



Nortel Networks Multiservice Switch

7400/15000/20000

# Basics: Customer Documentation

NN10600-001



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Nortel Networks Multiservice Switch 7400/15000/20000

# **Basics: Customer Documentation**

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## Publication history

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### August 2004

6.1S1 Standard

General availability. Contains information on Nortel Networks Multiservice Switch 7400, 15000, and 20000 for the PCR6.1 release.



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# Chapter 1

## Nortel Networks Multiservice Switch documentation

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Nortel Networks Multiservice Switch documentation consists of procedural, descriptive, and reference information to support the Multiservice Switch products. For an overview of Multiservice Switch documentation and to see which documents belong in each functional area, see “Documentation packaging summary” (page 12).

To understand the numbers assigned to each document, refer to “Nortel Networks Multiservice Switch document numbering” (page 39).

For the definitions of the documentation statuses assigned to feature information and to documents, see “Information quality” (page 12).

For an overview of the Multiservice Switch products and the services they support, see NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview*.

For information on changes to Multiservice Switch documentation for this software release, see NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What’s New in PCR6.1*.

## Information quality

Documents are delivered with either a Draft, Preliminary, or Standard designation for the entire book, but the content for a specific feature may be at a different stage of development. The documentation status of the features is indicated in the NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

The status definitions are as follows:

- **Draft:** Information is written and reviewed for technical content, but the feature is still under development and change is expected.
- **Preliminary:** Development of the feature content is complete and is considered stable.
- **Standard:** The feature content has been fully reviewed for quality and is suitable for delivery to customers.

## Documentation packaging summary

The table, “Documentation packaging summary” (page 13) describes the Nortel Networks Multiservice Switch documentation suite and the corresponding Information Model categories.

**Table 1**  
**Documentation packaging summary**

Information type	Documents
“About the product” (page 17)	<p>NN10600-000 <i>Nortel Networks Multiservice Switch 7400/15000/20000 What’s New in PCR6.1</i></p> <p>NN10600-002 <i>Nortel Networks Using Task-based Documentation Job Aid</i></p> <p>NN10600-005 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Terminology</i></p> <p>NN10600-030 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Overview</i></p> <p>NN10600-050 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Command Reference</i></p> <p>NN10600-053 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Commands Job Aid</i></p> <p>NN10600-060 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Component Reference</i></p>
“Planning and engineering” (page 19)	None available in this suite
“Hardware installation and maintenance” (page 20)	<p>NN10600-120 <i>Nortel Networks Multiservice Switch 15000/20000 Hardware Description</i></p> <p>NN10600-125 <i>Nortel Networks Multiservice Switch 15000/20000 Planning Site Requirements</i></p> <p>NN10600-130 <i>Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade</i></p> <p>NN10600-170 <i>Nortel Networks Multiservice Switch 7400 Hardware Description</i></p> <p>NN10600-172 <i>Nortel Networks Multiservice Switch 7400 FP Cabling Reference</i></p> <p>NN10600-175 <i>Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade</i></p>
“Software management” (page 21)	<p>NN10600-270 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Software Installation</i></p> <p>NN10600-272 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software</i></p>
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**Table 1 (continued)**  
**Documentation packaging summary**

<b>Information type</b>	<b>Documents</b>
“Configuration management” (page 22)	<p>NN10600-271 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Network Management Connectivity</i></p> <p>NN10600-300 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: SNMP</i></p> <p>NN10600-550 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Common Configuration Procedures</i></p> <p>NN10600-551 <i>Nortel Networks Multiservice Switch 7400/15000/20000 FP Configuration Reference</i></p>
“Manage performance” (page 23)	<p>NN10600-561 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Data Management</i></p>
“Manage accounting” (page 24)	<p>NN10600-560 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Accounting</i></p>
“Manage faults” (page 24)	<p>NN10600-500 <i>Nortel Networks Multiservice Switch 6400/7400/15000/20000 Alarms Reference</i></p> <p>NN10600-510 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trace System</i></p> <p>NN10600-520 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Fault and Performance Management: Troubleshooting</i></p> <p>241-1001-509 <i>DPN-100 Call Clear, Reset and Diagnostic Codes (DPN-100 document)</i></p>
“Manage security” (page 25)	<p>NN10600-605 <i>Nortel Networks Multiservice Data Manager Network Security Fundamentals</i></p> <p>NN10600-606 <i>Nortel Networks Multiservice Data Manager Network Security: User Access Configuration</i></p> <p>NN10600-607 <i>Nortel Networks Multiservice Data Manager Network Security: Secure Communications Configuration</i></p>
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**Table 1 (continued)**  
**Documentation packaging summary**

<b>Information type</b>	<b>Documents</b>	
“Core networking operations” (page 26)	NN10600-405 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Server</i>	
	NN10600-410 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Redirection Server</i>	
	NN10600-415 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Hunt Group Server</i>	
	NN10600-420 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trunking</i>	
	NN10600-425 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Dynamic Packet Routing System</i>	
	NN10600-435 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Path-Oriented Routing System</i>	
	NN10600-440 <i>Nortel Networks Multiservice Switch 7400 Operations: Frame Relay Managed Cut Through Switching</i>	
	NN10600-445 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Multiprotocol Label Switching</i>	
	NN10600-450 <i>Nortel Networks Multiservice Switch 7400: Operations: DPN-100 Interworking</i>	
	“ATM fundamentals and configuration” (page 29)	NN10600-700 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals</i>
NN10600-702 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Routing and Signalling Fundamentals</i>		
NN10600-705 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Management Fundamentals</i>		
NN10600-706 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Shaping and Policing Fundamentals</i>		
NN10600-707 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Queuing and Scheduling Fundamentals</i>		
NN10600-708 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM CAC and Bandwidth Fundamentals</i>		
NN10600-710 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management</i>		
NN10600-715 <i>Nortel Networks Multiservice Switch 7400/15000/20000 ATM Fault and Performance Management</i>		
NN10600-720 <i>Nortel Networks Multiservice Switch 7400/15000/20000 AAL1 Circuit Emulation Operations</i>		
NN10600-730 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Inverse Multiplexing for ATM Operations</i>		
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**Table 1 (continued)**  
**Documentation packaging summary**

Information type	Documents
"Voice operations" (page 31)	NN10600-745 <i>Nortel Networks Multiservice Switch 7400 Operations: MPANL</i> NN10600-750 <i>Nortel Networks Multiservice Switch 7400 Operations: Voice Transport</i> NN10600-755 <i>Nortel Networks Multiservice Switch 7400 Operations: Voice Networking</i> NN10600-760 <i>Nortel Networks Multiservice Switch 7400 Operations: DCME Voice Service</i> NN10600-765 <i>Nortel Networks Multiservice Switch 7400 Operations: Remote Server Agent</i> NN10600-770 <i>Nortel Networks Multiservice Switch 7400 Operations: HDLC Transparent Data Service</i> NN10600-775 <i>Nortel Networks Multiservice Switch 7400 Operations: Bit Transparent Data Service</i>
"Media Gateway fundamentals and configuration" (page 33)	NN10600-780 <i>Nortel Networks Media Gateway 7480/15000 Technology Fundamentals</i> NN10600-781 <i>Nortel Networks Media Gateway 7480/15000 Non-switched Service Configuration Management</i> NN10600-782 <i>Nortel Networks Media Gateway 7480/15000 Switched Service Configuration Management</i>
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**Table 1 (continued)**  
**Documentation packaging summary**

Information type	Documents
“IP and Ethernet fundamentals and configuration” (page 34)	NN10600-580 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Ethernet Service Operations</i>
	NN10600-581 <i>Nortel Networks Multiservice Switch 7400/15000/20000 VPN Technology Fundamentals</i>
	NN10600-582 <i>Nortel Networks Multiservice Switch 7400/15000/20000 VPN Configuration Management</i>
	NN10600-590 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Layer 3 Traffic Management Fundamentals</i>
	NN10600-591 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Layer 3 Traffic Management Configuration</i>
	NN10600-800 <i>Nortel Networks Multiservice Switch 7400/15000/20000 IP Technology Fundamentals</i>
	NN10600-801 <i>Nortel Networks Multiservice Switch 7400/15000/20000 IP Configuration Management</i>
	“Frame Relay fundamentals and configuration” (page 36)
NN10600-901 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay Configuration Management</i>	
NN10600-905 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay UNI Job Aid</i>	
NN10600-906 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay NNI Job Aid</i>	
NN10600-920 <i>Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Frame Relay to ATM Interworking</i>	
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## About the product

Product fundamentals documents provide reference information that applies to the whole product and descriptive information about the documentation suite. You can find information about Multiservice Switch product fundamentals in the following documents:

- “NN10600-000 Nortel Networks Multiservice Switch 7400/15000/20000 What’s New in PCR6.1” (page 18)
- “NN10600-002 Nortel Networks Using Task-based Documentation Job Aid” (page 18)

- “NN10600-005 Nortel Networks Multiservice Switch 7400/15000/20000 Terminology” (page 18)
- “NN10600-030 Nortel Networks Multiservice Switch 7400/15000/20000 Overview” (page 19)
- “NN10600-050 Nortel Networks Multiservice Switch 7400/15000/20000 Command Reference” (page 19)
- “NN10600-053 Nortel Networks Multiservice Switch 7400/15000/20000 Commands Job Aid” (page 19)
- “NN10600-060 Nortel Networks Multiservice Switch 7400/15000/20000 Component Reference” (page 19)

The product fundamentals category also includes the present guide, the NN10600-001 *Nortel Networks Multiservice Switch 7400/15000/20000 Basics: Customer Documentation*.

### **NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What’s New in PCR6.1***

This document provides a brief description of the new features in this release. The document also identifies changes to the Multiservice Switch documentation suite between releases and any changes to the delivery method. For additional feature information and last-minute post-publication changes to the suite (if applicable), see the Nortel Networks Multiservice Switch Release Notes for this PCR release.

### **NN10600-002 *Nortel Networks Using Task-based Documentation Job Aid***

This document is a quick reference for using new task-based documentation. It describes the structure of task-based documentation and how it is used effectively.

### **NN10600-005 *Nortel Networks Multiservice Switch 7400/15000/20000 Terminology***

This document contains a glossary of the terms and acronyms used in the Multiservice Switch documentation suites.

### ***NN10600-030 Nortel Networks Multiservice Switch 7400/15000/20000 Overview***

This document provides an overview of the Nortel Networks Multiservice Switch 7400/15000/20000 systems. This document also describes the Multiservice Switch hardware, software, network management functions, technical specifications, and services, and explains their network role and capabilities. It describes how you can use Multiservice Switch to provide high-performance switching efficiently and economically in carrier markets. The document also contains information on how to order Multiservice Switch hardware, software, or documentation and on how to contact Nortel Networks support services.

### ***NN10600-050 Nortel Networks Multiservice Switch 7400/15000/20000 Command Reference***

This document explains how to use commands to control the Multiservice Switch software. This explanation includes generic command information and a description of all the commands you can use. The document also contains detailed examples of many of the Multiservice Switch commands.

### ***NN10600-053 Nortel Networks Multiservice Switch 7400/15000/20000 Commands Job Aid***

This document describes the most commonly used Multiservice Switch commands.

### ***NN10600-060 Nortel Networks Multiservice Switch 7400/15000/20000 Component Reference***

This document contains detailed descriptions of the components and subcomponents used in Nortel Networks Multiservice Switch 7400/15000/20000, software. This document also contains information on the components' operational and provisional attributes and the functional relationships that exist between them. This document is organized according to root level components.

## **Planning and engineering**

Planning and engineering documents provide highly technical information that is used to design and engineer a network. There are currently no documents in the suite that fall in this category.

## Hardware installation and maintenance

Hardware installation and maintenance documents provide descriptive and procedural information required to plan and prepare the installation site, install the equipment, and maintain the hardware. You can find information on Multiservice Switch hardware installation and maintenance in the following documents:

- “NN10600-120 Nortel Networks Multiservice Switch 15000/20000 Hardware Description” (page 20)
- “NN10600-170 Nortel Networks Multiservice Switch 7400 Hardware Description” (page 20)
- “NN10600-125 Nortel Networks Multiservice Switch 15000/20000 Planning Site Requirements” (page 21)
- “NN10600-130 Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade” (page 21)
- “NN10600-175 Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade” (page 21)
- “NN10600-172 Nortel Networks Multiservice Switch 7400 FP Cabling Reference” (page 21)

### ***NN10600-120 Nortel Networks Multiservice Switch 15000/20000 Hardware Description***

This document describes the hardware components, processor cards, and cables on the Nortel Networks Multiservice Switch 15000 and Multiservice Switch 20000, including the functions and interrelationships of each hardware component and subassembly.

### ***NN10600-170 Nortel Networks Multiservice Switch 7400 Hardware Description***

This document describes and provides detailed interface specifications for all Nortel Networks Multiservice Switch 7400 control and function processors.

### ***NN10600-125 Nortel Networks Multiservice Switch 15000/20000 Planning Site Requirements***

This document describes how to plan the hardware installation of the Nortel Networks Multiservice Switch 15000 and Multiservice Switch 20000 and to prepare the site where the installation will occur. Physical space requirements, power feed information, and special considerations such as electrostatic discharge and electromagnetic interference are included in this guide.

### ***NN10600-130 Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade***

This document contains complete instructions for installing, adding, replacing, maintaining, or upgrading the hardware and associated equipment of a Nortel Networks Multiservice Switch 15000 and Multiservice Switch 20000. The instructions are supported by safety requirements and considerations of best practices to ensure the safety of personnel and the safe, effective, and timely handling of the switch hardware.

### ***NN10600-175 Nortel Networks Multiservice Switch 7400 Hardware Installation, Maintenance, and Upgrade***

This document contains information on the selection and preparation of a site, the installation, maintenance, powering up and testing of a Nortel Networks Multiservice Switch 7400.

### ***NN10600-172 Nortel Networks Multiservice Switch 7400 FP Cabling Reference***

This document contains reference information on cabling connections for Nortel Networks Multiservice Switch 7400 function processors (FPs).

## **Software management**

Software management documents provide descriptive and procedural information required to perform an initial software installation or a software upgrade or downgrade, including configuration procedures and tests to be

performed immediately after installation. You can find information on Multiservice Switch software installation and commissioning in the following documents:

- “NN10600-270 Nortel Networks Multiservice Switch 7400/15000/20000 Software Installation” (page 22)
- “NN10600-272 Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software” (page 22)

### ***NN10600-270 Nortel Networks Multiservice Switch 7400/15000/20000 Software Installation***

This document describes the process of verifying the software installed on a Multiservice Switch node and installing new or additional software features if required. The document also contains instructions on how to migrate the software on an existing Multiservice Switch node to a new software release.

### ***NN10600-272 Nortel Networks Multiservice Switch 7400/15000/20000 Upgrading Software***

This document provides all the procedures necessary to upgrade Multiservice Switch software, including software migration, feature upgrades, and patch activation.

## **Configuration management**

Configuration management documents provide procedural information for performing routine configuration tasks such as setting up routes, connections, protocols and services or for configuring hardware components such as cards, as well as information for operating and maintaining the platform on which the network management system runs. You can find information on configuration management in the following documents:

- “NN10600-271 Nortel Networks Multiservice Switch 7400/15000/20000 Network Management Connectivity” (page 23)
- “NN10600-300 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: SNMP” (page 23)

### ***NN10600-271 Nortel Networks Multiservice Switch 7400/ 15000/20000 Network Management Connectivity***

This document describes connecting network management tools to Multiservice Switch and using the StartUp utility. Procedures for connecting a newly-installed Multiservice Switch to the network are included along with details on setting up your chosen method of network management, connecting the Multiservice Switch to the network, connection options, and network topology examples.

### ***NN10600-300 Nortel Networks Multiservice Switch 7400/ 15000/20000 Operations: SNMP***

This document contains a general description of the simple network management protocol (SNMP) and specific details on SNMPv1 and SNMPv2. This document also contains procedures for provisioning SNMP on a generic level and for specifically provisioning SNMPv1 and SNMPv2. In addition, you can find information on supported MIBs, implementation details for supported and unsupported objects, and troubleshooting information.

### ***NN10600-550 Nortel Networks Multiservice Switch 7400/ 15000/20000 Common Configuration Procedures***

This document contains instructions on how to configure the basic elements of a Multiservice Switch node.

### ***NN10600-551 Nortel Networks Multiservice Switch 7400/ 15000/20000 FP Configuration Reference***

This document contains reference information for all Nortel Networks Multiservice Switch 7400/15000/20000 function processors (FP). For each FP, the document provides a description of its functionality, configuration parameters, supported applications and services, and OSI states.

## **Manage performance**

Performance management documents contain information about managing resource usage. You can find information about performance management for Multiservice Switch in the following document:

- “NN10600-561 Nortel Networks Multiservice Switch 7400/15000/20000 Data Management” (page 24)

## ***NN10600-561 Nortel Networks Multiservice Switch 7400/15000/20000 Data Management***

This document describes the Multiservice Switch data collection system and explains how to configure the node for collection of accounting data, statistics, alarms, state change notifications, logs, and debug information.

## **Manage accounting**

Accounting management documents provide all the information required to set up, collect, process and modify accounting records. For information on managing Multiservice Switch accounting, refer to “NN10600-560 Nortel Networks Multiservice Switch 7400/15000/20000 Accounting” (page 24).

## ***NN10600-560 Nortel Networks Multiservice Switch 7400/15000/20000 Accounting***

This document contains an overview of Multiservice Switch accounting and accounting for Multiservice Switch services.

## **Manage faults**

Fault management documents provide fundamental information about how faults are managed by the system, reference information such as logs and error messages, and procedural information required to monitor alarms, clear alarms, test equipment and troubleshoot problems. For information on Nortel Networks Multiservice Switch fault management, refer to the following documents.

- “NN10600-500 Nortel Networks Multiservice Switch 6400/7400/15000/20000 Alarms Reference” (page 25)
- “NN10600-510 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trace System” (page 25)
- “NN10600-520 Nortel Networks Multiservice Switch 7400/15000/20000 Fault and Performance Management: Troubleshooting” (page 25)

One document from the DPN-100 suite is also included, as follows:

- “241-1001-509 DPN-100 Call Clear, Reset and Diagnostic Codes” (page 25)

**NN10600-500 Nortel Networks Multiservice Switch 6400/7400/15000/20000 Alarms Reference**

This document contains reference information on the alarms generated by Multiservice Switch. This document also includes information on how to interpret alarms and their potential causes. You will also find information on the Multiservice Switch alarm philosophy.

**NN10600-510 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trace System**

This guide explains the interface protocol, provisioning, operating and troubleshooting procedures of the PTS (the trace system used by Multiservice Switch).

**NN10600-520 Nortel Networks Multiservice Switch 7400/15000/20000 Fault and Performance Management: Troubleshooting**

This document describes the fault management information that is available on Multiservice Switch, describes the basic troubleshooting process, and provides procedures for troubleshooting various hardware and software systems on a Multiservice Switch node.

**241-1001-509 DPN-100 Call Clear, Reset and Diagnostic Codes**

This DPN-100 document provides details required to determine the cause of an error condition and possible methods to alleviate the problem.

**Manage security**

Security management documents contain information about managing the protection of resources from unauthorized or detrimental access and use. You can find security information for Nortel Networks Multiservice Switch in the following document:

- “NN10600-605 Nortel Networks Multiservice Data Manager Network Security Fundamentals” (page 26)
- “NN10600-606 Nortel Networks Multiservice Data Manager Network Security: User Access Configuration” (page 26)
- “NN10600-607 Nortel Networks Multiservice Data Manager Network Security: Secure Communications Configuration” (page 26)

*Note:* These three documents are shared by both the Multiservice Switch and Preside MDM documentation suites.

### **NN10600-605 Nortel Networks Multiservice Data Manager Network Security Fundamentals**

This document contains procedural and conceptual information on implementing network security for engineers or anyone who provisions security in a network.

### **NN10600-606 Nortel Networks Multiservice Data Manager Network Security: User Access Configuration**

This document contains procedural information on configuring user access and permissions for anyone who provisions security measures in a network.

### **NN10600-607 Nortel Networks Multiservice Data Manager Network Security: Secure Communications Configuration**

This document contains procedural information on implementing network security for engineers or anyone who provisions security measures in a network.

## **Core networking operations**

Core networking documents provide fundamental information required to understand routing and trunking, as well as procedural information required to configure and police traffic contracts. You can find information about Nortel Networks Multiservice Switch core networking in the following documents:

- “NN10600-405 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Server” (page 27)
- “NN10600-410 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Redirection Server” (page 27)
- “NN10600-415 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Hunt Group Server” (page 27)
- “NN10600-420 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trunking” (page 27)

- “NN10600-425 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Dynamic Packet Routing System” (page 28)
- “NN10600-435 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Path-Oriented Routing System” (page 28)
- “NN10600-445 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Multiprotocol Label Switching” (page 28)
- “NN10600-450 Nortel Networks Multiservice Switch 7400: Operations: DPN-100 Interworking” (page 28)
- “NN10600-440 Nortel Networks Multiservice Switch 7400 Operations: Frame Relay Managed Cut Through Switching” (page 28)

### ***NN10600-405 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Server***

This document describes the Call Server for Multiservice Switch networks.

### ***NN10600-410 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Call Redirection Server***

This document contains an overview of the call redirection service and details on deploying, provisioning, maintaining, and troubleshooting the service.

### ***NN10600-415 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Hunt Group Server***

This document contains an overview of the hunt group capability and details on deploying, provisioning, maintaining and troubleshooting hunt groups.

### ***NN10600-420 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Trunking***

This document contains a more specific description of Multiservice Switch trunking functionality, the configuration procedures for Multiservice Switch trunks, and the operational and debugging procedures associated with Multiservice Switch trunks.

### **NN10600-425 *Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Dynamic Packet Routing System***

This document contains information specific to the Multiservice Switch Dynamic Packet Routing System (DPRS). This information includes a description of DPRS routing, DPRS traffic management features, and network planning with DPRS. In addition, the document contains DPRS configuration, operational, and troubleshooting procedures.

### **NN10600-435 *Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Path-Oriented Routing System***

This document contains information specific to the Multiservice Switch Path-Oriented Routing System (PORS). This information includes a description of PORS routing, PORS congestion and bandwidth management, the Multiservice Switch components and attributes used by PORS, configuration procedures, and routing examples.

### **NN10600-440 *Nortel Networks Multiservice Switch 7400 Operations: Frame Relay Managed Cut Through Switching***

This document contains an overview of MCS for Multiservice Switch 7400, a description of its architecture, and information on how it is used by Frame Relay services. This document also contains information on engineering, installing, provisioning, and troubleshooting MCS.

### **NN10600-445 *Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Multiprotocol Label Switching***

This document contains an overview of MPLS, and explains how it works. The document also contains a description of MPLS architecture, and information on configuring and troubleshooting MPLS. This document also describes the MPLS gateway application which implements ATM over MPLS over POS for transport across a core network.

### **NN10600-450 *Nortel Networks Multiservice Switch 7400: Operations: DPN-100 Interworking***

This document contains a description of how to interconnect a Multiservice Switch 7400 RID subnet to an existing DPN-100 network. This document also contains procedures for provisioning, monitoring, and troubleshooting an interworking network environment consisting of Multiservice Switch 7400 nodes and DPN-100 nodes.

## ATM fundamentals and configuration

The ATM documents provide descriptive and procedural information required to understand, install, operate and maintain Nortel Networks Multiservice Switch asynchronous transfer mode (ATM). You can find information on ATM in the following documents:

- “NN10600-700 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals” (page 29)
- “NN10600-702 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Routing and Signalling Fundamentals” (page 30)
- “NN10600-705 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Management Fundamentals” (page 30)
- “NN10600-706 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Shaping and Policing Fundamentals” (page 30)
- “NN10600-707 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Queuing and Scheduling Fundamentals” (page 30)
- “NN10600-708 Nortel Networks Multiservice Switch 7400/15000/20000 ATM CAC and Bandwidth Fundamentals” (page 30)
- “NN10600-710 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management” (page 30)
- “NN10600-715 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Fault and Performance Management” (page 31)
- “NN10600-720 Nortel Networks Multiservice Switch 7400/15000/20000 AAL1 Circuit Emulation Operations” (page 31)
- “NN10600-730 Nortel Networks Multiservice Switch 7400/15000/20000 Inverse Multiplexing for ATM Operations” (page 31)

### ***NN10600-700 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals***

This document provides an overview of the Multiservice Switch ATM service, including information on ATM network architecture, connections and interfaces, traffic management, and transmission services.

**NN10600-702 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Routing and Signalling Fundamentals***

This document contains detailed descriptive information on ATM routing and signaling for Multiservice Switch nodes and networks. This information includes detailed descriptions of ATM interfaces and connections, network addressing, and networking scenarios.

**NN10600-705 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Management Fundamentals***

This document provides a road map to the ATM traffic management documents. It also provides an overview of controls, descriptions of traffic contracts, PNNI and UNI routing impacts, standards compliance, configuration settings for all FP types, and descriptions of general concepts.

**NN10600-706 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Traffic Shaping and Policing Fundamentals***

This document describes the traffic management concepts that apply to the network edge: traffic shaping and policing, and applications by FP type.

**NN10600-707 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Queuing and Scheduling Fundamentals***

This document describes the traffic management concepts that apply to the node and FP resources: queuing, scheduling, memory management, and packet-wise discard, and applications by FP type.

**NN10600-708 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM CAC and Bandwidth Fundamentals***

This document describes traffic management concepts that apply to bandwidth management: CAC, bandwidth pools, and dynamic bandwidth management.

**NN10600-710 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management***

This document describes how to configure the Multiservice Switch ATM service for permanent and dynamic connections. This information includes the configuration of interfaces, routes, switched connections, virtual channels, paths, and ATM accounting.

**NN10600-715 Nortel Networks Multiservice Switch 7400/  
15000/20000 ATM Fault and Performance Management**

This document contains information on how to manage faults on those connections running the Multiservice Switch ATM service. This document also contains information on how to monitor ATM function processors, interfaces, and connections. In the event that you find problems, you can refer to this guide for troubleshooting information on how to resolve them.

**NN10600-720 Nortel Networks Multiservice Switch 7400/  
15000/20000 AAL1 Circuit Emulation Operations**

This document contains a description of the AAL1 circuit emulation service and its capabilities. This document also contains procedures for configuring, monitoring, and troubleshooting the circuit emulation service on Nortel Networks Multiservice Switch 7400/15000/20000.

**NN10600-730 Nortel Networks Multiservice Switch 7400/  
15000/20000 Inverse Multiplexing for ATM Operations**

This document contains a description of IMA and its capabilities. This document also contains procedures for configuring, monitoring, and troubleshooting IMA.

## Voice operations

Information on Nortel Networks Multiservice Switch voice services can be found in the following documents:

- “NN10600-745 Nortel Networks Multiservice Switch 7400 Operations: MPANL” (page 32)
- “NN10600-750 Nortel Networks Multiservice Switch 7400 Operations: Voice Transport” (page 32)
- “NN10600-755 Nortel Networks Multiservice Switch 7400 Operations: Voice Networking” (page 32)
- “NN10600-760 Nortel Networks Multiservice Switch 7400 Operations: DCME Voice Service” (page 33)
- “NN10600-765 Nortel Networks Multiservice Switch 7400 Operations: Remote Server Agent” (page 33)

- “NN10600-770 Nortel Networks Multiservice Switch 7400 Operations: HDLC Transparent Data Service” (page 33)
- “NN10600-775 Nortel Networks Multiservice Switch 7400 Operations: Bit Transparent Data Service” (page 33)
- “NN10600-780 Nortel Networks Media Gateway 7480/15000 Technology Fundamentals” (page 34)
- “NN10600-781 Nortel Networks Media Gateway 7480/15000 Non-switched Service Configuration Management” (page 34)
- “NN10600-782 Nortel Networks Media Gateway 7480/15000 Switched Service Configuration Management” (page 34)

### ***NN10600-745 Nortel Networks Multiservice Switch 7400 Operations: MPANL***

This document contains a description of the Multiservice Switch MPANL service and protocol. This document also contains instructions on provisioning, operating, monitoring, and troubleshooting the MPANL service.

### ***NN10600-750 Nortel Networks Multiservice Switch 7400 Operations: Voice Transport***

This document describes the Multiservice Switch 7400 Voice Transport service.

### ***NN10600-755 Nortel Networks Multiservice Switch 7400 Operations: Voice Networking***

This document describes the voice networking service for Multiservice Switch 7400. Information in the document explains operation and capabilities, installation, application examples, and interpretation and resolution of problems.

**NN10600-760 Nortel Networks Multiservice Switch 7400  
Operations: DCME Voice Service**

This document describes the digital circuit multiplication equipment (DCME) voice service of the Multiservice Switch 7400, including the features and characteristics of the DCME voice service, how to provision and maintain the DCME voice service on a Multiservice Switch 7400 node, and how to monitor and troubleshoot the DCME voice service.

**NN10600-765 Nortel Networks Multiservice Switch 7400  
Operations: Remote Server Agent**

This document contains an overview of the RSA and its role in Passport 4400 and Multiservice Switch 7400 interworking. This document also contains procedures for installing, provisioning, and troubleshooting the RSA.

**NN10600-770 Nortel Networks Multiservice Switch 7400  
Operations: HDLC Transparent Data Service**

This document describes the Multiservice Switch 7400 HDLC Transparent Data Service (HTDS).

**NN10600-775 Nortel Networks Multiservice Switch 7400  
Operations: Bit Transparent Data Service**

This document describes the Multiservice Switch Bit Transparent Data Service (BTDS). The Bit Transparent Data Service (BTDS) provides a means of transmitting any continuous bit-rate data, such as video or Bisync.

**Media Gateway fundamentals and configuration**

Information on Media Gateway 7480/15000 (also referred to as Packet Voice Gateway) can be found in the following documents:

- “NN10600-715 Nortel Networks Multiservice Switch 7400/15000/20000 ATM Fault and Performance Management” (page 31)
- “NN10600-720 Nortel Networks Multiservice Switch 7400/15000/20000 AAL1 Circuit Emulation Operations” (page 31)
- “NN10600-730 Nortel Networks Multiservice Switch 7400/15000/20000 Inverse Multiplexing for ATM Operations” (page 31)

### **NN10600-780 *Nortel Networks Media Gateway 7480/15000 Technology Fundamentals***

This document contains descriptive information for switched and non-switched packet voice gateway.

### **NN10600-781 *Nortel Networks Media Gateway 7480/15000 Non-switched Service Configuration Management***

This document contains procedural information for configuring non-switched packet voice gateway

### **NN10600-782 *Nortel Networks Media Gateway 7480/15000 Switched Service Configuration Management***

This document contains procedural information for configuring switched packet voice gateway using ATM or IP.

## **IP and Ethernet fundamentals and configuration**

Information on Nortel Networks Multiservice Switch IP and Ethernet fundamentals and configuration can be found in the following documents:

- “NN10600-580 Nortel Networks Multiservice Switch 7400/15000/20000 Ethernet Service Operations” (page 35)
- “NN10600-581 Nortel Networks Multiservice Switch 7400/15000/20000 VPN Technology Fundamentals” (page 35)
- “NN10600-582 Nortel Networks Multiservice Switch 7400/15000/20000 VPN Configuration Management” (page 35)
- “NN10600-590 Nortel Networks Multiservice Switch 7400/15000/20000 Layer 3 Traffic Management Fundamentals” (page 35)
- “NN10600-591 Nortel Networks Multiservice Switch 7400/15000/20000 Layer 3 Traffic Management Configuration” (page 35)
- “NN10600-800 Nortel Networks Multiservice Switch 7400/15000/20000 IP Technology Fundamentals” (page 35)
- “NN10600-801 Nortel Networks Multiservice Switch 7400/15000/20000 IP Configuration Management” (page 35)

### ***NN10600-580 Nortel Networks Multiservice Switch 7400/ 15000/20000 Ethernet Service Operations***

This document describes the Multiservice Switch Ethernet service and how to configure it using a direct connection or the performance enhancement solution. Traffic management and troubleshooting information specific to the Ethernet service is also included in this document.

### ***NN10600-581 Nortel Networks Multiservice Switch 7400/ 15000/20000 VPN Technology Fundamentals***

This document describes the terminology associated with Multiservice Switch VPN services.

### ***NN10600-582 Nortel Networks Multiservice Switch 7400/ 15000/20000 VPN Configuration Management***

This document describes the procedures required to configure Multiservice Switch VPNs over frame relay, GigE, and ATM.

### ***NN10600-590 Nortel Networks Multiservice Switch 7400/ 15000/20000 Layer 3 Traffic Management Fundamentals***

This document describes the terminology associated with Layer 3 traffic management.

### ***NN10600-591 Nortel Networks Multiservice Switch 7400/ 15000/20000 Layer 3 Traffic Management Configuration***

This document describes the procedures required to configure Layer 3 traffic management.

### ***NN10600-800 Nortel Networks Multiservice Switch 7400/ 15000/20000 IP Technology Fundamentals***

This document contains descriptive information about the implementation of IP and virtual routers on Multiservice Switch, routing protocols, IP services, and access media.

### ***NN10600-801 Nortel Networks Multiservice Switch 7400/ 15000/20000 IP Configuration Management***

This document contains procedural information about IP and virtual routers, routing protocols, IP services, and access media.

## Frame Relay fundamentals and configuration

Nortel Networks Multiservice Switch Frame Relay information can be found in the following documents:

- “NN10600-900 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay Technology Fundamentals” (page 36)
- “NN10600-901 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay Configuration Management” (page 36)
- “NN10600-905 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay UNI Job Aid” (page 36)
- “NN10600-906 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay NNI Job Aid” (page 37)
- “NN10600-920 Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Frame Relay to ATM Interworking” (page 37)

### ***NN10600-900 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay Technology Fundamentals***

This document contains a description of the Multiservice Switch Frame Relay service and guidelines for network engineering. This guide also contains information on how to monitor and troubleshoot the Frame Relay operating environment.

### ***NN10600-901 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay Configuration Management***

This document contains instructions for installing and provisioning cards, ports, and software for Multiservice Switch Frame Relay service. This guide also contains procedures for monitoring and troubleshooting Multiservice Switch Frame Relay.

### ***NN10600-905 Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay UNI Job Aid***

This document contains quick reference information on the Frame Relay UNI frame format and commands.

**NN10600-906 *Nortel Networks Multiservice Switch 7400/15000/20000 Frame Relay NNI Job Aid***

This document contains quick reference information on the Frame Relay NNI frame format and commands.

**NN10600-920 *Nortel Networks Multiservice Switch 7400/15000/20000 Operations: Frame Relay to ATM Interworking***

This document contains a description of the Multiservice Switch Frame Relay to ATM (FR-ATM) interworking function (IWF) and its implementation as a gateway and interworking service. This document also contains instructions on provisioning the interworking function, monitoring components and connections, and troubleshooting, and information on deployment and migration.



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## Chapter 2

# Nortel Networks Multiservice Switch document numbering

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Each Nortel Networks Multiservice Switch document has a unique identification number. You can find this number at the bottom of each page and in the front and back matter of the documents. This number is structured in the following way:

NNXXXXX-YYY

where:

<XXXXX> is the layer number.

<YYY> is the key number.

For information on the layer numbers, refer to “Layer numbers” (page 39).

For information on the key numbers, refer to “Key numbers” (page 40).

Some Multiservice Switch documents are renumbered and renamed from one release to the next. For more information on the changes in the documentation suite for this release, refer to the NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

## Layer numbers

Layer numbers uniquely identify which product the document is associated with. You will find the layer number 10600 used for all documents in the Nortel Networks Multiservice Switch 7400/15000/20000 documentation suite.

## Key numbers

The key numbers uniquely identify the functional areas to which each of the documents belong. The documentation suite has been divided into the following functional areas:

- product fundamentals (key numbers: 000 to 099)
- hardware description, installation, and maintenance (key numbers: 100 to 199)
- software installation and commissioning (key numbers: 200 to 299)
- SNMP administration (key numbers: 300 to 349)
- core networking operations (key numbers: 400 to 499)
- fault management (key numbers: 500 to 549)
- configuration and performance management (key numbers: 550 to 569)
- Ethernet, VPN, and Layer 3 traffic management (key numbers: 570 to 599)
- security management (key numbers: 600 to 699)
- ATM fundamentals and configuration management (key numbers: 700 to 739)
- Voice service operations (key numbers: 740 to 779)
- Media Gateway fundamentals and configuration management (key numbers: 780 to 799)
- IP service fundamentals and configuration management (key numbers: 800 to 899)
- Frame relay service fundamentals and configuration management (key numbers: 900 to 999)

## Chapter 3

# Text conventions in Nortel Networks Multiservice Switch documentation

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The Nortel Networks Multiservice Switch documentation suite uses a set of standard text conventions. These conventions involve the consistent use of specific text formatting to clearly explain what certain blocks of text mean.

- `nonproportional spaced plain type`

Nonproportional spaced plain type represents system generated text or text that appears on your screen.

- **nonproportional spaced bold type**

Nonproportional spaced bold type represents words that you should type or that you should select on the screen.

- *italics*

Statements that appear in italics in a procedure explain the results of a particular step and appear immediately following the step.

Words that appear in italics indicate a component or attribute name.

- `[optional_parameter]`

Words in square brackets represent optional parameters. The command can be entered with or without the words in the square brackets.

- <general\_term>

Words in angle brackets represent variables which are to be replaced with specific values.

- UPPERCASE,lowercase

Nortel Networks Multiservice Switch commands are not case-sensitive and do not have to match commands and parameters exactly as shown in this document, with the exception of string options values (for example, file and directory names) and string attribute values.

- |

This symbol separates items from which you may select one; for example, ON/OFF indicates that you may specify ON or OFF. If you do not make a choice, a default ON is assumed.

- ...

Three dots in a command indicate that the parameter may be repeated more than once in succession.

The term absolute pathname refers to the full specification of a path starting from the root directory. Absolute pathnames always begin with the slash (/) symbol. A relative pathname takes the current directory as its starting point, and starts with any alphanumeric character (other than /).



# Nortel Networks Multiservice Switch 7400/15000/20000

## Basics: Customer Documentation

Release 6.1

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