VCPT Configuration Files

This appendix describes the VQE Channel Provisioning Tool (VCPT) import and export configuration file formats, and provides examples of both formats. This appendix contains the following sections:

Introduction

The VCPT is an optional channel-provisioning utility that assists with creating channel lineups required by both the VQE Server (VQE-S) and the VQE Client (VQE-C). A VCPT configuration contains a set of channel definitions, server definitions, and channel-server associations. The data can be entered directly using the VCPT GUI, or it can be imported from an external file. For more information on importing a configuration file, see the "Importing a Configuration" section on page 3-4. The VCPT also provides an option to export a configuration to a file. For more information on exporting a configuration file, see the "Exporting a Configuration" section on page 3-5.

The VCPT supports two configuration formats; extensible markup language (XML) and text-based, comma-separated values (CSV). A file in XML format must reference the XML schema file, vcpt_doc.xsd, which resides in the directory /usr/share/tomcat5/webapps/vcpt/WEB-INF on the VQE Tools server. The schema file constrains the set of elements that may be used in the configuration file and the order in which elements appear. It defines which attributes are applied to each elements, and describes parent/child relationships. When the VCPT loads a configuration file in XML format, it checks the configuration file against the file vcpt_doc.xsd for validity. A file in CSV format is made up of lines of ASCII text with values separated by commas. The benefit of using the CSV format is its simplicity. You can create a file in CSV format using any text editor.

The VCPT configuration file provides the following information for each channel in the channel lineup:

- Channel Identification
- Original Stream Configuration
- Unicast Retransmission Stream Configuration
- FEC 1 Stream Configuration
- FEC 2 Stream Configuration
- Enabling Channel Features Options

The VCPT configuration file provides the following information for each server in the channel lineup:

- Server name
- Unique identifier for the server
- Server role (such as VQE-S or VCDS)
- Server IP address
- Real-Time Transport Control Protocol (RTCP) Interval
- Maximum Receivers
- Channels assigned to the server

VCPT Configuration File Data Rules

Table I-1 below details the channel and server information included in both formats of the channel configuration file. The table presents the data type of each field and lists the rules associated with field.

Table I-1 Data Rules for Channel and Server Fields

Data Field	In Format	Data Type	Rule
Channel Information			
Leading Label	CSV only	String	In Cisco VQE Release 3.5.4 and earlier releases the following data rules apply: • Each row representing a VQE-S or VCDS server must use SERVER as its label. • Each row representing a remote server must use SCP[1] as its label. • Each row representing a channel must use CHANNEL as its label. Starting with Cisco VQE Release 3.5.5 the following data rules apply: • Each row representing a VQE-S or VCDS server must use SERVER as its label. • Each row representing a remote server must use SCP as its label. • Each row representing a channel must use one of the following three labels: – ER_CHANNEL—Channel data does not include FEC[2] services. – FEC_CHANNEL—Channel data includes FEC services. – CHANNEL—Provided for backward compatibility with Cisco VQE Release 3.5.4 and earlier releases. The following data rule is common to all VQE 3.5 and later releases: • Only one label should be provided for each channel.
Channel Identifier	XML and CSV	String	The following data rules apply: • Unique identifier for the channel. • Range is from 1 to 20 alphanumeric characters. • Valid values include lowercase letters a to z, uppercase letters A to Z, and numeric characters from 0 to 9. • No duplicate channel entries are allowed in the configuration file.
Channel Data	XML only	attributeGroup	The following data rules apply: • Set of attributes representing a channel. • Set of attributes includes id only. • Minimum number of channelData elements in an XML file is 0.

Table I-1 Data Rules for Channel and Server Fields (continued)

Data Field	In Format	Data Type	Rule
Channel Name	XML and CSV	String	The following data rules apply: • Range is from 1 to 40 alphanumeric characters. • Valid values include lowercase letters a to z, uppercase letters A to Z, and numeric characters 0 to 9. • No spaces are allowed.
Original Source Stream Multicast IP address	XML and CSV	IP address	The following data rules apply: • Multicast IP address must be unique for each channel. That is, the address cannot be used by another channel as its Original Stream Multicast IP address. • Range is from 224.0.0.0 to 239.255.255.255.
Original Source Stream RTP[3] Port Number	XML and CSV	Integer	The following data rules apply: • RTP port number of the original source stream of the channel cannot be the same as the RTCP port number of the original source stream of the channel. • Range is from 1024 to 65535.
Original Source Stream RTCP Port Number	XML and CSV	Integer	The following data rules apply: • RTP port number of the original source stream of the channel cannot be the same as the RTCP port number of the original source stream of the channel. • Range is from 1024 to 65535.
Original Source Stream Source Filter IP Address	XML and CSV	IP address	The following data rules apply: • Unicast IP address. • Source filter IP address must not be equal to the Feedback Target IP address. • Range is from 0.0.0.0 to 223.255.255.255. **Note** A channel may be defined with a source IP address of 0.0.0.0 for the Original Stream. When the channel Source IP address is 0.0.0.0 for the original stream, the SDP entry for this channel does not include the source-filter line in the original stream section that would be used to perform a SSM[4] join. In this case, the VQE-S and VQE-C does not perform an SSM join.

Table I-1 Data Rules for Channel and Server Fields (continued)

Data Field	In Format	Data Type	Rule
Original Source Stream Bit Rate	XML and CSV	Integer	The following data rules apply: • Bit rate of the original source stream of the channel in kilobits per second. • Range is from 1000 to 30000. • Specified bit rate should be equal to the primary stream bandwidth but should not include bandwidth used for FEC.
Enable Unicast Retransmission	XML and CSV	Boolean	Valid values are true and false.
Enable Rapid Channel Change	XML and CSV	Boolean	Valid values are true and false.
Enable RTCP Extended Reports	XML and CSV	Boolean	Valid values are true and false.
Enable Reduced-size RTCP	XML and CSV	Boolean	Valid values are true and false. This field was introduced in Cisco VQE Release 3.5.5.
Feedback Target Address	XML and CSV	IP address	The following data rules apply: • Unique anycast IP address on the VQE-S that provide services for this channel. • Feedback Target unicast IP address must be unique for each channel. • Range is from 0.0.0.0 to 223.255.255.255.
Unicast Retransmission RTP Port	XML and CSV	Integer	The following data rules apply: • RTP port number of the Unicast Retransmission source stream of the channel cannot be the same as the RTCP port number of the Unicast Retransmission source stream of the channel. • Range is from 1024 to 65535.
Unicast Retransmission RTCP Port	XML and CSV	Integer	The following data rules apply: • RTP port number of the Unicast Retransmission source stream of the channel cannot be the same as the RTCP port number of the Unicast Retransmission source stream of the channel. • Range is from 1024 to 65535.
FEC 1 Multicast Address	XML and CSV	IP address	The following data rules apply: • Multicast IP address. • Range is from 224.0.0.0 to 239.255.255.255. • Configuring an FEC 1 Stream or an FEC 2 Stream provides 1-dimension FEC for the channel. • Configuring an FEC 1 Stream and an FEC 2 Stream provides 2-dimension FEC for the channel.

Table I-1 Data Rules for Channel and Server Fields (continued)

Data Field	In Format	Data Type	Rule
FEC 1 RTP Port	XML and CSV	Integer	The following data rules apply: • Range is from 1024 to 65535. • RTP port number of the FEC 1 stream of the channel cannot be the same as the RTCP port number of the FEC 1 stream of the channel.
FEC 1 Source Filter Address	XML and CSV	IP address	The following data rules apply: • Unicast IP address. • Range is from 0.0.0.0 to 223.255.255.255.
FEC 2 Multicast Address	XML and CSV	IP address	The following data rules apply: • Multicast IP address. • Range is from 224.0.0.0 to 239.255.255.255. • Configuring an FEC 1 Stream or an FEC 2 Stream provides 1-dimension FEC for the channel. • Configuring an FEC 1 Stream and an FEC 2 Stream provides 2-dimension FEC for the channel.
FEC 2 RTP Port	XML and CSV	Integer	The following data rules apply: • Port number specified for an FEC 2 stream cannot be the same as the port number used for the RTP or RTCP port for the Original Stream. • RTP port number of the FEC 2 stream of the channel cannot be the same as the RTCP port number of the FEC 2 stream of the channel. • Range is from 1024 to 65535.
FEC 2 Source Filter IP address	XML and CSV	IP address	The following data rules apply: • Unicast IP address. • Range is from 0.0.0.0 to 223.255.255.255.
VQE-S Data			
Server Name	XML and CSV	String	The following data rules apply: • Range is from 1 to 40 characters. • No spaces are allowed.
Server Identifier	XML and CSV	String	The following data rules apply: • Unique identifier for the server. • Range is from 1 to 20 alphanumeric characters.
Server Data	XML only	attributeGroup	The following data rules apply: • Set of attributes representing a server. • Set of attributes includes id only.

Table I-1 Data Rules for Channel and Server Fields (continued)

Data Field	In Format	Data Type	Rule
Server Management IP Address	XML and CSV	IP address.	The following data rules apply: • IP address of an Ethernet interface on the Cisco CDE server or Management IP address of an Ethernet interface on the remote server. • Unicast IP address.
Server Role	XML and CSV	Enumeration	The following data rules apply: • Role of the Cisco CDE server. • Valid values are: – VQE-S – VCDS – SCP
Remote Server Port	XML and CSV	Integer	The following data rules apply: • SCP port number on the remote server. • Range is from 1 to 65535.
Remote Server Username	XML and CSV	String	The following data rules apply: • Username of the person authorized to access the path on the remote server. • Range is from 1 to 40 characters.
Remote Server Location	XML and CSV	String	Remote path and filename for SCP operation.
VQE-S and Channels Association	XML only	Array	Array of channels associated with the server.
RTCP Interval	XML and CSV	Integer	The following data rules apply: • Defines how often VQE-Cs send an RTCP report. • Range is from 5 to 800.
Maximum Receivers	XML and CSV	Integer	The following data rules apply: • Maximum number of receivers per server. • Range is from 1 to 128,000.
Channel Identifiers	CSV only	String	Channel Identifiers for each channel associated with the server.

1. SCP = Secure Copy Protocol.
2. FEC = Forward Error Correction.
3. RTP = Real-time Transport Protocol.
4. SSM = source specific multicast

When you import an external VCPT configuration file in either CSV or XML format, the only mandatory fields are Channel Identifier and Server Identifier. You can fill in all other fields using the VCPT GUI.

VCPT Configuration in XML Format

A configuration file in XML format may be used to import configuration data into the VCPT or to export configuration data from the VCPT for modification or backup.

XML Schema

On the VQE Tools server, the full path name of the XML schema file associated with the VCPT configuration file is /usr/share/tomcat5/webapps/vcpt/WEB-INF/vcpt_doc.xsd. The following is the XML schema defined in the file vcpt_doc.xsd:

```
<xs:schema xmlns:vqe="http://www.cisco.com/vqe/vcpt1.0"
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.cisco.com/vqe/vcpt1.0"
    version="1.0.0"
    elementFormDefault="qualified">
    <xs:element name="VcptFile" type="vqe:VcptFileType">
    </xs:element>
    <xs:complexType name="VcptFileType">
        <xs:sequence>
            <xs:element ref="vqe:channelData" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element ref="vqe:serverData" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
        <xs:attribute name="version" type="xs:string" use="required"/>
    </xs:complexType>
    <!-- ********************** -->
    <!-- VQE basic types -->
    <!-- ********************** -->
    <xs:simpleType name="vqeStringType">
        <xs:restriction base="xs:string">
            <xs:minLength value="1"/>
            <xs:maxLength value="40"/>
            <xs:whiteSpace value="preserve"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqeIdType">
        <xs:restriction base="xs:string">
            <xs:minLength value="1"/>
            <xs:maxLength value="20"/>
            <xs:pattern value="[0-9a-zA-Z]+"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqePortType">
        <xs:restriction base="xs:positiveInteger">
            <xs:minInclusive value="1024"/>
            <xs:maxInclusive value="65535"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqeBooleanType">
        <xs:restriction base="xs:boolean"/>
    </xs:simpleType>
    <xs:simpleType name="vqeMulticastAddrType">
        <xs:restriction base="xs:string">
            <xs:pattern
value="(22[4-9]|23[0-9])\.(([1-9]?[0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){2}([1-9]?[0-9]|1[0-9][0-9]|2[0-4]
[0-9]|25[0-5])"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqeUnicastAddrType">
        <xs:restriction base="xs:string">
```

```
            <xs:pattern
value="([1-9]?[0-9]|1[0-9][0-9]|2[0-1][0-9]|22[0-3])\.(([1-9]?[0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){2}([1
-9]?[0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqeFBTAddrType">
        <xs:restriction base="xs:string">            <xs:pattern
value="([1-9]|[1-9][0-9]|1[0-9][0-9]|2[0-1][0-9]|22[0-3])\.(([1-9]?[0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])\.){
2}([1-9]?[0-9]|1[0-9][0-9]|2[0-4][0-9]|25[0-5])"/>
        </xs:restriction>
    </xs:simpleType>
    <xs:simpleType name="vqeRoleType">
        <xs:restriction base="xs:string">
            <xs:enumeration value="VQE-S"/>
            <xs:enumeration value="VCDS"/>
            <xs:enumeration value="SCP"/>
        </xs:restriction>
       </xs:simpleType>
    <xs:complexType name="extension_type">
        <xs:sequence>
            <xs:any processContents="lax" minOccurs="1"
                maxOccurs="unbounded" namespace="##targetNamespace"/>
        </xs:sequence>
       </xs:complexType>
    <xs:element name="extension" type="vqe:extension_type"/>
    <!-- ********************** -->
    <!-- VQE channel data -->
    <!-- ********************** -->
    <xs:element name="channelData">        <xs:complexType>
            <xs:all>
                <xs:element ref="vqe:channel-name"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:orig-multicast-addr"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:orig-RTP-port"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:orig-RTCP-port"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:src-filter-for-orig"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:bit-rate"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:error-repair"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:rapid-channel-change"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:RTCP-XR-report"
                    minOccurs="0" maxOccurs="1"/>
                 <xs:element ref="vqe:RTCP-reduced-size"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:fbt-addr"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:rtx-RTP-port"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:rtx-RTCP-port"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:fec-col-multicast-addr"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:fec-col-RTP-port"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:src-filter-for-fec-col"
                    minOccurs="0" maxOccurs="1"/>
                <xs:element ref="vqe:fec-row-multicast-addr"
                    minOccurs="0" maxOccurs="1"/>
```

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            <xs:element ref="vqe:fec-row-RTP-port"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:src-filter-for-fec-row"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:extension"
                minOccurs="0" maxOccurs="1"/>
        </xs:all>
        <!-- Channel id attribute -->
        <xs:attribute name="id" use="required">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:minLength value="1"/>
                    <xs:maxLength value="20"/>
                    <xs:pattern value="[0-9a-zA-Z]+"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:attribute>
    </xs:complexType>
</xs:element>
<!-- channel-id -->
<xs:element name="channel-id">
    <xs:annotation>
        <xs:documentation>Unique channel id.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeIdType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- channel-name -->
<xs:element name="channel-name">
    <xs:annotation>
        <xs:documentation>Channel name for viewing purpose only.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeStringType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- orig-multicast-addr -->
<xs:element name="orig-multicast-addr">
    <xs:annotation>
        <xs:documentation>Multicast address for the original media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeMulticastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- orig-RTP-port -->
<xs:element name="orig-RTP-port">
    <xs:annotation>
        <xs:documentation>RTP port for the orginal media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
```

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        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- orig-RTCP-port -->
<xs:element name="orig-RTCP-port">
    <xs:annotation>
        <xs:documentation>RTCP port for the orginal media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- src-filter-for-orig -->
<xs:element name="src-filter-for-orig">
    <xs:annotation>
        <xs:documentation>Source filter address for original media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeUnicastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- bit-rate -->
<xs:element name="bit-rate">
    <xs:annotation>
        <xs:documentation>Bit rate for original stream.
        </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
        <xs:restriction base="xs:nonNegativeInteger">
            <xs:minInclusive value="1000"/>
            <xs:maxInclusive value="30000"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<!-- error-repair -->
<xs:element name="error-repair">
    <xs:annotation>
        <xs:documentation>Option for unicast error repair.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeBooleanType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- rapid-channel-change -->
<xs:element name="rapid-channel-change">
    <xs:annotation>
        <xs:documentation>Option for rapid channel change.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeBooleanType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
```

```
<!-- RTCP-XR-report -->
<xs:element name="RTCP-XR-report">
    <xs:annotation>
        <xs:documentation>Option for RTCP XR report.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeBooleanType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- RTCP-reduced-size -->
<xs:element name="RTCP-reduced-size">
    <xs:annotation>
        <xs:documentation>Option for reduced-size RTCP.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeBooleanType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- fbt-addr -->
<xs:element name="fbt-addr">
    <xs:annotation>
        <xs:documentation>FBT address for the original media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeFBTAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- rtx-RTP-port -->
<xs:element name="rtx-RTP-port">
    <xs:annotation>
        <xs:documentation>RTP port for retransmission media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- rtx-RTCP-port -->
<xs:element name="rtx-RTCP-port">
    <xs:annotation>
        <xs:documentation>RTCP port for retransmission media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- fec-col-multicast-addr -->
<xs:element name="fec-col-multicast-addr">
    <xs:annotation>
        <xs:documentation>Multicast address for FEC column media stream.
```

```
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeMulticastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- fec-col-RTP-port -->
<xs:element name="fec-col-RTP-port">
    <xs:annotation>
        <xs:documentation>RTP port for FEC column media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- src-filter-for-fec-col -->
<xs:element name="src-filter-for-fec-col">
    <xs:annotation>
        <xs:documentation>Source filter address for FEC column media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeUnicastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- fec-row-multicast-addr -->
<xs:element name="fec-row-multicast-addr">
    <xs:annotation>
        <xs:documentation>Multicast address for FEC row media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeMulticastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- fec-row-RTP-port -->
 <xs:element name="fec-row-RTP-port">
    <xs:annotation>
        <xs:documentation>RTP port for FEC row media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqePortType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- src-filter-for-fec-row -->
<xs:element name="src-filter-for-fec-row">
    <xs:annotation>
        <xs:documentation>Source filter address for FEC row media stream.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
```

```
            <xs:extension base="vqe:vqeUnicastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- ********************** -->
<!-- VQE server data -->
<!-- ********************** -->
<xs:element name="serverData">
    <xs:complexType>
        <xs:all>
            <xs:element ref="vqe:svr-name"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-addr"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-role"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-port"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-username"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-remote-location"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-channel-association"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-rtcp-interval"
                minOccurs="0" maxOccurs="1"/>
            <xs:element ref="vqe:svr-max-receivers"
                minOccurs="0" maxOccurs="1"/>
        </xs:all>
        <!-- Server id attribute -->
        <xs:attribute name="id" use="required">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:minLength value="1"/>
                    <xs:maxLength value="20"/>
                    <xs:pattern value="[0-9a-zA-Z]+"/>
                </xs:restriction>
            </xs:simpleType>
        </xs:attribute>
    </xs:complexType>
</xs:element>
<!-- svr-name -->
<xs:element name="svr-name">
    <xs:annotation>
        <xs:documentation>VQE server name for viewing purpose only.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeStringType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- svr-addr -->
<xs:element name="svr-addr">
    <xs:annotation>
        <xs:documentation>VQE server IP address.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeUnicastAddrType"/>
        </xs:simpleContent>
    </xs:complexType>
```

```
</xs:element>
<!-- svr-role -->
<xs:element name="svr-role">
    <xs:annotation>
        <xs:documentation>VQE server role.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeRoleType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- svr-port -->
<xs:element name="svr-port">
    <xs:annotation>
        <xs:documentation>Remote port for SCP operation.
        </xs:documentation>
    </xs:annotation>
    <xs:simpleType>
        <xs:restriction base="xs:nonNegativeInteger">
            <xs:minInclusive value="1"/>
            <xs:maxInclusive value="65535"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<!-- svr-username -->
<xs:element name="svr-username">
    <xs:annotation>
        <xs:documentation>Remote user name for SCP operation.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeStringType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- svr-remote-location -->
<xs:element name="svr-remote-location">
    <xs:annotation>
        <xs:documentation>Remote path and filename for SCP operation.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:simpleContent>
            <xs:extension base="vqe:vqeStringType"/>
        </xs:simpleContent>
    </xs:complexType>
</xs:element>
<!-- svr-channel-association -->
<xs:element name="svr-channel-association">
    <xs:annotation>
        <xs:documentation>VQE server and channels association.
        </xs:documentation>
    </xs:annotation>
    <xs:complexType>
        <xs:sequence>
           <xs:element ref="vqe:channel-id"
                minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
</xs:element>
<!-- svr-rtcp-interval -->
```

```
    <xs:element name="svr-rtcp-interval">
        <xs:annotation>
            <xs:documentation>RTCP report interval.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:nonNegativeInteger">
                <xs:minInclusive value="5"/>
                <xs:maxInclusive value="800"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <!-- svr-max-receivers -->
    <xs:element name="svr-max-receivers">
        <xs:annotation>
            <xs:documentation>Max receivers per server.
            </xs:documentation>
        </xs:annotation>
        <xs:simpleType>
            <xs:restriction base="xs:nonNegativeInteger">
                <xs:minInclusive value="1"/>
                <xs:maxInclusive value="128000"/>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
</xs:schema>
```

XML Data Elements and Attributes

Table I-1 presents the elements and attributes defined in vcpt_doc.xsd. This table maps each element and attribute to a data field. Table I-1 defines the data rules associated with each data field.

Table I-2 Configuration File - XML Elements and Attributes

Element/Attribute	Data Field
	Channel Information
channelData	Channel Data
id (attribute)	Channel Identifier
channel-name	Channel Name
orig-multicast-addr	Original Source Stream Multicast IP address
orig-RTP-port	Original Source Stream RTP Port Number
orig-RTCP-port	Original Source Stream RTCP Port Number
src-filter-for-orig	Original Source Stream Source Filter IP Address
bit-rate	Original Source Stream Bit Rate
error-repair	Enable Unicast Retransmission
rapid-channel-change	Enable Rapid Channel Change
RTCP-XR-Report	Enable RTCP Extended Reports
RTCP-reduced-size	Enable reduced-size RTCP
fbt-addr	Feedback Target Address

Table I-2 Configuration File - XML Elements and Attributes

Element/Attribute	Data Field
rtx-RTP-port	Unicast Retransmission RTP Port
rtx-RTCP-port	Unicast Retransmission RTCP Port
fec-col-multicast-addr	FEC 1 Multicast Address
fec-col-RTP-port	FEC 1 RTP Port
src-filter-for-fec-col	FEC 1 Source Filter Address
fec-row-multicast-addr	FEC 2 Multicast Address
fec-row-RTP-port	FEC 2 RTP Port
src-filter-for-fec-row	FEC 2 Source Filter IP Address
VQE-S Data	
serverData	Server attributeGroup
id (attribute)	Server Identifier
svr-name	VQE-S Name
svr-addr	Server Management IP Address
svr-role	Server Role
svr-port	Remote Server Port
srv-username	Remote Server Username
svr-remote-location	Remote Server Location
svr-channel-association	VQE-S and Channels Association
svr-rtcp-interval	RTCP Interval
svr-max-receivers	Maximum Receivers
channel-id	Channel Identifier

XML Example

The following section shows an example of the VQE Channel configuration file in XML format:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<VcptFile
    xmlns = "http://www.cisco.com/vqe/vcpt1.0"
    xmlns:xsi = "http://www.w3.org/2001/XMLSchema"
    version = "1.0.0">
    <channelData id = "1206996909">
        <channel-name>Channel 230.151.1.9</channel-name>
        <orig-multicast-addr>230.151.1.9</orig-multicast-addr>
        <orig-RTP-port>10032</orig-RTP-port>
        <orig-RTCP-port>10033</orig-RTCP-port>
        <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
        <bit-rate>20000</bit-rate>
        <error-repair>true</error-repair>
        <rapid-channel-change>true</rapid-channel-change>
        <RTCP-XR-report>true</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.9</fbt-addr>
        <rtx-RTP-port>10034</rtx-RTP-port>
        <rtx-RTCP-port>10035</rtx-RTCP-port>
```

```
</channelData>
<channelData id = "1206996908">
    <channel-name>Channel 230.151.1.8</channel-name>
    <orig-multicast-addr>230.151.1.8</orig-multicast-addr>
    <orig-RTP-port>10028</orig-RTP-port>
    <orig-RTCP-port>10029</orig-RTCP-port>
    <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
    <bit-rate>15000</bit-rate>
    <error-repair>true</error-repair>
    <rapid-channel-change>true</rapid-channel-change>
    <RTCP-XR-report>true</RTCP-XR-report>
    <RTCP-reduced-size>true</RTCP-reduced-size>
    <fbt-addr>8.61.1.8</fbt-addr>
    <rtx-RTP-port>10030</rtx-RTP-port>
    <rtx-RTCP-port>10031</rtx-RTCP-port>
</channelData>
<channelData id = "1206996907">
    <channel-name>Channel 230.151.1.7</channel-name>
    <orig-multicast-addr>230.151.1.7</orig-multicast-addr>
    <orig-RTP-port>10024</orig-RTP-port>
    <orig-RTCP-port>10025</orig-RTCP-port>
    <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
    <bit-rate>15000</bit-rate>
    <error-repair>true</error-repair>
    <rapid-channel-change>true</rapid-channel-change>
    <RTCP-XR-report>true</RTCP-XR-report>
    <RTCP-reduced-size>true</RTCP-reduced-size>
    <fbt-addr>8.61.1.7</fbt-addr>
    <rtx-RTP-port>10026</rtx-RTP-port>
    <rtx-RTCP-port>10027</rtx-RTCP-port>
</channelData>
<channelData id = "1206996906">
    <channel-name>Channel 230.151.1.6</channel-name>
    <orig-multicast-addr>230.151.1.6</orig-multicast-addr>
    <orig-RTP-port>10020</orig-RTP-port>
    <orig-RTCP-port>10021</orig-RTCP-port>
    <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
    <bit-rate>2000</bit-rate>
    <error-repair>true</error-repair>
    <rapid-channel-change>true</rapid-channel-change>
    <RTCP-XR-report>true</RTCP-XR-report>
    <RTCP-reduced-size>true</RTCP-reduced-size>
    <fbt-addr>8.61.1.6</fbt-addr>
    <rtx-RTP-port>10022</rtx-RTP-port>
    <rtx-RTCP-port>10023</rtx-RTCP-port>
</channelData>
<channelData id = "1206996905">
    <channel-name>Channel 230.151.1.5</channel-name>
    <orig-multicast-addr>230.151.1.5</orig-multicast-addr>
    <orig-RTP-port>10016</orig-RTP-port>
    <orig-RTCP-port>10017</orig-RTCP-port>
    <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
    <bit-rate>2000</bit-rate>
    <error-repair>true</error-repair>
    <rapid-channel-change>true</rapid-channel-change>
    <RTCP-XR-report>true</RTCP-XR-report>
    <RTCP-reduced-size>true</RTCP-reduced-size>
    <fbt-addr>8.61.1.5</fbt-addr>
    <rtx-RTP-port>10018</rtx-RTP-port>
    <rtx-RTCP-port>10019</rtx-RTCP-port>
</channelData>
<channelData id = "1206996904">
    <channel-name>Channel 230.151.1.4</channel-name>
    <orig-multicast-addr>230.151.1.4</orig-multicast-addr>
```

```
        <orig-RTP-port>10012</orig-RTP-port>
        <orig-RTCP-port>10013</orig-RTCP-port>
        <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
        <bit-rate>3750</bit-rate>
        <error-repair>true</error-repair>
        <rapid-channel-change>true</rapid-channel-change>
        <RTCP-XR-report>true</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.4</fbt-addr>
        <rtx-RTP-port>10014</rtx-RTP-port>
        <rtx-RTCP-port>10015</rtx-RTCP-port>
    </channelData>
    <channelData id = "1206996903">
        <channel-name>Channel 230.151.1.3</channel-name>
        <orig-multicast-addr>230.151.1.3</orig-multicast-addr>
        <orig-RTP-port>10008</orig-RTP-port>
        <orig-RTCP-port>10009</orig-RTCP-port>
        <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
        <bit-rate>3750</bit-rate>
        <error-repair>true</error-repair>
        <rapid-channel-change>true</rapid-channel-change>
        <RTCP-XR-report>true</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.3</fbt-addr>
        <rtx-RTP-port>10010</rtx-RTP-port>
        <rtx-RTCP-port>10011</rtx-RTCP-port>
    </channelData>
    <channelData id = "1206996902">
        <channel-name>Channel 230.151.1.2</channel-name>
        <orig-multicast-addr>230.151.1.2</orig-multicast-addr>
        <orig-RTP-port>10004</orig-RTP-port>
        <orig-RTCP-port>10005</orig-RTCP-port>
        <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
        <bit-rate>3750</bit-rate>
        <error-repair>true</error-repair>
        <rapid-channel-change>true</rapid-channel-change>
        <RTCP-XR-report>true</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.2</fbt-addr>
        <rtx-RTP-port>10006</rtx-RTP-port>
        <rtx-RTCP-port>10007</rtx-RTCP-port>
    </channelData>
    <channelData id = "1206996901">
        <channel-name>Channel 230.151.1.1</channel-name>
        <orig-multicast-addr>230.151.1.1</orig-multicast-addr>
        <orig-RTP-port>10000</orig-RTP-port>
        <orig-RTCP-port>10001</orig-RTCP-port>
        <src-filter-for-orig>0.0.0.0</src-filter-for-orig>
        <bit-rate>3750</bit-rate>
        <error-repair>false</error-repair>
        <rapid-channel-change>false</rapid-channel-change>
        <RTCP-XR-report>false</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.1</fbt-addr>
        <rtx-RTP-port>10002</rtx-RTP-port>
        <rtx-RTCP-port>10003</rtx-RTCP-port>
        <fec-col-multicast-addr>230.151.1.1</fec-col-multicast-addr>
        <fec-col-RTP-port>20000</fec-col-RTP-port>
        <src-filter-for-fec-col>5.8.37.2</src-filter-for-fec-col>
        <fec-row-multicast-addr>230.151.1.1</fec-row-multicast-addr>
        <fec-row-RTP-port>20001</fec-row-RTP-port>
        <src-filter-for-fec-row>5.8.37.2</src-filter-for-fec-row>
    </channelData>
    <channelData id = "1206996910">
```

```
        <channel-name>Channel 230.151.1.10</channel-name>
        <orig-multicast-addr>230.151.1.10</orig-multicast-addr>
        <orig-RTP-port>10036</orig-RTP-port>
        <orig-RTCP-port>10037</orig-RTCP-port>
        <src-filter-for-orig>5.8.37.2</src-filter-for-orig>
        <bit-rate>12500</bit-rate>
        <error-repair>true</error-repair>
        <rapid-channel-change>true</rapid-channel-change>
        <RTCP-XR-report>true</RTCP-XR-report>
        <RTCP-reduced-size>true</RTCP-reduced-size>
        <fbt-addr>8.61.1.10</fbt-addr>
        <rtx-RTP-port>10038</rtx-RTP-port>
        <rtx-RTCP-port>10039</rtx-RTCP-port>
        <fec-col-multicast-addr>230.151.1.10</fec-col-multicast-addr>
        <fec-col-RTP-port>20038</fec-col-RTP-port>
        <src-filter-for-fec-col>5.8.37.2</src-filter-for-fec-col>
        <fec-row-multicast-addr>230.151.1.10</fec-row-multicast-addr>
        <fec-row-RTP-port>20039</fec-row-RTP-port>
        <src-filter-for-fec-row>5.8.37.2</src-filter-for-fec-row>
    </channelData>
    <serverData id = "1246310633746">
        <svr-name>VCDS</svr-name>
        <svr-addr>10.86.21.70</svr-addr>
        <svr-role>VCDS</svr-role>
        <svr-channel-association>
            <channel-id>1206996901</channel-id>
            <channel-id>1206996910</channel-id>
            <channel-id>1206996902</channel-id>
            <channel-id>1206996903</channel-id>
            <channel-id>1206996904</channel-id>
            <channel-id>1206996905</channel-id>
            <channel-id>1206996906</channel-id>
            <channel-id>1206996907</channel-id>
            <channel-id>1206996908</channel-id>
            <channel-id>1206996909</channel-id>
        </svr-channel-association>
    </serverData>
    <serverData id = "1242662355264">
        <svr-name>VQE Server</svr-name>
        <svr-addr>10.86.21.70</svr-addr>
        <svr-role>VQE-S</svr-role>
        <svr-channel-association>
            <channel-id>1206996901</channel-id>
            <channel-id>1206996910</channel-id>
            <channel-id>1206996902</channel-id>
            <channel-id>1206996903</channel-id>
            <channel-id>1206996904</channel-id>
            <channel-id>1206996905</channel-id>
            <channel-id>1206996906</channel-id>
            <channel-id>1206996907</channel-id>
            <channel-id>1206996908</channel-id>
            <channel-id>1206996909</channel-id>
        </svr-channel-association>
    </serverData>
    <serverData id = "1259680856543">
        <svr-name>Carousel</svr-name>
        <svr-addr>10.86.21.76</svr-addr>
        <svr-role>SCP</svr-role>
        <svr-port>22</svr-port>
        <svr-username>vqe</svr-username>
        <svr-remote-location>/etc/opt/vqes</svr-remote-location>
        <svr-channel-association>
            <channel-id>1206996901</channel-id>
            <channel-id>1206996910</channel-id>
```

```
            <channel-id>1206996902</channel-id>
            <channel-id>1206996903</channel-id>
            <channel-id>1206996904</channel-id>
            <channel-id>1206996905</channel-id>
            <channel-id>1206996906</channel-id>
            <channel-id>1206996907</channel-id>
            <channel-id>1206996908</channel-id>
            <channel-id>1206996909</channel-id>
        </svr-channel-association>
    </serverData>
</VcptFile>
```

In this example, 10 channels, a VCDS, a VQE-S, and a remote server are configured. Unicast retransmission and RCC are enabled on all channels, except for channel 230.151.1.1. FEC is configured on two channels: channel 230.151.1.1 and channel 230.151.1.10. Sending reduced-size RTCP packets is enabled on all channels. All 10 channels are associated with each server.

VCPT Configuration in CSV Format

A configuration file in CSV format may be used to import configuration data into the VCPT or to export configuration data from the VCPT for modification or backup. Each line in the CSV configuration file represents a channel configuration, a server configuration, or a remote server configuration. Table I-1 defines the data rules associated with each field of the configuration file.

Starting with Cisco VQE Release 3.5.5, the enable reduced-size RTCP option is added to the channel configuration. In this same release, the channel row in the CSV configuration file is separated into two rows: one for configuration of channels with no FEC services enabled, and one for configuration of channels with FEC services enabled.

The following list presents the data fields in Cisco VQE Release 3.5.5 and later releases for a channel configuration with no FEC services enabled in the CSV version of the configuration file. You must add fields in the order in which they are presented.

- Leading Label—ER_CHANNEL
- Channel Identifier
- Channel Name
- Original Stream Multicast IP Address
- Original Source Stream RTP Port Number
- Original Source Stream RTCP Port Number
- Original Source Stream Source Filter IP Address
- Original Source Stream Bit Rate
- Feedback Target Address
- Unicast Retransmission RTP Port
- Unicast Retransmission RTCP Port
- Enable RTCP XR Reports
- Enable Unicast Retransmission
- Enable RCC
- Enable Reduced-Size RTCP

The following list presents the data fields in Cisco VQE Release 3.5.5 and later releases for a channel configuration with FEC services enabled in the CSV version of the configuration file. You must add fields in the order in which they are presented.

- Leading Label—FEC_CHANNEL
- Channel Identifier
- Channel Name
- Original Stream Multicast IP Address
- Original Source Stream RTP Port Number
- Original Source Stream RTCP Port Number
- Original Source Stream Source Filter IP Address
- Original Source Stream Bit Rate
- Feedback Target Address
- Unicast Retransmission RTP Port
- Unicast Retransmission RTCP Port
- Enable RTCP XR Reports
- Enable Unicast Retransmission
- Enable RCC
- FEC 1 Multicast Address
- FEC 1 RTP Port
- FEC 1 Source Filter Address
- FEC 2 Multicast Address
- FEC 2 RTP Port
- FEC 2 Source Filter IP Address
- Enable Reduced-Size RTCP

Note In Cisco VQE Release 3.5.5 and later releases, if more than one channel label is provided in the CSV file, the first label is accepted and all subsequent channel rows containing a different label are ignored.

The following list presents the data fields in Cisco VQE Release 3.5.4 and earlier releases for a channel configuration in the CSV version of the configuration file. You must add fields in the order in which they are presented.

- Leading Label—CHANNEL
- Channel Identifier
- Channel Name
- Original Stream Multicast IP Address
- Original Source Stream RTP Port Number
- Original Source Stream RTCP Port Number
- Original Source Stream Source Filter IP Address
- Original Source Stream Bit Rate

- Feedback Target Address
- Unicast Retransmission RTP Port
- Unicast Retransmission RTCP Port
- Enable RTCP XR Reports
- Enable Unicast Retransmission
- Enable RCC
- FEC 1 Multicast Address (Optional)
- FEC 1 RTP Port (Optional)
- FEC 1 Source Filter Address (Optional)
- FEC 2 Multicast Address (Optional)
- FEC 2 RTP Port (Optional)
- FEC 2 Source Filter IP Address (Optional)

The following list presents the data fields for a server (VCDS or VQE-S) configuration in the CSV version of the configuration file. You must add fields in the order in which they are presented.

- Leading Label
- Server Identifier
- Server Name
- Server Management IP Address
- Server Role
- Server RTCP Interval
- Server Maximum Receivers
- Channel Identifiers

The following list presents the data fields for an SCP (remote server) configuration in the CSV version of the configuration file. You must add fields in the order in which they are presented.

- Leading Label
- Server Identifier
- Server Name
- Server Management IP Address
- Server Role
- Server RTCP Interval
- Server Maximum Receivers
- Remote Server Port
- Remote Server Username
- Remote Server Location
- Channel Identifiers

CSV Example

The following example shows a channel configuration file in CSV format prior to Cisco VQE Release 3.5.5:

```
#CHANNEL,id,name,multicast-addr,rtp-port,rtcp-port,src-ip,bit-rate,fbt-addr,rtx-rtp-port,r
tx-rtcp-port,xr-report-opt,err-opt,rcc-opt[,fec-col-addr,fec-col-port,fec-col-src-ip,fec-r
ow-addr,fec-row-port,fec-row-src-ip]
CHANNEL,1206996909,Channel 230.151.1.9,230.151.1.9,10032,10033,5.8.37.2,20000,8.61.1.9,100
34,10035,true,true,true
CHANNEL,1206996908,Channel 230.151.1.8,230.151.1.8,10028,10029,5.8.37.2,15000,8.61.1.8,100
30,10031,true,true,true
CHANNEL,1206996907,Channel 230.151.1.7,230.151.1.7,10024,10025,5.8.37.2,15000,8.61.1.7,100
26,10027,true,true,true
CHANNEL,1206996906,Channel 230.151.1.6,230.151.1.6,10020,10021,5.8.37.2,2000,8.61.1.6,1002
2,10023,true,true,true
CHANNEL,1206996905,Channel 230.151.1.5,230.151.1.5,10016,10017,5.8.37.2,2000,8.61.1.5,1001
8,10019,true,true,true
CHANNEL,1206996904,Channel 230.151.1.4,230.151.1.4,10012,10013,5.8.37.2,3750,8.61.1.4,1001
4,10015,true,true,true
CHANNEL,1206996903,Channel 230.151.1.3,230.151.1.3,10008,10009,5.8.37.2,3750,8.61.1.3,1001
0,10011,true,true,true
CHANNEL,1206996902,Channel 230.151.1.2,230.151.1.2,10004,10005,5.8.37.2,3750,8.61.1.2,1000
6,10007,true,true,true
CHANNEL,1206996901,Channel 230.151.1.1,230.151.1.1,10000,10001,0.0.0.0,3750,8.61.1.1,10002
,10003,false,false,false,230.151.1.1,20000,5.8.37.2,230.151.1.1,20001,5.8.37.2
CHANNEL,1206996910,Channel 230.151.1.10,230.151.1.10,10036,10037,5.8.37.2,12500,8.61.1.10,
10038,10039,true,true,true,230.151.1.10,20038,5.8.37.2,230.151.1.10,20039,5.8.37.2
#SERVER,id,name,ip,role,rtcp-interval,max-receivers,channel-ids...
SERVER,1246310633746,VCDS,10.86.21.70,VCDS,,,1206996901,1206996910,1206996902,1206996903,1
206996904,1206996905,1206996906,1206996907,1206996908,1206996909
SERVER,1242662355264,VQE Server,10.86.21.70,VQE-S,,,1206996901,1206996910,1206996902,12069
96903,1206996904,1206996905,1206996906,1206996907,1206996908,1206996909
#SCP,id,name,ip,role,rtcp-interval,max-receivers,port,username,remote-location,channel-ids
...
SCP,1259680856543,Carousel,10.86.21.76,SCP,,,22,vqe,/etc/opt/vqes,1206996901,1206996910,12
06996902,1206996903,1206996904,1206996905,1206996906,1206996907,1206996908,1206996909
```

In this example, 10 channels, a VCDS, a VQE-S, and a remote server are configured. Unicast retransmission and RCC are enabled on all channels, except for channel 230.151.1.1. FEC is configured on two channels: channel 230.151.1.1 and channel 230.151.1.10. All 10 channels are associated with each server.

The following example shows a channel configuration file in CSV format in Cisco VQE Release 3.5.5:

```
#ER_CHANNEL,id,name,multicast-addr,rtp-port,rtcp-port,src-ip,bit-rate,fbt-addr,rtx-rtp-por
t,rtx-rtcp-port,xr-report-opt,err-opt,rcc-opt,rtcp-rsize-opt
ER_CHANNEL,1206996909,Channel 230.151.1.9,230.151.1.9,10032,10033,5.8.37.2,20000,8.61.1.9,
10034,10035,true,true,true,false
ER_CHANNEL,1206996908,Channel 230.151.1.8,230.151.1.8,10028,10029,5.8.37.2,15000,8.61.1.8,
10030,10031,true,true,true,false
ER_CHANNEL,1206996907,Channel 230.151.1.7,230.151.1.7,10024,10025,5.8.37.2,15000,8.61.1.7,
10026,10027,true,true,true,false
ER_CHANNEL,1206996906,Channel 230.151.1.6,230.151.1.6,10020,10021,5.8.37.2,2000,8.61.1.6,1
0022,10023,true,true,true,false
ER_CHANNEL,1206996905,Channel 230.151.1.5,230.151.1.5,10016,10017,5.8.37.2,2000,8.61.1.5,1
0018,10019,true,true,true,false
ER_CHANNEL,1206996904,Channel 230.151.1.4,230.151.1.4,10012,10013,5.8.37.2,3750,8.61.1.4,1
0014,10015,true,true,true,false
ER_CHANNEL,1206996903,Channel 230.151.1.3,230.151.1.3,10008,10009,5.8.37.2,3750,8.61.1.3,1
0010,10011,true,true,true,false
ER_CHANNEL,1206996902,Channel 230.151.1.2,230.151.1.2,10004,10005,5.8.37.2,3750,8.61.1.2,1
0006,10007,true,true,true,false
```

```
#SERVER,id,name,ip,role,rtcp-interval,max-receivers,channel-ids...
SERVER,1246310633746,VCDS,10.86.21.70,VCDS,,,1206996902,1206996903,1206996904,1206996905,1
206996906,1206996907,1206996908,1206996909
SERVER,1242662355264,VQE Server,10.86.21.70,VQE-S,,,1206996902,1206996903,1206996904,12069
96905,1206996906,1206996907,1206996908,1206996909
#SCP,id,name,ip,role,rtcp-interval,max-receivers,port,username,remote-location,channel-ids
...
SCP,1259680856543,Carousel,10.86.21.76,SCP,,,22,vqe,/etc/opt/vqes,1206996902,1206996903,12
06996904,1206996905,1206996906,1206996907,1206996908,1206996909
```

In this example, eight channels, a VCDS, a VQE-S, and a remote server are configured. Unicast retransmission and RCC are enabled on all channels. No FEC services are enabled. All eight channels are associated with each server. The field rtcp_rsize-opt was introduced in Cisco VQE Release 3.5.5. The option to send reduced-size RTCP packets is disabled for each channel.

How to create the CSV format

You can create the CSV file by using lines of ASCII text with values separated by commas.

Use the following procedure to create a channel configuration file in CSV format.

Step 1 Open a text editor (such as Microsoft Notepad) or any application that allows you to export or create a CSV file.

Step 2 Use a separate line to enter the values for a channel configuration or a server configuration. You must observe the following rules when you create the CSV data file.

- Always include comma separators, even if a field is blank.
- You must enter channel, server, and remote server configurations on separate rows.
- Label the first field of a row either CHANNEL, SERVER, or SCP to identify the type of data that the row represents.
- If you insert a blank line an error will occur.

Step 3 Upload the CSV file to the VQE Tools server on which the VCPT resides.