APPENDIX A

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 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 7-13

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

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- Table A-2—VQE-S Unicast Retransmission parameters

  Table A-3—VQE-S Rapid Channel Change parameters

  Table A-4—VQE-S Unicast Retransmission and Rapid Channel Change parameters (parameters that affect the behavior of both Unicast Retransmission and Rapid Channel Change)

  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-9—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 above information and additionally the parameter type, service interruption information, whether multiple definitions are allowed, and the target /etc files where the parameter value is applied.*

Note

CT menu and menu choice for the parameter in the brackets as follows: [CT: > *menu_choice(s)*].

Table A-1 VQE-S Global Parameters

Parameter and Default Value (if any)	Description
	Logging level for all VQE-S processes. Allowed range is 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 Informational level generates the greatest number of 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 "Configuring VQE-S Debugging" section on page 4-24. [CT: VQE-S Parameters > Log Priority]
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 An Ethernet interface that is a member of a bond interface must not be specified in this parameter. 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 not be specified in this parameter. Allowed values are eth1 to eth6 or bond1 to bond3. Interfaces eth5, eth6 and bond 3 are available only on CDE110 servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Traffic (Ingest+Service) Interface(s)]

VQE-S Global Parameters (continued)

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. The vqe.vqes.vqe_interfaces parameter 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. An Ethernet interface that is a member of a bond interface must not be specified in this parameter. 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 bond 3 are available only on CDE110 servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Ingest Interface(s)]
vqe.vqes.vqe_service_interfaces=""	Names of the interfaces to be used for delivering VQE-S services—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: At least one ingest interface for incoming multicast streams must be specified in the vqe.vqes.vqe_ingest_interfaces parameter. The vqe.vqes.vqe_interfaces parameter 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. An Ethernet interface that is a member of a bond interface must not be specified in this parameter 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 bond 3 are available only on CDE110 servers that include the Intel PRO/1000 PT Dual Port Server Adapter. [CT: VQE-S Parameters > Service Interface(s)]

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

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

	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 will set the per-client policer token rate to 18 packets per second. Increasing this parameter will increase the maximum load that a single set-top box can put on the VQE-S. By default, each VQE Client 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 Clients, some or all of which have very high error rates, it may be desirable to increase this parameter in order to allow each client to get more errors repaired. In a situation with a large number of VQE Clients, it may be necessary to decrease this parameter in order to prevent a small proportion of misbehaving or very error-prone client connections from consuming a disproportionate fraction of the VQE Server error-repair resources. The VQE-S AMT channel statistics for each channel provide data that you can use to tune the VQE Client policing mechanism. In the Channel Statistics window, click **Advanced**

	(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 set-top box. 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). Allowed range is 100 to 5000.
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"	Differentiated Services Code Point (DSCP) value for RTP packets for Unicast Retransmission. The vqe.vqes.rtp_rcc_dscp parameter can be used for DCSP marking of RTP packets for RCC. Allowed range is 0 to 63.

Table A-3 VQE-S Rapid Channel Change Parameters

vqe.vqes.igmp_join_variability = "100"	Amount of variability (in milliseconds) between the fastest and slowest IGMP joins for RCC. Allowed range is 0 to 500. This parameter can have a large impact on the amount of bandwidth consumed by RCC. It needs to be carefully tuned for a deployment.

Parameter and Default Value (if any)	Description
	• • **Caution**

Parameter and Default Value (if any)	Description
	Note

Table A-4 VQE-S Unicast Retransmission and Rapid Channel Change Parameters

	Cisco CDA Visual Quality Experience Client System Configuration Guide
	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-5 VQE-S RTCP Exporter Parameters

Table A-6 System Parameters

York"	The time zone that will be used for this CDE110 server. [CT: System Parameters > Timezone]
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). –

Table A-7 Interface Parameters

	following; VQE-S traffic interface VQE-S services interface VQE-S ingest traffic interface For more information, see "Bond Interfaces on a VQE-S Server" section on page 2-14. The VCDB parameters for bond3 is used only on CDE110 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)

network.bond1.member="" network.bond2.member="" network.bond3.member=""	For each bond member, names of Ethernet interfaces that are members of the bond interface. 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. For the rules on adding members to bond interfaces, see "Bond Interfaces on a VQE-S Server" section on page 2-14.
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 server or VQE Tools server, regardless of their operational status. Multiple interfaces (one or more Ethernet and/or 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 server 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 "Interface for a Management Network" section on page 2-20. [CT: Network Parameters > Interface Parameters > Management Interface(s)]

Table A-7 Interface Parameters (continued)

network.route.mgmt_route=""	If your deployment will make use of a management network, you specify a static route for the management network: Subnet IP address and prefix-length for the management network. The following example shows the allowed format for the subnet IP address and prefix-length: 10.1.0.0/16 Gateway (next hop) IP address of the interface on the router that is directly attached to the CDE110 Ethernet interface that will be used for the management network. For example: network.route.mgmt_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 management network. 5.6.7.8 is the IP address of the interface on the router directly attached to the CDE110 Ethernet interface that will be used for the management network. On the VQE Tools server, proper route configuration is needed for external access to the VQE Tools server. You can use the static management route created by this parameter to configure this access. On the VQE server, the network.route.mgmt_route parameter can also be used to configure static routes to a video distribution network when dedicated ingest interfaces are configured. For more information, see "Configuring Static Routes to the Distribution Network" section on page 2-19. [CT: Network Parameters > Interface Parameters > Management Route(s)]

Table A-8 Static Routing Parameters

Table A-9 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 will be used for all Ethernet interfaces used for VQE-S traffic. When MD5 authentication is enabled, an MD5 key and MD5 key ID are required. Allowed range of integer values is 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 will be set for all VQE-S interfaces running OSPF. Allowed range is 1 to 65,535. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Hello Interval]
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 will be set for all VQE-S interfaces running OSPF. Allowed range is 1 to 65,535. [CT: Network Parameters > Routing Parameters > OSPF Parameters > Dead Interval]