VQE, System and Network Parameters

This appendix provides descriptions of the VQE Configuration Database (VCDB) parameters.

The essential VCDB parameters—the subset typically required for a VQE-S or a VQE Tools system—can be configured by using the VQE Configuration Tool (CT) or by manually editing the vcdb.conf file. For information on using the VQE Configuration Tool, see Chapter 7, "Configuring VQE Server and VQE Tools."

All VCDB parameters can be configured by manually editing the vcdb.conf file. For information on manually editing the vcdb.conf file, see the "Manually Editing the VCDB File" section on page 7-14

The VQE-S, system, and network parameters are described in the following tables:

- Table A-1—VQE-S global parameters
- Table A-2—VQE-S Unicast Retransmission parameters
- Table A-3—VQE-S Rapid Channel Change (RCC) parameters
- Table A-4—VQE-S Unicast Retransmission and RCC parameters (parameters that affect the behavior of both Unicast Retransmission and RCC)
- Table A-5—VQE-S RTCP Exporter parameters
- Table A-6—System parameters
- Table A-7—Interface parameters
- Table A-8—Static Routing parameters
- Table A-8—OSPF parameters

For all parameters intended to be user-configurable, the preceding tables provide the parameter name, default value (if any), description, and allowed range of values. The parameter default value (if any) is in quotation marks following the parameter name. For example:

vqe.vqes.log_priority="4"

For vqe.vqes.log_priority, 4 is the default value. Empty quotation marks indicate that there is no default value.

For more information on the VQE, system, and network parameters, see the /etc/vqes/vcdb.conf.sample file. The vcdb.conf.sample file provides the preceding information and the parameter type, service interruption information, whether multiple definitions are allowed, and the target /etc files where the parameter value is applied.

Note In the following tables, if a parameter is configurable with Configuration Tool, the Description lists the CT menu and menu choice for the parameter in the brackets as follows: [CT: *menu* > *menu_choice(s)*].

Table A-1 VQE-S Global Parameters

Parameter and Default Value (if any)	Description
vqe.vqes.log_priority="4"	Logging level for all VQE-S processes. The range is from 0 to 6. Logging levels are as follows: • 0—Emergency (System is unusable) • 1—Alert (Action must be taken immediately) • 2—Critical (critical condition) • 3—Error (error condition) • 4—Warning (warning condition) • 5—Notice (normal but significant condition) • 6—Info (informational condition) Logging levels go from least verbose to most verbose. The Emergency level generates the smallest number of messages, and the Info level generates the most messages. By default, VQE-S logging messages are written to the file /var/log/vqe/vqe.log. When you select a logging level, log messages are generated for that level and the levels below that level. For example, when the level is set to Error, messages are generated for Emergency, Alert, Critical, and Error. For information on configuring VQE-S debugging messages, see the "Change VQE-S Debugging" section on page 4-33. [CT: VQE-S Parameters > Log Priority]
vqe.vqes.max_pkts="5000000"	Maximum number of packet buffers in the VQE-S Cache Manager. Allowed range is 100,000 to 5,000,000.

Table A-1 VQE-S Global Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.vqe_interfaces="eth1,eth2,eth3,eth4, eth5,eth6"	Names of the interfaces to be used for ingest of multicast streams, Unicast Retransmission and RCC traffic, and other non-management VQE-S traffic. Multiple interface names should be separated by a comma without any space between names. If this parameter is used, the following rules apply: • If this parameter is specified, the vqe.vqes.vqe_ingest_interfaces and vqe.vqes.vqe_service_interfaces parameters must not be specified. • If a dedicated interface is used for management traffic, it should not be specified in this parameter. • Multiple Ethernet interfaces or multiple bond interfaces may be specified in this parameter. • Ethernet interface that is a member of a bond interface must not be specified in this parameter. **Note** For load balancing to work effectively, each interface to the access or distribution network must have the same capacity. Multiple bond interfaces should not be specified and a combination of Ethernet and bond interfaces cannot be specified in this parameter. Allowed values are eth1 to eth6 or bond1 to bond3. Interfaces eth5, eth6, and bond3 are available only on CDE servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Traffic (Ingest+Service) Interface(s)]
vqe.vqes.vqe_ingest_interfaces=""	Names of the interfaces to be used for ingest of multicast streams. Multiple interface names, separated by a comma without any space between names, should be specified in this parameter. If this parameter is used, the following rules apply: • At least one VQE-S services interface must be specified in the vqe.vqes.vqe_service_interfaces parameter. • Parameter vqe.vqes.vqe_interfaces must not be specified. • If a dedicated interface is used for management traffic, it must not be specified in this parameter. • Multiple Ethernet interfaces or multiple bond interfaces may be specified in this parameter. • Ethernet interface that is a member of a bond interface must not be specified in this parameter. **Note** For load balancing to work effectively, each interface to the distribution network must have the same capacity. Multiple bond interfaces should not be specified and a combination of Ethernet and bond interfaces cannot not be specified in this parameter. Allowed values are eth1 to eth6 or bond1 to bond3. Interfaces eth5, eth6 and bond3 are available only on CDE servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Ingest Interface(s)]

Table A-1 VQE-S Global Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.vqe_service_interfaces=""	Names of the interfaces to be used for delivering VQE-S services—Unicast Retransmission, RCC traffic, and other non-management VQE-S traffic. Multiple interface names should be separated by a comma without any space between names. If this parameter is used, the following rules apply: • At least one ingest interface for incoming multicast streams must be specified in the vqe.vqes.vqe_ingest_interfaces parameter. • Parameter vqe.vqes.vqe_interfaces must not be specified. • If a dedicated interface is used for management traffic, it must not be specified in this parameter. • Multiple Ethernet interfaces or multiple bond interfaces may be specified in this parameter. • Ethernet interface that is a member of a bond interface must not be specified in this parameter. **Note** For load balancing to work effectively, each interface to the access network must have the same capacity. Multiple bond interfaces should not be specified and a combination of Ethernet and bond interfaces cannot not be specified in this parameter. Allowed values are eth1 to eth6 or bond1 to bond3. Interfaces eth5, eth6, and bond3 are available only on CDE servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Service Interface(s)]
vqe.vqes.rtcp_dscp="24"	DSCP[1] value for transmitted RTCP packets. The default value (24) is for the CS3 selector, which is used for broadcast video. The range is from 0 to 63.
vqe.vqes.rtp_inactivity_timeout="300"	Amount of time or the inactivity timeout on received RTP[2] streams, in ms. If no packets are received on an input channel for this amount of time, the channel is declared inactive until the next input packet is received for that stream. The range is from 10 to 900.
vqe.vqes.stun_enable="true"	Specifies whether the STUN[3] Server is enabled. The value *true* enables the STUN Server, and *false* disables the STUN Server. Unless you are sure that no STBs[4] being serviced by the VQE-S are behind NAT devices, we recommend that the STUN Server be enabled.
vqe.vqes.stun_dscp="–1"	DSCP value for STUN Server binding responses. • If the value –1 is specified, the DSCP value for the STUN binding response is set to the DSCP value in the STUN binding request. • If a value other than –1 is specified, the DSCP value for the STUN binding response is set to the value given. The range is from –1 to 63.
vqe.iptables.trusted_vcpt=""	Starting with Cisco VQE Release 3.2, this parameter is deprecated. Use the system.iptables.trusted_provisioner parameter.

1. DSCP = Differentiated Services Code Point.
2. RTP = Real-time Transport Protocol.
3. STUN = Simple Traversal of User Datagram Protocol (UDP) through Network Address Translators (NATs)

4. STB = set-top box.

Table A-2 VQE-S Unicast Retransmission (Error Repair) Parameters

Parameter and Default Value (if any)	Description
vqe.vqes.client_er_policing="true"	Specifies whether per-VQE-C[1] policing is enabled for Unicast Retransmission (error repair) packets. The value *true* enables per-VQE-C policing, and *false* disables per-VQE-C policing. The VQE-C policing mechanism is intended to limit the fraction of the VQE-S error-repair resources that can be consumed by a single VQE-C on the STB. When per-VQE-C policing is enabled, the policer is tuned by two parameters: vqe.vqes.client_er_tb_rate_ratio and vqe.vqes.client_er_tb_depth.
vqe.vqes.client_er_tb_rate_ratio="5"	Per-client policing token rate (percentage of stream rate) for each VQE-C for Unicast Retransmission. The range is from 1 to 100. Per-client policing uses token bucket policers. A token is the equivalent of a packet. The token rate for the policers is defined as a percent of a stream's packet rate. For example, assume an RTP stream with a packet rate of 350 packets per second, the default rate of five percent is set the per-client policer token rate to 18 packets per second. Increasing this parameter increases the maximum load that a single STB can put on the VQE-S. By default, each VQE-C is permitted to request up to five percent of the overall stream bandwidth for whatever channel it is watching. In a situation with only a few VQE-Cs, some or all of which have very high error rates, it may be desirable to increase this parameter to allow each client to get more errors repaired. In a situation with a large number of VQE-Cs, it may be necessary to decrease this parameter to prevent a small proportion of misbehaving or very error-prone client connections from consuming a disproportionate fraction of the VQE-S error-repair resources. The VQE-S AMT channel statistics for each channel provide data that you can use to tune the VQE-C policing mechanism. In the Channel Statistics window, click **Advanced**. The Advanced Channel Debug Stats include the following parameters that indicate how many error-repair requests were refused because the VQE-S is overloaded and how many were refused because of per-client policing. • Dropped repair pkts by Packet Policer—If the server is overloaded with error repairs, this statistic may be an indication that the per-client policing should be lowered. • Aggregated dropped pkts by client policers—If many repairs are being refused because of per-client policing, but the server is not overloaded, this statistic may be an indication that the per-client policing can be raised.
vqe.vqes.reserved_er_bw="543200000"	Total amount of bandwidth (in bits per second) dedicated to Unicast Retransmission. The bandwidth pools on a VQE-S include available non-management, output interface bandwidth. The range is from 0 to 543200000. The VQE-S separates the output interface bandwidth that is dedicated to Unicast Retransmission. The amount of bandwidth specified in this parameter is dedicated to Unicast Retransmission with the remainder used for RCC. This parameter allows the amount of output interface bandwidth dedicated to Unicast Retransmission to be reduced so that the bandwidth is available for RCC instead.

Table A-2 VQE-S Unicast Retransmission (Error Repair) Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.client_er_tb_depth="10000"	Length of time (in milliseconds) needed to fill the per-VQE-C policer bucket for Unicast Retransmission (error repair). The range is from 1 to 60,000. The bucket *depth* of the per-client packet policers is expressed as a duration over which the token limit would be reached if the bucket was initially empty and filled at the token rate with no tokens drained. Therefore, the maximum number of tokens (*depth)* of the policer bucket is calculated as follows: maximum number of tokens = (client_er_tb_rate_ratio * stream packet rate * client_er_tb_depth) The bucket size should be set large enough to cover the maximum burst loss that may ordinarily occur on a client STB. In most cases, the default value for vqe.vqes.client_er_tb_depth should be adequate.
vqe.vqes.er_cache_time="3000"	Maximum time interval (in milliseconds) to cache the original source stream packets for Unicast Retransmission (error repair). The range is from 100 to 10,000. **Note** Starting with Cisco VQE Release 3.7, the maximum value of this parameter has increased from 5000 to 10,000 to support 10 secs channel caching requirements
vqe.vqes.rtp_retrans_dscp="0"	Starting with Cisco VQE Release 3.3, this parameter is deprecated. Use the vqe.vqes.rtp_er_dscp and vqe.vqes.rtp_rcc_dscp parameters.
vqe.vqes.rtp_er_dscp="0"	DSCP value for RTP packets for Unicast Retransmission. The vqe.vqes.rtp_rcc_dscp parameter can be used for DSCP marking of RTP packets for RCC. The range is from 0 to 63.

1. VQE-C = VQE client.

Table A-3 VQE-S RCC Parameters

Parameter and Default Value (if any)	Description
vqe.vqes.fastfill_enable="false"	Specifies whether FDBF[1] is enabled for RCC to reduce decoder buffering time. The value *true* enables FDBF, and *false* disables FDBF.
vqe.vqes.buff_size_preroll_max="1500"	If FDBF is enabled for RCC, specifies the maximum assumed delay (in milliseconds) for the PTS-PCR offset (Presentation Time Stamp-Program Clock Reference offset) for all streams going through the VQE-S. The parameter value is used only when sizing the VQE-S channel buffers. If FDBF is not enabled, this parameter is ignored. The range is from 0 to 10,000.
vqe.vqes.igmp_join_variability="100"	Amount of variability (in milliseconds) between the fastest and slowest IGMP joins for RCC. The range is from 0 to 1000. **Note** This parameter can have a large impact on the amount of bandwidth consumed by RCC. It needs to be carefully tuned for a deployment.

Table A-3 VQE-S RCC Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.max_idr_penalty="0"	For MPEG-4 only, the maximum penalty (in milliseconds) that is permitted to begin an RCC burst with an instantaneous decoding refresh (IDR) frame rather than I-frame. The range is 0 to 10000. In cases in which there are several MPEG RAPs[2] from which an RCC could be performed, the RCC is normally started from the most recent feasible RAP. If vqe.vqes.max_idr_penalty is specified as greater than zero, then the RCC is started with an IDR frame instead of an I-frame, provided that the IDR is within vqe.vqes.max-idr-penalty milliseconds of the most recent feasible I-frame.
vqe.vqes.rap_max_interval="2000"	Maximum time interval (in milliseconds) between MPEG RAPs that the VQE-S supports for RCC operations. The range is 500 to 5000.
vqe.vqes.rcc_burst_delay_to_send="10"	Amount of time (in milliseconds) to delay before the Data Plane schedules an RCC repair burst. This parameter may be set to a larger value to compensate for lags in the IGMP *fast leave* mechanism in the access node (for example, a DSLAM). The range is 0 to 100.
vqe.vqes.rcc_mode="conservative"	RCC mode. Can be specified as either of these values: • aggressive—Conserves bandwidth if all DSLAMs that may receive an RCC burst from the VQE-S are configured to give priority to the primary multicast video traffic over the unicast RCC burst traffic. • conservative—Used when the DSLAM does not have the required QoS capability for aggressive mode. Use of aggressive mode in a situation where one or more access nodes (DSLAMs) in the network have not been configured to give preference to the primary multicast traffic over the unicast stream causes degraded video quality during RCC operations for customers attached to DSLAMs that are not properly configured for aggressive mode RCC. **Caution** Use of aggressive mode may cause brief, transient congestion of the access links during the RCC operation and therefore should not be used in situations in which such congestion may have undesirable side effects, such as loss of data or voice traffic on the access link.

Table A-3 VQE-S RCC Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.rtp_hold_time="20"	Amount of time (in milliseconds) to delay before making a packet in the Data Plane cache available for RCC to allow for reordering of received packets. The range is from 0 to 500. This parameter is needed to allow for reordering of received packets in case they were received out of order from the source (headend). The parameter should be set as small as possible but large enough to cover the maximum arrival time jitter of received packets. Setting the parameter too small may cause some RCC operations to fail or be degraded if packets are received out of order. Setting the parameter too large causes RCC operations to use more network bandwidth, on average, than is necessary.
vqe.vqes.rtp_rcc_dscp="–1"	DSCP value for transmitted RTP packets sent for RCC. If the value –1 is specified, the DSCP value is set to the value of vqe.vqes.rtp_er_dscp. **Note** Use of the value –1 provides backward compatibility with earlier Cisco VQE releases that had only the vqe.vqes.rtp_er_dscp parameter, which was used for DCSP marking of RTP packets for both Unicast Retransmission and RCC. The range is from –1 to 63.

1. FDBF = fast decoder buffer fill.
2. RAP = random access points.

Note Table A-4 lists parameters that affect the behavior of both Unicast Retransmission and RCC.

Table A-4 VQE-S Unicast Retransmission and RCC Parameters

Parameter and Default Value (if any)	Description
vqe.vqes.unicast_reservation="20"	For CDE Ethernet interfaces, percentage of total input bandwidth reserved for non-ingest traffic. This parameter specifies the amount of input bandwidth that is not to be allocated to receiving multicast streams. The range is from 0 to 100. • If the interface is used for both VQE-S ingest and services, the reservation should include sufficient bandwidth for receiving Unicast Retransmission and RCC requests, RTCP reports from the STBs, and control traffic, such as IGMP and RTCP. Recommended value range is from 20 to 40. • If the interface is used for VQE-S ingest only, the reservation should include sufficient bandwidth for incoming control traffic, such as IGMP and RTCP. Recommended value is 5.
vqe.vqes.max_client_bw="0"	Maximum access link bandwidth (in bits per second) available for each VQE-C for Unicast Retransmission and RCC. The range is from 0 to 58500000. If a non-zero value is specified, the vqe.vqes.excess_bw_fraction and the vqe.vqes.excess_bw_fraction_high_def are ignored. Instead, each time the STB tunes to a new channel, the implicit excess_bw_fraction for the client on the channel is calculated using vqe.vqes.max_client_bw. **Note** If the VQE-C does not use the parameters max_receive_bandwidth_sd or max_receive_bandwdith_hd to send the MRB[1] to the VQE-S, the vqe.vqes.max_client_bw parameter is used to calculate the excess bandwidth fraction. If the vqe.vqes.max_client_bw is zero or not configured, either the vqe.vqes.excess_bw_fraction or the vqe.vqes.excess_bw_fraction_high_def is used depending on the channel bitrate and the value of the vqe.vqes.high_def_min_bw parameter.
vqe.vqes.excess_bw_fraction="20"	Specifies the rate e (e = excess_bw_fraction / 100) that determines the rate at which packets are sent during Unicast Retransmission and RCC. The range is from 3 to 500. • For Unicast Retransmission, the VQE-S sends packets at rate (e). • During RCC, the VQE-S initially sends packets at rate (1+e). **Note** If the VQE-C does not use the parameters max_receive_bandwidth_sd or max_receive_bandwdith_hd to send the MRB to the VQE-S, the vqe.vqes.max_client_bw parameter is used to calculate the excess bandwidth fraction. If the vqe.vqes.max_client_bw is zero or not configured, either the vqe.vqes.excess_bw_fraction or the vqe.vqes.excess_bw_fraction_high_def is used depending on the channel bitrate and the value of the vqe.vqes.high_def_min_bw parameter. For information on defining an excess bandwidth fraction to use for HD channels, see the vqe.vqes.excess_bw_fraction_high_def parameter. [CT: VQE-S Parameters > Excess Bandwidth Fraction]

Table A-4 VQE-S Unicast Retransmission and RCC Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.excess_bw_fraction_high_def=""	For high definition channels, specifies the rate e (e = excess_bw_fraction_high_def / 100) that determines the rate at which packets are sent during Unicast Retransmission and RCC. The range is from 3 to 500. • For Unicast Retransmission, the VQE-S sends packets at rate (e). • During RCC, the VQE-S initially sends packets at rate (1+e). The VQE-S uses the value configured in the vqe.vqes.high_def_min_bw parameter to determine what constitutes a high-definition channel. If either vqe.vqes.excess_bw_fraction_high_def or vqe.vqes.high_def_min_bw is not explicitly configured, the VQE-S uses vqe.vqes.excess_bw_fraction for all channels. **Note** If the VQE-C does not use the parameters max_receive_bandwidth_sd or max_receive_bandwdith_hd to send the MRB to the VQE-S, the vqe.vqes.max_client_bw parameter is used to calculate the excess bandwidth fraction. If the vqe.vqes.max_client_bw is zero or not configured, either the vqe.vqes.excess_bw_fraction or the vqe.vqes.excess_bw_fraction_high_def is used depending on the channel bitrate and the value of the vqe.vqes.high_def_min_bw parameter.
vqe.vqes.high_def_min_bw=""	Minimum bit rate (in bits per second) for a channel to be considered a high definition channel. The range is from 0 to 40,000,000. For high definition channels, the vqe.vqes.high_def_min_bw value determines whether the vqe.vqes.excess_bw_fraction_high_def value is used for the bandwidth that is available on the access link for Unicast Retransmission and RCC. For more information, see vqe.vqes.excess_bw_fraction_high_def. If either vqe.vqes.excess_bw_fraction_high_def or vqe.vqes.high_def_min_bw is not explicitly configured, the VQE-S uses vqe.vqes.excess_bw_fraction for all channels.

Table A-4 VQE-S Unicast Retransmission and RCC Parameters (continued)

Parameter and Default Value (if any)	Description
vqe.vqes.max_client_excess_bw_fraction= "500"	If the VQE-C provides a MRB in a Unicast Retransmission error repair or RCC request to the VQE-S, this parameter specifies the maximum excess bandwidth fraction to use when that fraction is computed using a VQE-C-provided MRB. The range is from 3 to 500. If this parameter is not specified, the VQE-S caps incoming requests from the VQE-C to use an excess bandwidth fraction of 500%. The MRB is the maximum receive bandwidth available on each of the tuners for a specific VQE-C. The VQE-C configuration parameters max_receive_bandwidth_sd and max_receive_bandwidth_hd can be used to provide this information to the VQE-S. The vqe.vqes.min_client_excess_bw_fraction and vqe.vqes.max_client_excess_bw_fraction parameters allow the service provider to control the range of allowed excess bandwidth fractions. This capability can be used to limit the peak and aggregate bandwidth used by the VQE-S.
vqe.vqes.min_client_excess_bw_fraction= "0"	If the VQE-C provides a MRB in a Unicast Retransmission error repair or RCC request to the VQE-S, this parameter specifies the minimum excess bandwidth fraction to use when that fraction is computed using a VQE-C-provided MRB. The range is from 0 and 3 to 500. If this parameter is not specified or is set to 0, a minimum value of 3% is assumed and requests for an excess bandwidth fraction of less than 3% are rejected. The MRB is the maximum receive bandwidth available on each of the tuners for a specific VQE-C. The VQE-C configuration parameters max_receive_bandwidth_sd and max_receive_bandwidth_hd can be used to provide this information to the VQE-S. The vqe.vqes.min_client_excess_bw_fraction and vqe.vqes.max_client_excess_bw_fraction parameters allow the service provider to control the range of allowed excess bandwidth fractions. This capability can be used to limit the peak and aggregate bandwidth used by the VQE-S.

1. MRB = maximum receive bandwidth.

Table A-5 VQE-S RTCP Exporter Parameters

Parameter and Default Value (if any)	Description
vqe.vqes.exporter_enable="false"	Specifies whether RTCP exports are enabled. The value *true* enables RTCP exports, and *false* disables RTCP exports. If vqe.vqes.exporter-enable equals true, both vqe.vqes.vqm_host and vqe.vqes.vqm_port must be provided. For information on configuring the VQE-S RTCP Exporter, see the "Configuring the VQE-S RTCP Exporter" section on page 2-42.
vqe.vqes.vqm_host=""	Specifies the IP address or fully qualified Internet domain name of the host on which the VQM[1] application resides. For information on configuring RTCP Exporter, see the "Configuring the VQE-S RTCP Exporter" section on page 2-42.
vqe.vqes.vqm_port=""	Specifies the TCP port number on which the VQM application listens for video-quality data from RTCP Exporter. For information on configuring RTCP Exporter, see the "Configuring the VQE-S RTCP Exporter" section on page 2-42.
vqe.vqes.exporter_filter_nack="false"	Specifies whether RTCP NACK compound packets are excluded from the RTCP data exported to the VQM application. The value *true* excludes RTCP NACK compound packets from being exported, and *false* includes RTCP NACK compound packets in the data being exported. For information on configuring the RTCP Exporter, see the "Configuring the VQE-S RTCP Exporter" section on page 2-42.

1. VQM = video-quality monitoring.

Table A-6 System Parameters

Parameter and Default Value (if any)	Description
system.global.hostname="localhost"	FQDN[1] or hostname of the system. Hostname is used in multiple Linux configuration files. The range is from 3 to 200 characters. [CT: System Parameters > Hostname]
system.dns.server="" system.dns.search_domain=""	VQE-S host only—IP address of a DNS server and an optional search domain. The range for the search domain is from 3 to 200 characters. [CT: System Parameters > DNS Server(s) and DNS Search Domain]
system.ntp.server=""	IP address of an external NTP[2] server. [CT:System Parameters > NTP Server(s)]

Table A-6 System Parameters (continued)

Parameter and Default Value (if any)	Description
system.snmp.ro_community_string="" system.snmp.location="" system.snmp.contact="" system.snmp.trap_listener=""	• Read-only community string—Password for read-only access to the VQE-S or VQE Tools server. The range is from 3 to 200 characters. • Location information—Physical location of the VQE-S or VQE Tools server. The range is from 3 to 200 characters. • Contact information—User name of a contact person who has management information for the CDE server. The range is from 3 to 200 characters. • Trap listener—IP address or fully qualified hostname of a management host that receives the SNMP messages. [CT: System Parameters > SNMP RO Community String and SNMP System Location, SNMP System Contact, and SNMP Trap Listener(s)]
system.snmp.syslog_trap_enable="false"	Specifies whether system messages generate SNMP traps (syslog traps). Allowed values are *true* or *false*. If sending traps from system messages is enabled, use the parameter system.snmp.syslog_trap_priority to generate traps only if the severity level of a system message meets or is below a specified level. For more information on the configuration options for generating traps from system messages, see the "Sending SNMP Traps" section on page 28. [CT: System Parameters > SNMP Parameters > Enable Syslog Traps]
system.snmp.syslog_trap_priority="2"	If sending traps on the generation of system messages is enabled, specifies that traps should only be generated for system messages that meet or are lower than the severity level defined by this parameter. The range is from 0 to 7. The default value is 2 (critical). For more information on the configuration options for generating traps from system messages, see the "Sending SNMP Traps" section on page 28. [CT: System Parameters > SNMP Parameters > Syslog Trap Priority]
system.snmp.channel_trap_enable="false"	Specifies whether to generate SNMP traps when the state of a channel changes. Allowed values are *true* or *false*. If SNMP is configured and channel traps are enabled, channel up traps and channel down traps are sent to a NMS[3]. For more information on enabling channel traps, see the "Sending SNMP Traps" section on page 2-28. [CT: System Parameters > SNMP Parameters > Enable Channel Up/Down Traps]
system.clock.timezone="America/New York"	time zone that is used for this CDE server. [CT: System Parameters > Timezone]

Table A-6 System Parameters (continued)

Parameter and Default Value (if any)	Description
system.iptables.trusted_provisioner=""	Depending on the hardware platform, specifies the IP addresses of the following trusted provisioners: • On a VQE-S host, specifies IP addresses of one or more trusted channel-provisioning servers (such as VCPT). – If VCPT is the channel-provisioning server, the IP addresses of all Ethernet interfaces (that have been assigned IP addresses) on the VCPT host must be configured as trusted HTTPS clients on the VQE-S host. • On a VQE Tools host where a VCDS receives channel information from VCPT, specifies the IP addresses of *all Ethernet interfaces* (that have been assigned IP addresses) on the VCPT host sending the channel information. This requirement applies even when the VCDS is in the same VQE Tools server as the VCPT. • On a VQE Tools host, specifies IP addresses of one or more trusted VQE-C system configuration provisioning servers. This type of provisioning server is not currently used in most deployments. Multiple system.iptables.trusted_provisioner parameters are used when there is more than one Ethernet port IP address that must be specified. This parameter is used for enhanced communications security beyond HTTPS. The VQE-S or VQE Tools server is configured so that only trusted HTTPS clients (as specified in system.iptables.trusted_provisioner) can send information to the VQE-S or VQE Tools server. [CT: System Parameters > Trusted Provisioning Client(s)]
system.syslog.remote_server=""	Specifies the IP addresses of remote syslog servers. In addition to logging VQE system messages locally, you can send system messages by UDP to remote servers for centralized logging. On the VQE-S, specifying the priority levels for system messages using the VQE-S AMT[4] allows you to control the logging level for system messages for all VQE-S processes. For more information on configuring logging levels on the VQE-S, see the "Change VQE-S Logging" section on page 4-33. On the VQE Tools server, specifying the priority levels for system messages using the VCDS AMT allows you to control the logging level for system messages for all VCDS processes. For more information on configuring logging levels on the VQE Tools server, see the "Change VCDS Logging" section on page 5-7. [CT: System Parameters > Remote Syslog Server(s)]

1. FQDN = fully-qualified domain name.
2. NTP = Network Time Protocol.
3. NMS = Network Management System.
4. AMT = Application Monitoring Tool.

Table A-7 Interface Parameters

Parameter and Default Value (if any)	Description
network.eth1.addr="" network.eth2.addr="" network.eth3.addr="" network.eth4.addr="" network.eth5.addr="" network.eth6.addr=""	For one or more of the Ethernet ports on the Cisco CDE, an IP address and prefix length (for example, 1.2.3.4/24). • On a VQE-S host, four Ethernet interfaces (eth1 to eth4) are typically configured and used for VQE-S traffic. On CDE servers that include the Intel PRO/1000 PT Daul Port Server Adapter, six Ethernet interfaces (eth1 to eth6) are typically configured and used for VQE-S traffic. • On a VQE Tools host, at least one Ethernet interface is typically configured and used for VCPT and VCDS traffic. • Ethernet interfaces that are members of a bond interface should not be assigned an IP address and prefix length. **Note** If one Ethernet interface is used for a management network, that interface *should be included* in the set for which you provide IP addresses and prefix-lengths. [CT: Network Parameters > Interface Parameters > Eth1 Interface IP/Mask, Eth2 Interface IP/Mask, Eth3 Interface IP/Mask, Eth4 Interface IP/Mask, Eth5 Interface IP/Mask, and Eth6 Interface IP/Mask]
network.bond1.addr="" network.bond2.addr="" network.bond3.addr=""	For one or more bond interfaces on the Cisco CDE, an IP address and prefix length (for example, 1.2.3.4/24). **Note** Bond interfaces are not supported on the VQE Tools Server. A bond interface may be used as a management interface and as one of the following: • VQE-S traffic interface • VQE-S services interface • VQE-S ingest interface For more information, see the "Bond Interfaces on a VQE-S and VQE-Tools Server" section on page 2-12. The VCDB parameters for bond3 is used only on CDE servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: Network Parameters > Interface Parameters > Bond1 IP/Mask and members, Bond2 IP/Mask and members, Bond3 IP/Mask and members]

Table A-7 Interface Parameters (continued)

Parameter and Default Value (if any)	Description
network.bond1.member="" network.bond2.member="" network.bond3.member=""	For each bond member, names of Ethernet interfaces that are members of the bond interface. **Note** Bond interfaces are not supported on the VQE Tools Server. All members of a bond interface must have the same capacity. All members must not be assigned an IP address and prefix length nor be assigned as a member of an existing bond interface. Bond interfaces are not supported on the VQE Tools Server. The VCDB parameters for bond3 is used only on CDE servers that include the Intel PRO/1000 PT Dual Port Server Adapter. For the rules on adding members to bond interfaces, see the "Bond Interfaces on a VQE-S and VQE-Tools Server" section on page 2-12.
network.network.interface.mgmt_interfaces="eth 1, eth2, eth3, eth4, eth5, eth6"	Names of the Ethernet or bond interfaces or both to be used for management traffic. The default value is all Ethernet interfaces on the VQE-S or VQE Tools server, regardless of their operational status. Multiple interfaces (one or more Ethernet and one or more bond interfaces) may be used for management traffic. At least one Ethernet interface or one bond interface must be specified as a management interface. If you specify an Ethernet interface, it must not be a member of a bond interface. The management interfaces on the VQE-S may also be used for one of the following interface types: • VQE-S traffic interface • VQE-S ingest interface • VQE-S services interface. For more information on configuring management interfaces, see the "Interface for a Management Network" section on page 2-18. [CT: Network Parameters > Interface Parameters > Management Interface(s)]
network.route.mgmt_route=""	Starting with Cisco VQE Release 3.5, this parameter is deprecated. Use the network.route.static_route parameter.

Table A-8 Static Routing Parameters

Parameter and Default Value (if any)	Description
network.route.default_gateway=""	Starting with Cisco VQE Release 3.5, this parameter is deprecated. Use the network.route.static_route parameter.

Table A-8 Static Routing Parameters (continued)

Parameter and Default Value (if any)	Description
network.route.static_route=""	If your deployment makes use of static routes to the management, distribution, or access network, specify the following: • Subnet IP address and prefix length for the target network. The allowed format for the subnet IP address and prefix length is as follows: 10.1.0.0/16 **Note** When creating a default route on the VQE-S, specify 0.0.0.0/0 as the subnet IP address and prefix length for the target nework. • Gateway (next hop) IP address of the interface on the router that is directly attached to the VQE-S CDE interface that is used for the target network. The interface on the VQE-S and the attached edge router may be an Ethernet interface or a bond interface. The interface on the VQE Tools server is always an Ethernet interface. • (Optional) Outbound interface on the VQE-S or VQE Tools server for the static route. To specify an outbound interface, you append the interface name to the Gateway IP address, and separate both with a colon. Specifying an outbound interface is generally not required, nor is it recommended. For example: network.route.static_route="10.1.0.0/16 via 5.6.7.8" In this example, • 10.1.0.0/16 is the subnet IP address and prefix-length for the target network. • 5.6.7.8 is the IP address of the interface on the router directly attached to the CDE Ethernet interface of the VQE-S. **Note** On the VQE Tools server, proper route configuration is needed for external access to the VQE Tools server. Use the static route created by this parameter to configure this access. On the VQE-S, multipath static routes can be configured for VQE-S traffic (ingest and services) or VQE-S services traffic. The VQE-S uses ECMP[1] to load-balance its output traffic across CDE Ethernet interfaces or the physical Ethernet interfaces of a bond interface that are directly attached to the gateway router interfaces that are specified. If a default route (static route) is configured for each Ethernet interface that is available to the VQE-S for Unicast Retransmissions, RCC, and other VQE-S traffic, ECMP load balances output traffic across all of the CDE interfaces directly attached to the gateway router interfaces. Similarly, if a default route is configured for a bond interface, ECMP load balances output traffic across all the CDE physical interfaces assigned to the bond interface.

Table A-8 Static Routing Parameters (continued)

Parameter and Default Value (if any)	Description
	If you subsequently configure another Ethernet interface or bond interface for VQE-S traffic, be sure to also configure an associated static route for that interface. For more information on configuring static routes, see the "Configuring Static Routes" section on page 2-17. [CT: Network Parameters > Routing Parameters > Static Routing Parameters> Static Route(s)]

1. ECMP = equal cost multipath.

Table A-9 OSPF Parameters

Parameter and Default Value (if any)	Description
network.route.type="static"	VQE-S host only—Specifies whether OSPF is enabled for VQE-S services (where dedicated interfaces to the access network are configured) or VQE-S traffic (where shared interfaces to the access network are configured). Allowed values are *static* and *ospf*. If OSPF routing is enabled, dynamic routing is used from the VQE-S to the access network. The following parameters can be configured: • network.ospf.router_id • network.ospf.area • network.ospf.area_type • network.ospf.md5_enable • network.ospf.md5_key • network.ospf.md5_keyid • network.ospf.hello_interval • network.ospf.dead_interval For descriptions of the preceding parameters, see Table A-8 (this table). If network.route.type="static", OSPF is disabled but static routing is still enabled. For static routing, the network.route.static_route parameter can be configured for one or more default gateway (next hop) router interfaces. [CT: Network Parameters > Routing Parameters > OSPF Parameters > OSPF Enable]
network.ospf.router_id=""	VQE-S host only—If OSPF routing is enabled, specifies the IP address used as the router ID to uniquely identify the VQE-S in the OSPF network. The router ID must not be the same as the IP address of one of the CDE Ethernet interfaces because the router ID is added as an internal address to the loopback interface. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Router ID]

Table A-9 OSPF Parameters (continued)

Parameter and Default Value (if any)	Description
network.ospf.area_type="normal"	VQE-S host only—If OSPF routing is enabled, specifies the type of OSPF area that the VQE-S traffic interfaces and feedback target host addresses resides in. Allowed values are normal or nssa[1]. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Area Type]
network.ospf.area="0"	VQE-S host only—If OSPF routing is enabled, specifies the OSPF area that the VQE-S Ethernet interfaces and feedback target addresses reside in. The range of integer values is from 0 to 4,294,967,295. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Area ID]
network.ospf.md5_enable="false"	VQE-S host only—If OSPF routing is enabled, specifies whether MD5[2] authentication is enabled on the Ethernet interfaces used for VQE-S traffic. When MD5 authentication is enabled, specifying an MD5 key and MD5 key ID are required. Allowed values are true or false. (Ethernet interfaces used for VQE-S traffic are configured with the vqe.vqes.vqe_interfaces parameter.) [CT: Network Parameters > Routing Parameters > OSPF Parameters > Enable MD5]
network.ospf.md5_key=""	VQE-S host only—If OSPF routing and MD5 authentication are enabled, specifies the key (a string) that is configured for all Ethernet interfaces used for VQE-S traffic. When MD5 authentication is enabled, specifying an MD5 key and MD5 key ID are required. [CT: Network Parameters > Routing Parameters > OSPF Parameters > MD5 Key]
network.ospf.md5_keyid="1"	VQE-S host only—If OSPF and MD5 authentication are enabled, specifies an MD5 key ID (an integer) that is used for all Ethernet interfaces used for VQE-S traffic. When MD5 authentication is enabled, an MD5 key and MD5 key ID are required. The range of integer values is from 1 to 255. [CT: Network Parameters > Routing Parameters > OSPF Parameters > MD5 Key ID]
network.ospf.hello_interval="10"	VQE-S host only—If OSPF routing is enabled, specifies the interval at which OSPF Hello packets are sent, in seconds. This value must be the same for all interfaces running OSPF in the network. The hello interval is set for all VQE-S interfaces running OSPF. The range is from 1 to 65,535. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Hello Interval]

Table A-9 OSPF Parameters (continued)

Parameter and Default Value (if any)	Description
network.ospf.dead_interval="40"	VQE-S host only—If OSPF routing is enabled, specifies the OSPF dead interval, in seconds. The dead interval is the maximum amount of time allowed to receive a Hello packet from a neighbor before that neighbor is declared down. This value must be the same for all interfaces running OSPF in the network. The dead interval is set for all VQE-S interfaces running OSPF. The range is from 1 to 65,535. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Dead Interval]

1. nssa = not so stubby area.
2. MD5 = Message Digest 5.