



# VCSe™ 2000/9000/20-20® Communication Platforms

## Training Classes



VCSe™ 2000 MDC/LDC  
Common Control Shelf



VCSe™ 2000/9000  
MDX/LDX  
Telephony Expansion  
Shelf



VCSe™ 9000 VME  
Common Control  
Cabinet



Cerato® Arcata™  
2826 Dual Mode  
Endpoint

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## **VCSe™ 2000/9000/20-20® Multi-Media Voice Switching Communications Platforms Training**

The MedTel Services™ VCSe 2000/9000/20-20 is a fully integrated, voice/data switching system capable of supporting the most demanding networking and stand-alone private switching system requirements.

Major corporations and government institutions in over 20,000 installations throughout the world rely on the power and endurance of the VCSe 2000/9000/20-20 for their critical communications needs.

As part of our commitment to excellence, MedTel Services is proud to offer a full suite of learning opportunities to assist you in maximizing the potential of your VCSe 2000/9000/20-20 switching systems.

From introductory database administration classes, to in-depth installation and maintenance training, advanced networking, and computer telephony integration, MedTel Services has a proven curriculum and education path to suit your needs.

### **In-Depth Instruction and Hands-On Learning**

All MedTel Services' training courses provide focused, in-depth instruction coupled with vital hands-on learning labs to help our students maximize their learning potential.

MedTel Services' classrooms are equipped with specialized training systems that provide the trainee with the "hands-on" experience that is crucial to coming on line quickly and maintaining the highest levels of productivity. Classes provide a combination of instructor lectures, written exercises, quizzes, group activities and instructor supervised student lab work. Each student's performance is monitored and evaluated throughout the class.

### **Focused Education for Any Need**

Whether you are a distributor, end-user, or systems integrator, MedTel Services' VCSe 2000/9000/20-20 training courses are designed to equip you with the knowledge and skills you need to be most effective in putting the power of the VCSe 2000/9000/20-20 to work for you.

For customers with specialized training needs, MedTel Services can also provide customized classes that focus on specific modules and switch capabilities not covered in our standard course offering. Please contact your MedTel Services distributor or sales representative for details.

### **The MedTel Services Training Mission**

The MedTel Services training department is committed to offering high quality educational programs for its distributors, end users, and employees, led by experienced, qualified instructors, in an environment that promotes learning through proven instructional and hands-on training techniques.

# VCSe™ 2000/9000/20-20® DATABASE ADMINISTRATION



The VCSe 2000/9000/20-20 is a feature-rich communications system. At its heart is a comprehensive, user-configurable suite of software. Understanding that software and how to administer it is the key to unleashing the true power of the VCSe 2000/9000/20-20.

## Knowledge is power

With numerous models, and literally hundreds of standard and optional telecommunications features, plus numerous specialized application software packages, such as large party conferencing, telecommunications for high security environments, and hospitality packages for hotels, VCSe 2000/9000/20-20 database administration can be a complex undertaking.

In the VCSe 2000/9000/20-20 Database Administration class, we'll show you how to make it simple.

The course combines a thorough review of system hardware and software with an in-depth examination of system configuration, call flow design, standard and optional features, administrative tools, and valuable software troubleshooting techniques.

## Who Should Attend

This course is designed for system administrators, telecommunications managers, CSRs training others on telephone operations, switch technicians, or any individual who performs moves, adds, and changes or requires an in-depth understanding of VCSe 2000/9000/20-20 switching system features, call flow design considerations, and administrative tools.

This course is intended to serve both as a stand-alone VCSe 2000/9000/20-20 database administration class and as a refresher or continuing education study course for certified VCSe 2000/9000/20-20 technicians. This course or the VCSe 2000/9000/20-20 Technician Training courses are prerequisites for advanced VCSe 2000/9000/20-20 training courses.

## Prerequisites

Students should have basic telephony experience and an understanding of personal computer operations.

## Schedule

VCSe 2000/9000/20-20 Database Administration is a five day class that meets from 8:30am to 5:00pm daily, including the last day.

## Course Content

Overview of VCSe 2000/9000/20-20 System Hardware and Software	Designing Call Flow
<ul style="list-style-type: none"> <li>• Telephony boards and backplane wiring</li> <li>• Shelf mapping</li> <li>• Standard and optional features</li> <li>• Application software</li> </ul>	<ul style="list-style-type: none"> <li>• Station-to-station, inbound, outbound, and tandem call processing</li> <li>• Least cost and priority routing</li> </ul>
System Configuration	Implementing System Features
<ul style="list-style-type: none"> <li>• Telephony boards Digital/Dual mode, and analog telephones</li> <li>• Attendant workstations</li> <li>• Peripheral devices</li> <li>• Creating, deleting, copying, and activating databases</li> <li>• Backing-up and restoring databases</li> <li>• Remote administration terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic call distribution</li> <li>• Group and directed group pickup</li> <li>• Call redirection</li> <li>• Secondary extensions</li> <li>• Hunt groups</li> <li>• Speed dialing</li> <li>• Screening groups</li> <li>• Pre-set and meet-me conferences</li> <li>• Keypad extensions</li> <li>• Directory listings</li> </ul>
Phone Operations	Moves, adds, and changes
<ul style="list-style-type: none"> <li>• Pre-defined and user-configurable features</li> <li>• Programmable keys</li> </ul>	Voice mail integration considerations
Attendant Workstation Operations	System administration and reporting
Understanding Class of Service	Call detail recording and reporting
<ul style="list-style-type: none"> <li>• Feature sets</li> <li>• Routing privileges</li> <li>• Dial controls</li> </ul>	Software troubleshooting tools and methods
	Voice over IP Integration

## Course Material

Students receive comprehensive workbooks, a full suite of VCSe 2000/9000/20-20 database configuration forms, and electronic copies of VCSe 2000/9000/20-20 technical documentation.

Course Name	Course Number	Number of Days	Price: Per Student
VCSe 2000/9000/20-20 Database Administration	2020DBATRG	5	\$2,250

For more information about available training courses: Call 941.753.5000 ex-7550 or visit [www.medtelservices.com](http://www.medtelservices.com).

# VCSe™ 2000/9000/20-20® Technician Training



In over 20,000 installations around the globe, VCSe 2000/9000/20-20 systems are the engines that power vital business and governmental communications services. Up-time is a priority and often mission critical.

## Effective Solutions When They're Needed Most

MedTel Services understands the importance of up-time. That's why we have established rigorous standards of excellence in our VCSe 2000/9000/20-20 Technician Training class. MedTel Services certification ensures that a technician has exhibited a thorough understanding of VCSe 2000/9000/20-20 installation, configuration, maintenance, and troubleshooting.

Our VCSe 2000/9000/20-20 Technician Training course provides a detailed review of system hardware, software, installation, wiring, power-up procedures, system expansion, and daily maintenance. Students perform hands on troubleshooting and learn to use software diagnostics programs that will help them to quickly target hardware and software problems and provide timely, effective resolutions. And because database configuration is such a vital component of any communications system, students perform extensive call processing design and database configuration for Network and PBX applications.

## Who Should Attend

The VCSe 2000/9000/20-20 Technician Training course is designed for switch technicians or engineers who are responsible for hardware and software configuration, installation, maintenance, and/or troubleshooting of VCSe 2000/9000/20-20 switching systems.

This course or the VCSe 2000/9000/20-20 Database Administration course are prerequisites for advanced VCSe 2000/9000/20-20 training courses.

The VCSe 2000/9000/20-20 Technician Training courses are prerequisites for advanced VCSe 2000/9000/20-20 training courses.

## Prerequisites

Students should be experienced telecommunications personnel with back-grounds in installation, programming, operation, and maintenance of software driven PBX and hybrid switching systems.

Students should have experience with station features, applications (such as incoming and outgoing routing features), central office functions, and fundamental telephony electronics. A basic understanding of the operation of personal computers is mandatory.

## Course Content

Overview of VCSe  
2000/9000/20-20 System  
Hardware and Software

- Common equipment
- Power supplies
- Telephony boards and backplane wiring
- Shelf mapping
- Redundancy
- Shelf and cabinet expansion
- System administration and configuration software

Hardware and Software  
Installation

Power-up Procedures

Hands-On System  
Configuration

- Database development & maintenance
- Telephony boards
  - Analog, digital and VoIP stations and trunks cards
  - System resources
- Digital, dual mode, and analog telephones
- Attendant workstations
- Peripheral devices
- Remote administration terminals

Class of Service

- Feature sets
- Routing privileges
- Dial controls

Designing Call Flow

- Station-to-station, inbound, outbound, and network call processing
- Least cost & priority routing
- Call intercept treatment
- VoIP integration

Moves, Adds, and Changes

Maintenance Phones

System Administration

- Passwords
- System Menus
- Backing-up and restoring databases

Troubleshooting

- Tracing call flow
- System alarms and alarms management
- Telephony diagnostics
- Maintenance history
- Call blocking and redirecting
- Call detail recording
- Network control

System Traffic Statistics  
Reporting

## Schedule

VCSe 2000/9000/20-20 Technician Training is a ten day class. It meets from 8:30am to 5:00pm Monday through Friday for two weeks. Class usually ends by 3:00pm on the last day of class.

## Course Material

Students receive comprehensive student workbooks, a full suite of VCSe 2000/9000/20-20 database configuration forms, and electronic copies of VCSe 2000/9000/20-20 technical documentation.

Course Name	Course Number	Number of Days	Price: Per Student
VCSe 2000/9000/20-20 Technical Training (501)	2020TECHTRG	10	\$4,500

For more information about available training courses: Call 941.753.5000 ex-7550 or visit [www.medtelservices.com](http://www.medtelservices.com).



# VCSe™ 2000/9000/20-20® HOST INTERFACE LINK (HIL) TRAINING

Intelligent call routing. . . . .  
Computer telephony integration. . . . .  
Multi-media communications. . . . .

Today's switching systems have to do a lot more than just route calls. That's why the VCSe 2000/9000/20-20 offers HIL, an open, high-level API that provides a flexible integration portal for computer telephony applications.

## Intelligent Integration for Advanced Call Processing Systems

HIL (formerly known as VoiceFrame) is the means by which any VCSe 2000/9000/20-20 switch can provide the seamless, intelligent communications services customers have come to expect from forward-looking corporations.

In this fast paced five day course, students receive detailed introductions to the HIL protocol, message set, API, and integration considerations. Also, extensive hands-on experience in configuring and implementing HIL-enabled solutions, including call routing based on host database lookups and HIL-enabled ACD with agent screen pops.

The course lab environment includes a basic Host Computer for computer telephony integration (CTI) and multiple VCSe 2000/9000/20-20 switches for live call testing and trouble-shooting.

## Who Should Attend

The VCSe 2000/9000/20-20 HIL course is designed for systems integrators, switch technicians and engineers responsible for integrating, installing, maintaining, and trouble-shooting HIL applications.

## Prerequisites

Students must have successfully completed and received certification for either the VCSe 2000/9000/20-20 Technician Training class or the VCSe 2000/9000/20-20 Database Administration class. An understanding of Local Area Networking is essential to grasp the data communications concepts presented in this course. A basic understanding of the operation of personal computers is mandatory. An understanding of programming concepts and methodologies is strongly recommended

## Course Content

### HIL Overview

- Features and benefits
- Common applications
- Hardware and software requirements

### HIL Configuration

- OCR requirements
- Class of service
- Define HIL circuit locations
- Define HIL links
- LAN and serial link connections
- Call flow

### Overview of HIL Protocol

- Message structure
- Profiles used to assemble routing information
- HIL message set
- HIL signaled circuit and call tracking states

### HIL Application Program Interface (API)

Considerations for implementing the HIL API in 3<sup>rd</sup> party applications

### HIL Functions

- Host augmented call routing (Route Request)
- HIL signaled circuits
- Call tracking
- Call connection
- HIL port connect
- Device control
- HIL ACD agents

### In-Band Signaling vs. Out-of-Band HIL-Signaled Circuits

### DSP Digit Collection

### Hands-On Application Configuration

- HIL-enabled automatic call distribution
- Screen pops
- Dealer locator
- Universal number (follow-me/find-me)
- International call-back

### Redundancy

### Call Detail Reporting

### Troubleshooting

## Schedule

VCSe 2000/9000/20-20 HIL Training is a five day class. It meets daily from 8:30am to 5:00pm, including the last day of class.

## Course Material

Students receive comprehensive student workbooks, electronic copies of VCSe 2000/9000/20-20 technical documentation, and hard copies of VCSe 2000/9000/20-20 HIL documentation.

Course Name	Course Number	Number of Days	Price: Per Student
VCSe 2000/9000/20-20 Host Interface Link (HIL) Training	2020HILTRG	5	\$2,250

For more information about available training courses: Call 941.753.5000 ex-7550 or visit [www.medtelservices.com](http://www.medtelservices.com).

# VCSe™ 2000/9000/20-20® SIGNALING SYSTEM 7 TRAINING



Signaling System 7 (SS7) is a fault-tolerant, highly-reliable data communications network that links telecommunications systems around the world. It allows telephone networks to share vital signaling and control information over high-speed data links, reducing call fraud and increasing the efficiency of call switching across the telephone network.

The MedTel Services™ VCSe 2000/9000/20-20 fits into the SS7 network as a Signaling Point (SP), allowing you to reap the speed, savings, and security advantages offered by this powerful global communications protocol.

**Putting Out of Band Signaling to Work for You**  
Our VCSe 2000/9000/20-20 SS7 training course offers a thorough introduction to the SS7 protocol and the VCSe 2000/9000/20-20's position in the big SS7 picture.

Course content includes in-depth discussion of the SS7 network and messaging protocols, plus the hardware and software configuration necessary to connect the VCSe 2000/9000/20-20 switch to the SS7 public network. Students perform hands-on labs to define, setup, and maintain all layers of the SS7 protocol applicable to VCSe 2000/9000/20-20 switches. Real life troubleshooting exercises incorporating the use of SS7 test equipment introduce students to the skills and understanding they need to be immediately effective in maintaining and troubleshooting VCSe 2000/9000/20-20 systems.

### Who Should Attend

The VCSe 2000/9000/20-20 SS7 training course is designed for switch technicians or engineers who are responsible for hardware and software installation, maintenance, and/or troubleshooting of VCSe 2000/9000/20-20 switching systems in an SS7 environment.

### Prerequisites

Students should be experienced telecoms personnel with backgrounds in installation, programming, operation, and maintenance of software driven PBX and hybrid switching systems.

Students must have successfully completed and received certification for the VCSe 2000/9000/20-20 Technician Training class or the VCSe 2000/9000/20-20 Database Administration class.

### Course Content

#### Introduction to SS7

- Elements of the SS7 network
- Advantages of Signaling System 7
- SS7 domestic and international networks

#### Overview of SS7 Protocol

- The OSI model
- Database query mode
- Trunk query mode
- Message transfer part
- ISDN user part
- TCAP and SCCP functions
- FISU, LSSU, and MSU message formats and functions
- Message routing
- Point codes

#### VCSe 2000/9000/20-20 SS7 Configuration

- PCU installation
- SS7 system parameters and timers
- SS7 Level 2 and Level 2 configuration
- T1 ISUP and clear channel configuration
- Nailed-up signaling link connections

#### SS7 Configuration (cont)

- ISPU facility configuration
- Defining SS7 call flow

#### Hands-On SS7 Maintenance

- Changing the destination point code of an ISUP trunk group
- Creating, moving and deleting F-links
- SS7 test equipment and how to use it

#### Review of Sample Customer Configuration and Conformance Documents

#### Trunk Signaling

- ISUP message formats and functions (IAM, ACM, ANM, REL, RLC, SUS, RES, etc)
- Call setup and tear down

#### SS7 Troubleshooting

- Error messages and meanings
- SS7 test equipment
- VCSe 2000/9000/20-20 SS7 diagnostic tools

#### Interworking

- Messaging and call switching in a combined MF/SS7 environment
- Backward call indicators

### Schedule

VCSe 2000/9000/20-20 Signaling System 7 training is a five day class. It meets from 8:30am to 5:00pm daily, including the last day of class.

### Course Material

Students receive comprehensive student workbooks, electronic copies of VCSe 2000/9000/20-20 technical documentation, and hard copies of SS7 documentation.

Course Name	Course Number	Number of Days	Price: Per Student
VCSe 2000/9000/20-20 Signaling System 7	2020SS7TRG	5	\$2,250



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