deregistration may be accomplished by a DPLI request (see 6.2.5.44).

If the RPLI request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the RPLI Request CT\_IU is shown in table 249.

**Table 249 – RPLI Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of LUN Map entries (n)	4
OS LUN Map Entry #1	variable
OS LUN Map Entry #2	variable
...	
OS LUN Map Entry #n	variable

One or more OS LUN Map entries may be sent.

The format of the OS LUN Map entries is shown in table 167.

The format of the RPL Accept CT\_IU is shown in table 250.

**Table 250 – RPLI Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

**6.2.5.40 Deregister Platform (DPL)**

The DPL Fabric Configuration Server request shall be used to remove a registered Platform object and all of its attributes.

The Platform Name field of the Request CT\_IU shall be equal to a currently registered Platform Name. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform Name does not exist'

If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall delete the Platform object from its database.

If the DPL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPL Request CT\_IU is shown in table 251.

**Table 251 – DPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

The format of the DPL Accept CT\_IU is shown in table 252.

**Table 252 – DPL Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

**6.2.5.41 Deregister Platform Node Name (DPLN)**

The DPLN Fabric Configuration Server request shall be used to disassociate a registered Platform Node Name from a Platform object.

The Platform Node Name field of the Request CT\_IU shall be equal to a currently registered Platform Node Name. If the value of the Platform Node Name is not equal to a currently registered Platform Node Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code

shall be 'Unable to perform command request', with a reason code explanation of 'Platform Node Name does not exist'.

If the value of the Platform Node Name is equal to a currently registered Platform Node Name, the Fabric Configuration Server shall delete the Platform Node Name from its database.

If the DPLN request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPLN Request CT\_IU is shown in table 253.

**Table 253 – DPLN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Node Name	8

The format of the DPLN Accept CT\_IU is shown in table 254.

**Table 254 – DPLN Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

#### 6.2.5.42 Deregister Platform Management Address (DPLM)

The Configuration Server shall, if it receives a DPLM request, delete the specified Platform Management Address for the specified Platform. The DPLM request payload shall contain the Platform Name and a Platform Management Address (see table 255). The DPLM accept payload is null (see table 256).

**Table 255 – DPLM Request Payload**

Item	Size (Bytes)
CT_IU Preamble	see 4.3
Platform Name	256
Platform Management Address	256

If the DPLM request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

**Table 256 – DPLM Accept Payload**

Item	Size (Bytes)
CT_IU Preamble	see 4.3

### 6.2.5.43 Deregister Platform Management Address List (DPLML)

The DPLML Fabric Configuration Server request shall be used to disassociate all registered Platform Management Addresses from a Platform object.

The Platform Name field of the Request CT\_IU shall be equal to a currently registered Platform Name. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform Name does not exist'

If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall delete all Platform Management Addresses, associated with the Platform object, from its database.

If the DPLML request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPLML Request CT\_IU is shown in table 257.

**Table 257 – DPLML Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

The format of the DPLML Accept CT\_IU is shown in table 258.

**Table 258 – DPLML Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

### 6.2.5.44 Deregister Platform OS LUN Mappings (DPLI)

The DPLI Fabric Configuration Server request shall be used to delete all the OS LUN Map Entry objects and attributes associated with the indicated Platform.

The Platform Name field of the Request CT\_IU shall be equal to a currently registered Platform Name. If the value of the Platform Name is not equal to a currently registered Platform Name, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Platform Name does not exist'.

If the indicated Platform does not contain any OS LUN Entry objects, the Fabric Configuration Server shall reject this request; the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation of 'Zero entries in OS LUN Map'.

If the value of the Platform Name is equal to a currently registered Platform Name, the Fabric Configuration Server shall delete all the OS LUN Map Entry objects for the indicated Platform from its database.

If the DPLI request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPLI Request CT\_IU is shown in table 259.

**Table 259 – DPLI Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

The format of the DPLI Accept CT\_IU is shown in table 260.

**Table 260 – DPLI Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

#### 6.2.5.45 Deregister Platform Attribute Block (DPAB)

The Fabric Configuration Server shall, if it receives an DPAB request, de-register the Platform Attribute Block for the specified Platform. The DPAB request payload shall specify the Platform Name that identifies the Platform for which the Platform Attribute Block is to be de-registered.

If the specified Platform or its attribute block have not been registered with the Fabric Configuration Server, then the request is rejected with the appropriate reason code explanations.

If the DPAB request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPAB Request payload is depicted in table 261.

**Table 261 – DPAB Request Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Platform Name	256

The format of the DPAB Accept payload is depicted in table 262 below.

**Table 262 – DPAB Accept Payload**

Item	Size (Bytes)
CT_IU preamble	see 4.3

### 6.2.5.46 De-Register All Platform Information (DPALL)

The Fabric Configuration Server shall, if it receives a DPALL operation request, delete all Platforms and their attributes from the Platform database. The format of the DPALL request payload shall be as shown in table 263.

**Table 263 – DPALL Request Payload**

Item	Size (Bytes)
CT_IU Preamble	see 4.3

If the DPALL request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

The format of the DPALL accept payload shall be as shown in table 264.

**Table 264 – DPALL Accept Payload**

Item	Size (Bytes)
CT_IU Preamble	see 4.3

### 6.2.5.47 FC Trace Route (FTR)

The FTR request obtains the path information between two Fx\_Ports from the Fabric Configuration Server. The path information includes the Switch\_Name, Domain\_ID, Port\_Name and Physical Port Number for Switch Ports that route traffic between the two Fx\_Ports (e.g., Source Port and Destination Port). The path information shall be collected for the Fabric ingress path (from Source Port to Destination Port) and for the Fabric egress path (from Destination Port to Source Port).

Figure 9 shows a four-Switch Fabric that is used for a FC Trace Route example. When a Management Application on Device C requests a Trace Route between Devices A and B (Source and Destination Port), Switch 4 contains the Fabric Configuration Server and shall send a Switch Trace Route (STR) SW\_ILS to the Source Port Switch's (Switch 1) Domain Controller ID. Switch 1 shall start the STR processing that is shown in figure 10.

Each Switch in the ingress path shall accept the STR, append its ingress Path Information, increment the number of Path Information Entries, and send an STR Request to the next Switch in the ingress path. This process continues until the STR Request reaches the Destination Port's Switch (Switch 4). After receiving the STR Request, Switch 4 shall append its ingress and egress Path Information. The Destination Port's Switch shall increment the number of Path Information Entries by two, and send an STR Request to the next Switch in the egress path. Each intermediate Switch shall process the STR Requests until the request reaches the Source Port's Switch in the egress Path.

After the Source Port's Switch completes processing the STR request, the final STR request is sent to the Managing Switch. The Managing Switch accepts the STR, converts the information in the STR Request to the FTR Response, and sends the FTR response to the FTR Requestor.

If the Fabric Configuration Server is not able to answer the FTR Request within three times R\_A\_TOV, it shall use GS Asynchronous Notification and reject the FTR Request with a Reject CT\_IU reason code of "Unable to perform command request" and a reason code explanation of "Processing Request".

After rejecting the request and receiving the completed Switch Trace Route SW\_ILS, the Fabric Configuration Server shall use GS Asynchronous Notification to notify the requesting Nx\_Port that the Accept CT\_IU for the FTR Request is ready.

If the two Nx\_Ports are not in a common Zone, the FTR Request shall be rejected with the Reject CT\_IU reason code of "Logical Error" and a Reject CT\_IU reason code explanation of "Devices not in a common Zone".

If the FTR request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.

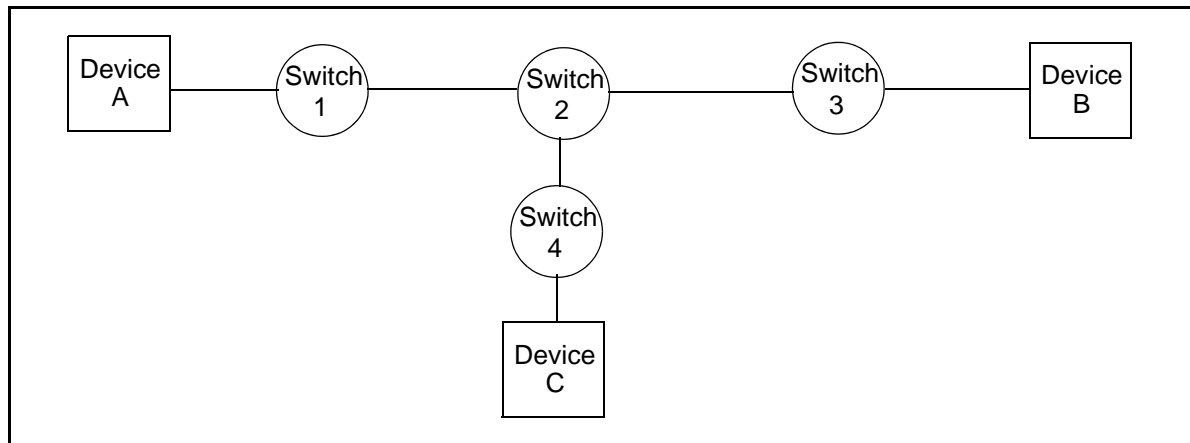


Figure 9 – Topology for FTR Example.

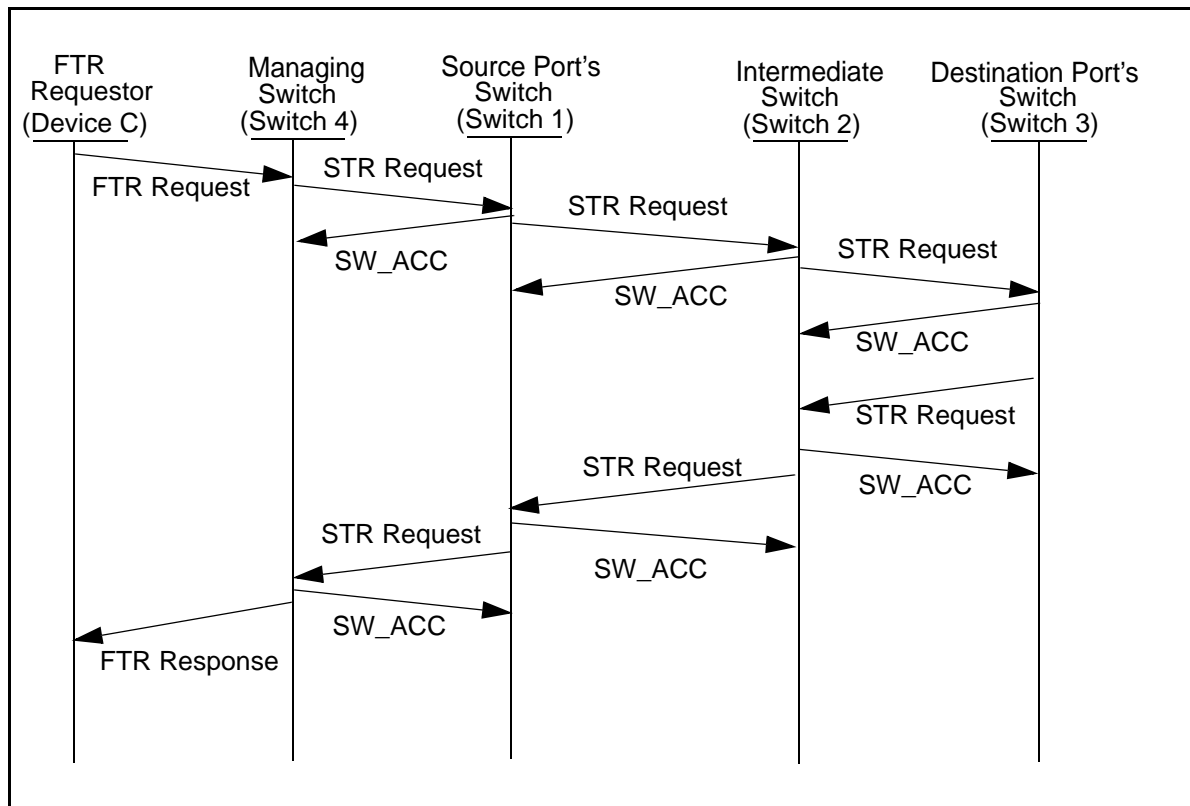


Figure 10 – FTR Processing

The Fabric Configuration Server may use GS Asynchronous Notification during the processing of the FTR request. The format of the FTR request is shown in table 265.

**Table 265 – FTR Request CT\_IU**

Item	Size (Bytes)
CT_IU Preamble	see 4.3
Revision	4
Source Port Tag	2
Source Port Length	2
Source Port Value	n
Destination Port Tag	2
Destination Port Length	2
Destination Port Value	n
Token	4
T10 Vendor Identifier	8
Vendor Specific Information	8
Maximum Hop Count	4

**Revision:** The revision shall contain a value of 01h.

**Source Port Tag:** The tag shown in table 266 identifies the Source Port format.

**Table 266 – Source/Destination Port Tags**

Tag	Item
01h	N_Port_ID
02h	N_Port_Name
Others	reserved

**Source Port Length:** The length of the Source Port Value in bytes. The length shall be a multiple of four.

**Source Port Value:** The value of the Source Port defined by the Source Port Tag. Fill bytes are added as necessary to the end of the actual value in order to ensure that the length of the value field is a multiple of four. Fill bytes shall be nulls (00h). The number of fill bytes (f) is zero, one, two or three depending on the length of the actual value (m). The total length of the value field is (n = f + m).

**Destination Port Tag:** The tag used to identify the Destination Port format as shown in Table 266.



**Destination Port Length:** The length of the Destination Port Value in bytes. The length shall be a multiple of four.

**Destination Port Value:** The value of the Destination Port defined by the Destination Port Tag. Fill bytes are added as necessary to the end of the actual value in order to ensure that the length of the value field is a multiple of four. Fill bytes shall be nulls (00h). The number of fill bytes (f) is zero, one, two or three depending on the length of the actual value (m). The total length of the value field is (n = f + m).

**Token:** An identifier provided by the requesting Nx\_Port. The token shall be incremented for each new request. Tokens shall be 32-bit unsigned integers that shall wrap to zero on exceeding 7FFF FFFFh. A token value of FFFF FFFFh shall indicate the token value is NULL. If an identical token is already being processed, the FTR Request shall be rejected with a CT\_IU reason code of "Logical Error" with a Reject CT\_IU reason code explanation of "Command already in Progress".

**T10 Vendor Identifier:** The T10 Vendor Identifier field shall contain the vendor's eight byte T10 administered vendor identifier of the vendor that defines the content of the Vendor Specific field. A Null value consists of eight space characters. If the T10 Vendor ID contains a Null value, the Vendor Specific field shall be ignored.

**Vendor Specific Information:** The Vendor Specific Information field shall contain the vendor's information. The format of the information is defined by the vendor and not by this standard.

**Maximum Hop Count:** The maximum number of hops in the roundtrip path between the Source Port and the Destination Port. The default value for the Maximum Hop Count is 20.

After receiving the FTR Request, the Fabric Configuration Server may accept the request with the payload specified in table 267.

**Table 267 – Accept CT\_IU to FTR Request**

Item	Size (Bytes)
CT_IU Preamble	see 4.3
00000001h	4
Token	4
T10 Vendor Identifier	8
Vendor Specific Information	8
STR Reject Reason Code	4
Number of Path Information Entries	4
Source Port's Fabric Ingress Path Information	36
Intermediate Switch's Path Information	36
...	36
Destination Port's Fabric Ingress Path Information	36
Destination Port's Fabric Egress Path Information	36
...	36
Source Port's Fabric Egress Path Information	36

**Revision:** The revision shall contain a value of 01h.

**Token:** An identifier provided by the requesting Nx\_Port.

**T10 Vendor Identifier:** The T10 Vendor Identifier field shall contain the vendor's eight byte T10 administered vendor identifier.

**Vendor Specific Information:** The Vendor Specific Information field shall contain the vendor's information. The format of the information is defined by the vendor and not by this standard.

**STR Reject Reason Code:** If the command was not completed successfully, the Switch Trace Route Command FC Trace Route shall include a reject reason code that is defined in FC-SW-6. If the command is completed successfully, the value is 00 00 00 00h.

**Number of Path Information Entries:** The number of Path Information Entries. This number shall be incremented by one for each Path Information entry that a Switch appends to the Trace Route SW\_ILS.

**Source Port's Fabric Ingress Path Information:** The Path Information for the Source Port in the Fabric ingress path. The format of the Path Information is shown in Table 268.

**Table 268 – Path Information**

Item	Size (Bytes)
Switch Name	8
Domain_ID	4
Ingress Port_Name	8
Ingress Physical Port Number	4
Egress Port_Name	8
Egress Physical Port Number	4

**Switch Name:** The Switch Name of the Switch in the path that is appending the path information.

**Domain\_ID:** The Domain\_ID of the Switch reporting the Path Information. The format of Domain\_ID shall be set to 000000h||Domain\_ID'

**Ingress Port\_Name:** The Port\_Name of the F\_Port or E\_Port on the Switch that the frame enters.

**Ingress Physical\_Port\_Number:** The Physical\_Port\_Number of the F\_Port or E\_Port on the Switch that the frame enters.

**Egress Port\_Name:** The Port\_Name of the F\_Port or E\_Port on the Switch that the frame exits.

**Egress Physical\_Port\_Number:** The Physical\_Port\_Number of the F\_Port or E\_Port on the Switch that the frame exits.

**Intermediate Switch's Path Information:** The Path Information (see table 268) for an intermediate Switch in the Fabric ingress path, if any.

**Destination Port's Ingress Path Information:** The Path Information (see table 268) Destination Port in the Fabric ingress path.

**Destination Port's Egress Path Information:** The Path Information (see table 268) for the Destination Port in the Fabric egress path.

**Source Port's Egress Path Information:** The Path Information (see table 268) for the Source Port in the Fabric egress path.

#### 6.2.5.48 FC Ping (FPNG)

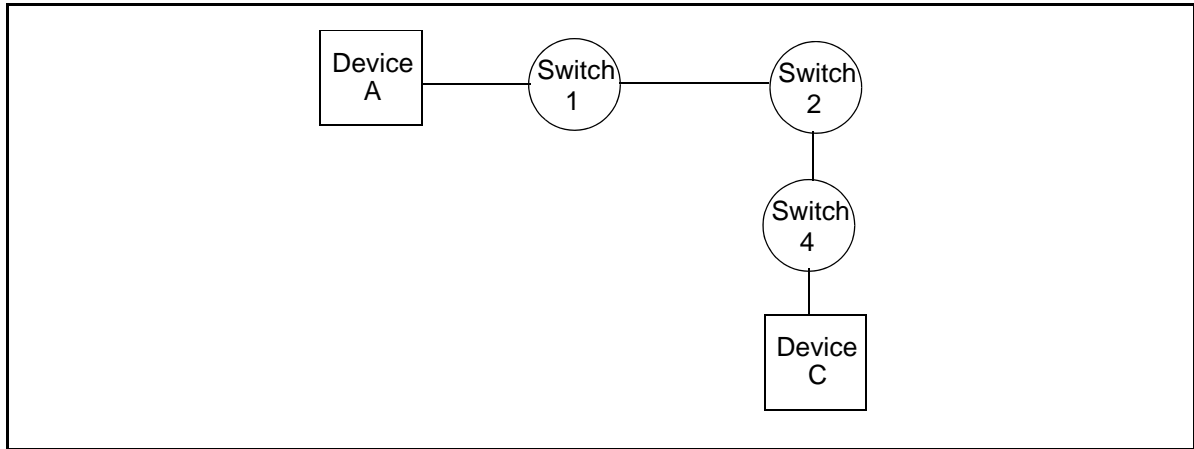
The FC Ping request verifies the path to an Nx\_Port or Domain Controller is functional through the use of the Echo ELS (see FC-LS-3). The Entry Switch shall send the Echo ELS to the Nx\_Port to confirm that the connection is functioning properly. Having the Entry Switch send the Echo ELS bypasses Zoning restrictions that might limit a management station from sending an Echo to the Nx\_Port directly.

Figure 11 and figure 12 illustrate the process of pinging an Nx\_Port in the Fabric. When a Management Application on device C sends a FC Ping request to the Fabric Configuration Server for

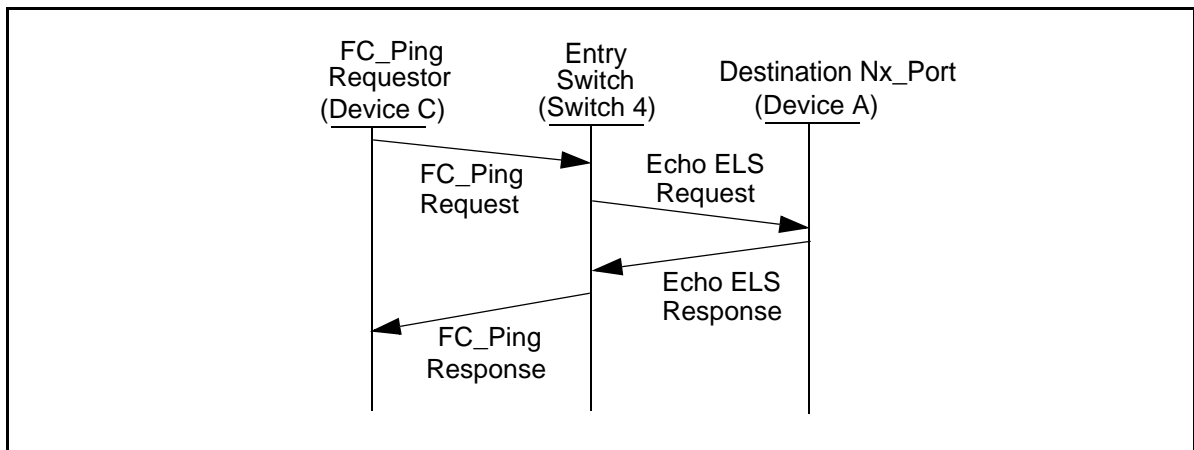
Device A, the Entry Switch (Switch 4) shall send an Echo ELS to the Nx\_Port. After Switch 4 receives the ECHO response from the Nx\_Port, Switch 4 accepts the FC Ping Request.

If the Echo ELS does not receive a response, the Fabric Configuration Server shall reject the FC Ping Request with a Reject CT\_IU reason code of "Unable to perform command request" and a Reject CT\_IU reason code explanation of "Unable to Verify Connection".

If the FPNG request is not supported a Reject CT\_IU should be returned and the reason code should be Command Not Supported, no further explanation.



**Figure 11 – Topology for FC Ping Example.**



**Figure 12 – FC Ping Processing**

The format of the FC Ping Request is shown in table 269.

**Table 269 – FC\_Ping Request CT\_IU**

Item	Size (Bytes)
CT_IU Preamble	see 4.3
00000001h	4
Port Tag	2
Port Length	2
Port Value	n
Token	4

**Revision:** The revision shall contain a value of 01h.

**Port Tag:** The tag shown in table 270 that identifies the Port format.

**Table 270 – Nx\_Port Tags**

Tag	Item
01h	N_Port_ID
02h	Port_Name

**Port Length:** The length of the Port Value in bytes. The length shall be a multiple of four.

**Port Value:** The value of Port defined by the Port Tag. Fill bytes are added as necessary to the end of the actual value in order to ensure that the length of the value field is a multiple of four. Fill bytes shall be nulls (00h). The number of fill bytes (f) is zero, one, two or three depending on the length of the actual value (m). The total length of the value field is (n = f + m).

**Token:** An identifier provided by the requesting Nx\_Port. The token shall be incremented for each new request. Tokens shall be 32-bit unsigned integers that shall wrap to zero on exceeding 7FFF FFFFh. A token value of FFFF FFFFh shall indicate the token value is NULL. If an identical token is already being processed, the FC Ping Request shall be rejected with a Reject CT\_IU reason code of "Logical Error" with a Reject CT\_IU reason code explanation of "Processing Request".

After receiving the FC Ping Request, the Fabric Configuration Server may accept the request with the payload specified in table 271.

**Table 271 – Accept CT\_IU to FC Ping Request**

Item	Size (Bytes)
CT_IU Preamble	(see 4.3)
Token	4

**Token:** An identifier provided by the requesting Nx\_Port.

## **6.8 Enhanced Fabric Configuration Server**

### **6.8.1 Overview**

The Enhanced Fabric Configuration Server provides a way for a management application to discover Fibre Channel Fabric topology and attributes.

Requests for the Enhanced Fabric Configuration Server are carried over the Common Transport (see clause 4).

The Enhanced Fabric Configuration Server is intended to be distributed among Switches, making the Enhanced Fabric Configuration Server immediately available to an Nx\_Port once it has successfully completed Fabric Login. However, the Enhanced Fabric Configuration Server is not restricted or required to be part of a Fabric, and may be located in any Nx\_Port.

### **6.8.2 Protocol**

#### **6.8.2.1 Overview**

Enhanced Fabric Configuration Server registration, deregistration, and queries are managed through protocols containing a set of Request CT\_IUs and Response CT\_IUs supported by the Enhanced Fabric Configuration Server.

For an Enhanced Fabric Configuration Server request, the payload shall be transported from the requestor to the Enhanced Fabric Configuration Server using a Request CT\_IU. The corresponding Enhanced Fabric Configuration Server response is transported from the Enhanced Fabric Configuration Server to the requestor, in the Exchange established by the requestor, using a Response CT\_IU.

The action of the Enhanced Fabric Configuration Server is unaffected by Server Sessions.

#### **6.8.2.2 CT\_IU preamble values**

The following values shall be set in the CT\_IU preamble for Enhanced Fabric Configuration Server request and their responses; fields not specified here shall be set as defined in 4.3.2:

- a) GS\_Subtype: as indicated in table 125; and
- b) Command Code: see table 465 for Request command codes.

**Table 465 – Enhanced Fabric Configuration Server - Request Command Codes**

<b>Code</b>	<b>Mnemonic</b>	<b>Description</b>	<b>Reference subclause</b>
0100h	eGIEL	Get Interconnect Element List	6.8.5.2
0101h	eGIEAB	Get Interconnect Element Attribute Block	6.8.5.3
0102h	eGIEPL	Get Interconnect Element Port List	6.8.5.4
0103h	eGFO	Get Fabric Object	6.8.5.5
0110h	eGPOAB	Get Physical Object Attribute Block	6.8.5.6
0111h	eGPOPL	Get Physical Object Port List	6.8.5.7
0130h	eGLPAB	Get Logical Port Attribute Block	6.8.5.8
0131h	eGAPL	Get Attached Port List	6.8.5.9
0140h	eGPPAB	Get Physical Port Object Attribute Block	6.8.5.10
0200h	eRIELN	Register Interconnect Element Logical Name	6.8.5.11
other	reserved		

### 6.8.2.3 Registration

The registration requests defined for the Enhanced Fabric Configuration Server are summarized in table 465. This standard does not define the registration of attributes which do not have a corresponding registration request.

The Enhanced Fabric Configuration Server may reject registrations due to Enhanced Fabric Configuration Server resource limitations. However, the Enhanced Fabric Configuration Server shall support registration of all attributes, once registration of a single attribute has been accepted.

The Enhanced Fabric Configuration Server may reject any registration requests for reasons not specified in this document.

If overlapping registrations for the same attribute are performed, then the Enhanced Fabric Configuration Server shall, when all registrations have been completed, leave the attribute as one of the registered attribute values. However, it is indeterminate which of the overlapping registration requests take precedence.

### 6.8.2.4 Queries

The Enhanced Fabric Configuration Server may reject any query request for reasons not specified in this document. The queries defined for the Enhanced Fabric Configuration Server are summarized in table 465.

### 6.8.3 Enhanced Fabric Configuration Server Objects and Attributes

#### 6.8.3.1 Overview

Figure 22 illustrates the logical Fabric, consisting of one or more Interconnect Elements, each having one or more Logical Ports. These Logical Ports are connected to other Logical Ports.

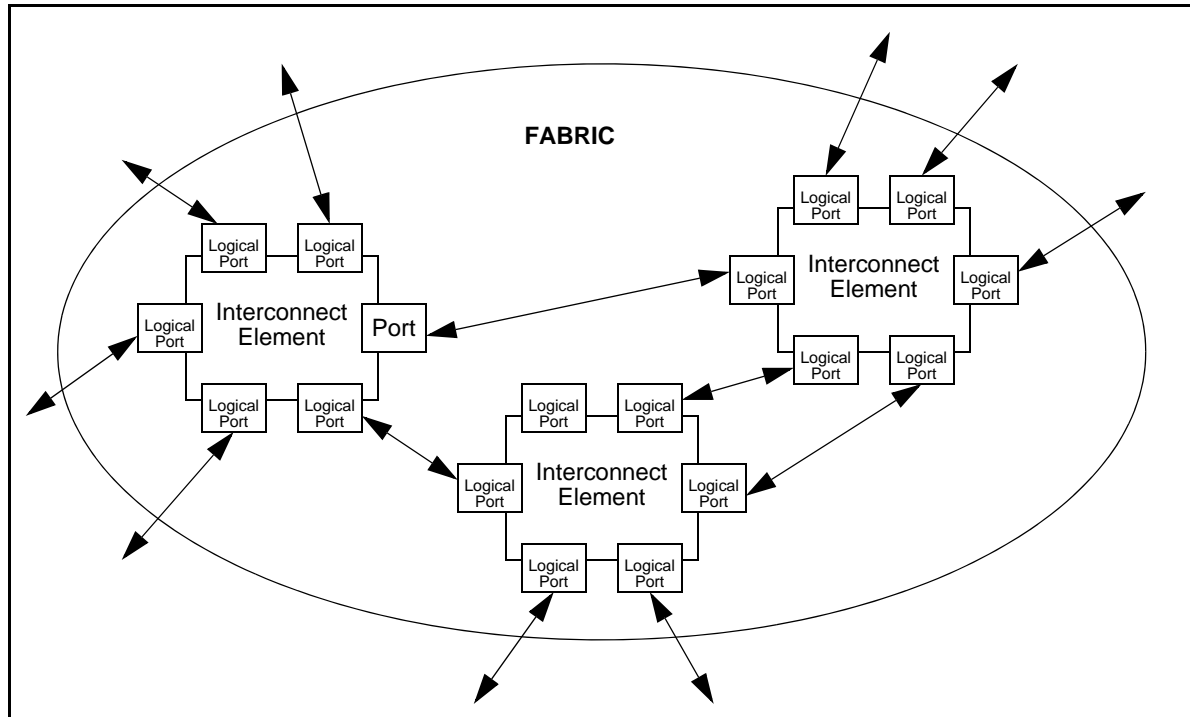
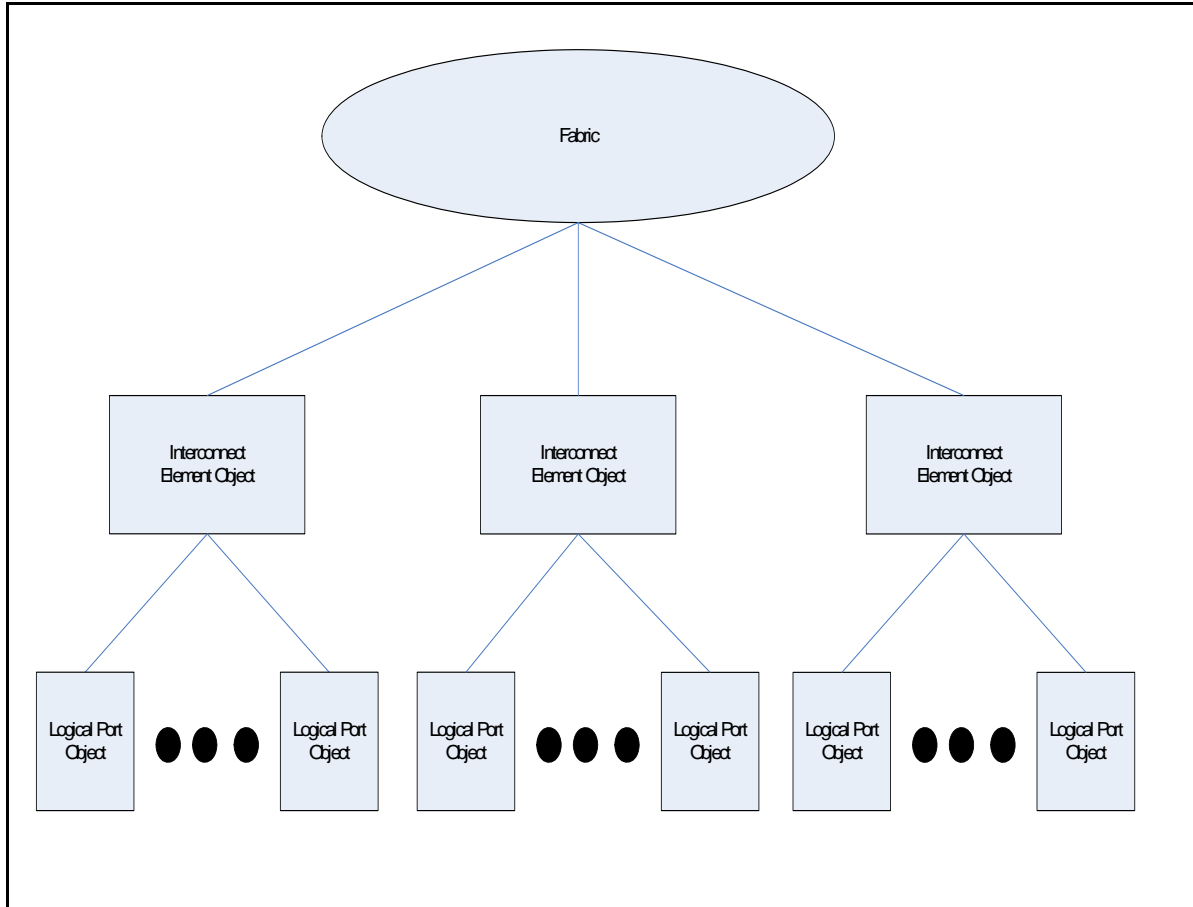


Figure 22 – Logical Fabric Illustration



The Enhanced Fabric Configuration Server object model is shown in figure 23.



**Figure 23 – Enhanced Fabric Configuration Server Logical Model**

The base object class managed by the Enhanced Fabric Configuration Server is the Fabric object which has one or more associated Interconnect Element objects. Interconnect Element objects have one or more associated Port objects, and one or more Interconnect Element objects belong to a fabric identified by the object's Fabric Name attribute. One or more Interconnect Element objects may be associated to a Physical object as shown in figure 23. One or more Logical Port objects may be associated to a Physical Port object as shown in figure 24.

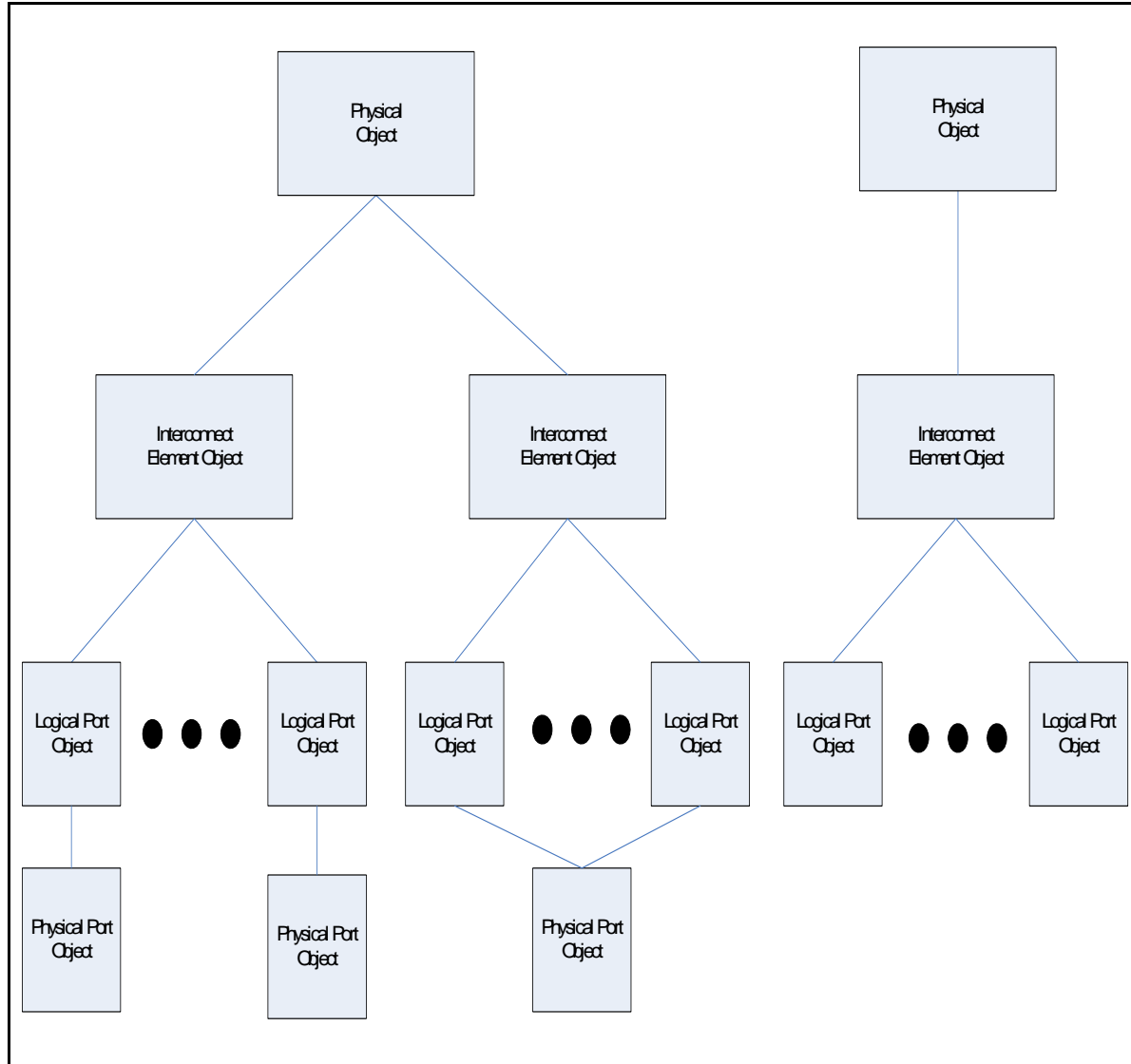
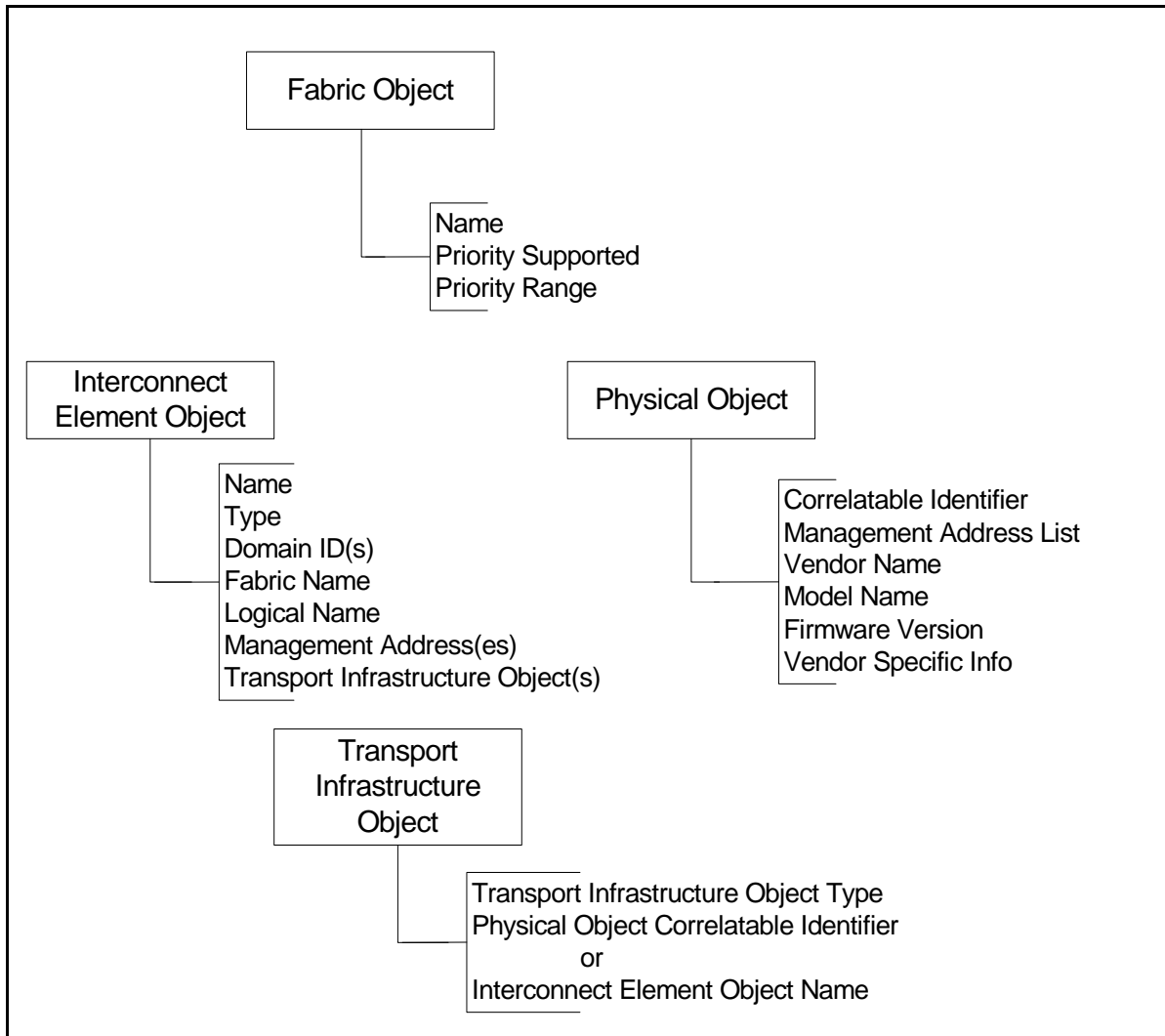
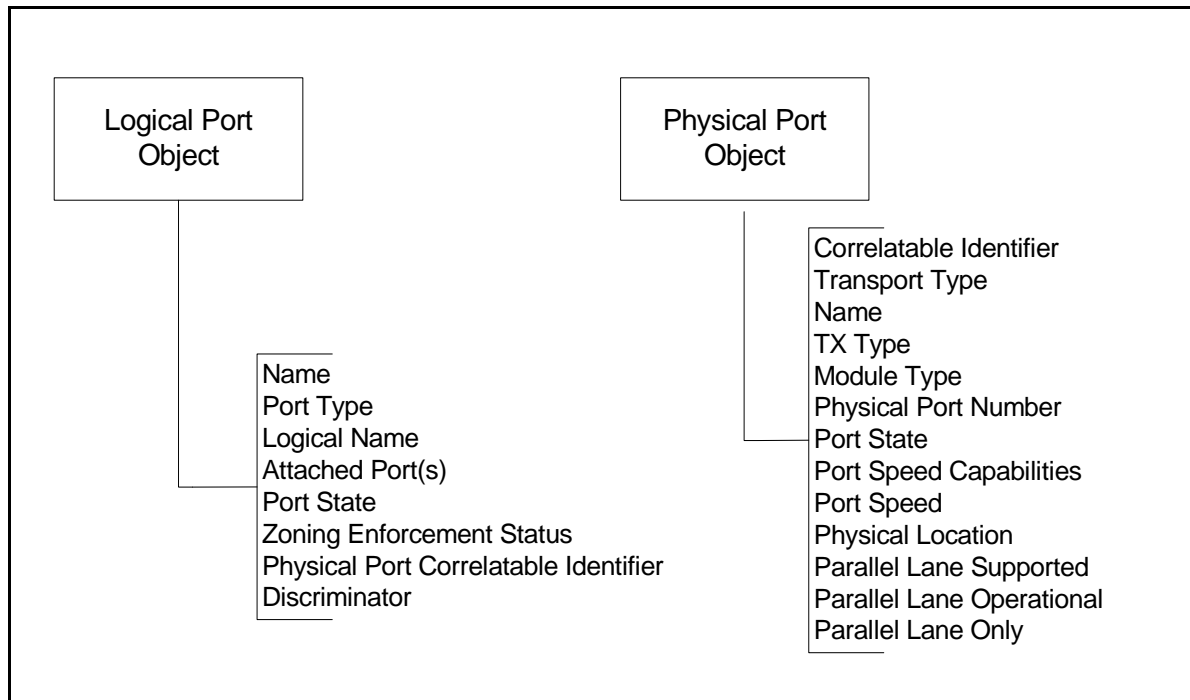


Figure 24 – Enhanced Fabric Configuration Server Logical and Physical Object Model

The Interconnect Element object and Port object may have one or more attributes associated with them, as shown in figure 25. and figure 26.



**Figure 25 – Enhanced Fabric Configuration Server Logical and Physical Object Attributes**



**Figure 26 – Logical Port Object and Physical Port Object attributes**

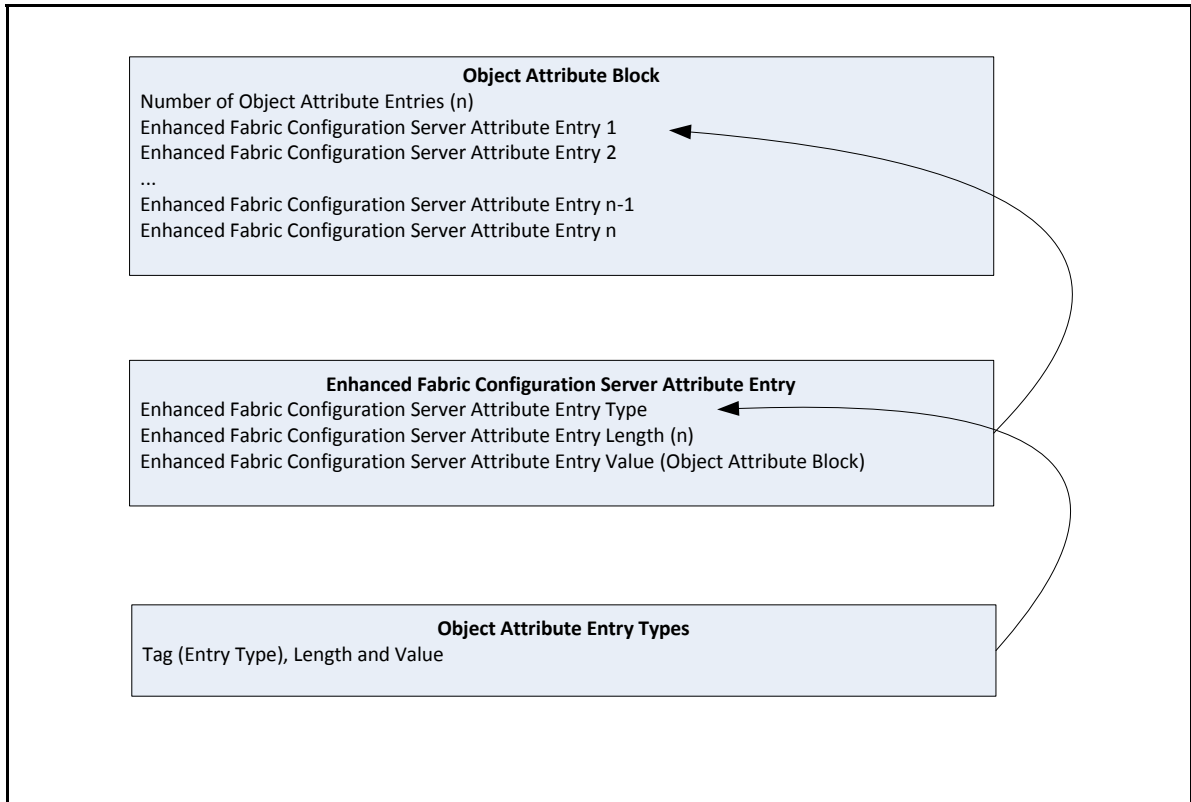
### 6.8.3.2 Enhanced Fabric Configuration Server Attribute Entry Format

#### 6.8.3.2.1 Overview

The Enhanced Fabric Configuration Server defines a general format to be used for attributes associated with Fabric objects. In figure 27, an overview of the relationship of the TLV tables for the Enhanced Fabric Configuration Server is shown. The diagram shows that each object attribute block is comprised of one or many TLV entries. The type of the TLV entry is defined by the object attribute entry types. The general format of the Attribute Entry is depicted in table 466.

**Table 466 – Enhanced Fabric Configuration Server Attribute Entry Format**

Item	Size (Bytes)
Enhanced Fabric Configuration Server Attribute Entry Type	2
Enhanced Fabric Configuration Server Attribute Entry Length (n)	2
Enhanced Fabric Configuration Server Attribute Entry Value	(see table 468, table 472, table 477, table 479, and table 488)



**Figure 27 – Overview of the relationship of the TLV tables**

**6.8.3.2.2 Enhanced Fabric Configuration Server Attribute Entry Type**

This field indicates the Attribute Entry Type. Valid Enhanced Fabric Configuration Server Attribute Types are specific to the object to which they are associated. The Type codes are defined in table 472, table 477, table 479, and table 488.

**6.8.3.2.3 Enhanced Fabric Configuration Server Attribute Entry Length**

This field indicates the total length of the Attribute Entry. The total length in bytes shall be a multiple of four and includes the Attribute Entry Type, Attribute Entry Length, and Attribute Value fields.

**6.8.3.2.4 Enhanced Fabric Configuration Server Attribute Entry Value**

This field specifies the Enhanced Fabric Configuration Attribute Entry Value. Attribute Entry values are defined in table 472, table 477, table 479, and table 488. Enhanced Fabric Configuration Server Attribute Entry Values shall be at least four bytes in length and the length shall be a multiple of four. For variable length Attribute Value fields, fill bytes are added as necessary to the end of the actual value in order to ensure that the length of the value field is a multiple of four. Fill bytes shall be 00h.

### 6.8.3.3 Fabric Object

#### 6.8.3.3.1 Fabric Object Attribute Block

##### 6.8.3.3.1.1 Overview

The Fabric Object Attribute Block is a variable length structure that contains attributes registered for the specified Fabric Object. The format of the Fabric Object Attribute Block is depicted in table 467.

**Table 467 – Fabric Object Attribute Block**

Item	Size (Bytes)
Number of Fabric Object Attribute Entries (n)	4
Enhanced Fabric Configuration Server Attribute Entry 1	see table 468
Enhanced Fabric Configuration Server Attribute Entry 2	see table 468
...	
Enhanced Fabric Configuration Server Attribute Entry n-1	see table 468
Enhanced Fabric Configuration Server Attribute Entry n	see table 468

##### 6.8.3.3.1.2 Number of Fabric Object Attribute Entries

This field specifies the number of Fabric Object Attribute Entries contained in the Fabric Object Attribute Block. This value shall be greater than or equal to one.

##### 6.8.3.3.1.3 Enhanced Fabric Configuration Server Attribute Entry

An Enhanced Fabric Configuration Server Attribute Entry specifies a particular attribute registered with the Fabric Object.

**6.8.3.3.2 Fabric Object Attributes**

**6.8.3.3.2.1 Overview**

The Fabric Object Attribute Entry Types and their associated values are depicted in table 468.

**Table 468 – Fabric Object Attribute Entry Types and their associated Values**

Tag Code	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Name	8	Binary	Yes	No
0002h	Priority Supported	1	Binary	Yes	No
0003h	Priority Range	2	Binary	No	Yes
other values	Reserved				

<sup>a</sup> If a Fabric Object Attribute Block contains multiple types for a type that does not allow multiples the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Interconnect Element Object Attribute Block Contains Multiple Attributes of the Same Type".

**6.8.3.3.2.2 Fabric Name attribute**

The format of the Fabric Name attribute shall be identical to the Name\_Identifier format (see FC-FS-4) and the value shall be Fabric\_Name (see FC-SW-6).

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.3.2.3 Priority Supported attribute**

If the Priority Supported attribute in the Fabric Object is set to one, at least one Priority Range attribute shall be present in the Fabric Object. If the Priority Supported attribute in the Fabric Object is set to zero, then no Priority Range attributes shall be present in the Fabric Object. The format of the Priority Supported attribute shall be as shown in table 469.

**Table 469 – Fabric Priority Supported attribute**

Item	Size (Bytes)
Priority Supported	1

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.3.2.4 Priority Range attribute**

The Priority Range attribute in the Fabric Object indicates a range of priority values (see FC-FS-4) having common behavior. Multiple Priority Range attributes may be present in a Fabric Object, each indicating an increasing relative priority. The priority values described by multiple Priority Range attributes shall be contiguous. The format of the Priority Range attribute shall be as shown in table 470.

**Table 470 – Fabric Priority Range attribute**

Item	Size (Bytes)
Low Range Value	1
High Range Value	1

**Low Range Value:** contains the lowest value of the described priority range, inclusive.

**High Range Value:** contains the highest value of the described priority range, inclusive.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.4 Interconnect Element Object**

**6.8.3.4.1 Interconnect Element Object Attribute Block**

**6.8.3.4.1.1 Overview**

The Interconnect Element Object Attribute Block is a variable length structure that contains attributes registered for the specified Interconnect Element Object. The format of the Interconnect Element Object Attribute Block is depicted in table 471.

**Table 471 – Interconnect Element Object Attribute Block**

Item	Size (Bytes)
Number of Interconnect Element Object Attribute Entries (n)	4
Enhanced Fabric Configuration Server Attribute Entry 1	see table 472
Enhanced Fabric Configuration Server Attribute Entry 2	see table 472
...	
Enhanced Fabric Configuration Server Attribute Entry n-1	see table 472
Enhanced Fabric Configuration Server Attribute Entry n	see table 472

**6.8.3.4.1.2 Number of Interconnect Element Object Attribute Entries**

This field specifies the number of Interconnect Element Object Attribute Entries contained in the Interconnect Element Object Attribute Block. This value shall be greater than or equal to one.



### 6.8.3.4.1.3 Enhanced Fabric Configuration Server Attribute Entry

An Enhanced Fabric Configuration Server Attribute Entry specifies a particular attribute registered with an Interconnect Element Object.

### 6.8.3.4.2 Interconnect Element Object Attributes

#### 6.8.3.4.2.1 Overview

The Interconnect Element Object Attribute Entry Types and their associated values are depicted in table 472.

**Table 472 – Interconnect Element Object Attribute Entry Types and their associated Values**

Tag Code	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Name	8	Binary	Yes	No
0002h	Type	1	Binary	Yes	No
0003h	Domain ID	1	Binary	Yes <sup>b</sup>	Yes
0004h	Fabric Name	8	Binary	Yes	No
0005h	Logical Name	1 to 255	ASCII	No	No
0006h	Management Address	1 to 255	ASCII	No	Yes
0007h	Transport Infrastructure Object	1 to 255	Binary or ASCII <sup>c</sup>	No	Yes
other values	Reserved				

<sup>a</sup> If an Interconnect Element Object Attribute Block contains multiple types for a type that does not allow multiples, the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Interconnect Element Object Attribute Block Contains Multiple Attributes of the Same Type".

<sup>b</sup> If an Interconnect Element Object Attribute Interconnect Element Type is Switch, then the TLV entry with Interconnect Element Object Attribute Domain ID is required. If the Interconnect Element Object Attribute Interconnect Element Type is not Switch, then there shall be no TLV entry with Interconnect Element Object Attribute Domain ID.

<sup>c</sup> See 6.8.3.4.2.8 .

#### 6.8.3.4.2.2 Interconnect Element Object Name attribute

The format of the Interconnect Element Object Name attribute shall be identical to the Name\_Identifier format. If the Interconnect Element is a Switch (see FC-SW-6), the Interconnect Element Object Name attribute shall be the Switch\_Name of the Switch.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.4.2.3 Interconnect Element Object Type attribute**

The values of the Interconnect Element Object Type attribute shall be as shown in table 473.

**Table 473 – Interconnect Element Type- encoding**

Encoded value	Description
00h	Unknown
01h	Switch
02h	Hub
03h	Bridge
04h	Virtual Domain Supervisor
05h	Controlling Switch
06h	Switch in Principal Domain
07h	FCDF
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Interconnect Element Type attribute value is set to 'Unknown'.

**6.8.3.4.2.4 Interconnect Element Object Domain Identifier attribute**

The format of the Interconnect Element Object Domain Identifier attribute shall be identical to the Domain Identifier format (see FC-SW-6).

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.4.2.5 Interconnect Element Object Fabric Name attribute**

The format of the Interconnect Element Object Fabric Name attribute shall be identical to the Name\_Identifier format and the value shall be Fabric\_Name (see FC-SW-6).

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. There shall be no null value.

**6.8.3.4.2.6 Interconnect Element Object Logical Name attribute**

The format of the Interconnect Element Object Logical Name attribute shall be as shown in table 472. The contents of these bytes are not defined and shall not be restricted by the Enhanced Fabric Configuration Server.

This attribute may be registered using the protocol described in 6.8.2.3. The null value for the Interconnect Element Logical Name attribute is a zero-length Interconnect Element Logical Name.

#### 6.8.3.4.2.7 Interconnect Element Object Management Address attribute

The format of the Interconnect Element Object Management Address attribute shall be as shown in table 472. Zero or more Management Address attributes shall be associated with an Interconnect Element object.

The format of the Management Address shall use the format of the Uniform Resource Locator (URL) as defined in RFC3986, RFC4248 and RFC4266. The scheme field shall be as registered at <http://www.iana.org/assignments/uri-schemes> (see RFC3986). A null management address entry is specified as a Management Address length value of zero followed by 255 reserved bytes.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The contents of the Management Address shall not be restricted by the Enhanced Fabric Configuration Server.

#### 6.8.3.4.2.8 Interconnect Element Object Transport Infrastructure Object

The format of the Transport Infrastructure Object shall be shown as in table 474.

**Table 474 – Transport Infrastructure Object Format**

Item	Size (Bytes)
Transport Infrastructure Object Type	1
Enhanced Fabric Configuration Server Attribute	see table 466
Reserved	2

The Transport Infrastructure Object Type contains either a 1 to indicate the Transport Infrastructure Object references a Physical Object (Physical Object Correlatable Identifier) or a 2 to indicate it

references an Interconnect Element Object (Interconnect Element Object Name) as shown in table 475.

**Table 475 – Transport Infrastructure Object Attribute Entry Types and their associated Values**

Tag	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Physical Object Correlatable Identifier	1 to 255	ASCII	Yes	No
0002h	Interconnect Element Object Name	8	Binary	Yes	No
other values	Reserved				

<sup>a</sup> If a Transport Infrastructure Object Attribute Block contains multiple types for a type that does not allow multiples, then the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Transport Infrastructure Object Attribute Block Contains Multiple Attributes of the Same Type".

### 6.8.3.5 Physical Object

#### 6.8.3.5.1 Physical Object Attribute Block

##### 6.8.3.5.1.1 Overview

The Physical Object Attribute Block is a variable length structure that contains attributes registered for the specified Physical Object. The format of the Physical Object Attribute Block is depicted in table 476. A Physical Object is the hardware container for an Interconnect Element (e.g. Switch).

**Table 476 – Physical Object Attribute Block**

Item	Size (Bytes)
Number of Physical Object Attribute Entries (n)	4
Enhanced Fabric Configuration Server Attribute Entry 1	see table 477
Enhanced Fabric Configuration Server Attribute Entry 2	see table 477
...	
Enhanced Fabric Configuration Server Attribute Entry n-1	see table 477
Enhanced Fabric Configuration Server Attribute Entry n	see table 477

##### 6.8.3.5.1.2 Number of Physical Object Attribute Entries

This field specifies the number of Physical Object Attribute Entries contained in the Physical Object Attribute Block. This value shall be greater than or equal to one.

**6.8.3.5.1.3 Enhanced Fabric Configuration Server Attribute Entry**

An Enhanced Fabric Configuration Server Attribute Entry specifies a particular attribute registered with a Physical Object.

**6.8.3.5.2 Physical Object Attributes**

**6.8.3.5.2.1 Overview**

The Physical Object Attribute Entry Types and their associated values are depicted in table 477.

**Table 477 – Physical Object Attribute Entry Types and their associated Values**

Tag	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Correlatable Identifier	1 to 255	ASCII	Yes	No
0002h	Management Address List	1 to 255	ASCII	No	Yes
0003h	Vendor Name	1 to 255	ASCII	Yes	Yes
0004h	Model Name	1 to 255	ASCII	No	No
0005h	Firmware Version	1 to 255	ASCII	No	Yes
0006h	Vendor Specific Information	1 to 255	ASCII	No	No
other values	Reserved				

<sup>a</sup> If a Physical Object Attribute Block contains multiple types for a type that does not allow multiples, then the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Physical Object Attribute Block Contains Multiple Attributes of the Same Type".

**6.8.3.5.2.2 Physical Object Correlatable Identifier attribute**

A printable ASCII string, terminated with a null (00h), that uniquely identifies the Physical Object.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The contents of the Physical Object Correlatable Identifier shall not be restricted by the Enhanced Fabric Configuration Server.

**6.8.3.5.2.3 Physical Object Management Address attribute**

A printable ASCII string, terminated with a null (00h), that specifies the model name of the Physical Object.

The format of the Management Address shall use the format of the Uniform Resource Locator (URL) as defined in RFC3986, RFC4248 and RFC4266. The scheme field shall be as registered at <http://www.iana.org/assignments/uri-schemes> (see RFC3986). A null management address entry is specified as a Management Address length value of zero followed by 255 reserved bytes.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The contents of the Management Address shall not be restricted by the Enhanced Fabric Configuration Server.

**6.8.3.5.2.4 Physical Object Vendor Name attribute**

A printable ASCII character string, terminated with a null (00h), that specifies the vendor name of the Physical Object.

**6.8.3.5.2.5 Physical Object Model Name attribute**

A printable ASCII character string, terminated with a null (00h), that specifies the user-friendly name of the Physical Object.

**6.8.3.5.2.6 Physical Object Firmware Version attribute**

A printable ASCII character string, terminated with a null (00h), that specifies the version of the firmware of the Physical Object.

**6.8.3.5.2.7 Physical Object Vendor Specific Information attribute**

One or more printable ASCII character strings, each terminated with a null (00h), that contain other vendor-specific information regarding the designated Interconnect Element.

**6.8.3.6 Logical Port Object**

**6.8.3.6.1 Logical Port Object Attribute Block**

**6.8.3.6.1.1 Overview**

The Logical Port Object Attribute Block is a variable length structure that contains attributes registered for the specified Logical Port Object. The format of the Logical Port Attribute Block is depicted in table 478.

**Table 478 – Logical Port Object Attribute Block**

Item	Size (Bytes)
Number of Logical Port Object Attribute Entries (n)	4
Enhanced Fabric Configuration Server Attribute Entry 1	see table 479
Enhanced Fabric Configuration Server Attribute Entry 2	see table 479
...	
Enhanced Fabric Configuration Server Attribute Entry n-1	see table 479
Enhanced Fabric Configuration Server Attribute Entry n	see table 479

**6.8.3.6.1.2 Number of Logical Port Object Attribute Entries**

This field specifies the number of Logical Port Object Attribute Entries contained in the Logical Port Object Attribute Block. This value shall be greater than or equal to one.

**6.8.3.6.1.3 Enhanced Fabric Configuration Server Attribute Entry**

An Enhanced Fabric Configuration Server Attribute Entry specifies a particular attribute registered with a Logical Port Object.

**6.8.3.6.2 Logical Port Object Attributes**

**6.8.3.6.2.1 Overview**

The Logical Port Object Attribute Entry Types and their associated values are depicted in table 479.

**Table 479 – Logical Port Object Attribute Entry Types and their associated Values**

Tag	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Name	8	Binary	Yes	No
0002h	Port Type	1	Binary	Yes	No
0003h	Logical Name	1 to 255	ASCII	No	No
0004h	Attached Port	8	Binary	Yes <sup>b</sup>	Yes
0005h	Port State	1	Binary	No	No
0006h	Zoning Enforcement Status	1 to 255	ASCII	No	Yes
0007h	Physical Port Correlatable Identifier	1 to 255	ASCII	No	No
0008h	Discriminator	1	Binary	No	No
other values	Reserved				

<sup>a</sup> If a Logical Port Attribute Block contains multiple types for a type that does not allow multiples the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Logical Port Object Attribute Block Contains Multiple Attributes of the Same Type".

<sup>b</sup> Attached Port is required if Port State is Online.

**6.8.3.6.2.2 Logical Port Object Name attribute**

The format of the Logical Port Object Name attribute shall be identical to the Name\_Identifier format. The value of the Name attribute shall be the same as the value Port\_Name in the Fabric Login ELS Accept payload.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null value for the Port Name attribute is 00 00 00 00 00 00 00 00h.

**6.8.3.6.2.3 Logical Port Object Port Type attribute**

The values of the Port Type attribute shall be as shown in table 480.

**Table 480 – Port Type encoding**

Encoded value	Description
00h	Unidentified
01h	N_Port
02h	NL_Port
03h	F/NL_Port
7Fh	Nx_Port
81h	F_Port
82h	FL_Port
84h	E_Port
85h	B_Port
86h	A_Port
C0h to FFh	Vendor Specific
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Port Type attribute value is set to 'Unknown'.

**6.8.3.6.2.4 Logical Port Object Logical Name attribute**

The format of the Logical Port Object Logical Name attribute shall be as shown in table 479. The contents of these bytes are not defined and shall not be restricted by the Enhanced Fabric Configuration Server.

The null value for the Logical Port Object Logical Name attribute is a zero-length Logical Port Logical Name.



**6.8.3.6.2.5 Logical Port Object Attached Port Name attribute**

The format of the Attached Port Name attribute shall be as shown in table 481. Zero or more Attached Port Name attributes may be associated with a Port object.

**Table 481 – Attached Port Name Format**

Item	Size (Bytes)
Port Name	8
Reserved	2
Port Flags	1
Port Type	1

**Port Name:** As defined in 6.2.3.3.1.

**Port Flags:** As shown in table 482.

**Table 482 – Port Flags field bits**

Bit Position	Description
7 to 2	Reserved
1	A value of one indicates that the Port supports the Get Topology Information Extended (GTIN) Link Service. A value of zero indicates that the Port does not support this ELS.
0	Obsolete

**Port Type:** As shown in table 480.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. A Port object with a Port Type attribute value of "N\_Port" or "NL\_Port" shall have a null Attached Port Name List. The null value for the Attached Port Name List attribute shall be a zero length Attached Port Name List.

**6.8.3.6.2.6 Logical Port Object Port State attribute**

The values of the Logical Port Object Port State attribute shall be as shown in table 483.

**Table 483 – Port State encoding**

Encoded value	Description
00h	Unknown
01h	Online - a frame may be passed through the FC_Port
02h	Offline - a frame is not able to be passed through the FC_Port
E0h to FFh	Vendor specific
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Port State attribute value is set to 'Unknown'.

**6.8.3.6.2.7 Logical Port Object Zoning Enforcement Status attribute**

The format of the Zoning Enforcement Status attribute is depicted in table 484.

**Table 484 – Zoning Enforcement Status**

Item	Size (Bytes)
F_Port_Name	8
Port enforcement status	4

**F\_Port\_Name:** This field contains the F\_Port\_Name of the Fx\_Port that the enforcement status object is referencing.

**Port Enforcement Status:** This is a 32 bit wide bit field that reports the actual enforcement status of the named Fx\_Port. The defined bits are depicted in table 485.

**Table 485 – Port Enforcement Status Bit Definitions**

Bit	Interpretation
0	1 = Soft Zoning enforcement on 0 = Soft Zoning enforcement off
1	1 = Hard Zoning enforcement on 0 = Hard Zoning enforcement off
2	1 = Broadcast Zoning Enforcement on 0 = Broadcast Zoning Enforcement off
all others	Reserved

#### 6.8.3.6.2.8 Logical Port Object Physical Port Correlatable Identifier attribute

The Physical Port Object Correlatable Identifier (see 6.8.3.7.2.2) that the Logical Port Object is associated with.

#### 6.8.3.6.2.9 Logical Port Object Discriminator attribute

The values of the Logical Port Object Discriminator attribute shall be as shown in table 486.

**Table 486 – Discriminator encoding**

Encoded value	Description
00h	Unknown
01h	Native FC
02h	FCoE
03h	VFT
04h	FCIP
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Discriminator attribute value is set to 'Unknown'.

**6.8.3.7 Physical Port Object**

**6.8.3.7.1 Physical Port Object Attribute Block**

**6.8.3.7.1.1 Overview**

The Physical Port Object Attribute Block is a variable length structure that contains attributes registered for the specified Physical Port Object. The format of the Physical Attribute Block is depicted in table 487.

**Table 487 – Physical Port Object Attribute Block**

Item	Size (Bytes)
Number of Physical Port Object Attribute Entries (n)	4
Enhanced Fabric Configuration Server Attribute Entry 1	see table 488
Enhanced Fabric Configuration Server Attribute Entry 2	see table 488
...	
Enhanced Fabric Configuration Server Attribute Entry n-1	see table 488
Enhanced Fabric Configuration Server Attribute Entry n	see table 488

**6.8.3.7.1.2 Number of Physical Port Object Attribute Entries**

This field specifies the number of Physical Port Object Attribute Entries contained in the Physical Port Object Attribute Block. This value shall be greater than or equal to one.

**6.8.3.7.1.3 Enhanced Fabric Configuration Server Attribute Entry**

An Enhanced Fabric Configuration Server Attribute Entry specifies a particular attribute registered with a Physical Port Object.

### 6.8.3.7.2 Physical Port Object Attributes

#### 6.8.3.7.2.1 Overview

The Physical Port Object Attribute Entry Types and their associated values are depicted in table 488.

**Table 488 – Physical Port Object Attribute Entry Types and their associated Values**

Tag	Value				
	Description	Length (Bytes)	Data Type	Required	Multiples allowed <sup>a</sup>
0001h	Correlatable Identifier	1 to 255	ASCII	Yes	No
0002h	Transport Type	1	Binary	Yes	No
0003h	Name	8	Binary	No	Yes
0004h	TX Type	1	Binary	Yes	No
0005h	Module Type	1	Binary	No	No
0006h	Physical Port Number	4	Binary	No	Yes
0007h	Port State	2	Binary	Yes	No
0008h	Port Speed Capabilities	4	Binary	Yes	No
0009h	Port Operating Speed	4	Binary	Yes	No
0010h	Physical Location	1 to 255	ASCII	No	No
0011h	Parallel Lane Supported	1	Binary	Yes	No
0012h	Parallel Lane Operational	1	Binary	Yes	No
0013h	Parallel Lane Only	1	Binary	Yes	No
other values	Reserved				

<sup>a</sup> If a Physical Port Attribute Block contains multiple types for a type that does not allow multiples the command shall be rejected with a reason code of 'Unable to perform command request' and a reason code explanation of "Physical Port Object Attribute Block Contains Multiple Attributes of the Same Type".

#### 6.8.3.7.2.2 Physical Port Object Correlatable Identifier attribute

A printable ASCII string, terminated with a null (00h), that uniquely identifies the Physical Port Object.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The contents of the Physical Port Object Correlatable Identifier shall not be restricted by the Enhanced Fabric Configuration Server.

### 6.8.3.7.2.3 Physical Port Object Transport Type attribute

The values of the Physical Port Object Transport Type attribute shall be as shown in table 489.

**Table 489 – Physical Port Object Transport Types**

Encoded value	Description
00h	Unknown
01h	FC
02h	Ethernet
03h	IP
E0h to FFh	Vendor specific
all others	Reserved

### 6.8.3.7.2.4 Physical Port Object Name attribute

The format of the Name attribute shall be identical to the Name\_Identifier format. The value of the Name attribute shall be the same as the value Port\_Name in the Fabric Login ELS Accept payload.

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null value for the Port Name attribute is 00 00 00 00 00 00 00 00h.

**6.8.3.7.2.5 Physical Port Object TX Type attribute**

This attribute describes the technology that is incorporated in the transmitter of the module. The values of the TX Type attribute shall be as shown in table 490.

**Table 490 – TX Type encoding**

Encoded value	Description
01h	Unknown
02h	Long wave laser - LL (1 550 nm)
03h	Short wave laser - SN (850 nm)
04h	Long wave laser cost reduced - LC (1 310 nm)
05h	Electrical - EL
06h	10GBASE-SR 850nm laser <sup>a</sup>
07h	10GBASE-LR 1310nm laser <sup>a</sup>
08h	10GBASE-ER 1550nm laser <sup>a</sup>
09h	10GBASE-LX4 WWDM 1300nm laser <sup>a</sup>
0Ah	10GBASE-SW 850nm laser <sup>a</sup>
0Bh	10GBASE-LW 1310nm laser <sup>a</sup>
0Ch	10GBASE-EW 1550nm laser <sup>a</sup>
0Dh	10GBASE-CX4 <sup>a</sup>
0Fh	Long wave laser - LZ (1 490 nm)
all others	Reserved
<sup>a</sup> See IEEE 802.3-2005.	

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null TX Type attribute value is set to 'Unknown'.

**6.8.3.7.2.6 Physical Port Object Module Type attribute**

This attribute describes the form factor of the module. The values of the Physical Port Module Type attribute shall be as shown in table 491.

**Table 491 – Module Type encoding**

<b>Encoded value</b>	<b>Description</b>
01h	Unknown
02h	Other
03h	Obsolete
04h	Embedded
05h	GLM
06h	GBIC with serial ID
07h	GBIC without serial ID
08h	SFP with Serial ID
09h	SFP without Serial ID
0Ah	XFP
0Bh	X2 Short
0Ch	X2 Medium
0Dh	X2 Tall
0Eh	XPAK Short



**Table 491 – Module Type encoding(Continued)**

Encoded value	Description
0Fh	XPAK Medium
10h	XPAK Tall
11h	XENPAK
12h	SFP-DWDM
13h	QSFP
14h	X2-DWDM
15h	CFP
16h	CFP2
17h	CFP4
18h	QSFP+
19h	QSFP28
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Port Module Type attribute value is set to 'Unknown'.

**6.8.3.7.2.7 Physical Port Object Physical Port Number**

The Physical Port Number is the value used with the Domain\_ID that identifies a Zone Member Identifier Type 2 (i.e. Domain\_ID and physical port).

The format of the Physical Port Object Physical Port Number attribute shall be as shown in table 492. The contents of this field are not defined and shall not be restricted by the Enhanced Fabric Configuration Server, due to vendor specific methods for numbering physical ports.

**Table 492 – Physical Port Number Format**

Item	Size (Bytes)
Physical Port Number	4

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null value for the Physical Port Number attribute is 00 00 00 00h.

### 6.8.3.7.2.8 Physical Port Object Port State attribute

The values of the Physical Port Object Port State attribute shall be as shown in table 493.

**Table 493 – Physical Port Object Port State attribute**

Encoded value	Description
00h	Unknown
01h	Online - a frame may be passed through the FC_Port
02h	Offline - a frame is not able to be passed through the FC_Port
03h	Testing - FC_Port is in a test state
04h	Fault - FC_Port is not operational
E0h to FFh	Vendor specific
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server. The null Port State attribute value is set to 'Unknown'.

### 6.8.3.7.2.9 Physical Port Object Port Speed Capabilities attribute

The Port Speed Capabilities [field attribute](#) identifies the data transfer rate capabilities of the LCF within the FC\_Port. [The Port Speed Capabilities attribute is formatted into multiple pages. The FC\\_Port returns the appropriate page that contains the applicable information for the FC\\_Port. Each page contains Speed Capabilities values and a Control field \(see table 495\) that the LCF may use to refine the scope of the capabilities returned. The Page bits in the Control field indicate which page the LCF is returning.](#)

[All the LCF's potential supported data transfer speeds are indicated by setting the appropriate bit in the Speed Capabilities field to one. More than one bit may be set at a time.](#) The format of the Port Speed Capabilities attribute shall be as shown in table 494.

**Table 494 – Port Speed Capabilities [attribute](#) Format**

Item	Size (Bytes)
Port Speed Capabilities	<a href="#">43</a>
<a href="#">Control</a>	<a href="#">1</a>

[Speed Capabilities](#): supported data transfer speeds.

[Control](#): characteristics of the Port Speed Capabilities attribute (see table 495).

**Table 495 – [Control field bits](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">7 to 6</a>	<a href="#">Reserved</a>
<a href="#">5 to 4</a>	<a href="#">Page</a>
<a href="#">3</a>	<a href="#">Parallel</a>
<a href="#">2</a>	<a href="#">Transport Type</a>
<a href="#">1</a>	<a href="#">Administratively configured</a>
<a href="#">0</a>	<a href="#">Unknown</a>

**Page:** [see table 496.](#)

**Table 496 – [Page values](#)**

<a href="#">Encoded Values</a>	<a href="#">Description</a>
<a href="#">00b</a>	<a href="#">Page zero</a>
<a href="#">01b</a>	<a href="#">Reserved</a>
<a href="#">10b</a>	<a href="#">Reserved</a>
<a href="#">11b</a>	<a href="#">Reserved</a>

**Parallel:** [a value of one indicates the link is operating in parallel lane mode. A value of zero indicates the link is operating in serial lane mode.](#)

**Transport Type:** [a value of one indicates the Ethernet transport type. A value of zero indicates the Fibre Channel transport type.](#)

**Administratively configured:** [a value of one indicates the capabilities have been administratively assigned. A value of zero indicates the capabilities have not been administratively assigned.](#)

**Unknown:** [a value of one indicates that the Speed Capabilities are not identifiable. A value of zero indicates that the Speed Capabilities are identifiable and provided in the Speed Capabilities field.](#)

A list of references for Speed Capabilities attribute pages based on the Transport Type is shown in table 497.

**Table 497 – [Speed Capabilities based on Transport Type](#)**

<a href="#">Page</a>	<a href="#">Transport Type</a>	<a href="#">Reference</a>
<a href="#">0</a>	<a href="#">0 (i.e. Fibre Channel)</a>	<a href="#">table 498</a>
	<a href="#">1 (i.e. Ethernet)</a>	<a href="#">table 499</a>

The Port Speed Capabilities attribute page zero values for the Fibre Channel transport type are shown in table 498.

**Table 498 – [Page Zero Fibre Channel Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GFC</a>	<a href="#">15</a>	<a href="#">Reserved Speed Capabilities</a>
<a href="#">30</a>	<a href="#">2 GFC</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">4 GFC</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">8 GFC</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">10 GFC</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">16 GFC</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">20 GFC</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">32 GFC</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">40 GFC</a>	<a href="#">7</a>	<a href="#">Control (see table 495)</a>
<a href="#">22</a>	<a href="#">64 GFC</a>	<a href="#">6</a>	
<a href="#">21</a>	<a href="#">128 GFC</a>	<a href="#">5</a>	
<a href="#">20</a>	<a href="#">256 GFC</a>	<a href="#">4</a>	
<a href="#">19</a>	<a href="#">Reserved Speed Capabilities</a>	<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	

The Port Speed Capabilities attribute page zero values for the Ethernet transport type are shown in table 499.

**Table 499 – Page Zero Ethernet Transport Type values**

<u>Bit Position</u>	<u>Description</u>	<u>Bit Position</u>	<u>Description</u>
<u>31</u>	<u>1 GE</u>	<u>15</u>	<u>Reserved Speed Capabilities</u>
<u>30</u>	<u>10 GE</u>	<u>14</u>	
<u>29</u>	<u>25 GE</u>	<u>13</u>	
<u>28</u>	<u>40 GE</u>	<u>12</u>	
<u>27</u>	<u>50 GE</u>	<u>11</u>	
<u>26</u>	<u>100 GE</u>	<u>10</u>	
<u>25</u>	<u>200 GE</u>	<u>9</u>	
<u>24</u>	<u>400 GE</u>	<u>8</u>	
<u>23</u>	<u>Reserved Speed Capabilities</u>	<u>7</u>	<u>Control (see table 495)</u>
<u>22</u>		<u>6</u>	
<u>21</u>		<u>5</u>	
<u>20</u>		<u>4</u>	
<u>19</u>		<u>3</u>	
<u>18</u>		<u>2</u>	
<u>17</u>		<u>1</u>	
<u>16</u>		<u>0</u>	

**Editor’s Note:** [Add 2.5 GE and 5 GE?](#)

**6.8.3.7.2.10 Physical Port Object Port Operating Speed attribute**

The Port Operating Speed ~~field~~[attribute](#) identifies the current operating data transfer rate of the LCF within an FC\_Port. [The Port Operating Speed attribute is formatted into multiple pages. The FC\\_Port returns the appropriate page that contains the applicable information for that FC\\_Port. Each page contains the Operating Speed value and a Control field \(see table 501\) that the LCF may use to refine the scope of the Operating Speed returned. The Page bits in the Control field indicate which page the LCF is returning.](#)

If a bit in the Operating Speed field is set to one, it indicates the LCF is operating at the designated speed. Only one bit shall be set at a time. The format of the Port Operating Speed attribute shall be as in table 500.

**Table 500 – Port Operating Speed Format**

Item	Size (Bytes)
Port Operating Speed	43
Control	1

**Operating Speed:** possible operating data transfer speeds.

**Control:** characteristics of the Port Operating Speed attribute (see table 501).

**Table 501 – Control field bits**

Bit Position	Description
7 to 6	Reserved
5 to 4	Page
3	Parallel
2	Transport Type
1	Speed not established
0	Unknown

**Page:** see table 502.

**Table 502 – Page values**

Encoded Values	Description
00b	Page zero
01b	Reserved
10b	Reserved
11b	Reserved

**Parallel:** a value of one indicates the link is operating in parallel lane mode. A value of zero indicates the link is operating in serial lane mode.

**Transport Type:** a value of one indicates the Ethernet transport type. A value of zero indicates the Fibre Channel transport type.

**Speed not established:** a value of one indicates that the speed is not established (e.g., the LCF is not in the Active State (see FC-FS-6)). A value of zero indicates the speed is established and provided in the Operating Speed field.

**Unknown:** a value of one indicates the speed is not able to be provided (e.g., the LCF is in the Active State, but the Operating Speed cannot be determined). A value of zero indicates the speed is known and provided in the Operating Speed field.

A list of references for Port Operating Speed attribute pages based on the Transport Type is shown in table 503.

**Table 503 – Port Operating Speeds based on Transport Type**

<u>Page</u>	<u>Transport Type</u>	<u>Reference</u>
0	<u>0 (i.e. Fibre Channel)</u>	<u>table 504</u>
	<u>1 (i.e. Ethernet)</u>	<u>table 505</u>

The Port Operating Speed attribute page zero values for the Fibre Channel transport type are shown in table 504.

**Table 504 – [Port Operating Speed Page Zero Fibre Channel Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GFC</a>	<a href="#">15</a>	<a href="#">Reserved Operating Speed</a>
<a href="#">30</a>	<a href="#">2 GFC</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">4 GFC</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">8 GFC</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">10 GFC</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">16 GFC</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">20 GFC</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">32 GFC</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">40 GFC</a>	<a href="#">7</a>	<a href="#">Control (see table 501)</a>
<a href="#">22</a>	<a href="#">64 GFC</a>	<a href="#">6</a>	
<a href="#">21</a>	<a href="#">128 GFC</a>	<a href="#">5</a>	
<a href="#">20</a>	<a href="#">256 GFC</a>	<a href="#">4</a>	
<a href="#">19</a>	<a href="#">Reserved Operating Speed</a>	<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	



The Port Operating Speed attribute page zero values for the Ethernet transport type are shown in table 505.

**Table 505 – [Port Operating Speed Page Zero Ethernet Transport Type values](#)**

<a href="#">Bit Position</a>	<a href="#">Description</a>	<a href="#">Bit Position</a>	<a href="#">Description</a>
<a href="#">31</a>	<a href="#">1 GE</a>	<a href="#">15</a>	<a href="#">Reserved Operating Speed</a>
<a href="#">30</a>	<a href="#">10 GE</a>	<a href="#">14</a>	
<a href="#">29</a>	<a href="#">25 GE</a>	<a href="#">13</a>	
<a href="#">28</a>	<a href="#">40 GE</a>	<a href="#">12</a>	
<a href="#">27</a>	<a href="#">50 GE</a>	<a href="#">11</a>	
<a href="#">26</a>	<a href="#">100 GE</a>	<a href="#">10</a>	
<a href="#">25</a>	<a href="#">200 GE</a>	<a href="#">9</a>	
<a href="#">24</a>	<a href="#">400 GE</a>	<a href="#">8</a>	
<a href="#">23</a>	<a href="#">Reserved Operating Speed</a>	<a href="#">7</a>	<a href="#">Control (see table 501)</a>
<a href="#">22</a>		<a href="#">6</a>	
<a href="#">21</a>		<a href="#">5</a>	
<a href="#">20</a>		<a href="#">4</a>	
<a href="#">19</a>		<a href="#">3</a>	
<a href="#">18</a>		<a href="#">2</a>	
<a href="#">17</a>		<a href="#">1</a>	
<a href="#">16</a>		<a href="#">0</a>	

**Editor’s Note:** [Add 2.5 GE and 5 GE to table 156?](#)

**Editor’s Note:** [What if the Parallel or Transport Type bit is set in the Port Speed Capabilities, but NOT set in the Port Operating Speed \(or vice versa\) OR what if these bits in the Control field do not match the values for the attributes in the object \(i.e. the Transport Type attribute\)? Do we want to duplicate these fields or remove them from the Control field??](#)

When a bit is set to one, it indicates the LCF is operating at the designated speed. Only one bit shall be set at a time. If the operating speed has not been established, then the “Speed not established” bit

~~is set to one. If the LCF's operating speed isn't identifiable, then the "Unknown" bit is set to one. Valid bits are as shown in table 506.~~

**Table 506 – ~~Port Operating Speed field bits~~**

<b>Bit Position</b>	<b>Description</b>
31	1-GFC
30	2-GFC
29	4-GFC
28	10-GFC <sup>a</sup>
27	8-GFC
26	16-GFC
25	20-GFC
24	32-GFC
23	40-GFC <sup>a</sup>
22	40-GE
21	40-GE
20	100-GE
19	128-GFC
18	25-GE
17 to 2	Reserved
1	Unknown
0	Speed not established

<sup>a</sup> ~~Legacy implementations may have used this bit for Ethernet.~~



**6.8.3.7.2.11 Physical Port Object Physical Location attribute**

The Physical Location is a printable ASCII string, terminated with a null (00h), that is a label for a port supporting administrative identification.

This standard does not define how the attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.7.2.12 Physical Port Object Parallel Lane Supported attribute**

If the Physical Port Object Parallel Lane Supported attribute is set to one, then:

- a) this physical port supports parallel lanes (see FC-FS-4); and
- b) the Physical Port Object Parallel Lane Operational attribute and the Physical Port Object Parallel Lane Only attribute are used to indicate the parallel lane operational mode of this physical port.

If the Physical Port Object Parallel Lane Supported attribute is set to zero, then:

- a) this physical port does not support parallel lanes; and
- b) the Physical Port Object Parallel Lane Operational attribute and the Physical Port Object Parallel Lane Only attribute are not meaningful.

The format of the Physical Port Object Parallel Lane Supported attribute is specified in table 507.

**Table 507 – Physical Port Object Parallel Lane Supported attribute**

Encoded value	Description
0h	Unsupported
1h	Supported
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.7.2.13 Physical Port Object Parallel Lane Operational attribute**

If the Physical Port Object Parallel Lane Operational attribute is set to one, then this physical port is operating in parallel lane mode (i.e., operating with one or more other lanes as a link, see FC-FS-4).

If the Physical Port Object Parallel Lane Operational attribute is set to zero, then this physical port is operating in individual lane mode (i.e., operating with no other lanes as a link).

The format of the Physical Port Object Parallel Lane Operational attribute is specified in table 508.

**Table 508 – Physical Port Object Parallel Lane Operational attribute**

Encoded value	Description
0h	Not operational
1h	Operational
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.3.7.2.14 Physical Port Object Parallel Lane Only attribute**

If the Physical Port Object Parallel Lane Only attribute is set to one, then this physical port is only able to operate in parallel lane mode.

If the Physical Port Object Parallel Lane Only attribute is set to zero, then this physical port may operate in either individual lane mode or parallel lane mode.

The format of the Physical Port Object Parallel Lane Only attribute is specified in table 509.

**Table 509 – Physical Port Object Parallel Lane Only attribute**

Encoded value	Description
0h	Individual lane mode or parallel lane mode
1h	Parallel lane only
all others	Reserved

This standard does not define how this attribute is registered with the Enhanced Fabric Configuration Server.

**6.8.4 Reason code explanations**

A Reject CT\_IU (see 4.4.4) shall notify the requestor that the request has been unsuccessfully completed. The first error condition encountered shall be the error reported by the Reject CT\_IU.

If a valid Enhanced Fabric Configuration Server request is not received, the request is rejected with a reason code of “Invalid Command code” and a reason code explanation of “No additional explanation”.

If an Enhanced Fabric Configuration Server request is rejected with a reason code of ‘Unable to perform command request’, then one of the reason code explanations, shown in table 510, is returned.

**Table 510 – Reject CT\_IU Reason Code Explanations**

Encoded value	Description
00h	No additional explanation
01h	Invalid Name_Identifier for Interconnect Element or Port
02h	Invalid Physical Object Correlatable Identifier
10h	Interconnect Element Object List not available
11h	Interconnect Element Object Port List not available
12h	Physical Object Port List not available

**Table 510 – Reject CT\_IU Reason Code Explanations(Continued)**

Encoded value	Description
20h	Fabric Object not available
21h	Interconnect Element Object not available
22h	Physical Object not available
23h	Logical Port Object not available
24h	Physical Port Object not available
30h	Attached Port Name List not available
40h	Unable to register Interconnect Element Logical Name
41h to 6Fh	Vendor Specific
Others	Reserved

If an Enhanced Fabric Configuration Server Query request other than eGIEL and GPL is rejected by the Enhanced Fabric Configuration Server because the attribute specified in the request is not found in the Enhanced Fabric Configuration Server data base, then the Reject CT\_IU reason code shall be 'Unable to perform command request', with a reason code explanation that indicates the specified attribute is not available.

**6.8.5 Commands**

**6.8.5.1 Overview**

The commands defined for the Enhanced Fabric Configuration Server are summarized in table 465.

**6.8.5.2 Query - Get Interconnect Element List (eGIEL)**

The Enhanced Fabric Configuration Server shall, if it receives a eGIEL request, return all Interconnect Element Object Names in the Fabric. The format of the eGIEL Request CT\_IU is shown in table 511.

**Table 511 – eGIEL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

If the eGIEL request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGIEL request is shown in table 512.

**Table 512 – Accept CT\_IU to eGIEL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Interconnect Element entries (n)	4
Interconnect Element Name #1	8
Interconnect Element Name #2	8
...	
Interconnect Element Name #n	8

One or more Interconnect Element Name entries are returned, and the Interconnect Element Name entries may be returned in any order, and the order may be different for every request even if the same Interconnect Element Name entries are returned and the requestor is the same.

**6.8.5.3 Query - Get Interconnect Element Attribute Block (eGIEAB)**

The Enhanced Fabric Configuration Server shall, if it receives a eGIEAB request, return the Interconnect Element Object Attribute Block for the specified Interconnect Element Name. The format of the eGIEAB Request CT\_IU is shown in table 513.

**Table 513 – eGIEAB Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the eGIEAB request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGIEAB request is shown in table 514.

**Table 514 – Accept CT\_IU to eGIEAB Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Object Attribute Block	see 6.8.3.4.1

**6.8.5.4 Query - Get Interconnect Element Port List (eGIEPL)**

The Enhanced Fabric Configuration Server shall, if it receives a eGIEPL request, return all Logical Port Names for the specified Interconnect Element Name. The format of the eGIEPL Request CT\_IU is shown in table 515.

**Table 515 – eGIEPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8

If the eGIEPL request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGIEPL request is shown in table 516.

**Table 516 – Accept CT\_IU to eGIEPL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Logical Port Name entries (n)	4
Logical Port Name #1	8
Logical Port Name #2	8
...	
Logical Port Name #n	8

One or more Logical Port Names are returned, and the Logical Port Names may be returned in any order, and the order may be different for every request even if the same Logical Port Names are returned and the requestor is the same.

**6.8.5.5 Query - Get Fabric Object (eGFO)**

The Enhanced Fabric Configuration Server shall, if it receives a eGFO request, return the Fabric Object. The format of the eGFO Request CT\_IU is shown in table 517.

**Table 517 – eGFO Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3

If the eGFO request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGFO request is shown in table 518.

**Table 518 – Accept CT\_IU to eGFO Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Fabric Object	see 6.8.3.3

**6.8.5.6 Query - Get Physical Object Attribute Block (eGPOAB)**

The Enhanced Fabric Configuration Server shall, if it receives a eGPOAB request, return the Physical Object Attribute Block for the specified Physical Object Correlatable Identifier. The format of the eGPOAB Request CT\_IU is shown in table 519.

**Table 519 – eGPOAB Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Object Correlatable Identifier	256

If the eGPOAB request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGPOAB request is shown in table 520.

**Table 520 – Accept CT\_IU to eGPOAB Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Object Attribute Block	see 6.8.3.5.1

**6.8.5.7 Query - Get Physical Object Port List (eGPOPL)**

The Enhanced Fabric Configuration Server shall, if it receives a eGPOPL request, return all Physical Port Object Correlatable Identifiers for the specified Physical Object Correlatable Identifier. The format of the eGPOPL Request CT\_IU is shown in table 521.

**Table 521 – eGPOPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Object Correlatable Identifier	256



If the eGPOPL request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGPOPL request is shown in table 522.

**Table 522 – Accept CT\_IU to eGPOPL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Physical Port Object Correlatable Identifier entries (n)	4
Physical Port Object Correlatable Identifier #1	see 6.8.3.7.2.2
Physical Port Object Correlatable Identifier #2	see 6.8.3.7.2.2
...	
Physical Port Object Correlatable Identifier #n	see 6.8.3.7.2.2

One or more Physical Port Object Correlatable Identifier entries are returned, and the Physical Port Object Correlatable Identifier entries may be returned in any order, and the order may be different for every request even if the same Physical Port Object Correlatable Identifier entries are returned and the requestor is the same.

**6.8.5.8 Query - Get Logical Port Attribute Block (eGLPAB)**

The Enhanced Fabric Configuration Server shall, if it receives a eGLPAB request, return the Logical Port Object Attribute Block for the specified Logical Port Name. The format of the eGLPAB Request CT\_IU is shown in table 523.

**Table 523 – eGLPAB Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Logical Port Name	8

If the eGLPAB request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGLPAB request is shown in table 524.

**Table 524 – Accept CT\_IU to eGLPAB Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Logical Port Object Attribute Block	see 6.8.3.6.1

### 6.8.5.9 Query - Get Attached Port List (eGAPL)

The Enhanced Fabric Configuration Server shall, if it receives a eGAPL request, return all Logical Port Object Names for the specified Logical Port Name. The format of the eGAPL Request CT\_IU is shown in table 525.

**Table 525 – eGAPL Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Logical Port Name	8

If the eGAPL request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGAPL request is shown in table 526.

**Table 526 – Accept CT\_IU to eGAPL Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Number of Logical Port Name entries (n)	4
Logical Port Name #1	8
Logical Port Name #2	8
...	
Logical Port Name #n	8

One or more Logical Port Name entries are returned, and the Logical Port Name entries may be returned in any order, and the order may be different for every request even if the same Logical Port Name entries are returned and the requestor is the same.

### 6.8.5.10 Query - Get Physical Port Object Attribute Block (eGPPAB)

The Enhanced Fabric Configuration Server shall, if it receives a eGPPAB request, return the Physical Port Object Attribute Block for the specified Physical Port Object Correlatable Identifier. The format of the eGPPAB Request CT\_IU is shown in table 527.

**Table 527 – eGPPAB Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Port Object Correlatable Identifier	see 6.8.3.7.2.2

If the eGPPAB request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the Accept CT\_IU to a eGPPAB request is shown in table 528.

**Table 528 – Accept CT\_IU to eGPPAB Request**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Physical Port Object Attribute Block	see 6.8.3.7.1

**6.8.5.11 Register Interconnect Element Logical Name (eRIELN)**

The eRIELN Enhanced Fabric Configuration Server request shall be used to associate a Logical Name with a given Interconnect Element Object.

The Enhanced Fabric Configuration Server shall not attempt validation of the Logical Name attribute. This means that any Logical Name value shall be accepted.

Deregistration may be accomplished by registering a null Logical Name 6.8.3.4.2.6.

If the eRIELN request is not supported a Reject CT\_IU should be returned and the reason code should be 'Command Not Supported', no further explanation.

The format of the eRIELN Request CT\_IU is shown in table 529.

**Table 529 – eRIELN Request CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3
Interconnect Element Name	8
Interconnect Element Logical Name	256

The format of the eRIELN Accept CT\_IU is shown in table 530.

**Table 530 – eRIELN Accept CT\_IU**

Item	Size (Bytes)
CT_IU preamble	see 4.3