

Attributes of the HyperCast Protocol

1. ATTRIBUTES:

Attributes and their values are case-sensitive.

Attribute Name:	Valid Values:	Explanation:
OverlayID	<i>Any</i>	Overlay identifier
Socket	HCAST2-0	Version number of the overlay socket
Node	HC2-0 (hypercube) DT2-0 (Delaunay triangulation)	Overlay protocol with version number (acronym)
SocketAdapter	ScktAdptTCP ScktAdptUDP	Protocol used by socket adapter
KeyAttributes	List of key attributes, separated by a comma	The list of key attributes. The attribute KeyAttributes is required and not contained in the list.
LogFileName	Stderr,stdout,filenam e	File where log entries are stored
ErrorFileName	Stderr,stdout,filenam e	File where errors are reported.
OverlayServer	"" or HTTP	OverlayServer= "" means there is no overlay server. Overlay Server= "HTTP" means there is an overlay server indicated in the subattribute OverlayServer0

2. SUBATTRIBUTES

Subattributes of OverlayServer=HTTP

Attribute Name:	Valid Values:	Explanation:
HTTPServer0	URL	URL which contains the CGI script of the primary overlay server.
HTTPServer1	URL	URL which contains the CGI script of the secondary overlay server.

Subattributes of Socket=HCAST2-0

Attribute Name:	Valid Values:	Explanation:
TTL	0-255	Maximum hop count of messages in the overlay network. This is analogous to the TTL filed in IP. The TTL field is reduced by one in each overlay socket.
ReceiveBufferSize	0-255	Size of the buffer for receiving application messages.
ReadTimeout	>= 0	Socket timeout (default = 0, socket will wait forever)

Subattributes of SocketAdapter = ScktAdptTCP

Attribute Name:	Valid Values:	Explanation:
MaximumPacketLength	$\leq 2^{16}$	Size of overlay messages in bytes that are transmitted
Timeout	>0	Time in milliseconds before an idle TCP connection is closed.
MaxIdleTime	>0	Time in milliseconds before a message is dropped.

Subattributes of SocketAdapter = ScktAdptUDP

Attribute Name:	Valid Values:	Explanation:
MaximumPacketLength	$\leq 2^{16}$	Size of overlay messages in bytes that are transmitted
MessageBufferSize	>0	Maximum length of a UDP message

Subattributes of Node = HC2-0

Attribute Name:	Valid Values:	Explanation:
SleepTime	$\leq 2^{16}$	Heart beat time for the HC node; Time in milliseconds
MaxAge	Any number	The maximum time of a node's age in heartbeats

MaxMissingNeighbor	Any number	The maximum missing neighbor time of a node, in heartbeats
MaxSuppressJoinBeacon	Any number	The maximum suppressing joining time of a node, in heartbeats

Subattributes of Node = DT2-0

Attribute Name:	Valid Values:	Explanation:
Coords	“x,y” (where x and y are positive numbers), USE_IP, RANDOM10000	Configuration can be in three forms: “x,y”: specify the coordinates of the node. USE_IP: coordinates of the node are derived from IP address. RANDOM10000: coordinates of the node are randomly selected from a 10,000 by 10,000 grid.
SlowHeartbeatTime	>0	In milliseconds, the time between sending the HelloNeighbor messages. When the node is stable, not a leader, and has no candidate neighbors, this heartbeat time is used.
FastHeartbeatTime	>0	In milliseconds, the time between sending HelloNeighbor messages. When the node is not stable, or a leader, or has candidate neighbors, this heartbeat time is used.
ServerHeartbeat	>0	In milliseconds; the unit time between sending ServerRequest messages. The actual interval equals to this value multiplied by a back-off coefficient.
TryBackupServerTime	>0	In millisecond; if the back-off time is larger than this value, then try next back up server.

Subattributes of NodeAdapter = NodeAdptUDPMulticast

Attribute Name:	Valid Values:	Explanation:
MaximumPacketLength	$\leq 2^{16}$	Size of protocol messages in bytes that are transmitted
MessageBufferSize	>0	Size of message buffer

UDPMulticastAddress	IP address / port number e.g., "224.228.19.78/9472"	IP multicast address (Class D) and port number
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Subattributes of NodeAdapter = NodeAdptUDPServer

Attribute Name:	Valid Values:	Explanation:
UdpServer0	IP address / port number e.g., "128.143.71.50:8081"	The server for DT protocol
MaximumPacketLength	$\leq 2^{16}$	Size of protocol messages in bytes that are transmitted
MessageBufferSize	>0	Size of message buffer
MaxTransmissionTime	>0	Maximum time allowed to receive a response from the server; time in milliseconds