



Customer Training Offerings Catalog



Including EMC Proven Professional Certification



When information comes together,
your world moves ahead.



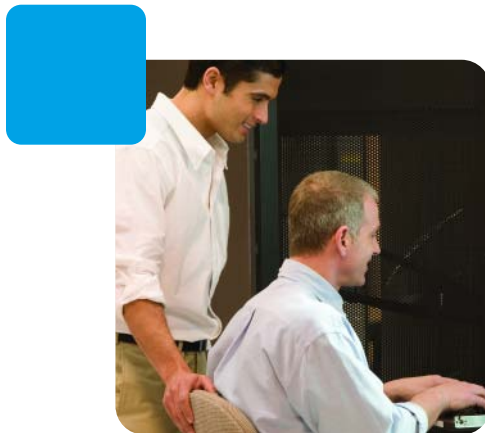
When information
comes together,
your performance
multiplies.

Information lives with EMC Proven™ Professional Certification. We'll teach you how to get more out of your EMC® products. Improve application performance. Reduce risk and error. And boost productivity. Since training helps you build solutions and resolve problems faster and more accurately, you'll feel as if you've added IT staff. Get Proven.

To learn more, call 1-888-EMC-TRNG or visit www.EMC.com/trainingtoday.

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EMC Education Services

We'll teach you how.

Be more productive. Accelerate problem resolution. Increase uptime. Conduct faster implementations. These are just some of the benefits that EMC® Education students report* after attending training. In fact, 98 percent of students indicated that EMC training added measurable value to their organizations.

EMC Education Services delivers the skills and expertise necessary for students to boost their workplace productivity today, while enhancing their career opportunities for tomorrow. With an expansive menu of training and certification offerings, EMC Education Services strives to meet the demands of the workplace and the learning needs of the individual.

The results are undeniable. Our students overwhelmingly indicate they reap the on-the-job rewards of their increased knowledge. A commitment to delivering quality education that yields measurable results is paying dividends for thousands of EMC customers each year. Use this catalog to understand how you too can take advantage of this opportunity.

* Source: EMC Education 60/120-day post-class surveys



EMC Education Services has been named one of Training magazine's Top 100 training organizations for three consecutive years.

Getting Started with EMC Education Services

1. Find your Path

Each student approaches training with a unique background and objective. EMC Education aims to make it easy for you to find the right training agenda based on your needs. We have created a series of Learning Paths that serve as easy-to-navigate roadmaps of the training needed to attain technical competency in a product-oriented or functional specialty. Learning Paths take the guesswork out of planning a training curriculum.

Alternatively, a Technical Training Consultant can help you plan a curriculum that addresses organizational and individual needs. As a free service to EMC customers, Technical Training Consultants assess the short- and long-term learning objectives of an individual or an entire IT organization to define a customized training plan. You can connect with a Technical Training Consultant by contacting EMC Education Services by phone or e-mail at any of our locations.

2. Acquire Training

EMC Education Services continually invests in technology to bring training closer to you. Our goal is to provide the education you need, when and how you need it. We accomplish this through a blended learning model that includes Video Instructor-Led Training, Instructor-Led Training, e-Learning, and EMC LIVE Virtual Classroom. In addition, we offer onsite training in customer environments.

"When we come back from EMC training classes, we come back empowered to help the company."

Ruben Williams

Senior Network Engineer, Option One Mortgage



Video Instructor-Led Training (VILT)

Classroom courses delivered by world-class instructors—recorded and delivered via CD to provide the classroom content and experience without requiring travel.



Instructor-Led Training (ILT)

Traditional classroom-based training offered in more than 70 training centers worldwide that features small class size, hands-on labs, and valuable instructor and peer interaction.



e-Learning

Self-paced and downloadable course presentation and student guide that can be taken any time, anywhere.



EMC LIVE Virtual Classroom

Online, virtual classroom courses available from any location, featuring lab exercises and meaningful peer and instructor interactions.



3. Validate your Skills

The EMC Proven™ Professional certification program validates your expertise through proctored exams. Becoming an EMC Proven Professional demonstrates that you are among the elite storage administration professionals in the market. In addition to providing a broad technical education to enhance your productivity, the EMC credential can open new doors in your career.

EMC Proven Professional

Get Proven.

Information storage and management is one of the fastest growing segments of the IT industry. Differentiate yourself in this ever more visible field by becoming an EMC Proven Professional. Becoming certified can open new doors in your career by developing an area of expertise that enables you to move from individual contributor to technology advisor.

Program Structure

EMC Proven Professional is an exam-based certification program that is considered the most comprehensive in the information storage and management industry. EMC customers have the opportunity to participate in three unique areas of the program:

NEW Storage Technologist Track: Ideally suited for all professionals with responsibility for planning, designing, managing, or using storage technology, this track addresses modern storage and information availability concepts. Participants are introduced to the program with

EMC's industry-leading Storage Technology Foundations (STF) curriculum, which builds strong understanding of concepts associated with modern storage subsystems, connectivity, storage networking (SAN, NAS, and CAS), information availability and management. Associate (EMCPA) recognition is provided after passing the corresponding STF exam. Further recognition can be achieved by completing the courseware and exams at the Specialist (EMCST) and Expert (EMCSTe) levels.

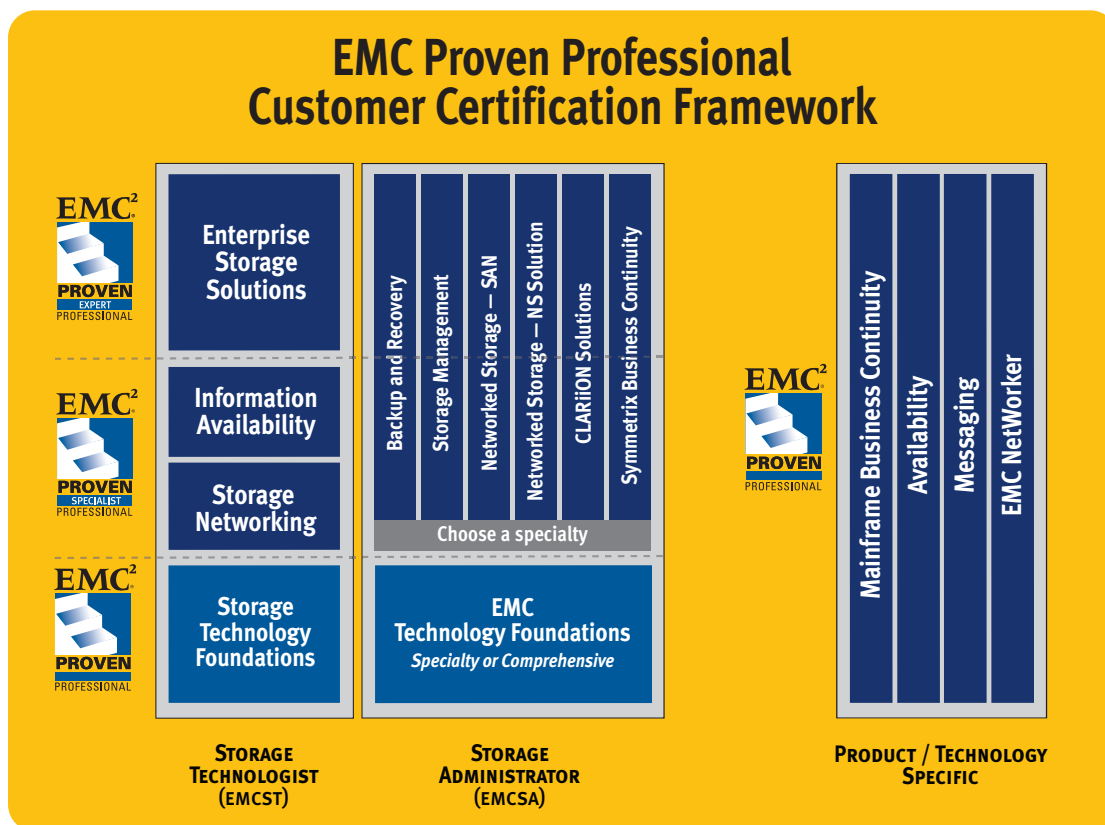
Storage Administrator Track: Strongly recommended for those managing information infrastructure using EMC technology and solutions, this track focuses on the integration and management of EMC solutions in diverse environments. Participants proceed through this certification track by first completing the EMC Technology Foundations specialty or comprehensive curriculum, covering the fundamentals of EMC product features and capabilities, and passing the Associate (EMCPA) exam. Additional courses and exams in one of six specialty areas are required to advance to the Specialist (EMCSA) and Expert (EMCSAe) levels.

NEW Product/Technology-Specific

Certifications: This category validates the skills of those responsible for implementing and managing a specific information storage and management product or technology. Participants complete a focused curriculum around that topic and pass a corresponding exam or exams to achieve EMC Proven Professional recognition.

Exam Preparation

EMC Proven Professional exams are based upon the content of supporting courses. It is strongly recommend that certification candidates prepare for exams by taking the classes found in the Supporting Study Material list associated with each specialty. In addition, EMC Education Services offers free online practice exams, which cover similar topics to the proctored exams to help identify skill strengths and gaps. Visit the Training area of Powerlink™ to test your readiness with a practice exam.



Purchasing and Registering for EMC Training

Customers can purchase EMC training in a variety of ways based upon the amount and type of education they are seeking.

Subscriptions

Customer Training Subscription

CESUBCUS01 \$9,995

EMC Customer Training Subscriptions maximize your training investment by providing unlimited access to EMC training for one full year. For one low price, a subscription allows an individual to consume all regularly scheduled ILT, e-Learning, and EMC LIVE courses, as well as up to three VILT courses—that adds up to more than 150 technical training courses. Subscriptions are the ideal way to purchase training for those striving to get up to speed quickly on one or more EMC technologies, as well as for those pursuing EMC Proven Professional certification.

Maximize your educational opportunity and save more by selecting our **two-year Customer Training Subscription**, which provides the same level of access as our one-year subscription, plus six VILT titles, for just \$17,995—an additional 10 percent savings.

e-Subscriptions are also available, to provide unlimited access to the complete library of EMC e-Learning courses for one student for a full year. More information on e-Learning offerings and e-Subscriptions can be found on page 17.

ValuePaks and Video ValuePaks

Comprehensive learning at a value price

ValuePaks are a cost-effective method of purchasing bundled EMC training for less than you would pay *a la carte* for the same curriculum. ValuePaks combine a number of e-Learning courses with one or more instructor-led courses, or in the case of Video ValuePaks, Video Instructor-Led Training courses. Most Learning Paths have one or more associated ValuePaks to take the guesswork out of planning an appropriate training agenda. (Model numbers and pricing are located on subsequent pages within the relevant Learning Path.)

Top-Five Value Paks

Model Number	Description	Price (USD)
CE-VALPAK-CBC	CLARiiON Business Continuity	\$4,750
CE-VALPAK-CLN	CLARiiON Management	\$2,970
CE-VALPAK-CC	ControlCenter	\$4,750
CE-VALPAK-SAN	SAN	\$4,750
CE-VALPAK-BC	Symmetrix Business Continuity	\$4,750

Training Units

Training flexibility for every organization

Training Units are the equivalent of EMC training currency. Organizations purchase Training Units which can then be redeemed by individual students for EMC training for one year from the date of purchase.

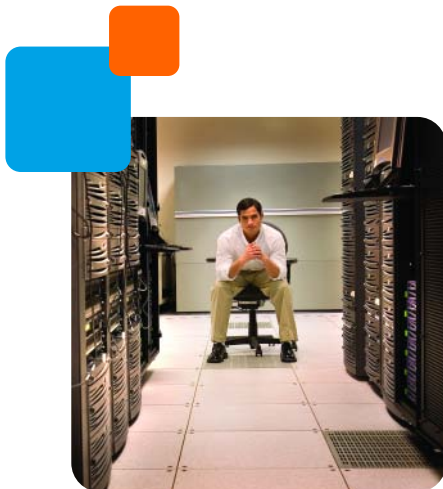
Model Number	Description	Price (USD)
CEPASPR11	1 Training Unit	\$330
CEPASPR01	3 Training Units	\$990
CEPASPR03	9 Training Units	\$2,970
CEPASPR05	15 Training Units	\$4,750
CEPASPR00	30 Training Units	\$8,995

Registration

EMC Education Services courses are accessed online via the Training area of Powerlink, allowing you to search for courses, view course descriptions and schedules, and register*. This is the easiest and fastest method to find and register for training using a pre-purchased subscription, ValuePak, or Training Units. You may also pay by credit card.

If you experience difficulty with course registration, please call or e-mail your regional EMC training center and a representative will assist you.

*Registration for EMC training courses is integrated with EMC's customer extranet, Powerlink. If you do not have a Powerlink account, please visit <http://powerlink.EMC.com> to request one.



Backup and Recovery

Enhance the performance of your backup and recovery processes. This Learning Path will elevate your knowledge and skills pertinent to the latest version of EMC NetWorker™, as well as address emerging technologies and concepts, such as backup-to-disk, virtual tape library, and LAN and NAS backup theory of operations. Backup and recovery training is available as individual courses or in ValuePaks that deliver core learning at a discounted price.

Backup and Recovery ValuePak	
Storage Foundations	Management & Administration
- Backup and Recovery Fundamentals - EMC NetWorker Foundations - EMC NetWorker Modules Overview - Replication Manager Foundations - NAS Foundations	- CLARiiON CX Series Backup to Disk - LAN Backup to Disk Overview - CLARiiON Disk Library - NAS Backup Concepts - Replication Manager Implementation and Management Overview  EMC NetWorker Administration for UNIX and Microsoft Windows 5 Days
 Courses in this Learning Path support the EMC Proven Professional Storage Administrator Backup and Recovery specialty. (Cost of exams is not included in ValuePaks.)	
Associate Exam E20-097	Specialist Exam E20-597

Backup and Recovery ValuePak

12 Training Units or \$3,960

CE-VALPAK-BR

The Backup and Recovery ValuePak teaches students how to perform backup and recovery tasks using the EMC NetWorker 7.3 product. It also covers networking fundamentals that will inform you of effective backup and recovery strategies. The ValuePak includes the EMC NetWorker Administration for UNIX and Microsoft Windows instructor-led course plus ten e-Learning courses for added value.

Other Related Training



EMC NetWorker 7.2 Administration for UNIX

• 6 Training Units or \$1,980 • 8 Training Units or \$2,640

This four-day course targets storage management professionals who install, configure, and administer EMC NetWorker 7.2 for industry-standard platforms and network topologies (TCP/IP, NAS, and SAN).



EMC NetWorker 7.2 Administration for Microsoft Windows

• 6 Training Units or \$1,980 • 8 Training Units or \$2,640

This four-day course targets storage management professionals who install, configure, and administer EMC NetWorker 7.2 for industry-standard platforms and network topologies (TCP/IP, NAS, and SAN).



EMC NetWorker 7.2 Advanced Administration for UNIX and Microsoft Windows

6 Training Units or \$1,980

This three-day course focuses on advanced topics, including device features, configuration, managing performance, firewalls, and configuring EMC NetWorker 7.2 in an NDMP environment.

For complete course details, please see the alphabetical course listings beginning on page 19.



Content-Addressed Storage (CAS) Essentials

Develop expertise in content-addressed storage (CAS). This Learning Path introduces foundational CAS architecture and theory of operations, then progresses to the CAS Management course, which provides the opportunity to configure and operate EMC Centera™ in a hands-on lab environment. Advanced courses cover API programming, allowing you to build connections between key applications and your CAS infrastructure. CAS training is available as individual courses or in a ValuePak that delivers core learning at a discounted price.

CAS ValuePak	
Storage Foundations	Management & Administration
 Centera Foundations  Basic Network Environment	 Information Lifecycle Management  CAS Solution Strategies  Centera Virtual Pools and Application Profiles
 Get an entire organization started with Centera through a Centera FastStart Fundamentals site license.	



CAS ValuePak

12 Training Units or \$3,960

CE-VALPAK-CAS

The CAS ValuePak provides comprehensive coverage of content-addressed storage technology, as well as management of the Centera product. The ValuePak includes the CAS Management instructor-led course plus five e-Learning courses for added value.

Advanced Solutions Training

Take the Next Step



Centera API Programming Using C

6 Training Units or \$1,980

This two-day course focuses on integration and development of applications using basic pool, clip, tag, and stream methods. Several hands-on labs guide students through read, write, and delete operations. In addition, advanced topics such as multi-threading, performance considerations, and security will be covered. This course is intended for any person who needs to use the Centera API for natively integrating applications or needs to understand the inner workings of the Centera and how applications interact with it.



Centera API Programming Using Java

6 Training Units or \$1,980

See description above.

Other Related Training

- Centera Seek and Chargeback Reporter

For complete course details, please see the alphabetical course listings beginning on page 19.



CLARiiON Management and Business Continuity

Excel at CLARiiON® management and application integration with this Learning Path. Begin by learning about host-to-storage SAN connectivity and storage provisioning before addressing business continuity and disaster recovery configurations and management. You will complete the curriculum with training on CLARiiON performance considerations and integration with popular applications. CLARiiON training is available as individual courses or in ValuePaks that deliver core learning at a discounted price.

CLARiiON Business Continuity ValuePaks		
CLARiiON Management ValuePak		
Storage Foundations	Management & Administration	Business Continuity
CLARiiON Foundations SAN Foundations PowerPath Foundations	CLARiiON Features Introduction to Fibre Channel VisualSRM Introduction VisualSAN Introduction CLARiiON Host Integration and Management 3 Days	SnapView Foundations* MirrorView and SAN Copy Foundations* SnapView Configuration and Management MirrorView and SAN Copy Configuration and Management 1 Day 1 Day
EMC PROVEN Courses in this Learning Path support the EMC Proven Professional Storage Administrator CLARiiON Solutions specialty. (Cost of exam is not included in ValuePaks.)		
Associate Exam E20-050		Specialist Exam E20-522

* These courses support the E20-050 Associate exam and are not covered in the E20-522 Specialist exam.

CLARiiON Business Continuity ValuePak

15 Training Units or \$4,750

CE-VALPAK-CBC

The CLARiiON Business Continuity ValuePak covers networked storage topics pertinent to the CLARiiON platform and instructs on managing business continuity with CLARiiON and related products. The ValuePak includes the CLARiiON Host Integration and Management, SnapView™ Configuration and Management, and MirrorView™ and SAN Copy™ Configuration and Management instructor-led courses plus nine e-Learning courses for added value.

CLARiiON Business Continuity Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-CBC

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following title is offered as a VILT course: CLARiiON Host Integration and Management (including SnapView, MirrorView, and SAN Copy).

CLARiiON Management ValuePak

9 Training Units or \$2,970

CE-VALPAK-CLN

This ValuePak focuses exclusively on the management of the CLARiiON networked storage platform in an environment where CLARiiON is not part of the business continuity strategy. The ValuePak includes the CLARiiON Host Integration and Management instructor-led courses plus seven e-Learning courses for added value.

Advanced Solutions Training

Take the Next Step



CLARiiON Performance Workshop

9 Training Units or \$2,970

This three-day course details the configuration and implementation of CLARiiON storage for optimal performance, particularly in environments requiring careful initial data layout and analysis of potential or those with performance issues. Extensive hands-on labs are provided for various CLARiiON configurations.



Exchange and SQL Integration with CLARiiON

9 Training Units or \$2,970

This three-day course details the configuration and implementation of Microsoft Exchange and SQL Server on CLARiiON storage systems. The skills are used to size and lay out Exchange and SQL Server databases, logs, and other data structures on CLARiiON storage systems, as well as to design and implement solutions that make use of CLARiiON remote replication software. Extensive hands-on labs are provided for various Exchange and SQL Sever configurations.

Other Related Training

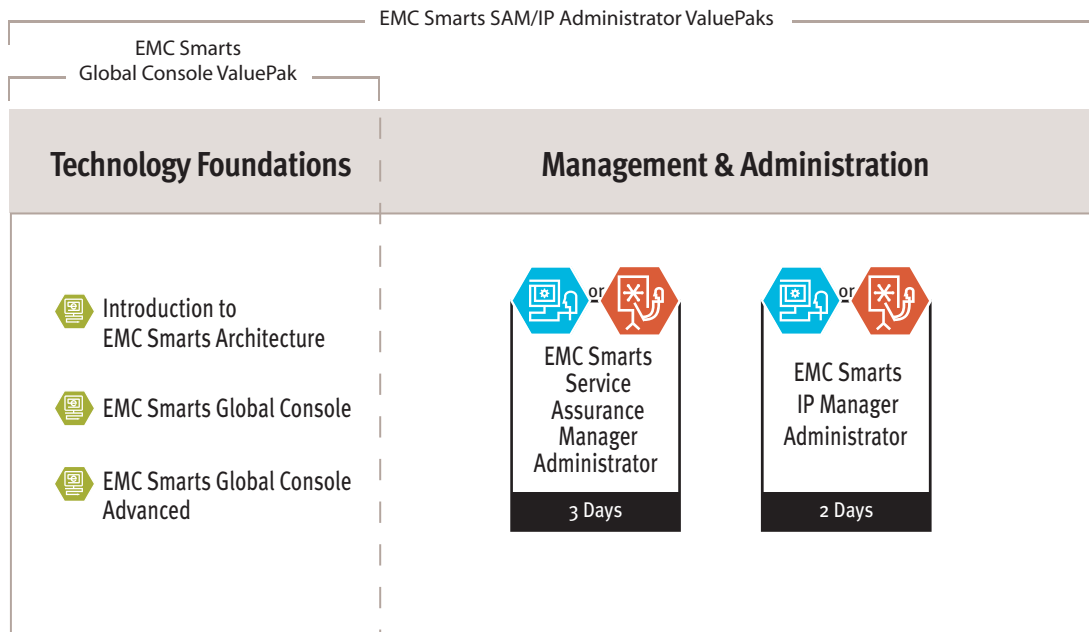
- CLARiiON AX100 Fundamentals
- CLARiiON AX100 Management
- CLARiiON AX150 Fundamentals
- CLARiiON AX150 Management
- Storage Administrator for Exchange
- CLARiiON CX500i Overview
- CLARiiON Disk Library
- CLARiiON Disk Library Implementation and Management
- CLARiiON Solutions for Small and Medium Enterprises

For complete course details, please see the alphabetical course listings beginning on page 19.



EMC Smarts Management Essentials

Establish the foundation for a comprehensive resource management strategy to get the most from your IT infrastructure. This Learning Path enables EMC Smarts customers to understand the infrastructure management principles that allow you to maximize availability and performance of mission-critical IT resources. EMC Smarts training is available as individual courses or in training ValuePaks that provide core learning at a discounted price.



EMC Smarts SAM/IP Administrator ValuePak

15 Training Units or \$4,750

CE-VALPAK-SMT

The EMC Smarts SAM/IP Administrator ValuePak instructs students on the operational capabilities of their resource management software that enable optimization of IT infrastructure. The ValuePak includes the EMC Smarts Service Assurance Manager Administrator and EMC Smarts IP Manager Administrator instructor-led courses plus three e-Learning courses for added value.

EMC Smarts SAM/IP Administrator Video ValuePak

9 Training Units or \$2,970

CE-VIDVPK-SMT

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following titles are offered as VILT courses: EMC Smarts Service Assurance Manager Administrator, EMC Smarts IP Manager Administrator.

EMC Smarts Global Console ValuePak

2 Training Units or \$660

CE-VALPAK-GCL

This ValuePak delivers the foundational EMC Smarts courseware in a convenient package for added savings.

Other Related Training

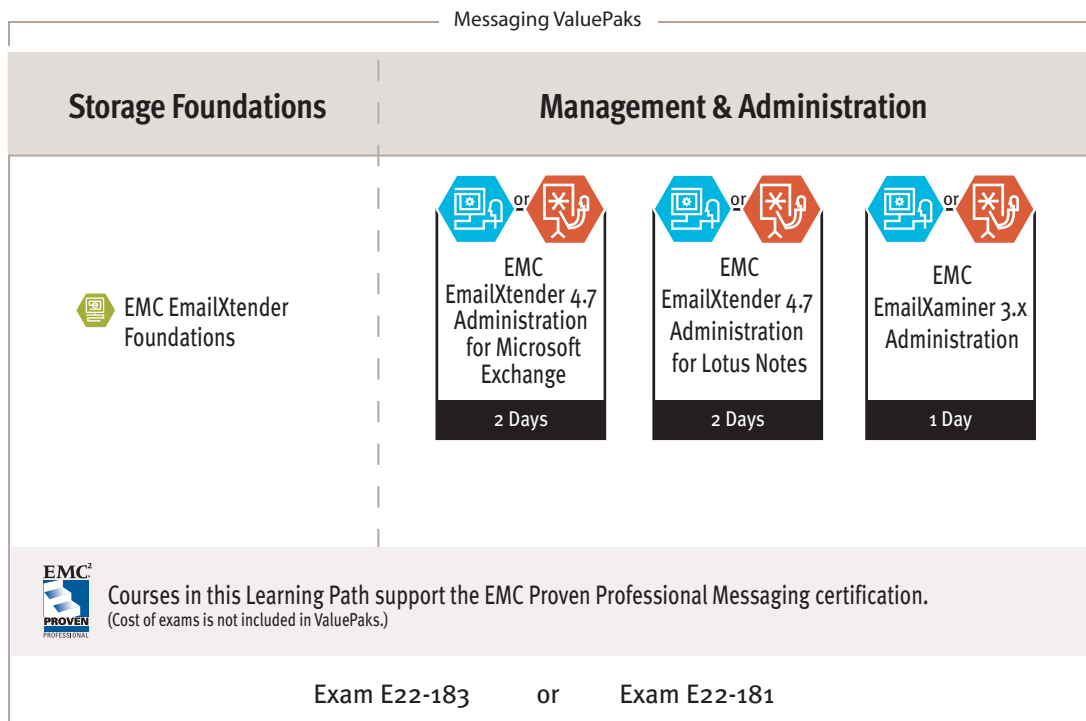
- EMC Smarts Adapter Platform
- EMC Smarts Advanced ASL
- EMC Smarts Application Services Manager
- EMC Smarts ASL for Service Assurance Manager
- EMC Smarts ASL
- EMC Smarts Business Dashboard
- EMC Smarts Global Console
- EMC Smarts MPLS Manager
- EMC Smarts NPM Manager
- EMC Smarts PERL API
- EMC Smarts Report Manager

For complete course details, please see the alphabetical course listings beginning on page 19.



Messaging Solutions

Learn how to achieve cost-effective e-mail archiving and compliance. This Learning Path will elevate your knowledge and skills pertaining to the latest version of EmailXtender® and EmailXaminer™, allowing you to better manage PST/NSF files, eliminate duplication, compress messages, and monitor compliance. Messaging training is available as individual courses or in ValuePaks that deliver core learning at a discounted price.



EMC Messaging ValuePak

6 Training Units or \$1,980

CE-VALPAK-MSG

The EMC Messaging ValuePak teaches students how to optimize their messaging environment with EMC EmailXtender and EMC EmailXaminer. The ValuePak includes the EMC EmailXtender 4.7 Administration for Microsoft Exchange **or** EMC EmailXtender 4.7 Administration for Lotus Notes, and EMC EmailXaminer 3.1 Administration instructor-led courses plus the introductory e-Learning course for added value.

EMC Messaging Video ValuePak

6 Training Units or \$1,980

CE-VIDVPK-MSG

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following titles are offered as VILT courses: EMC EmailXtender 4.x Administration for Microsoft Exchange **and** EMC EmailXtender, 4.7 Administration for Lotus Notes, EMC EmailXaminer 3.0 Administration.

Advanced Solutions Training

Take the Next Step



EMC Messaging Advanced Administration

4 Training Units or \$1,320

This advanced messaging course details the in-depth process flow of EMC messaging products: EmailXtender and EmailXaminer. This course provides the knowledge to perform advanced administration tasks, troubleshoot the messaging system, and implement alternative message capturing configurations.

Other Related Training

- EMC EmailXaminer for Compliance Officers and Reviewers

For complete course details, please see the alphabetical course listings beginning on page 19.



NAS Essentials for Celerra

Ensure resilient and high-performance NAS networking in your environment.

This Learning Path allows you to manage Windows and/or UNIX file systems with consideration for high-availability, security, replication, and backup.

Learning is validated with hands-on labs where you can configure a NAS environment. NAS training is available as individual courses or in ValuePaks that deliver core learning at a discounted price.

Celerra ValuePaks	
Storage Foundations	Management & Administration
- CLARiON Foundations - SAN Foundations - NAS Foundations - Basic Network Environment - Celerra Fundamentals	- Networking Environmental Primer - Introduction to Fibre Channel - IP SAN Technologies - NS Series Architectural Overview - Celerra Features and Functions - Celerra AntiVirus Agent  NAS Operations and Management —Multi-Protocol 5 Days
 Courses in this Learning Path support the EMC Proven Professional Storage Administrator Networked Storage—NS Solution specialty. (Cost of exams is not included in ValuePaks.)	
Associate Exam E20-o80	Specialist Exam E20-537

Celerra ValuePak

15 Training Units or \$4,750

CE-VALPAK-NS

The Celerra® ValuePak covers network-attached storage (NAS) topics, particularly surrounding the Celerra storage platform. The ValuePak includes the NAS Operations and Management—Multi-Protocol instructor-led course plus 11 e-Learning courses for added value.

Celerra Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-NS

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following title is offered as a VILT course: NAS Operations and Management—Multi-Protocol.

Advanced Solutions Training

Take the Next Step



NAS Networking

12 Training Units or \$3,960

This four-day course covers the components within a network infrastructure that affect the ability of a UNIX or Windows client to access network-attached storage. The student learns how to analyze, identify, and troubleshoot network issues in Windows and UNIX environments.



NAS Performance for NS Platform

12 Training Units or \$3,960

This four-day course details the configuration and implementation of NAS solutions for optimal performance. Extensive hands-on labs are provided for basic and complex Celerra configurations.

Other Related Training

- Celerra FileMover
- Celerra NSX Architectural Overview
- Celerra Network Server (CNS) Architectural Overview
- Celerra HighRoad
- NAS Symmetrix Business Continuity

For complete course details, please see the alphabetical course listings beginning on page 19.



SAN Essentials

Learn how to establish and manage a highly scalable SAN network. This Learning Path teaches students how to manage SAN environments ranging from single application to those utilizing multiple platforms, operating systems, and fabric technologies. SAN training is available as individual courses or packaged in ValuePaks that deliver core learning at a discounted price.

SAN ValuePaks			
Storage Foundations		Management & Administration	
 Symmetrix Foundations  CLARiiON Foundations  SAN Foundations  PowerPath Foundations  VisualSAN and VisualSRM Foundations	 Basic Network Environment  Introduction to Fibre Channel  IP SAN Technologies  Connectrix B Series Architecture and Management  Connectrix M Series Architecture and Management  Connectrix MDS Series Architecture and Management	 PowerPath Configuration and Administration  VisualSAN Introduction  ControlCenter Architecture	 or  SAN Management 4 Days
 Courses in this Learning Path support the EMC Proven Professional Storage Administrator Networked Storage—SAN specialty. (Cost of exams is not included in ValuePaks.)			
Associate Exam E20-070		Specialist Exam E20-532	

SAN ValuePak

15 Training Units or \$4,750

CE-VALPAK-SAN

The SAN ValuePak covers management of diverse SAN networks. The ValuePak includes the SAN Management instructor-led course plus 14 e-Learning courses for added value.

SAN Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-SAN

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following title is offered as a VILT course: SAN Management.

Advanced Solutions Training

Take the Next Step



Host-to-Storage SAN Connectivity

15 Training Units or \$4,750

This five-day course focuses on SAN implementation activities, and includes SAN, switch, host, and storage considerations. Extensive lab activities provide experience in the physical and logical configuration of hosts, SAN hardware, and array management. Troubleshooting activities are also covered.

Other Related Training



Cisco MDS 9000 Configuration and Troubleshooting

12 Training Units or \$3,960

This five-day course presents the software tools for installing and managing the EMC Connectrix 9000 series of switches/directors, including Cisco CLI and Fabric Manager.

For complete course details, please see the alphabetical course listings beginning on page 19.



Storage Resource Management for Open Systems

Maximize storage resources in open systems environments with EMC ControlCenter® administration skills. This Learning Path provides maximum exposure to EMC ControlCenter software and its capabilities. Learn how to monitor storage infrastructures, manage alerts, report for capacity planning, provision storage capacities, and tune the environment for optimal performance. ControlCenter training is available as individual courses or in training ValuePaks that deliver core learning at a discounted price.

ControlCenter ValuePaks	
Storage Foundations	Management & Administration
 Symmetrix Foundations  CLARiiON Foundations  SAN Foundations  NAS Foundations  ControlCenter Foundations  VisualSAN and VisualSRM Foundations	 VisualSAN Introduction  VisualSRM Introduction  ControlCenter Architecture  ControlCenter Install and Upgrade  ControlCenter Management 5 Days
 Courses in this Learning Path support the EMC Proven Professional Storage Administrator Storage Management specialty. (Cost of exams is not included in ValuePaks.)	
Associate Exam E20-090	Specialist Exam E20-582

ControlCenter ValuePak

15 Training Units or \$4,750

CE-VALPAK-CC

The ControlCenter ValuePak covers storage resource management topics, particularly surrounding ControlCenter storage management software for the Symmetrix platform. The ValuePak includes the ControlCenter Management instructor-led course plus 10 e-Learning courses for added value.

ControlCenter Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-CC

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following title is offered as a VILT course: ControlCenter Management.

Advanced Solutions Training

Take the Next Step



Symmetrix Performance Workshop

12 Training Units or \$3,960

In this four-day course, students learn to analyze the performance of a Symmetrix® array using ControlCenter Performance Manager. The performance features and benefits of the various business continuity solutions will also be presented. Complete coverage will be given to Performance Manager features and interaction with ControlCenter Console. This course is intended for those responsible for operating, maintaining, or optimizing the performance of a storage environment.



ControlCenter Alerts, Monitoring, and Framework Integration

6 Training Units or \$1,980

This sixteen-hour course covers ControlCenter Alerts, the rationale for customization, and the need for appropriate business processes to resolve problems, along with a detailed review of Alert management in ControlCenter. This course discusses health, capacity, and performance-related alerts, including the methodology and considerations for deploying alerts, as well as integration of ControlCenter alerts into existing SNMP-based framework applications. The training will be enhanced via hands-on, scenario-based labs.

For complete course details, please see the alphabetical course listings beginning on page 19.



Symmetrix Business Continuity for Open Systems

Build business continuity expertise for high-performance applications in the Symmetrix environment. This Learning Path focuses on the use of business continuity software (TimeFinder® and SRDF®) within leading application environments, such as Exchange, Oracle and SQL server. Exercise your skills using application integrated configurations in a lab environment. Symmetrix business continuity training is available as individual courses or ValuePaks that deliver core learning at a discounted price.

Symmetrix Business Continuity ValuePaks	
Storage Foundations	Management & Administration
 Symmetrix Foundations  SAN Foundations  PowerPath Foundations  TimeFinder Foundations  SRDF Foundations	 PowerPath Configuration and Administration  Business Continuity Over Optical Networks  Replication Manager Overview
 Courses in this Learning Path support the EMC Proven Professional Storage Administrator Symmetrix Business Continuity specialty. (Cost of exams is not included in ValuePaks.)	
Associate Exam E20-060	Specialist Exam E20-512

Symmetrix Business Continuity ValuePak

15 Training Units or \$4,750

CE-VALPAK-BC

The Symmetrix Business Continuity ValuePak covers networked storage topics pertinent to the Symmetrix platform and instructs on managing business continuity with Symmetrix and related products. The ValuePak includes the Symmetrix Business Continuity—TimeFinder Solutions and Symmetrix Business Continuity—SRDF Solutions instructor-led courses plus eight e-Learning courses for added value.

Symmetrix Business Continuity Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-BC

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following titles are offered as VILT courses: Symmetrix Business Continuity—TimeFinder Solutions, Symmetrix Business Continuity—SRDF Solutions.

For complete course details, please see the alphabetical course listings beginning on page 19.

Advanced Solutions Training

Take the Next Step



Exchange Integration with Symmetrix

9 Training Units or \$2,970

In this three-day course, learn how to migrate to, and the optimal performance layout for, a Microsoft Exchange Server 2003 and Symmetrix DMX infrastructure. This course is intended for those who specialize in Exchange 2003 infrastructures on Symmetrix/DMX storage systems.



SQL Server Integration with Symmetrix

12 Training Units or \$3,960

In this four-day course, learn and perform SQL Server Snapshot (VDI) backups using TimeFinder and SRDF technologies. This course is intended for those who specialize in SQL Server 2000 infrastructures on Symmetrix/DMX storage systems.



Oracle Integration with Symmetrix

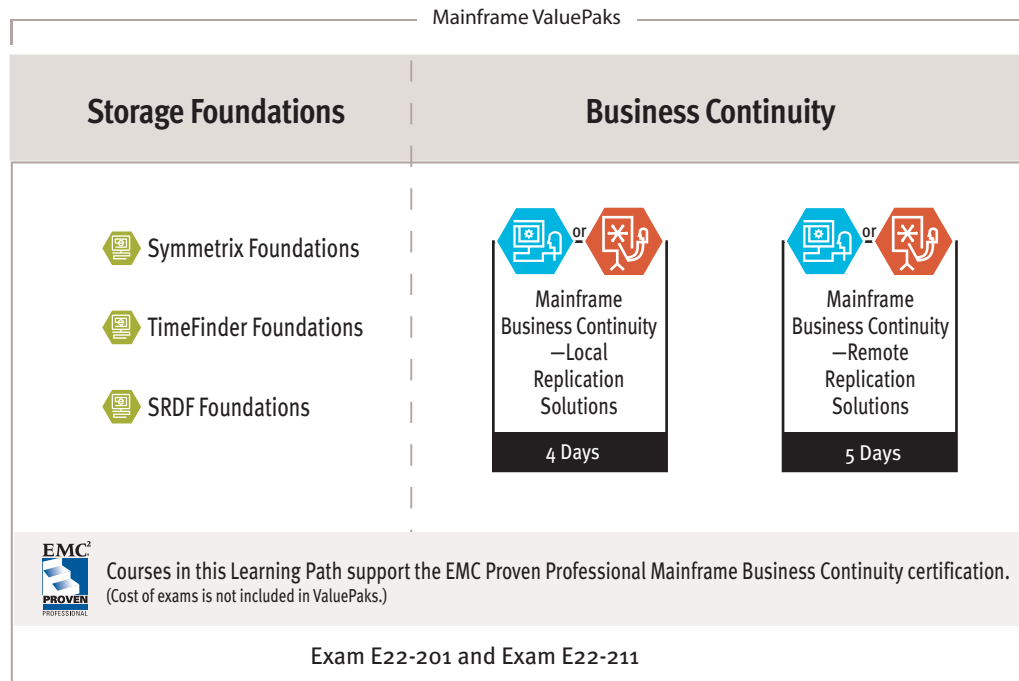
12 Training Units or \$3,960

In this four-day course, learn how to identify and create an optimal performance layout for an Oracle 10g database application within a Symmetrix/DMX infrastructure. This course is intended for UNIX system administrators who support any Oracle 10g application on a Symmetrix/DMX storage platform.



Symmetrix Business Continuity for Mainframe

Build business continuity expertise for your high-performance host applications and Symmetrix environment. This Learning Path focuses on the use of business continuity software (TimeFinder and SRDF) within a mainframe environment. Exercise your skills using TimeFinder and SRDF implemented mainframe configurations built in a lab environment. Symmetrix mainframe training is available as individual courses or in a training ValuePak that delivers core learning at a discounted price.



Mainframe ValuePak

15 Training Units or \$4,750

CE-VALPAK-MF

The Mainframe ValuePak addresses Symmetrix management and business continuity applications specific to the mainframe environment. This ValuePak includes the Mainframe Business Continuity—Local Replication Solutions **or** Mainframe Business Continuity—Remote Replication Solutions instructor-led course plus three e-Learning courses for added value.

Mainframe Business Continuity Video ValuePak

12 Training Units or \$3,960

CE-VIDVPK-MF

This Video ValuePak covers the same topics and courseware as the instructor-led version, but the following titles are offered as VILT courses: Mainframe Business Continuity—Local Replication Solutions **and** Mainframe Business Continuity—Remote Replication Solutions.

For complete course details, please see the alphabetical course listings beginning on page 19.

Advanced Solutions Training

Take the Next Step



Mainframe Business Continuity—SRDF/Star Solutions

15 Training Units or \$4,750

This five-day course provides lecture and hands-on experience in building an EMC SRDF/Star Replication Solution and performing various SRDF/Star Recovery scenarios in a z/OS environment. This course expands on ResourcePak Base, Host Component, Consistency Groups, and introduces the SRDF/Star Recovery Panels. The course reviews business continuity considerations and their practical applications for an SRDF/Star configuration.



Mainframe Host-based Data Migration

9 Training Units or \$2,970

This three-day course provides the necessary hands-on experience and knowledge to determine the appropriate migration tool used in performing data migration in a z/OS environment from one or more storage subsystems. Upon completion of this course the student will be able to install and successfully complete the migration with TDMF, FDR/PAS, or LDMF.

Other Related Training

- ControlCenter Management for Mainframe



e-Learning

Training without Travel

EMC Education Services offers an expansive selection of downloadable, self-study e-Learning modules that include PDF student guides. This training library is applicable to IT professionals with varying experience and education needs:

- Expand the breadth of your EMC expertise.
- Boost your knowledge of the EMC products you manage on a daily basis.
- Achieve the knowledge required to challenge an EMC Proven Professional exam.

e-Subscription

CESUBCUS-ELN

6 Training Units or \$1,980

Gain unlimited access to the full library of 80+ titles for a full year for the same cost as six e-Learning courses.

Below is a partial list of our most frequently downloaded courses:

Networked Storage Protocols

- Introduction to Fibre Channel
- IP SAN Technologies
- Networking Environmental Primer

Storage Area Networking (SAN)

- Connectrix® B Series Architecture and Management
- Connectrix M Series Architecture and Management
- Connectrix MDS Series Architecture and Management
- SAN Advisor™ Overview
- SAN Monitoring and Policy Management
- SAN Planning and Design Concepts
- VisualSAN® Introduction

Network-Attached Storage (NAS)

- Celerra AntiVirus Agent
- Celerra Features and Functions
- Celerra FileMover
- Celerra HighRoad®
- Celerra Network Server (CNS) Architectural Overview
- Celerra NSX Architectural Overview
- Celerra Replicator™ Concepts
- NAS Backup Concepts
- NS Series Architectural Overview
- NS Series Gateway Configuration Application Concepts

Content-Addressed Storage (CAS) and Archiving

- CAS Solution Strategies
- Centera Virtual Pools and Application Profiles
- EMC DiskXtender® for Windows
- EMC DiskXtender File System Manager Administration
- EMC DiskXtender Storage Manager Concepts

Storage Resource Management

- ControlCenter Architecture
- ControlCenter Foundations
- ControlCenter Install and Upgrade
- VisualSRM™ Introduction

Backup and Recovery

- Backing Up and Recovering Clusters with EMC NetWorker
- CLARiiON Disk Library
- Configuring EMC NetWorker in a Firewall Environment
- Configuring EMC NetWorker with Microsoft Volume Copy Shadow Service
- EMC AlphaStor® Concepts
- EMC NetWorker Module for Microsoft Exchange
- EMC NetWorker Module for Microsoft SQL Server
- Implementing EMC NetWorker License Manager
- Performing Automated System Recovery Using EMC NetWorker
- Replication Manager Overview

Messaging

- EMC EmailXaminer for Compliance Officers and Reviewers
- EMC EmailXtender Foundations

Business Continuity

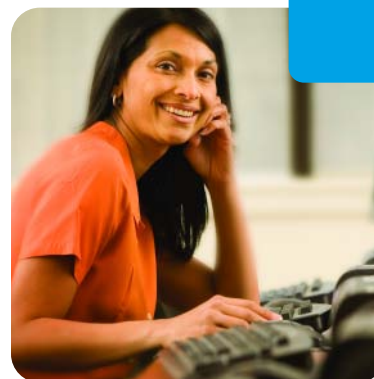
- Business Continuity over Optical Networks
- EMC AutoStart™ Concepts
- EMC AutoStart RepliStor® Data Source
- EMC AutoStart SRDF Data Source
- EMC RepliStor Concepts
- PowerPath® Configuration and Administration

CLARiiON

- CLARiiON AX100 Fundamentals
- CLARiiON AX100 Management
- CLARiiON AX150 Fundamentals
- CLARiiON AX150 Management
- CLARiiON Basic Management
- CLARiiON CX500i Overview
- CLARiiON Disk Library
- CLARiiON Features
- Storage Administrator for Exchange

EMC Smarts

- EMC Smarts® Global Console
- EMC Smarts Global Console Advanced
- Introduction to EMC Smarts Architecture



EMC Technology Foundations

- Backup and Recovery Fundamentals
- Basic Network Environment
- Celerra Fundamentals
- Centera Foundations
- CLARiiON Foundations
- EMC NetWorker Foundations
- EMC NetWorker Modules Overview
- MirrorView and SAN Copy Foundations
- NAS Foundations
- PowerPath Foundations
- Replication Manager Foundations
- SAN Foundations
- SnapView Foundations
- SRDF Foundations
- Symmetrix Foundations
- TimeFinder Foundations
- VisualSAN and VisualSRM Foundations

Storage Technology Foundations

- Introduction to Storage Technology
- Storage Systems Architecture
- Networked Storage Part 1: DAS and NAS
- Networked Storage Part 2: SAN
- Networked Storage Part 3: IP SAN and CAS
- Introduction to Data Availability
- Introduction to Storage Management



These e-Learning titles support the EMC Proven Professional Associate certification.

Free e-Learning! Visit the Training area of Powerlink regularly to take advantage of free training offers.

Instructor-Led Training Quick Reference Guide

Partial list. Please see alphabetical course listings for additional instructor-led courses.

Course Title

Page Number

Available in
Video Format

Infrastructure

Solutions

			Symmetrix	CLARiiON	CAS	SAN	NAS	Business Continuity	Backup, Recovery, and Archive	Compliance	Storage Management	Resource Management (EMC Smarts)
CAS Management	19				•				•	•		
Centera API Programming Using C	19				•				•	•		
Centera API Programming Using Java	19				•				•	•		
Cisco MDS 9000 Configuration and Troubleshooting	20					•						
CLARiiON Host Integration and Management	20	•		•		•						
CLARiiON Performance Workshop	21			•								
ControlCenter Management	22	•	•	•		•	•				•	
ControlCenter Management for Mainframe	22		•								•	
EMC AlphaStor 3.0 Administration	22								•			
EMC AutoStart 5.1 Administration	23	•						•	•			
EMC DiskXtender for Windows Administration	23	•							•			
EMC DiskXtender Storage Manager for UNIX 3.1 Administration	23								•			
EMC DiskXtender UNIX/Linux 2.8 Administration	23								•			
EMC EmailXaminer 3.x Administration	24	•								•		
EMC EmailXtender 4.7 Administration for Lotus Notes	24	•							•			
EMC EmailXtender 4.7 Administration for Microsoft Exchange	24	•							•			
EMC EmailXtender and EMC DiskXtender for Windows Administration	24								•			
EMC Messaging Advanced Administration	25								•			
EMC NetWorker Administration for UNIX and Microsoft Windows	25								•			
EMC NetWorker 7.2 Administration for UNIX	25	•							•			
EMC NetWorker 7.2 Administration for Microsoft Windows	25	•							•			
EMC NetWorker 7.2 Advanced Administration for UNIX and Microsoft Windows	26								•			
EMC RepliStor 6.x Administration	26	•						•	•			
EMC Smarts IP Manager Administrator	27	•										•
EMC Smarts Service Assurance Manager Administrator	28	•										•
EMC Technology Foundations	28		•	•	•	•	•	•	•		•	
Exchange and SQL Server Integration with CLARiiON	29			•				•				
Exchange Integration with Symmetrix	29		•					•				
Host-to-Storage SAN Connectivity	29					•						
Mainframe Business Continuity—Local Replication Solutions	30	•	•					•				
Mainframe Business Continuity—Remote Replication Solutions	30	•	•					•				
MirrorView and SAN Copy Configuration and Management	31	•		•				•				
NAS Networking	31						•					
NAS Operations and Management—Multi-Protocol	31	•	•	•			•					
NAS Performance for NS Platform	31		•				•					
NAS Symmetrix Business Continuity	32		•				•	•				
Oracle Integration with Symmetrix	32		•									
Replication Manager Workshop	32							•	•			
SAN Management	32	•	•	•		•						
SnapView Configuration and Management	33	•		•				•				
SQL Server Integration with Symmetrix	33		•					•				
Storage Technology Foundations	33							•	•	•	•	
Symmetrix Business Continuity—SRDF Solutions	34	•	•					•				
Symmetrix Business Continuity—TimeFinder Solutions	34	•	•					•				
Symmetrix Performance Workshop	35		•									
VisualSRM Installation, Configuration, and Usage	35	•									•	



CAS Management

9 Training Units or \$2,970

This course provides learners with a detailed overview of content-addressed storage (CAS) concepts and Centera-specific operations and management. The course includes significant hands-on activity, exposing attendees to the tools and utilities used to monitor and configure a Centera environment. It also focuses on Centera configuration tasks, including replication, virtual pool configuration, and application and access profile setup. This course is intended for any person who presently or plans to implement and manage Centera content-addressed storage in their environment.

Upon successful completion of this course, participants should be able to:

- Describe the operation of a Centera
- Identify the components in a Centera cabinet
- Identify the steps necessary to set up a Centera
- Perform day-to-day management tasks on a Centera using Centera CLI and Centera Viewer
- Identify potential problems and perform basic troubleshooting

Duration: 3 Days

Prerequisites: Centera Foundations, Basic Network Environment

Suggested next courses: Centera API Programming Using C, Centera API Programming Using Java

This course is part of: CAS Essentials Learning Path



Centera API Programming Using Java

6 Training Units or \$1,980

This course takes an in-depth look at the Centera Java API. The focus is on integration and development of applications using basic pool, clip, tag and stream methods. Several hands-on labs will be used to guide students through read, write, and delete operations. In addition to these basic API functions, advanced topics such as multi-threading, performance considerations, and security will be covered. This course is intended for any person who needs to use the Centera API for natively integrating applications or needs to understand the inner workings of the Centera and how applications interact with it.

Upon successful completion of this course, participants should be able to:

- Natively integrate applications with Centera using the Centera API
- Describe how Centera interacts with natively integrated applications
- Follow best practices, including multi-threading, performance considerations, throughput optimization, and application tuning

Duration: 2 Days

Prerequisites: CAS Management, thorough working knowledge of at least one programming language, general understanding of Java

This course is part of: CAS Essentials Learning Path



Centera API Programming Using C

6 Training Units or \$1,980

This course takes an in-depth look at the Centera C API. The focus is on integration and development of applications using basic pool, clip, tag and stream methods. Several hands-on labs will be used to guide students through read, write, and delete operations. In addition to these basic API functions, advanced topics such as multi-threading, performance considerations, and security will be covered. This course is intended for any person who needs to use the Centera API for natively integrating applications or needs to understand the inner workings of the Centera and how applications interact with it.

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- Natively integrate applications with Centera using the Centera API
- Describe how Centera interacts with natively integrated applications
- Follow best practices, including multi-threading, performance considerations, throughput optimization, and application tuning

Duration: 2 Days

Prerequisites: CAS Management, thorough working knowledge of at least one programming language, general understanding of C

This course is part of: CAS Essentials Learning Path



Centera FastStart Fundamentals

\$5,000 Site License

Centera FastStart Fundamentals is an excellent way to become familiar with Centera content-addressed storage (CAS) and how it fits within your storage environment. This eight-hour course provides the learner with an overview of the areas where CAS solutions can be used to assist in solving business challenges related to managing fixed content. This course will cover the Centera hardware and software features that support various levels of industry compliance requirements. It also covers operations, data protection, regeneration, and replication. This course is delivered as two four-hour modules. It is a site-licensed course for unlimited attendees. Contact EMC Education Services for information and registration.



Centera Seek and Chargeback Reporter

6 Training Units or \$1,980

This course provides a business overview of Centera Seek and Centera Chargeback Reporter. It enables a detailed understanding of metadata, qualifying metadata strategies, and implementing solutions using Centera Seek and Centera Chargeback Reporter.

Duration: 2 Days

This course is part of: CAS Essentials Learning Path



Cisco MDS 9000 Configuration and Troubleshooting

12 Training Units or \$3,960

This course presents the software tools for installing and managing the EMC Connectrix 9000 series of switches/directors. These tools include the Cisco CLI and Fabric Manager. Using these tools, the instructor demonstrates how to perform the initial installation and configuration of the switches/directors and also how to manage them. The instructor also demonstrates how to use the available software features including VSANs, interface configuration, trunking, port channels and zoning. As a follow-up to each of these demonstrations, the students perform the actual configuration of each feature. Finally, the students learn how to use troubleshooting tools including Ethereal, Logs, and FC Trace and FC Ping Tools. This course is intended for anyone responsible for performing switch installation, zoning and maintenance activities for MDS series directors or switches.

Duration: 5 Days

Prerequisites: Connectrix MDS Series Architecture and Management

This course is part of: SAN Essentials Learning Path



CLARiiON Disk Library Implementation and Management

4 Training Units or \$1,320

This course will review the CLARiiON Disk Library (CDL) solution, including an overview of the latest product architecture and the software features/functionality. Follow-on topics include CDL advanced functionality and the configuration of operating systems and backup software to recognize the virtual libraries. The training continues with archiving and the remote copy feature, available with CDL. The final module covers common issues surrounding the CDL, and the methods available to troubleshoot the CDL environment. This course is intended for field personnel who require implementation training for the Disk Library product.

Upon successful completion of this course, participants should be able to install, configure, and manage a CLARiiON Disk Library, and perform troubleshooting tasks.

Duration: 18 Hours

Prerequisites: CLARiiON Disk Library



CLARiiON Host Integration and Management

9 Training Units or \$2,970

This specialization-level course provides thorough exposure to the CLARiiON CX series platform. Focus areas include CLARiiON integration in Windows and Solaris environments and PowerPath, Access Logix™, and Navisphere® applications. The course is comprised of in-depth discussions and extensive hands-on lab exercises. This course is intended for anyone who currently or plans to manage CLARiiON storage.

Upon successful completion of this course, participants should be able to:

- Configure the CLARiiON, PowerPath, and Navisphere
- Describe the management information flow to and from CLARiiON storage systems
- Tune the CLARiiON storage system for improved performance
- Determine whether improvements in performance are possible in the environment
- Decide which aspects of performance are limited by the host and host software
- Gather and analyze CLARiiON performance data

Note: This class is scheduled in conjunction with the one-day SnapView Configuration and Management and one-day MirrorView and SAN Copy Configuration and Management instructor-led courses, yielding a five-day training option. You must register for all three courses individually to enroll in the full week of training.

Duration: 3 Days

Prerequisites: CLARiiON Foundations, SAN Foundations, CLARiiON Features

Suggested next courses: SnapView Configuration and Management, MirrorView and SAN Copy Configuration and Management, CLARiiON Performance Workshop, Exchange and SQL Server Integration with CLARiiON

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, CLARiiON Management and Business Continuity Learning Path



CLARiiON Host Integration and Management including SnapView, MirrorView, and SAN Copy

12 Training Units or \$3,960

This VILT course provides thorough exposure to the CLARiiON CX series platform. Focus areas include CLARiiON integration in Windows and Solaris environments and PowerPath, Access Logix, and Navisphere applications, configuration and control of local replication using SnapView Snapshots and Clones, and remote replication and data mobility using MirrorView and SAN Copy. This course is intended for anyone that presently or plans to manage CLARiiON Storage, including local and remote replication solutions.

Upon successful completion of this course, participants should be able to:

- Configure the CLARiiON, PowerPath, and Navisphere
- Describe the management information flow to and from CLARiiON storage
- Tune the CLARiiON storage system for improved performance
- Determine whether improvements in performance are possible in the environment
- Decide which aspects of performance are limited by the host and host software
- Gather and analyze CLARiiON performance data
- Understand and utilize the SnapView cache
- Configure and utilize Snapshots
- Explain SnapView Clones
- Describe MirrorView connectivity options and operations
- Describe how MirrorView and SnapView can be used together
- Install, manage, and monitor the operation of EMC SAN Copy in various environments

Duration: 5 Days

Prerequisites: CLARiiON Foundations, SAN Foundations, CLARiiON Features, SnapView Foundations, MirrorView and SAN Copy Foundations

Suggested next courses: CLARiiON Performance Workshop, Exchange and SQL Server Integration with CLARiiON

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, CLARiiON Management and Business Continuity Learning Path



CLARiiON Performance Workshop

9 Training Units or \$2,970

This expert-level course details the configuration and implementation of CLARiiON storage for optimal performance in customer environments. The skills taught here are useful for environments requiring careful initial data layout or analysis of potential, or real, performance issues. Extensive hands-on labs are provided for basic CLARiiON configurations, as well as those using SnapView, MirrorView, SAN Copy, and MirrorView/Asynchronous for backup, testing, and disaster recovery. This course is intended for persons responsible for implementing CLARiiON storage systems, particularly in performance-sensitive environments, and for those persons who need to investigate performance-related issues.

Upon successful completion of this course, participants should be able to:

- Use Navisphere Analyzer and other performance tools to gather performance-related information from CLARiiON storage systems
- Interpret performance-related information
- Make recommendations regarding correct data layout for storage environments
- Configure CLARiiON systems to support the use of remote replication software
- Make sizing recommendation for storage environments

Duration: 3 Days

Prerequisites: CLARiiON Host Integration and Management, SnapView Configuration and Management, MirrorView and SAN Copy Configuration and Management

Suggested next courses: Exchange and SQL Server Integration with CLARiiON

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, EMC Proven Professional Storage Management Specialty, CLARiiON Management and Business Continuity Learning Path



CLARiiON Solutions for Small and Medium Enterprises

6 Training Units or \$1,980

This course provides a thorough exposure to the CLARiiON CX series platform. Focus areas include:

- CLARiiON integration in Windows/SAN environments
- PowerPath, Access Logix, and Navisphere applications
- Configuration and control of local replication using SnapView Snapshots and Clones
- Storage management with VisualSRM

This course is intended for individuals who are responsible for configuring and managing CLARiiON CX series arrays in Windows-based storage area networks.

Duration: 3 Days

This course is part of: CLARiiON Management and Business Continuity Learning Path



ControlCenter Alerts, Monitoring, and Framework Integration

6 Training Units or \$1,980

This course trains any ControlCenter user to customize ControlCenter alerts in a way that best suits their needs. The course includes the benefits of alerts, the rationale for customization, and the need for appropriate business processes to resolve problems, along with a detailed review of alert management in ControlCenter. This course includes detailed discussions about the health, capacity, and performance-related alerts, including the methodology and considerations for deploying various alerts. Integration of ControlCenter alerts into existing SNMP-based framework applications will also be covered. The training will be enhanced via hands-on, scenario-based labs.

Duration: 16 Hours

Prerequisites: ControlCenter Management

This course is part of: EMC Proven Professional Storage Management Specialty, Storage Resource Management for Open Systems Learning Path



ControlCenter Management

• **12 Training Units or \$3,960**

• **15 Training Units or \$4,750**

This specialization-level course provides a thorough exposure to EMC ControlCenter 5.2. The architecture and the roles of various components of ControlCenter are discussed extensively, including detailed descriptions of the various ControlCenter views. The course provides a thorough knowledge of administration, user management, alert management, reporting, performance management, Symmetrix and CLARiiON configuration management, SAN management, Symmetrix business continuance operations, host management, automated pathing and storage provisioning services. This course is intended for any person who presently or plans to utilize EMC ControlCenter for storage management activities.

Upon successful completion of this course, participants should be able to:

- Describe the architectural components and performance management functions of ControlCenter
- Integrate ControlCenter security into an existing Windows security model
- Determine resource allocation and utilization within your datacenter
- Customize data collection policies to your data center environment
- Manage ControlCenter alerts and autofixes
- Describe how ControlCenter alerts are escalated to an SNMP framework
- Customize StorageScope™ reports
- Perform configuration management tasks and manual/automated storage provisioning using ControlCenter
- Architect and perform business continuity functions with ControlCenter
- Manage SAN environments, including zone and zoneset manipulation and device masking

Duration: 5 Days

Prerequisites: Symmetrix Foundations, CLARiiON Foundations, ControlCenter Foundations, SAN Foundations, ControlCenter Architecture

Suggested next courses: Symmetrix Performance Workshop, ControlCenter Alerts, Monitoring and Framework Integration, Symmetrix Configuration Management

This course is part of: EMC Proven Professional Storage Management Specialty, Storage Resource Management for Open Systems Learning Path



ControlCenter Management for Mainframe

12 Training Units or \$3,960

This specialization-level course provides participants with hands-on experience using EMC ControlCenter in a mainframe environment. This course will provide a thorough knowledge of agents, storage allocation, monitoring, performance management, and administration. In addition, this course will teach the participant how to install, customize, and use ControlCenter z/OS agents. This course is intended for any person who will install and configure ControlCenter z/OS agents or use ControlCenter to manage their z/OS environment.

Upon successful completion of this course, participants should be able to:

- Install and configure ControlCenter z/OS agents
- Understand the functions and capabilities of the z/OS agents
- Perform ControlCenter administration, performance monitoring and analysis tasks in a z/OS environment
- Manage z/OS host resources
- Manage SRDF and TimeFinder operations in a z/OS environment
- Generate and customize reports in a z/OS environment

Duration: 4 Days

Prerequisites: Symmetrix Foundations, ControlCenter Foundations, ControlCenter Architecture

This course is part of: Symmetrix Business Continuity for Mainframe Learning Path



EMC AlphaStor 3.0 Administration

6 Training Units or \$1,980

This specialization-level course focuses on the implementation of this mainframe-class media management application that provides a single point of management control for tape device and library activity. Topics include: planning, installing, configuring, and managing the AlphaStor environment. Hands-on labs reinforce the classroom presentations.

Upon successful completion of this course, participants should be able to:

- Understand and install the AlphaStor solution
- Configure AlphaStor and NetWorker
- Manage media
- Manage resources
- Troubleshoot AlphaStor

Duration: 3 Days

Prerequisites: EMC AlphaStor Concepts



EMC AutoStart 5.1 Administration

- 6 Training Units or \$1,980
- 8 Training Units or \$2,640

This course focuses on the installation, configuration of managed resources and resource groups, implementing rules, sensors and triggers, and monitoring, managing, and troubleshooting the AutoStart™ environment in a Sun Solaris and Microsoft Windows NT/2000 environment. In-class labs provide hands-on experience with the product.

Upon successful completion of this course, participants should be able to:

- Explain the high availability solution
- Install, set up, and administer AutoStart
- Configure managed resources
- Configure rules, sensors, and triggers
- Troubleshoot AutoStart

Duration: 4 Days

Prerequisites: EMC AutoStart Concepts

Suggested next courses: EMC AutoStart RepliStor Data Source, EMC AutoStart SRDF Data Source

This course is part of: EMC Proven Professional Availability Certification



EMC DiskXtender for Windows Administration

- 3 Training Units or \$990
- 4 Training Units or \$1,320

This course focuses on the installation, configuration and administration of EMC DiskXtender for Microsoft Windows. Students gain the knowledge of DiskXtender® Data Manager and understand various media services supported by DiskXtender, including MediaStor, EMC Centera, StorageTek ACSLS, TSM, and NAS. Concepts covered also include troubleshooting the DiskXtender environment.

Upon successful completion of this course, participants should be able to:

- Understand the DiskXtender solution
- Plan DiskXtender file management policies
- Plan media and hardware management
- Install DiskXtender and MediaStor
- Set-up media services and configure data manager
- Troubleshoot DiskXtender

Duration: 2 Days



EMC DiskXtender Storage Manager for UNIX 3.1 Administration

4 Training Units or \$1,320

This course provides participants with the knowledge and skills necessary to administer, monitor and troubleshoot EMC DiskXtender Storage Manager for UNIX 3.1. The course contains lectures, instructor demonstrations, and hands-on labs.

Duration: 2 Days



EMC DiskXtender UNIX/Linux 2.8 Administration

6 Training Units or \$1,980

This course introduces students to the DiskXtender UNIX/Linux (DXUL) solution and its implementation and administration. The course provides students with the knowledge and skills necessary to install, implement, and administer DXUL, and the opportunity to gain experience with the product. This course covers the DXUL Storage Manager 2.x and DXUL Data Manager 2.x products. This course is designed for system administrators.

Upon successful completion of this course, participants should be able to:

- Explain the DXUL role as an intelligent data management solution.
- Install and configure DiskXtender Storage Manager (DXSM) and administer it using the DXSM Environment Manager GUI
- Create and access DXSM managed data via FTP and NFS
- Manually migrate and purge files using DXSM utilities
- Perform DXSM administration using DXSM CLI and configuration files
- Configure and manage DXSM users, devices, and robots
- Manage DXSM volumes including tape repacking
- Install and administer DiskXtender Data Manager (DXDM)
- Setup and manage DXDM utdm file system(s)
- Configure DXDM identification, protocol, and data management settings in DXULDM.conf for FTP, NFS and EMC Centera
- Back up and recover DXDM-managed data using DXDM-aware utilities

Duration: 3 Days



EMC EmailXaminer 3.0 Administration

or



EMC EmailXaminer 3.1 Administration

- 2 Training Units or \$660
- 2 Training Units or \$660

This course focuses on understanding, planning, installing, and configuring EMC EmailXaminer. The concepts covered include performing administrator and supervisory tasks, reviewing messages, and troubleshooting EMC EmailXaminer. Upon successful completion of this course, participants should be able to:

- Understand EmailXaminer concepts and functions
- Plan the EmailXaminer configuration
- Install EmailXaminer
- Administer and configure EmailXaminer
- Review messages
- Create reports
- Perform monitoring and troubleshooting tasks

Duration: 1 Day

This course is part of: Messaging Solutions Learning Path, EMC Proven Professional Messaging Certification



EMC EmailXtender 4.7 Administration for Lotus Notes

- 3 Training Units or \$990
- 4 Training Units or \$1,320

This course focuses on the implementation of EmailXtender in a Lotus Domino mail server environment. The student will gain the ability to plan, install, configure, and administer EmailXtender in a Domino/Notes environment. This course also introduces maintenance and troubleshooting techniques.

Upon successful completion of this course, participants should be able to:

- Describe EmailXtender functionality, benefits, and components
- Install and configure EmailXtender
- Demonstrate the ability to properly connect to and communicate with the targeted mail server
- Demonstrate the ability to capture e-mail messages and archive them to the EmailXtender server
- Describe and perform the methods for retrieving e-mail messages that are indexed and archived by EmailXtender

Duration: 2 Days

Prerequisites: EMC EmailXtender Foundations

Suggested next courses: EMC Messaging Advanced Administration

This course is part of: Messaging Solutions Learning Path, EMC Proven Professional Messaging Certification



EMC EmailXtender 4.7 Administration for Microsoft Exchange

- 3 Training Units or \$990
- 4 Training Units or \$1,320

This course focuses on the implementation of EmailXtender in a Microsoft Exchange mail server environment. The student will gain the ability to plan, install, configure, and administer EmailXtender in an Exchange/Outlook environment. This course also introduces maintenance and troubleshooting techniques.

Upon successful completion of this course, participants should be able to:

- Describe EmailXtender functionality, benefits, and components
- Install and configure EmailXtender
- Demonstrate the ability to properly connect to and communicate with the targeted mail server
- Demonstrate the ability to capture e-mail messages and archive them to the EmailXtender server
- Describe and perform the methods for retrieving e-mail messages that are indexed and archived by EmailXtender

Duration: 2 Days

Prerequisites: EMC EmailXtender Foundations

Suggested next courses: EMC Messaging Advanced Administration

This course is part of: Messaging Solutions Learning Path, EMC Proven Professional Messaging Certification



EMC EmailXtender and EMC DiskXtender for Windows Administration

8 Training Units or \$2,640

This advanced-level course focuses on the planning, installation and configuration of EmailXtender 4.7 with EMC DiskXtender. The course highlights using EMC DiskXtender as a storage solution for effectively managing e-mails archived through EmailXtender. Topics covered include configuring, monitoring, and troubleshooting the EmailXtender and DiskXtender environment. Hands-on lab exercises reinforce the topics covered in the course. This course is intended for individuals who will be responsible for the installation and administration of EMC EmailXtender and EMC DiskXtender systems.

Duration: 4 Days



EMC Messaging Advanced Administration

4 Training Units or \$1,320

This advanced messaging course details the in-depth process flow of EMC messaging products—EmailXtender and EmailXaminer. This course provides the knowledge to perform advanced administration tasks, troubleshoot the messaging system, and implement alternative message capturing configurations.

Upon successful completion of this course, participants should be able to:

- Archive and manage e-mail within the EmailXtender and EmailXaminer environment
- Diagram and understand EmailXtender and EmailXaminer processes
- Plan the installation and size servers accordingly
- Perform advanced administration tasks, including advanced configuration, edit the registry, and optimize container size
- Troubleshoot the messaging environment and identify and correct specific issues
- Capture instant messaging and Bloomberg mail to enable EmailXaminer search and review
- Implement data protection within the messaging environment to prepare for possible failures
- Perform advanced searches to locate messages and understand search syntax and functionality

Duration: 2 Days

Prerequisites: EMC EmailXtender 4.7 Administration for Microsoft Exchange or Lotus Notes, EMC EmailXaminer 3.x Administration

This course is part of: Messaging Solutions Learning Path



EMC NetWorker 7.2 Administration for Microsoft Windows

• 6 Training Units or \$1,980

• 8 Training Units or \$2,640

This specialization-level course targets the needs of storage management professionals who install, configure, and administer EMC NetWorker for industry-standard platforms and network topologies (TCP/IP, NAS, and SAN). Course highlights include performing and customizing backups, managing NetWorker databases, and recovering client data in a Microsoft Windows environment. Students participate in lab exercises to reinforce the topics covered in the classroom. (Students in the VILT course view instructor demonstrations of lab exercises.)

Upon successful completion of this course, participants should be able to:

- Install NetWorker and use NetWorker resources and administrative interfaces
- Perform and customize backups
- Configure and manage stand-alone devices and autochangers
- Manage NetWorker databases, save sets, and volumes
- Administer the NetWorker server
- Recover client data
- Recover a NetWorker server

Duration: 4 Days

Prerequisites: EMC NetWorker Foundations

Suggested next courses: EMC NetWorker 7.2 Advanced Administration for UNIX and Microsoft Windows

This course is part of: EMC Proven Professional EMC NetWorker Certification



EMC NetWorker Administration for UNIX and Microsoft Windows

12 Training Units or \$3,960

This five-day instructor-led course explores EMC NetWorker 7.3 installation, backup, configuration, maintenance, management, and recovery. The course contains lectures, instructor demonstrations, hands-on labs, and review questions to provide practice in both UNIX and Microsoft Windows environments. This course is designed for system administrators who install, configure, and support EMC NetWorker 7.3 in either a UNIX or Microsoft Windows-based environment.

Duration: 5 Days

Prerequisites: EMC NetWorker Foundations

This course is part of: EMC Proven Professional Backup and Recovery Specialty, Backup and Recovery Learning Path



EMC NetWorker 7.2 Administration for UNIX

• 6 Training Units or \$1,980

• 8 Training Units or \$2,640

This specialization-level course targets the needs of storage management professionals who install, configure, and administer EMC NetWorker for industry-standard platforms and network topologies (TCP/IP, NAS, and SAN). Course highlights include performing and customizing backups, managing NetWorker databases, and recovering client data in a UNIX environment. Students participate in lab exercises to reinforce the topics covered in the classroom. (Students in the VILT course view instructor demonstrations of lab exercises.)

Upon successful completion of this course, participants should be able to:

- Install NetWorker and use NetWorker resources and administrative interfaces
- Perform and customize backups
- Configure and manage stand-alone devices and autochangers
- Manage NetWorker databases, save sets, and volumes
- Administer the NetWorker server
- Recover client data
- Recover a NetWorker server

Duration: 4 Days

Prerequisites: EMC NetWorker Foundations

Suggested next courses: EMC NetWorker 7.2 Advanced Administration for UNIX and Microsoft Windows

This course is part of: EMC Proven Professional EMC NetWorker Certification



EMC NetWorker 7.2 Advanced Administration for UNIX and Microsoft Windows

6 Training Units or \$1,980

This advanced-level NetWorker class focuses on software support specialists who design, optimize, and troubleshoot NetWorker 7.x in a cross-platform environment. Advanced topics include: advanced device features, configuration, managing performance, firewalls, and configuring NetWorker in an NDMP environment. Students enrolling in this course should be familiar with SCSI device configuration and networking issues.

Upon successful completion of this course, participants should be able to:

- Implement EMC NetWorker Modules
- Configure NetWorker with firewalls, in an NDMP environment, and with Microsoft Volume Shadow Copy Service (VSS)
- Backup and recover clusters with NetWorker
- Configure advanced device features, autochanger sharing, and dynamic drive sharing (DDS)
- Manage NetWorker performance
- Implement EMC License Manager

Duration: 3 Days

Prerequisites: EMC NetWorker 7.2 Administration for UNIX or Microsoft Windows

This course is part of: EMC Proven Professional EMC NetWorker Certification



EMC RepliStor 6.0 Administration

or



EMC RepliStor 6.1 Administration

- **3 Training Units or \$990**
- **4 Training Units or \$1,320**

This specialization-level course focuses on the implementation of this asynchronous, realtime data replication solution for Microsoft Windows data across LAN and WAN environments. Topics include planning, installing, configuring, and managing the RepliStor environment. This course is designed for system administrators of EMC RepliStor.

Duration: 2 Days

Prerequisites: EMC RepliStor Concepts



EMC Smarts Adapter Platform

6 Training Units or \$1,980

This course provides a thorough understanding of how to use EMC Smarts Adapters to extend the breadth and intelligence of EMC Smarts Service Assurance Manager. Through hands-on labs you will see how information can be imported via SNMP trap integration, the syslog adapter, and the command line interface, and how data can be exported via custom adapters. You will configure and customize each of these adapters.

Duration: 2 Days

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts ASL

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Advanced ASL

3 Training Units or \$990

This course shows students how to integrate EMC Smarts into their environment. Hands-on labs explore how the open architecture of EMC Smarts can be leveraged to create production quality adapters. Students will explore the inner workings of ASL, including ASL syntax and conventions, the Generic Adapter Framework, and the use of various helper classes. After completion of this course, the student is well equipped to integrate EMC Smarts into their environment, processing input from a variety of sources and forwarding information to any client application.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts ASL

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Application Services Manager

9 Training Units or \$2,970

This course allows students to analyze the root cause of dysfunctional and degraded application performance. You will understand how to use Application Services Manager (ASM) with the EMC Smarts suite to manage failures of critical applications, as well as the network and operating system elements that support them. Not only will you gain an understanding of how to manage the services comprised of application processes, sessions, transactions, servers, and other network elements, but you will also learn how to integrate third-party information.

Duration: 3 Days

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts Adapter Platform

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts ASL

3 Training Units or \$990

This course provides a thorough introduction to developing useful adapters to bring information into and take information out of an EMC Smarts domain. Hands-on labs step you through ASL syntax and conventions, then focus on using ASL to create robust EMC Smarts topology, notification, and configuration adapters.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts ASL for Service Assurance Manager

3 Training Units or \$990

This course provides a wealth of information on developing effective adapters to enhance notifications coming to and from a Service Assurance Manager server. Hands-on labs step you through the process of accessing information in the underlying server, where the notification originated, as well as information in Service Assurance Manager's repository. Importing external data into Service Assurance Manager and merging the data into notifications for Service Assurance Manager clients is covered in great detail using real-world examples.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts ASL

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Business Dashboard

3 Training Units or \$990

This course teaches participants how to display the results of the EMC Smarts actionable information in a variety of ways. Participants will learn how to customize EMC Smarts Viewlets™ to display notification logs and properties, maps, summary views, containment views, and status tables. Participants will also learn how these Viewlets can be embedded into third-party portals or custom web pages in order to create a layout with multiple interactive sources of content.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts IP Manager Administrator, EMC Smarts Service Assurance Manager Administrator

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Global Console*

3 Training Units or \$990

This course ensures comfort using EMC Smarts technologies. The architecture of Service Assurance Manager is explained, enabling you to understand the entire EMC Smarts suite of products. You will be guided through the comprehensive ways to visualize the health of a network in the context of the business it supports.

Duration: 1 Day

This course is part of: EMC Smarts Management Essentials Learning Path

**Also available as the EMC Smarts Global Console and EMC Smarts Global Console Advanced e-Learning courses.*



EMC Smarts IP Manager Administrator

• 6 Training Units or \$1,980

• 6 Training Units or \$1,980

This course is designed to provide an understanding of how EMC Smarts IP Availability Manager and EMC Smarts Performance Manager can be used to provide effective infrastructure management. It provides an overview of EMC Smarts technologies and architecture as well as an in-depth explanation of the Administration Consoles. Advanced features and functions of EMC Smarts for IP are covered, including creating management policies and controlling Discovery from the command line. Lab demonstrations allow participants to view installation and configuration of EMC Smarts by an expert instructor.

After completing this course, students should be able to:

- View the results of the EMC Smarts diagnostic analysis
- Install and configure EMC Smarts software
- Understand how to start and stop EMC Smarts for IP Domain Manager
- Launch the powerful EMC Smarts Discovery process
- Enable, configure, and monitor Auto-Discovery
- Create management policies and apply them to the managed domain
- Set connectivity and performance thresholds for ports, interfaces, and systems
- Customize the internal trap adapter of the Domain Managers
- Control the management of systems and their components in the ICIM topology
- Utilize Redundancy Groups to control systems, cards, and interfaces
- Communicate with EMC Smarts Domain Managers using dmctl

Duration: 2 Days

Prerequisites: EMC Smarts Service Assurance Manager Administrator

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts MPLS Manager

3 Training Units or \$990

In this course, you will examine how EMC Smarts diagnoses the root cause and impact in an MPLS/VPN network. Instructor-led exercises will detail how the cross-domain correlation across physical and logical domains is accomplished. The course explores the many options for realtime monitoring using ICMP Pinging, SNMP polling, and other generic methods. Through hands-on labs, students learn how EMC Smarts discovers the MPLS and VPN layers automatically, as well as the visualization mechanisms available to EMC Smarts users. Finally, it explores how EMC Smarts MPLS/VPN Manager interacts with other EMC Smarts applications to provide a holistic view of the managed domain.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts IP Manager Administrator, EMC Smarts Service Assurance Manager Administrator

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts NPM Manager

3 Training Units or \$990

In this course, students examine how EMC Smarts diagnoses the root cause and impact of protocol failures. Instructor-led exercises detail the cross-domain correlation between physical and protocol failures. The course explores the many options for real-time monitoring using ICMP ping, SNMP polling, trap processing, and other generic methods. Through hands-on labs, students learn how EMC Smarts automatically discovers the protocol layer configuration, and the many visualization mechanisms available to EMC Smarts users. Finally, the course explores how EMC Smarts Protocol Services Manager interacts with other EMC Smarts applications to provide a holistic view of the IP domain.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts PERL API

3 Training Units or \$990

This course provides a thorough introduction to developing useful Perl scripts to bring information to and from an EMC Smarts domain. Hands-on labs step you through using the API, then focus on using it to create practical, robust EMC Smarts topology, notification, and configuration scripts. This course develops your foundational skills for using Perl to interact with EMC Smarts applications.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Report Manager

3 Training Units or \$990

This course allows students to configure and maintain EMC Smarts Report Manager. Students learn how to organize event information gathered by EMC Smarts into detailed reports, enabling streamlined operations, architectural improvements, and maximum performance. Participants learn how to install and configure Crystal Enterprise and Crystal Reports to work with EMC Smarts Report Manager, as well as how EMC Smarts Report Manager interfaces with Service Assurance Manager and other provisioning sources. Participants gain experience using Report Manager, viewing and publishing reports, and utilizing Crystal ePortfolio.

Duration: 1 Day

Prerequisites: Introduction to EMC Smarts Architecture, EMC Smarts IP Manager Administrator, EMC Smarts Service Assurance Manager Administrator

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Smarts Service Assurance Manager Administrator

• 6 Training Units or \$1,980

• 9 Training Units or \$2,970

This course will empower you to administer the deployment of the EMC Smarts Service Assurance Manager (SAM) suite of solutions to fit the requirements of your organization.

After completing this course, students should be able to:

- Define the flow of information between Smarts components
- View and explore the results of the Smarts diagnostic analysis
- Customize the layout of the Smarts console according to user preferences
- Maintain user logins and associated user profiles
- Automate actions to respond to failure notifications
- Incorporate customer and service info into SAM to manage infrastructure in the context of business
- Understand the use of hierarchical SAM servers

Duration: 3 Days

Prerequisites: EMC Smarts Global Console, EMC Smarts Global Console Advanced

This course is part of: EMC Smarts Management Essentials Learning Path



EMC Technology Foundations

9 Training Units or \$2,970

This foundation-level course provides participants with an understanding of enterprise storage technologies and EMC's suite of storage platforms, connectivity, business continuity, disaster recovery, replication, and management products. This course provides an overview of EMC product terminology, features, architecture, theory of operations, and management. This course fully supports the EMC Proven Professional Associate credential.

This course covers the following EMC products and technologies: Symmetrix, CLARiiON, Centera, SAN, NAS, TimeFinder, SRDF, SnapView, MirrorView and SAN Copy, Replication Manager, ControlCenter, VisualSAN and VisualSRM, and EMC NetWorker.

Duration: 5 Days

This course is part of: All EMC Proven Professional Specialties



Exchange and SQL Server Integration with CLARiiON

9 Training Units or \$2,970

This expert-level course details the configuration and implementation of Microsoft Exchange and SQL Server on CLARiiON storage systems. The skills taught here are used to size and lay out Exchange and SQL Server databases, logs, and other data structures on CLARiiON storage systems. Other skills taught here include the correct design and implementation of solutions that make use of CLARiiON layered applications. Extensive hands-on labs are provided for basic Exchange and SQL Server configurations, as well as those using SnapView, MirrorView, SAN Copy, and MirrorView/Asynchronous. This course is intended for persons responsible for implementing and managing Microsoft Exchange and/or SQL Server on CLARiiON storage systems.

Upon successful completion of this course, participants should be able to:

- Size a CLARiiON configuration for use with Microsoft Exchange and SQL Server
- Configure Microsoft Exchange and SQL Server on CLARiiON
- Configure Replication Manager/SE for Microsoft Exchange and SQL Server on CLARiiON
- Manage and monitor performance of Exchange and SQL Server data storage
- Design Exchange and SQL Server environments using CLARiiON-based remote data replication and SnapView for backup
- Design Exchange and SQL Server environments

Duration: 3 Days

Prerequisites: CLARiiON Host Integration and Management, SnapView Configuration and Management, MirrorView and SAN Copy Configuration and Management

Suggested next courses: CLARiiON Performance Workshop

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, CLARiiON Management and Business Continuity Learning Path



Exchange Integration with Symmetrix

9 Training Units or \$2,970

Learn how to migrate to, and the optimal performance layout for, a Microsoft Exchange Server 2003 and Symmetrix DMX™ infrastructure. Perform Exchange backups using TimeFinder technologies, such as business continuance volumes and snaps, to create Volume Shadow Copy splits of information stores and backup to tape. Understand the various configurations available to prepare for disaster recovery of Microsoft Exchange Server 2003 using SRDF/Synchronous, SRDF/S Adaptive Copy, and SRDF/A. This course is intended for system administrators, messaging administrators, and EMC architects and implementers who specialize in Exchange 2003 infrastructures on Symmetrix DMX storage systems.

Upon successful completion of this course, participants should be able to:

- Configure an Exchange server for use with Symmetrix DMX storage
- Implement EMC best practices for Exchange Server 2003
- Install, configure, and execute backups using TimeFinder Exchange Integration Manager on a single Symmetrix DMX
- Configure and execute backups using EMC Replication Manager on a single Symmetrix DMX
- Perform server recovery from an Exchange backup host
- Install, configure, and execute backups using TimeFinder Exchange Integration Manager (TEIM) across multiple Symmetrix systems
- Effectively troubleshoot issues surrounding TEIM

Duration: 3 Days

Prerequisites: Knowledge of Exchange Server 2003 architecture, Knowledge of TimeFinder and SRDF, Foundational understanding of Replication Manager

Suggested next courses: SQL Server Integration with Symmetrix, Oracle Integration with Symmetrix

This course is part of: EMC Proven Professional Symmetrix Business Continuity Specialty, Symmetrix Business Continuity for Open Systems Learning Path



Host-to-Storage SAN Connectivity

15 Training Units or \$4,750

This course focuses on SAN implementation activities, and includes SAN, switch, host, and storage considerations. There is a significant focus on lab activities in order to provide experience in the physical and logical configuration of hosts, SAN hardware, and array management. Troubleshooting activities are also covered.

Note: This course is part of the EMC Proven Professional Program and is heterogeneous in nature with regard to storage, switch, and host operating systems. A tailored version of this class is available by contacting your EMC Education representative. (A custom class would not be considered part of the EMC Proven Professional program and will not prepare you for the certification exam.)

Duration: 5 Days

Prerequisites: SAN Management

Suggested next courses: SAN Planning and Design Concepts, SAN Monitoring and Policy Management

This course is part of: EMC Proven Professional Networked Storage—SAN Specialty, SAN Essentials Learning Path



Mainframe Host-based Data Migration

9 Training Units or \$2,970

This course provides the necessary hands-on experience and knowledge to determine the appropriate migration tool used in performing data migration in a z/OS environment from one or more storage subsystems. Upon completion of this course the student will be able to install and successfully complete the migration with TDMF, FDR/PAS, or LDMF.

Duration: 3 Days

Prerequisites: Symmetrix Foundations, TimeFinder Foundations, SRDF Foundations



Mainframe Business Continuity—SRDF/Star Solutions

15 Training Units or \$4,750

This course provides participants with lecture and significant hands-on experience in building an EMC SRDF/Star Replication Solution and performing various SRDF/Star Recovery scenarios in a z/OS environment. This course will expand on a student's existing knowledge of ResourcePak Base, Host Component, Consistency Groups, and introduce the SRDF/Star Recovery Panels. The course will review business continuity considerations and their practical applications for an SRDF/Star configuration.

Duration: 5 Days

Prerequisites: Mainframe Business Continuity—Local Replication Solutions, Mainframe Business Continuity—Remote Replication Solutions



Mainframe Business Continuity—Local Replication Solutions

• 9 Training Units or \$2,970

• 12 Training Units or \$3,960

This specialization-level course provides participants with hands-on experience using EMC's local replication tools in a z/OS environment. This course will provide thorough knowledge of ResourcePak® Base, TimeFinder/Mirror Base, TimeFinder/Mirror Mainframe Snap Facility, TimeFinder/Mirror Utility and business continuity considerations and practical applications. The concepts and architecture of ResourcePak Extended will also be reviewed. This course is intended for any person who will manage and administer Symmetrix-based local data replication using the TimeFinder suite of products in z/OS environments.

Upon successful completion of this course, participants should be able to:

- Describe and demonstrate the benefits, architecture, and management of the ResourcePak Base Symmetrix Control Facility in z/OS environments
- Describe and demonstrate TimeFinder management operations
- Describe the architecture and operations of Resource Pak Extended
- Explain important host considerations for successful implementations of local replication solutions

Duration: 4 Days

Prerequisites: Symmetrix Foundations, TimeFinder Foundations

Suggested next courses: Mainframe Business Continuity—Remote Replication Solutions

This course is part of: Symmetrix Business Continuity for Mainframe Learning Path, EMC Proven Professional Mainframe Business Continuity Certification



Mainframe Business Continuity—Remote Replication Solutions

• 12 Training Units or \$3,960

• 15 Training Units or \$4,750

This specialization-level course provides participants with hands-on experience using EMC's remote replication tools in a z/OS environment. This course will provide thorough knowledge of ResourcePak Base, SRDF/S, SRDF/CG, SRDF/A, SRDF/AR, AutoSwap™ and business continuity considerations and practical applications. The concepts and architecture of SRDF/Star will also be introduced. This course is intended for any person who will manage and administer Symmetrix-based remote data replication using the SRDF suite of products or AutoSwap in z/OS environments.

Upon successful completion of this course, participants should be able to:

- Describe and demonstrate the benefits, architecture and management of the ResourcePak Base Symmetrix Control Facility in z/OS environments
- Describe and demonstrate SRDF configuration, management and recovery operations for the SRDF/S and SRDF/A base products and the add-on products SRDF/CG and SRDF/AR
- Describe the architecture and recovery operations of an SRDF/Star remote replication solution
- Describe the architecture and operations of S/DAS (Symmetrix Dynamic Address Switching) and AutoSwap features of SRDF
- Explain important host considerations for successful implementations of SRDF remote replication solutions in z/OS environments

Duration: 5 Days

Prerequisites: Symmetrix Foundations, SRDF Foundations, Mainframe Business Continuity—Local Replication Solutions

Suggested next courses: Mainframe Business Continuity—SRDF/Star Solutions

This course is part of: Symmetrix Business Continuity for Mainframe Learning Path, EMC Proven Professional Mainframe Business Continuity Certification



MirrorView and SAN Copy Configuration and Management

3 Training Units or \$990

This foundation-level course provides participants with an understanding of CLARiiON-based business continuity solutions for remote replication and their role as integral components of EMC's offerings. This course provides an overview of MirrorView and SAN Copy terminology, features, architecture, theory of operations, and management. This includes SAN Copy data mobility concepts and MirrorView disaster recovery and remote replication solutions. This course is intended for any person who presently or plans to manage CLARiiON remote data replication using MirrorView and/or SAN Copy.

Upon successful completion of this course, participants should be able to:

- Describe the MirrorView connectivity options and its administration
- Describe how MirrorView and SnapView can be used together
- Identify the features and functions of EMC SAN Copy
- Install EMC SAN Copy on a supported CLARiiON array
- Manage and monitor an EMC SAN Copy session
- Identify the steps required to troubleshoot and correct sample problems associated with EMC SAN Copy sessions

Note: This class is scheduled in conjunction with the three-day CLARiiON Host Integration and Management and one-day SnapView Configuration and Management instructor-led courses, yielding a five-day training option. You must register for all three courses individually to enroll in the full week of training.

Duration: 1 Day

Prerequisites: CLARiiON Host Integration and Management, MirrorView and SAN Copy Foundations

Suggested next courses: CLARiiON Performance Workshop

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, CLARiiON Management and Business Continuity Learning Path



NAS Operations and Management—Multi-Protocol

• 12 Training Units or \$3,960

• 15 Training Units or \$4,750

This course focuses on configuration and administrative operations enabled by EMC NAS software for Celerra file sharing platforms. Management tasks (file system creation, export, permissions, security, availability) for Celerra platforms in a Windows, a UNIX, and mixed Windows and UNIX environments are covered using the command line and GUI interfaces. The course is 50 percent lecture and 50 percent lab activities. This course is intended for any person who presently or plans to implement or manage network-attached storage using the Celerra CNS or NSxoo platform.

Upon successful completion of this course, participants should be able to:

- Implement Data Mover failover
- Implement basic network configurations
- Configure and manage Celerra file systems
- Export Celerra file systems for NFS and CIFS access
- Implement CIFS features
- Implement file system quotas
- Configure Celerra advanced networking features
- Implement FTP and TFTP protocol support
- Implement Virtual Data Movers
- Implement SnapSure™
- Implement Celerra Replicator
- Explain HighRoad
- Explain Celerra FileMover
- Implement iSCSI with Celerra

Duration: 5 Days

Prerequisites: Symmetrix or CLARiiON Foundations, Basic Network Environment, NAS Foundations, Celerra Fundamentals, Celerra Features and Functions

Suggested next courses: NAS Networking, NAS Symmetrix Business Continuity

This course is part of: EMC Proven Professional Networked Storage—NS Solution Specialty, NAS Essentials for Celerra Learning Path



NAS Networking

12 Training Units or \$3,960

This course provides a NAS perspective on networking. The focus of this course is on the components within a network infrastructure that affect the ability of a UNIX or Windows client to access network-attached storage (NAS). The student will gain the ability to analyze, identify, and troubleshoot network issues in Windows and UNIX environments. Topics that are addressed in this course include unique characteristics of CIFS and NFS network file serving, network connectivity, addressing, IP routing, name resolution, user authentication, access controls, and security. Although EMC NAS products will be used as examples in both lecture and lab, the focus is on industry-standard protocols. The objectives are met through lecture and lab exercises. Although the lab exercises are focused on NAS implementation and troubleshooting, much of the information is also valuable for architecting NAS solutions.

This course is intended for those responsible for managing and troubleshooting NAS environments. Upon successful completion of this course, participants should be able to evaluate, analyze, and troubleshoot the components of a NAS implementation including client, server, and network components.

Duration: 4 Days

Prerequisites: NAS Operations and Management—Multi-Protocol

Suggested next courses: NAS Symmetrix Business Continuity

This course is part of: EMC Proven Professional Networked Storage—NS Solution Specialty, NAS Essentials for Celerra Learning Path



NAS Performance for NS Platform

12 Training Units or \$3,960

This course details the configuration and implementation of NAS solutions for optimal performance in EMC environments. The skills taught are useful for environments requiring careful initial data layout or analysis of performance issues—both potential and real. Extensive hands-on labs are provided for basic Celerra configurations, as well as those using SnapSure™, iSCSI, HighRoad, NDMP, and Celerra IP Replicator. There is also extensive hands-on utilization of the following tools: IOMeter, Ethereal, Navisphere Manager, Navisphere Analyzer, and Celerra Manager/Monitor. Successful completion of this workshop will enable the student to diagnose and troubleshoot NAS performance issues caused by inadequate file system layout, network problems, and caching issues.

Duration: 4 Days

Prerequisites: NAS Operations and Management—Multi-Protocol

This course is part of: EMC Proven Professional Networked Storage—NS Solution Specialty



NAS Symmetrix Business Continuity

9 Training Units or \$2,970

This course focuses on business continuity tools used to provide local and remote file system replication for NAS in a Symmetrix environment. It provides students lecture and hands-on instruction (40 percent lecture/60 percent lab) on the functionality and the implementation of NAS solutions using TimeFinder/FS and Symmetrix Remote Data Facility (SRDF). The course also focuses on practical implementation ideas for these solutions. This course is intended for any person who presently or plans to implement NAS with a Symmetrix backend using TimeFinder/FS and/or SRDF as part of a file replication strategy for business continuity or disaster recovery.

Upon successful completion of this course, participants should be able to configure, identify the components of, and demonstrate a NAS SRDF environment in conjunction with TimeFinder/FS using a Celerra with a Symmetrix backend.

Duration: 3 Days

Prerequisites: NAS Operations and Management—Multi-Protocol

Suggested next courses: NAS Networking



Oracle Integration with Symmetrix

12 Training Units or \$3,960

Learn how to identify and create an optimal performance layout for an Oracle 10g database application within a Symmetrix DMX infrastructure. Configure business continuity environments for the purpose of replicating an Oracle 10g application; supporting database disaster recovery, backup and decision support situations. Discuss using Oracle 10g Flashback with TimeFinder with Consistency Technology to rewind a database to a point in time before a logical error. As this course is more than 70 percent hands-on learning, it is imperative that students have the prerequisite knowledge and skills prior to attending this workshop. This course is intended for UNIX system administrators who specialize in supporting any Oracle 10g application on a Symmetrix/DMX storage platform.

Upon successful completion of this course, participants should be able to:

- Recommend an optimal performance layout for an Oracle 10g database application in a Symmetrix DMX and Solaris environment
- Identify PowerPath Volume Manager's features and the relationship between volume management and Oracle database application environments
- Perform SRDF and TimeFinder operations using SYMCLI commands against an Oracle database application
- Implement Oracle 10g Flashback functionality to recover a corrupted database

Duration: 4 Days

Prerequisites: Symmetrix Business Continuity—TimeFinder Solutions, Symmetrix Business Continuity—SRDF Solutions

Suggested next courses: Exchange Integration with Symmetrix, SQL Server Integration with Symmetrix

This course is part of: EMC Proven Professional Symmetrix Business Continuity Specialty, Symmetrix Business Continuity for Open Systems Learning Path



Replication Manager Workshop

9 Training Units or \$2,970

This workshop gives the student the opportunity to install, administer, operate, and troubleshoot Replication Manager. The focus will be on working with replications of file systems in the lab environment. Database specific replication is not included in this course. This course is intended for any person responsible for deploying, operating, or maintaining Replication Manager.

Upon successful completion of this course, participants should be able to:

- Install Replication Manager
- Configure a Replication Manager environment
- Perform administrative and operational functions using Replication Manager

Duration: 3 Days

Prerequisites: Replication Manager Foundations, Replication Manager Overview



SAN Management

• 12 Training Units or \$3,960

• 12 Training Units or \$3,960

This course provides an overview of the principles and best practices behind effective SAN management—managing switches natively or via EMC tools, an overview of Symmetrix and CLARiiON array management as it relates to the SAN, fabric management using EMC tools, and performance and monitoring indicators. Specific topics covered include native tools for managing Connectrix M, B, and MDS series switches and EMC SAN and storage management tools (i.e., Solutions Enabler SYMCLI, ControlCenter SAN Manager, Navisphere Manager, VisualSAN, and PowerPath). Legacy tools (ESN Manager and FibreZone) are also discussed. The course is designed to be approximately 60 percent lecture and 40 percent lab. This course is intended for those who presently or plan to implement and manage a SAN environment.

Upon successful completion of this course, participants should be able to:

- Discuss and implement the principles of SAN Management
- Perform switch management tasks using native switch tools
- Perform Symmetrix and CLARiiON storage array management tasks
- Perform SAN management tasks using EMC tools

Note: This course is part of the EMC Proven Professional Program and is heterogeneous in nature with regard to storage, switch, and host operating systems. A tailored version of this class is available by contacting your EMC Education representative. (A custom class would not be considered part of the EMC Proven Professional Program and will not prepare you for the certification exam.)

Duration: 4 Days

Prerequisites: Symmetrix Foundations, CLARiiON Foundations, Introduction to Fibre Channel, SAN Foundations, Connectrix B or M or MDS Series Architecture and Management, PowerPath Configuration and Administration, VisualSAN Introduction, SAN Advisor Overview

Suggested next courses: Host to Storage SAN Connectivity

This course is part of: EMC Proven Professional Networked Storage—SAN Specialty, SAN Essentials Learning Path



SnapView Configuration and Management

3 Training Units or \$990

This specialization-level course provides participants with the opportunity to configure and control CLARiiON local replication using SnapView Snapshots and Clones. Extensive hands-on lab exercises are provided. This course is intended for any person who presently or plans to manage CLARiiON local data replication using SnapView.

Upon successful completion of this course, participants should be able to:

- Explain how SnapView makes copies and clones of LUNs
- Explain the operation of the SnapView cache
- Calculate the required size of the SnapView cache
- Configure SnapView cache and Snapshots
- Start and stop SnapView sessions and activate/remove Snapshots
- Explain the operation of the Clone Private LUN
- Discuss where Clones might be used in an environment
- Compare and contrast clones and Snapshots

Note: This class is scheduled in conjunction with the three-day CLARiiON Host Integration and Management and one-day MirrorView and SAN Copy Configuration and Management instructor-led courses, yielding a five-day training option. You must register for all three courses individually to enroll in the full week of training.

Duration: 1 Day

Prerequisites: CLARiiON Host Integration and Management, SnapView Foundations

Suggested next courses: MirrorView and SAN Copy Configuration and Management, CLARiiON Performance Workshop

This course is part of: EMC Proven Professional CLARiiON Solutions Specialty, CLARiiON Management and Business Continuity Learning Path



SQL Server Integration with Symmetrix

12 Training Units or \$3,960

Learn and perform SQL Server Snapshot (VDI) backups using TimeFinder and SRDF technologies. Discuss the database layout for performance and Volume Shadow Copy Service (VSS) support for SQL Server. Migrate a SQL Server instance on Windows 2003 platform to the Symmetrix DMX infrastructure. Understand the various configurations available to prepare for disaster recovery of Microsoft SQL Server 2000 using SQL Server Log Shipping and Standby Database with SRDF technologies. This course is intended for system and database administrators who specialize in SQL Server 2000 infrastructures on Symmetrix DMX storage systems.

Upon successful completion of this course, participants should be able to:

- Configure an SQL server for use with Symmetrix DMX storage
- Install, configure, and execute backups using Solutions Enabler—Database SRM and TimeFinder SQL Server Integration Module
- Install an ERM client, configure, and execute backups using EMC Replication Manager in a Symmetrix DMX environment
- Perform recovery from a SQL Server backup host by utilizing SRDF and Business Continuity Volumes

Duration: 4 Days

Prerequisites: Symmetrix Business Continuity—TimeFinder Solutions, Symmetrix Business Continuity—SRDF Solutions, Replication Manager Overview

Suggested next courses: Exchange Integration with Symmetrix, Oracle Integration with Symmetrix

This course is part of: EMC Proven Professional Symmetrix Business Continuity Specialty, Symmetrix Business Continuity for Open Systems Learning Path



Storage Administrator for Exchange

3 Training Units or \$990

This course covers EMC Storage Administrator for Exchange, including architecture, planning, installation, management, and troubleshooting.

Duration: 8 Hours

Suggested next courses: Exchange and SQL Server Integration with CLARiiON



Storage Technology Foundations

10 Training Units or \$3,300

This course provides a comprehensive introduction to physical and logical components of storage infrastructure. This course focuses on storage technology and concepts rather than specific storage products and is ideal for IT professionals involved in or affected by storage-related decisions. It covers the following areas:

- Information growth and evolution of storage technology
- Storage networking, including storage area networks (SAN), network-attached storage (NAS), IP SAN, and content-addressed storage (CAS)
- Backup and recovery of data, local and remote data replication, and disaster recovery
- Storage infrastructure management and monitoring

Duration: 5 Days

This course is part of: EMC Proven Professional Storage Technologist Certification



Symmetrix Business Continuity— SRDF Solutions

- 6 Training Units or \$1,980
- 9 Training Units or \$2,970

This specialization-level course focuses on the SRDF product suite. Configuration, operations and integration with both Windows and UNIX hosts are discussed in detail and reinforced with hands-on activities and demonstrations. Emphasis is on using the EMC Solutions Enabler Command Line Interface in managing SRDF operations in an enterprise environment. SRDF Synchronous, Asynchronous, and Automated Replication are covered in this class. This course is intended for any person who presently or plans to manage and administer Symmetrix-based remote data replication using the SRDF suite of products in a multi-path/channel, open systems environment.

Upon successful completion of this course, participants should be able to:

- Describe SRDF concepts, terminology, host considerations and configurations, and functionality across multiple environments
- Use the SYMCLI command set to perform SRDF operations
- Describe and execute SRDF/A and SRDF/AR operations
- Identify the architecture components of SRDF/A and SRDF/AR
- Describe SRDF/A and SRDF/AR theories of operations and application
- Describe EMC Consistency Technology

Duration: 3 Days

Prerequisites: Symmetrix Foundations, SRDF Foundations

Suggested next courses: Exchange Integration with Symmetrix, SQL Server Integration with Symmetrix, Oracle Integration with Symmetrix

This course is part of: EMC Proven Professional Symmetrix Business Continuity Specialty, Symmetrix Business Continuity for Open Systems Learning Path



Symmetrix Business Continuity— TimeFinder Solutions

- 6 Training Units or \$1,980
- 6 Training Units or \$1,980

This specialization-level course focuses on the TimeFinder product suite. Configuration, operations and integration with both Windows and UNIX hosts are discussed in detail and reinforced with hands-on activities and demonstrations. Emphasis is on using the EMC Solutions Enabler Command Line Interface for managing TimeFinder operations in an enterprise environment. This course is intended for any person who presently or plans to manage and administer Symmetrix-based local data replication using the TimeFinder suite of products in multi-path/channel, open systems environments.

Upon successful completion of this course, participants should be able to:

- Describe TimeFinder theory of operations, functionality, and its use within an IT environment
- Use SYMCLI to perform TimeFinder operations
- Describe TimeFinder host considerations and configurations within Sun Solaris, HP-UX, AIX, and Windows environments
- Use SYMCLI to perform TimeFinder BCV, TimeFinder Clone, and EMC Snap operations
- Describe EMC Consistency Technology

Duration: 2 Days

Prerequisites: Symmetrix Foundations, TimeFinder Foundations, PowerPath Foundations

Suggested next courses: Symmetrix Business Continuity—SRDF Solutions

This course is part of: EMC Proven Professional Symmetrix Business Continuity Specialty, Symmetrix Business Continuity for Open Systems Learning Path



Symmetrix Configuration Management

6 Training Units or \$1,980

This course details the considerations and best practices for making Symmetrix configuration changes using the command line interface (SYMCLI) and EMC ControlCenter GUI. Symmetrix architectural concepts are explained as they relate to corresponding configuration changes and EMC guidelines for Symmetrix performance and redundancy.

Duration: 16 Hours



Symmetrix Performance Workshop

12 Training Units or \$3,960

In this expert-level course, students will learn to analyze the performance of a Symmetrix array using ControlCenter Performance Manager. The Symmetrix architecture will be dissected into the three broad functional areas: front-end host ports and directors, system pathways and cache, and back-end directors and disks. The performance features and benefits of the various business continuity solutions will also be presented. Differences between the Symmetrix 8000 and DMX families will be pointed out whenever they affect the performance characteristics. Complete coverage will be given to Performance Manager features and interaction with ControlCenter Console. This course is intended for any person responsible for operating, maintaining or optimizing the performance of a storage environment.

Upon successful completion of this course, participants should be able to:

- Fully utilize features of ControlCenter Performance Manager and Console to analyze Symmetrix performance
- Describe the performance benefits of Optimizer and PowerPath
- Identify the architectural components of a Symmetrix array, describe their performance characteristics, and differentiate between Symmetrix 8000 and DMX family arrays
- Use the standard Symmetrix roadmap of key measures to quickly identify performance problems

Duration: 4 Days

Prerequisites: Symmetrix Foundations, ControlCenter Management

Suggested next courses: Symmetrix Configuration Management

This course is part of: EMC Proven Professional Storage Management Specialty, Storage Resource Management for Open Systems Learning Path



VisualSRM Installation, Configuration, and Usage

• 6 Training Units or \$1,980

• 9 Training Units or \$2,970

This course provides a thorough exposure to VisualSRM. Product architecture, planning/deployment, installation, configuration, management, and advanced administration are covered in detail. Hands-on lab exercises are provided throughout the course for practical experience. This course is intended for individuals responsible for using VisualSRM to manage and administer storage infrastructure environments.

Upon successful completion of this course, participants should be able to:

- Describe the architecture of VisualSRM
- Understand and perform installation of VisualSRM primary server, the Database server, the Console, and the available UNIX and Windows agent
- Understand the planning and design best practices for successful installation
- Perform basic install for MSDE, advanced installs for SQL and/or Oracle, and UNIX and Windows Agent installation
- Administer various settings and policies

Note: This course is also appropriate for anyone seeking similar knowledge and skills with StorageScope File Level Reporter.

Duration: 3 Days

Prerequisites: VisualSRM Introduction



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