



n-Command MSP

Network Management Platform

Product Features

- Configuration management
- Firmware management
- Inventory management
- VoIP performance monitoring
- Voice quality data reporting including Mean Opinion Scoring (MOS)
- Customizable dashboard
- Automated device discovery and registration using *Auto-Link*
- Automated device registration
- Automated Backups
- Supports Total Access 900 Series and NetVanta Series
- Web browser GUI
- Monitors and reports daily call activity
- Filter, group, and label devices
- Eliminates the need for costly network probes and appliances
- Solutions that support up to 25,000 remote devices
- Simplifies management and reduces operations costs
- n-Command MSP Virtualization Support



ADTRAN® n-Command® MSP is a powerful and easy-to-use network management system that provides monitoring and management for a wide range of ADTRAN business networking solutions. Using ADTRAN n-Command MSP can improve network operations and business-class Voice over IP (VoIP) performance for service providers and enterprise organizations who are implementing ADTRAN's industry-leading NetVanta® and Total Access® 900 Series equipment running the ADTRAN Operating System (AOS).

n-Command MSP is an appliance-based solution with options for the n-Command MSP Basic Server supporting up to 10,000 remote devices or the n-Command MSP Advanced Server supporting up to 25,000 remote devices. n-Command MSP includes the following management features for ADTRAN devices: Firmware Management, Configuration Management, Auto-device Discovery, Device Inventory and Control, Automatic Configuration Backup, and Voice Quality Monitoring (VQM).

As increasing numbers of hosted and premise-based VoIP networks are deployed, it is becoming more important to implement a centralized network management framework. Network planners, operators, and managers require a system that empowers them to deal with the operational challenges and customer support demands associated with next-generation telecom services. Customers also expect to have the same, or higher, level of quality and reliability from these new-generation services as they had with traditional phone services.

VoIP and IP telephony applications involve call quality and performance management challenges that require an easy-to-use and sophisticated management system. The system should enable service providers and enterprise IT organizations to deliver on Service Level Agreements (SLAs), increase customer service response, reduce network downtime, and proactively monitor and report the performance of the VoIP network and users.

The ADTRAN n-Command MSP solution delivers advanced and easy-to-use capabilities for network managers to address those issues. The

n-Command MSP Dashboard features an easy-to-use Graphical User Interface and a suite of device management features including Remote Installation, Automated Device Discovery and Device Inventory, Configuration Management, Firmware Management, and VQM.

Dashboard – Graphical User Interface (GUI)

The Dashboard is the first screen to appear after logging into the system. It provides an intuitive and easy-to-use graphical display with point-and-click/drag-and-drop operations for monitoring and management of all devices being managed by the system.



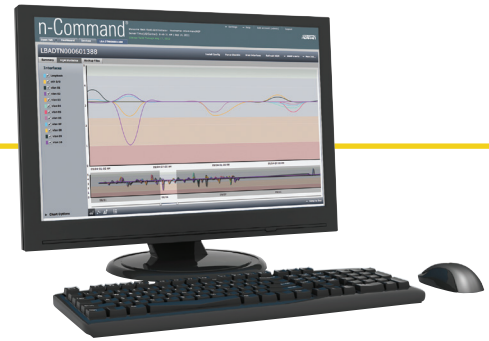
The ADTRAN n-Command MSP GUI enables the network administrator to quickly and easily organize all the managed devices. To promote flexibility and customization for each n-Command MSP user, the system is designed so each user can drag and drop modules and resize or move them around within the screen to tailor the views.

Through the main GUI dashboard modules, n-Command MSP users have visibility and reporting on critical performance data for each managed device including the following:

- **Average Uptime** displays the average number of days the devices have been operational
- **Device Types** summarizes the number of devices by type in a pie chart
- **Heap Usage** displays the percent of heap used on each device
- **New Devices** displays all the new devices discovered on the network in the last 10 days

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- **Processor Utilization** displays the percent of processor being used on each device
- **Software Revisions** depicts the software revisions in a pie chart including primary, backup, or running firmware versions
- **Device Alerts** displays all alerts present throughout the network system and the icons change to a red color when alerts of any of the following occur:



Management Alerts are issued when problems are detected with the device's auto-link, check-in, or running configuration.



Exception Alerts are issued when an exception file is present on the device.



Firmware Alerts are issued when the primary or backup firmware image is not on the system; the currently executing firmware version is not the same as the primary firmware image; or the specified primary and backup firmware images are the same file.

VQM

As voice and data networks converge into a single communications network, the ability to implement and manage voice Quality of Service (QoS) is becoming a critical part of successful operations. QoS-enabled network devices can provide better performance and higher service levels for delay-sensitive VoIP or other mission-critical applications, as well as accommodating the lower priority traffic on the same infrastructure.

ADTRAN VQM builds on QoS to provide a sophisticated level of network performance visibility. ADTRAN VQM examines VoIP data streams for each voice call, records the voice quality information, and enables network managers to identify problem areas in an easy-to-use, graphical interface.

ADTRAN n-Command MSP collects VQM data from remote Total Access 900 Series and NetVanta equipment running voice. After each VoIP call is completed, the remote devices communicate with n-Command MSP via a low-bandwidth SIP message that includes the voice quality data such as MOS, delay, jitter, and dropped packets.

ADTRAN n-Command MSP then provides a graphical display of the voice quality statistics so network managers can easily and quickly select any call or extension, and expand into the performance details on each VoIP data stream.

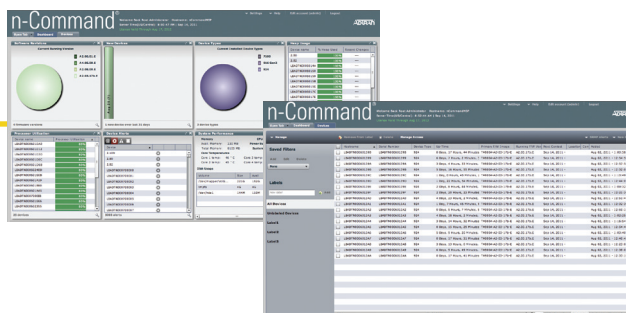
Managers can proactively access call streams and network performance details, often before a customer may call into the help desk inquiring about low VoIP performance.

ADTRAN n-Command MSP saves a database of voice quality data based on the device, day of week, time of day, and phone extension. The database stores up to two weeks of voice quality data and is designed to provide key metrics relating to network congestion, endpoint configuration, and other system issues, which make diagnosing and resolving customer calls faster and easier. This information can be exported and utilized for long-term VoIP quality reports.

Remote Installation Management and Automated Device Discovery

Remote Installation and Automated Device Discovery are accomplished with the help of ADTRAN's "Auto Link" feature. This communication improves productivity by cutting costs and saving time. It is used for remote inventory and device management, configuration, and backup/restore operations, as well.

ADTRAN's "Auto Link" feature enables remote devices to communicate with the central n-Command MSP server. Auto Link is embedded into the AOS software, alleviating the need for intervention to enable this feature. ADTRAN n-Command MSP is firewall-friendly, reaching devices behind firewalls. Since the check-in is initiated from a remote device sitting behind the firewall, this allows firewall traversal while maintaining a customer's firewall protection and security. Remote devices use the ADTRAN "Auto Link" feature to check into the n-Command MSP server, opening up an IP session in the firewall. By detecting or setting the IP address of the n-Command MSP Server in remote devices, new devices can automatically contact the n-Command MSP Server upon turn-up. The n-Command MSP system also provides a visual update when a new device has been added to the network.



Device Inventory Management

While the ADTRAN “Auto Link” feature enables automated device discovery, n-Command MSP tracks discovered devices into an inventory database and records device type, serial number, IP address, firmware version, system contact information, and other pertinent information decided upon by the network administrator or manager.

Using the ADTRAN n-Command MSP system, network managers can quickly and easily see a complete listing of all managed devices and organize all managed devices for a visual display and for reporting of the field assets and inventory. Devices can be easily associated and labeled into groups to make it significantly quicker and easier to identify remote devices. User-defined device labels can be created easily or filters may also be applied for device organization. Additional user-defined fields can be created in the device tab for network-specific or service-provider specific information that users wish to record. Inventory data can be organized into labels such as customer name and location; and exported to a CSV file.

Firmware Management

The ADTRAN n-Command MSP offers an easy-to-use interface that enables network managers to automate firmware upgrades to an individual or a group of remote devices.

Once configured, the n-Command MSP system maintains a database repository for all AOS firmware files and knows which firmware to load for any managed device. Network managers can set up auto-running firmware jobs in the MSP system that will simplify firmware management and put network managers in full control allowing them to push new firmware updates to devices or roll-back to previous firmware revisions when necessary.

With the initial screening process complete, n-Command MSP can upgrade a single firmware version to a single device or easily facilitate a network-wide upgrade. As part of the upgrade process, the network manager can schedule a date and time range when n-Command MSP will update the firmware and when the devices will reboot. This helps eliminate unnecessary network downtime, avoids use of network bandwidth during production hours, and enables managers to upgrade the network quickly and easily.

Once the firmware push is performed, n-Command MSP provides a job detail report that gives a complete summary including successful loads and specific details associated with any unsuccessful attempts so managers can resolve the issue and load firmware efficiently. This is another productivity enhancement and significant time-saving feature that frees network managers from continually monitoring the upgrade process for remote devices.

Configuration Management

In addition to firmware management, the ADTRAN n-Command MSP system also provides configuration management for the Total Access 900 Series and NetVanta devices. The ADTRAN n-Command MSP system enables network managers to create a job to update configurations by pushing device or interface configuration changes to remotely-managed devices and automate configuration restoration for individual or groups of managed devices. Managers can create a job to update configurations during scheduled maintenance window.

The n-Command MSP system enables network managers to install entire configuration files, pre-install configurations to a soon-to-be installed device, and make individual or global configuration changes to the network by pushing a Command Line Interface (CLI) Script to selected NetVanta or Total Access 900 devices. These scripts can be created, using the built-in CLI editor. Managers can also use n-Command MSP to roll-back to a previous configuration. This allows managers to see a history of previous configurations, as well as restore devices to a previous version of the startup configuration. Additionally, managers can reboot devices, remove exception reports, write to start-up config and much more, remotely using n-Command MSP.

Device configuration images can be backed up and stored on the n-Command MSP Server. To empower network managers, configuration backups are performed automatically upon check-in when a change to the device is detected. When the device checks-in, the configuration is automatically downloaded. For the ADTRAN NetVanta 7000 Series of IP Telephony solutions, the n-Command MSP system can backup the phone configurations and attendant files as well.



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n-Command MSP Server

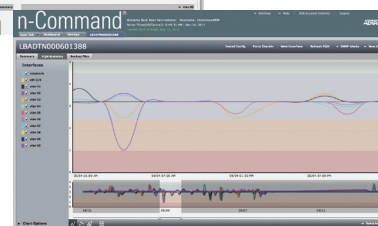
ADTRAN offers two n-Command MSP Server options with the storage capacity, performance, and features to allow large networks and service providers to manage up to 25,000 ADTRAN devices.

n-Command MSP Server (Basic)

- 1 RU (1.67" H x 17.10" W x 24" D)
- Quad-core Intel Xeon Processor
- Qty 2-250 GB Hard Drive
 - RAID 1
- 8 GB RAM
- 3 Year Warranty
- 10,000 Devices at one hour check-in interval

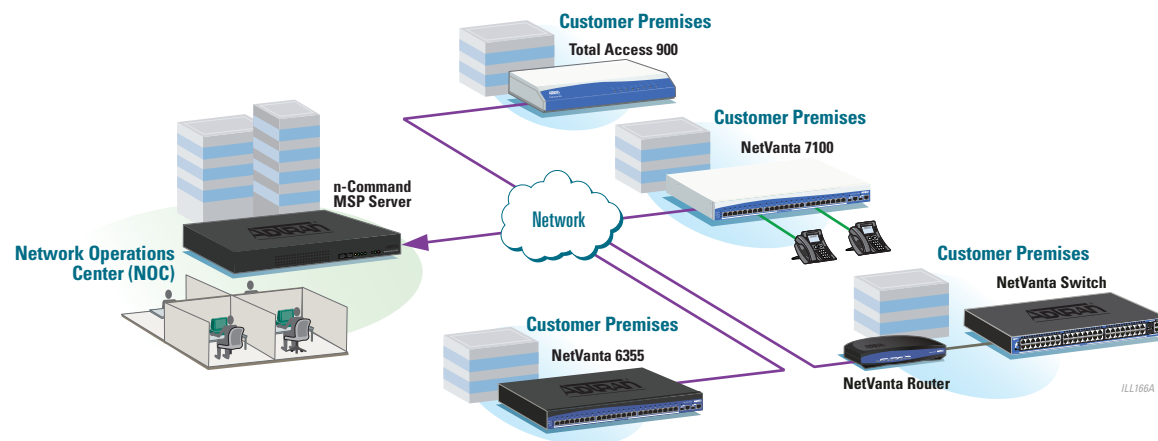
n-Command MSP Server (Advanced)

- 1 RU (1.67" H x 17.10" W x 24" D)
- Dual Quad-core Intel Xeon Processor
- Quantity 6-300 GB Hard Drive
 - RAID 10
- 32 GB RAM
- Dual Redundant Power Supply
- 3 Year Warranty
- 25,000 Devices at one hour check-in interval



Ordering Information

Equipment	Part #
n-Command MSP with Advanced Server (25,000 devices supported)	1700842G1
n-Command MSP with Basic Server (10,000 devices supported)	1700841G1
VMware Ready n-Command MSP (10,000 devices supported)	1700845G1



n-Command MSP

- ADTRAN AOS-based devices "check-in" to MSP using Auto-Link Feature for touch-free updates and provisioning
- Provides management for devices behind a firewall
- n-Command MSP can be used on a private network or the public Internet
- Pre-install configurations for ease of turn-up