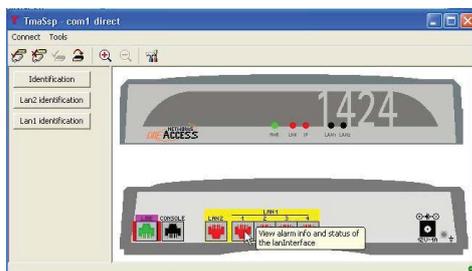


**Value-Adding SOFTWARE LICENSES**

### ABOUT OneAccess

OneAccess designs and develops a range of world-class multi-service routers for over 140 global service provider customers including four of the top five operators in Europe. This makes OneAccess the number two branch office router solution provider in the world by volume.

With an international support network operating from offices in North America, Europe and Asia, OneAccess is able to work closely and cooperatively with all its clients throughout the development and roll-out phases for new services.



TMA Management Suite is an integrated range of software products to manage the OneAccess EAD and TDM range of products in a common and consistent manner. It complements the standard management tools such as CLI, telnet/SSH, SNMP, HTTP/HTTPS web GUI and TR-069, also

present on this product range.

The TMA Management Suite consists of:

- TMA: a free Windows based Graphical User Interface to configure and monitor an individual network device
- TMA CLI: a scripting tool to automate common actions on all the devices in a network
- TMA Element Management: an Alarm Management application with built-in TMA
- TMA Inventory Management: an Inventory Management application

Depending on the needs, selected individual elements of the TMA Management Suite can be used and combined with other tools for integration into existing OSS systems or the TMA Element Management Suite can be used on its own.

### TMA

TMA is a free Windows based Graphical User Interface (GUI) to configure and monitor an individual network device. It communicates either over the console port or over an IP network. It is the perfect tool for the initial set-up, testing and in depth diagnosis of OneAccess EADs and TDM equipment.

In the software design, user-friendliness and ease of operation were set as primary design goals. This resulted in features like a menu navigation window, MRU (Most Recent Used) list of connected equipment for a fast selection of the desired equipment to connect to, the interactive picture, table sorting, expansion and filtering and more.

Using the navigation window, scrolling through the different device objects, reading and configuring the parameters and initiating actions becomes very easy, while maintaining the device overview. Different tabs display respectively configuration, status, performance and alarm information to separate information according to different management tasks. Related actions such as diagnostic tests, configuration manipulations, clearing counters and rebooting are available in an additional window.

	sysUpTime	ifUpTime	ifStatusChanges	ifInOctets
▶ 1	00029d 02h 00m 00s	00000d 02h 00m 00s	0	21.454.137
▶ 2	00029d 04h 00m 00s	00000d 02h 00m 00s	0	23.392.855
▶ 3	00029d 06h 00m 00s	00000d 02h 00m 00s	0	23.329.754
▶ 4	00029d 08h 00m 00s	00000d 02h 00m 00s	0	18.608.478
▶ 5	00029d 10h 00m 00s	00000d 02h 00m 00s	0	16.779.810

Tables and complex attributes are shown in a separate window. Structured parameters can further be expanded and collapsed in this window for respectively a detailed or global view. Tables can be sorted on their relevant parameters (e.g. a name) and a filter can be applied to quickly find an entry in long tables.

	dotQTagging	vid	userPriority	changeTos	cosTosMap	tosCosMap
▶	disabled	1	0	disabled	<Struct>	<Table>

The interactive subsystem picture shows at a glance the overall status of the device: coloured interfaces and LEDs indicate the status in real-time. The subsystem picture can be customised with additional buttons including more info or launching diagnostic tests. This makes the tool suitable for installation engineers with limited knowledge about the product.

For a quick device connection, an auto detection mechanism lists all the devices on the local LAN. Selected device data can be exported to a file with a simple push of a button. The configuration can be imported in various formats. Files can be exported and imported from/to the device's file system. String type parameter configuration can be converted into a predefined list parameter configuration.

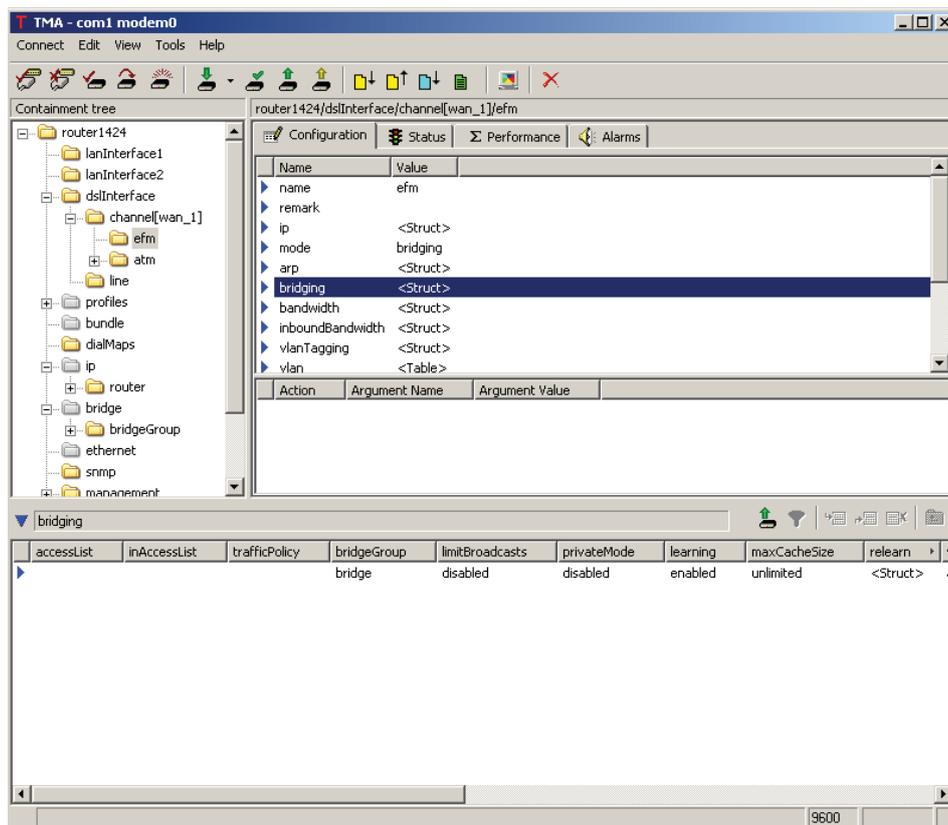


# TMA Management Suite

A button converts directly a configuration prepared within TMA into CLI format for use in scripting for automated provisioning. Another button saves a CLI file with all attributes from the device and in-depth debug information, including information about the last boot sessions. In case of any issue, all required info for analysis is available within seconds. All these features enhance the user experience.

TMA uses a highly efficient communication protocol with minimal bandwidth usage. This results in a quick response from the device. Through an Orchid concentrator, even remote TDM devices without any IP protocol knowledge are reachable with TMA. TMA access is protected by password login with various access levels. A continuous session identification secures the device against reconnecting TMA during a running session to another device.

For non Windows users the TMA GUI is available as a web GUI when browsing to an EAD. For end users and service personnel, the web GUI can also be completely customised, similar to the TMA interactive subsystem picture.



## TMA Specifications

### Functionality

- Access through console port and IP network
- Password protected access with various access levels
- Continuous session identification
- Read and change the device configuration
- Real time monitoring (e.g. of interface signals or line parameters)
- Full device status information, including the current alarm status
- Statistical information including statistics of the last 2 hours, 24 hours and 7 days
- Diagnostic tests
- Data export and configuration import to / from various file formats (text, CLI, binary, csv)
- Software upgrades and file download / upload to devices
- Customisable Interactive subsystem picture of the device with the interface and indicators status
- Device auto-detection on local LAN

- TMA can be called from a command line with parameters for integration in third party software
- Table sorting and filtering
- Structured parameter expansion and collapse
- String parameter customisation to predefined list
- Simple conversion of configuration in CLI format for use in scripting
- Easy export in CLI file format of all relevant information for problem reporting

### System requirements

- PC connect via serial communication port or Ethernet port
- Runs on Windows XP / 2003 Server / Vista / 2008 Server / 7
- Delivered on CDROM or download from OneAccess website

### Licence conditions

- TMA use is free

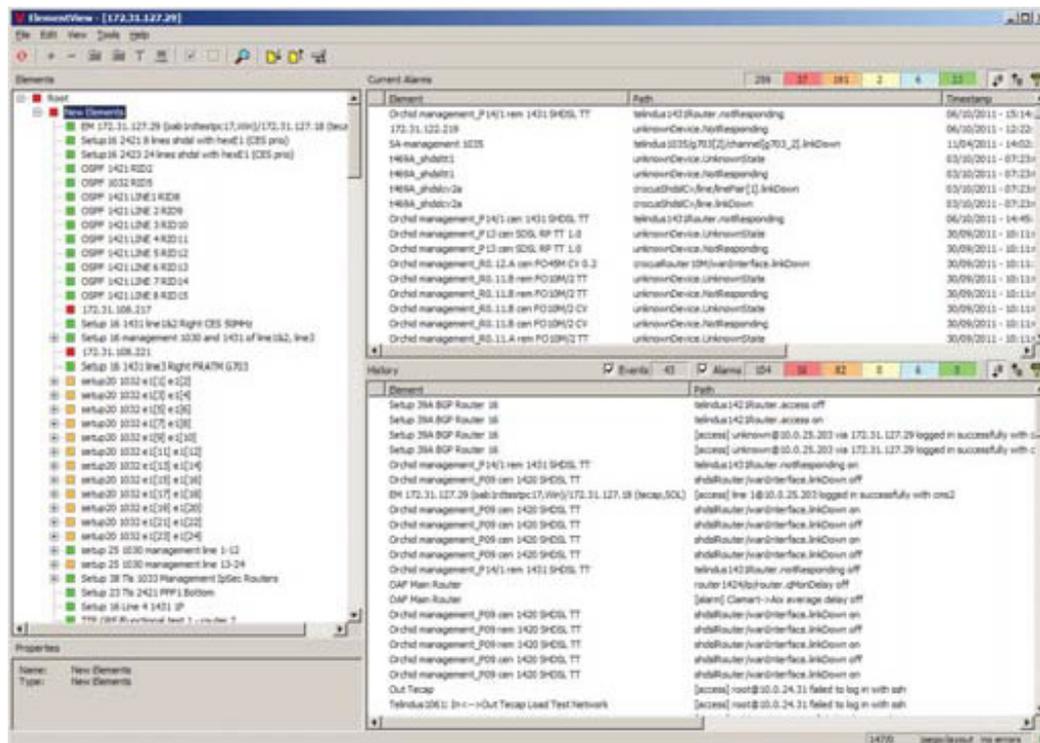


# TMA Management Suite

## TMA Element Management

TMA Element Management is the element management application to centrally manage the OneAccess EADs and TDM equipment in a network. TMA Element Management consists of a processing and database part (TMA Element Manager) and a visualisation part (TMA ElementView).

TMA Element Management focuses on the alarm management of all the devices in the network.



TMA ElementView represents each device as a folder with its consolidated alarm status indicated by a colour. Devices can be organised in a map (hierarchy of folders) according to the service, geographical position or any other criterion in the Telco's organisation. Each folder shows the consolidated alarm status, the list of all active alarms and the alarm history of all devices inside this folder.

Alarms can be acknowledged to show that the operator has handled them. Each alarm can be masked and assigned a severity level on the network elements. TMA Element Management can further filter the alarms on severity before forwarding them to the event log file or to another management system.

OneAccess devices send their alarms to TMA Element Management in a proprietary format (possibly through the Orchid management concentrator in case of TDM devices). This has the following advantages over SNMP traps:

- Guaranteed alarm delivery
- Compact and grouped alarm messages
- Efficient alarm handling on the server with rapid visibility of new alarms
- Scalability of the number of devices managed by a single Management server
- Effective alarm synchronisation at start-up
- Connection oriented alarms exchange prevents alarm flooding
- Streaming (fast toggling) alarms may be sent only once (configurable)

Besides the alarm management, you can start also a TMA or a TMA Interactive Subsystem Picture session to an individual device from within TMA Element Management with a simple click of a button for complete control over the device. The user logins on the management station can be mapped to device passwords per device or group of devices for TMA access without login session.

TMA Element Management can put the network devices under 'configuration consistency': the device's configuration file is stored on the Management Server and marked as its configuration. Once connected, TMA Element Management checks whether the local configuration file matches the device's configuration and pushes the configuration to the device if there is no match. No configuration changes are possible any more on the device by any other means (TMA, telnet or console, web, SNMP...).

TMA Element Management can run in a distributed way, i.e. TMA ElementView can run on multiple stations and get its information from a master station running TMA Element Manager. The map presentation can be customised per station and per user. For enhanced security, the master station may act as a proxy.

TMA Element Management comes with a licence key in an entry-level version (up to 250 network elements) and an unlimited version. For demo and test purposes, a demo version is available. OneAccess offers a maintenance contract, including web based advice and assistance and software upgrades.



# TMA Management Suite

## TMA Element Management Specifications

### General Features

- Hierarchical device view with customised map
- Distributed management views with customised maps
- Master station proxies network access from Element-View stations
- Integrated TMA application
- Management Login and device

### Alarm handling

- Active alarms monitoring per device with consolidated severity level
- Consolidated alarm status in device map
- Alarm acknowledgement
- Alarm logging to text/csv files with configurable size and timestamp tagging
- Individual alarm filtering and severity per device
- Guaranteed alarm delivery
- Efficient alarm handling on the server with rapid visibility of new alarms
- Effective alarm synchronisation

### Licence conditions

- Demo version (up to 8 devices)
- Entry-level version (up to 250 devices) with licence key
- Unlimited version with licence key
- Support Maintenance contract
- Minimum 3 year contract with yearly fee

### System requirements

- Solaris Sparc processors versions 9,10 (recommended above 1000 devices)
- Windows XP / 2003 Server / Vista / 2008 Server / 7
- Delivered on CDRROM
- Minimum system requirements:

# devices	2500	10000	25000
Processor	UltraSparc T2 or Sparc T3	UltraSparc T2 or Sparc T3	Sparc T3
Processor	UltraSparc T2 or Sparc T3	UltraSparc T2 or Sparc T3	Sparc T3
# cores	2	8	16
RAM	2GB	8GB	16GB
Hard Disk	2GB	2GB	5GB
# devices	2500	10000	25000

## TMA Inventory Management

TMA inventory management is an add-on application to TMA Element Management. It gathers all the inventory information of the OneAccess products in a central database and adds logging of detailed events to TMA Element Management.

TMA Inventory Management automatically builds the inventory database from all devices managed by TMA Element Management. The database includes device information such as the name, the contact person, the location, the description, the unique identification code, the software version(s) and the available interfaces. The most recent configurations of all devices are stored as well.

On top of the alarm logging in TMA Element Management, TMA Inventory Management adds device auto-detection and logging of the device management access, global device events and detailed alarm events, e.g. on Ethernet OAM MEPs. All this can also be stored in a file.

TMA Inventory Management can automatically update other management systems of all changes and events in the network in readable text format. Source code is available for such integration into other management systems. OneAccess offers a maintenance contract on TMA Inventory Management, including web based advice and assistance and software upgrades.



# TMA Management Suite

## TMA Inventory Management Specifications

### Inventory information

- Device selection name
- Device hardware type
- Device serial number
- Device software versions
- Device name, location and contact person
- Interfaces name, description, operational status, type and speed
- Up to 10 most recent configurations with option to view differences
- Logging of device access, messages and alarm events
- Device auto-detection on configured IP range with auto-layout of discovered devices

### System requirements

- The given system requirements for TMA Element Management include the extra memory and power for TMA Inventory Management.

## TMA CLI

TMA CLI is a product to write customised scripts with all the possibilities of the interactive TMA application. TMA CLI can be called from any scripting language as an executable. When running these scripts in background mode, the management activities become fully automated or integrated with other management systems.

As an example, imagine you want to log the availability of all or selected E-Lines terminated on OneAccess EADs in the network on a daily base. With the Command Line Interface, a script can be written to gather selected Ethernet OAM statistics of all the EADs in the network once every 24 hours. These values can be appended to a file on disk and further processed into reports and graphical presentations.

TMA CLI uses the same syntax as the CLI User Interface. This means it offers an easy to understand syntax with straightforward rules. In addition it offers logging, configuration download and file download to the file system of a device. Finally writing scripts and running batch files is easier with TMA CLI than if a telnet session should be integrated.

TMA CLI is part of the TMA and TMA Element Management installation. It comes without license fee. A manual is available on the CDROM with TMA or TMA Element Management, which guides you to write scripts with TMA CLI. OneAccess offers a maintenance contract for TMA CLI. It includes web based advice and assistance.

## TMA CLI Specifications

### Functionality

- Full control over any OneAccess EAD in your network using a command-line interface
- Connectivity over IP
- Can be used in interactive and script mode
- Read and change the device configuration
- Retrieve status, statistics and alarm status
- Run tests and specific actions (boot, trace...)

### Licence conditions

- TMA CLI use is free
- Support Maintenance contract
- Minimum 3 year contract with yearly fee

### System requirements

- Oracle Solaris 9,10
- Windows XP, 2003 Server, Vista, 2008 Server, 7
- Delivered on CDROM

## All TMA Software Supported Products

- All Ethernet Access Devices (1XXX products)
- 2400 Series & 2300 Series
- All other TDM products through the use of an Orchid concentrator