

# Motorola LTE Wireless Broadband Manager (WBM 500m)

## Easy to Use Operator Interface

The LTE Manager offers a standard web-based user interface for provisioning, monitoring, and configuration that simplifies fault isolation and network monitoring. Key features of the GUI:

- LTE Manager and the LTE Network Elements GUI and CLI interfaces are identical for a consistent user experience at all levels of the network.
- The command line interface follows the industry-standard command line interface syntax.
- Specialized views bring together relevant pieces of information that cross functional boundaries (e.g. statistics, configuration and status information) in the context of a particular entity such as a cell or device.

## Executive Summary

The Motorola LTE Wireless Broadband Manager WBM 500m (LTE Manager) provides network operators with the fault, performance, and configuration functions needed to monitor and control the Motorola LTE solution including:

- Motorola ENodeB Wireless Broadband Radio Portfolio (e.g. WBR 500 Series)
- Motorola Evolved Packet Core (EPC)
- Motorola Wireless Broadband Controller (WBC 500)
- Motorola Wireless Broadband Serving Gateway (WBG 500s)
- Motorola Wireless Broadband Gateway (WBG 500p)

This system is also optimized to support full management of the LTE network at the operators established Network Management System, via standardized North Bound Interfaces.

Key feature capabilities of the WBM 500m LTE Manager include:

- Central element management system (EMS) for Fault, Configuration, Administration, Performance, and Security (FCAPS) management for Motorola LTE networks.
- O&M Architecture which supports plug-n-play technologies, self-discovery, auto-synchronization, auto-provisioning and auto-calibration.
- Web driven graphical user interface (GUI) and industry standard CLI for experienced or 'power' users
- Streamlined, point-and-click access to the tools needed for complete element management of the Motorola LTE solution.
- SON solutions are automated methods for self-configuration, self-optimization and self-healing of an LTE network

**Motorola Advanced SON**

Motorola Self Organizing Networks (SON) provides the corner stone functions for a dramatic change in OpEx cost and are a core part of the LTE Manager architecture. Motorola's SON solutions are automated methods for self-configuration, self-optimization and self-healing of an LTE network. The Motorola SON solution is 3GPP Standards Compliant and easily fits in with the existing 2G & 3G OSS workflows while automating many tasks that were previously manual activities. Capabilities include:

- Dramatic reduction in the number of manual steps required when adding or expanding new network elements by enabling Plug-n-Play hardware that is self-locating and self configuring
- Distributed architecture approach that significantly reduces backhaul traffic when compared to more centralized approaches
- Automated configuration of network elements including items such as self-discovery, cell ID, authentication credentials etc. with minimal input from planning functions
- Self optimization through automated creation and maintenance of neighbor lists
- Methods for operator review and approval during a 'trust building' period
- Offline planning capabilities for rapidly modeling neighbor the optimization of several parameters, including: cell list additions, handover, interference control, and QoS enforcement

**Overview**

The base element management functions provided by the LTE Manager encompass complete configuration management; fault management data collection, analysis and display; performance management data collection, storage and forwarding; session trace; software load distribution; and many others.

The LTE Manager provides the security necessary to ensure the integrity of the LTE solution through the support of external authentication services for operator access, and use of Role Based Access Control (RBAC) concepts for utilization of its applications and individual network element access.

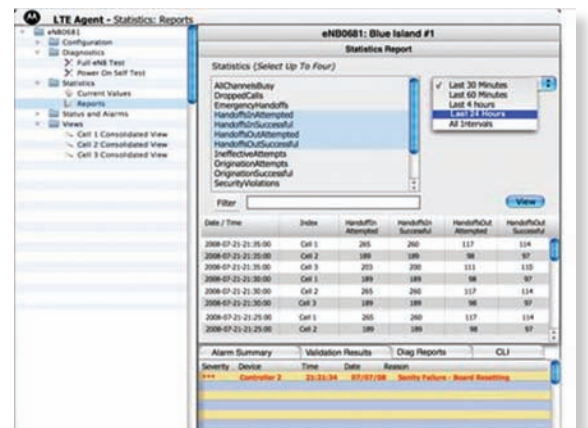
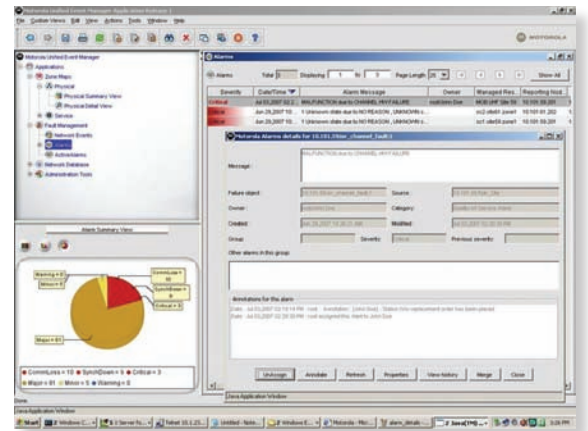
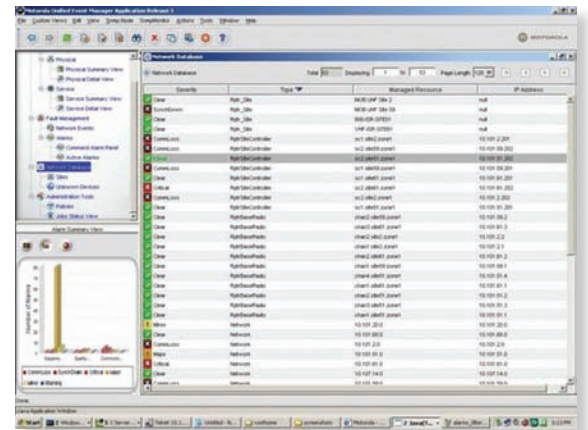
One of the key architecture advantages to the Motorola LTE solution is the full support of plug-n-play of the NEs by the O&M solution. As new elements (e.g. eNodeB, MME) are added to the network they will automatically be recognized by the LTE Manager. The LTE Manager will receive a complete configuration file, which is owned by the new NE, and that NE will automatically appear in the operator interfaces, and it will be reflected in communication to higher level O&M systems over standards based North Bound Interfaces (NBI).

When contrasted with 2G/3G solutions operators will find that the eNodeB and MME devices of the Motorola solution have a significantly higher level of sophistication when it comes to self-management. To support SON principles, these network elements contain internally many of the functions normally found inside the EMS of legacy systems. This includes such items as diagnostic and validation functions, performance thresholding, configuration management, and session trace data collection. By passing the decision making knowledge to more intelligent network elements, Motorola has taken advantage of not only the power of distributed processing, but has enabled us to streamline our OSS to reduce the CapEx and OpEx of the solution and enable advanced SON.

Every network element of the Motorola LTE solution has an internal GUI and command line interface that is identical to what is found at the LTE Manager, allowing for direct control of individual network elements. All network elements have sufficient storage to save all performance, fault and configuration data such that no valuable information is lost during a network outage. The availability of the LTE Manager is 99.98% or 105 min/year of outage time in non-redundant configuration, with the availability of the redundant configuration exceeding 99.995%.

The LTE Manager has been designed with full support of standards based OSS systems in mind. All of the information available to the operator via the LTE Manager user interfaces is also made available to higher level OSS systems through a 3GPP compliant North Bound Interface. Other NBI methods such as SNMP, HTTPS, and SOAP are also available for OSS systems which do not support 3GPP NBI.

**LTE Manager Fault Management**



## Motorola LTE Wireless Broadband Manager WBM 500m EMS System Architecture

The LTE Manager is a client / server system that provides a robust, scalable platform required for the operators demanding operations environment. It provides real-time information for each network element, displaying a network-wide view that enables operators to detect and analyze network-wide faults and ensure proper network operation.

The LTEManager utilizes industry standard, off-the-shelf, hardware to provide the operating environment for the functions described.

### Operator Terminals

Motorola LTEManager architecture utilizes standard laptop and desktop PCs as the basis for the operator client hardware. Because of the thin client and web nature of the product the PC utilizes off-the-shelf web browsing software to access most of the functions of the LTEManager, as well as the internal user interfaces of the network elements. The operator is able to select any hardware platform that supports this software.

### Driven by Low Total Cost of Ownership

Motorola LTE Wireless Broadband Manager WBM 500m provides end-to-end element management with full FCAPS support of the Motorola LTE network. The key capabilities and feature as well as the innovative approach to element employed by the LTE Manager provides low total cost of ownership for operations and maintenance activities.

### Fault Management

- Proactive indication environment
  - *Event management*
  - *Event classification/ filtering*
- Alarm Management
  - *Classification, Sorting & Searching*
- Alarm Monitoring
  - *Event/ threshold*
- Alarm Reporting

### Configuration Management

- Provisioning
- User account management
- Administration system control
- Inventory reports

- Plug-and-play configuration
- Management of Motorola LTE Solution
  - *EnodeB Wireless Broadband Radio Portfolio (e.g. WBR 500 Series)*
  - *Motorola Evolved Packet Core (EPC)*
  - *Motorola Wireless Broadband Controller (WBC 500)*
  - *Motorola Wireless Broadband Serving Gateway (WBG 500s)*
  - *Motorola Wireless Broadband Gateway (WBG 500p)*
  - *Motorola Wireless Broadband Manager (WBM 500m)*

### Performance Management

- Component performance monitoring
- Network performance monitoring
- NE based unique PM display
- Deep Session Detail Log (SDL) Analysis
- SON Impact Analysis
- User Equipment Category Analysis

### Administration Management

- Software maintenance
- Configuration control
- System management
- System QoS monitoring

### Security Management Module

- User management
- Rule based security
- Roles management
- Policy creation
- Policy application (Admin/ users)



## DATE SHEET

Motorola LTE Wireless Broadband Manager (WBM 500m)

# LTE Manager Specifications

### Server Hardware

#### Specifications:

- 20" Deep / 4RU High Telco Chassis
- 6 processors @ 1.2GHz VF, CMT, 32GB
- Expandable I/O and Storage Support
- 6x 146GB SAS HDD's
- Integrated DVD RW
- Dual Hotswap 2N Redundant DC PSU's

### Environmental

Operating Temperature: 5° C to 40° C (41° F to 104° F)

DC Power: -48 V DC or -60 V DC

NEBS: NEBS Level 3 certified by Telcordia

Seismic: GR-63-CORE requirements for Earthquake Zone 4

### Dimensions

The LTE Manager can be housed in a standard Motorola LTE 19" cabinet along with other Motorola components such as the Motorola Wireless Broadband Serving Gateway (WBG 500s) Motorola Wireless Broadband Gateway (WBG 500p). We will also now have a standalone EMS only frame.

The dimensions of each LTE Manager server are:

- Height 174.2mm (6.86 in.)
- Width (including bezel) 445mm (17.5 in.)
- Depth (max., to PSU handles) 530mm (20.87 in.)
- Depth (max., to rear I/O) 505mm (19.88 in.)

### Server Operating

#### System / Interfaces:

- Solaris 10 Server Operating System
- North Bound Interfaces (NBI) – 3GPP NBI, SNMP, HTTPS, and SOAP
- Availability: 99.98% non-redundant configuration, 99.995% redundant

### Summary

Motorola LTE Wireless Broadband Manager WBM 500m empowers operators to gain greater control, enhanced functionality and flexibility, and significantly improved cost-effectiveness. In addition to offering new affordability, the LTE Manager helps maximize network efficiency, minimize operating costs, reduce risk and deliver increased revenues.

For more information on the LTE Manager, please talk to your Motorola representative or visit <http://business.motorola.com/experienceLTE/home.html>



**MOTOROLA**

motorola.com

Part number DS-LTEMGR. Printed in USA 05/09. MOTOROLA and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product or service names are the property of their respective owners. ©2009 Motorola, Inc. All rights reserved. For system, product or services availability and specific information within your country, please contact your local Motorola office or Business Partner. Specifications are subject to change without notice.