GENESIS SOFTWARE SOLUTION BRIEF

GW3-TRBO® CAPACITY MAX

MAXIMIZE INVESTMENT ● OPTIMIZE PERFORMANCE ● ENSURE AVAILABILITY

GW3-TRBO® is a Windows-based software solution that monitors and proactively manages all data collected from a Motorola MOTOTRBO® Capacity Max Radio System. By using this software, System Administrators are able to maintain constant visibility into how their system is performing which helps them to make more informed and data-driven decisions regarding their radio resources. This user-friendly software solution helps to ensure system availability, optimize system performance and maximize system investment by enabling users to monitor live traffic, report on system and radio activity, as well as manage system resources down to the radio level.

All of the radio data is brought into one centralized location to be monitored and managed, as well as stored for up to 6 months. Options are available to increase storage for up to 12 months or longer with data warehouse software optimal for larger systems or systems with high volumes of data. Both of these options require Microsoft® SQL Server Standard. Because GW3-TRBO archives every detail on system traffic and faults from every site, repeater, channel, slot, talkgroup, and radio, System Administrators can run reports from multiple angles, as well as generate important notifications on specific events.

There are two elements to GW3-TRBO; a set of Modules which reside in the desktop application, and a browser-delivered application called iVISTA. Both provide a multitude of information that saves System Administrators time when needing to obtain answers to their system analysis questions.
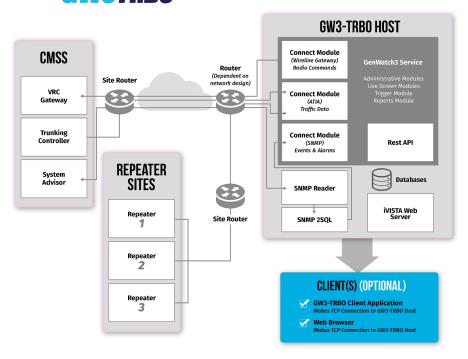
GW3-TRBO CONNECTIONS TO CAPACITY MAX

Figure 1: GW3-TRBO Capacity Max network diagram

GW3-TRBO CONNECTS VIA IP TO CAPACITY MAX

GW3-TRBO connects via IP to each of the Repeater Sites as well as to the Capacity Max System Server (CMSS). The CMSS houses the Voice and Radio Command (VRC) Gateway, the Trunking Controller, and the System Advisor (SA). GW3-TRBO receives streams of data containing real-time system activity and real-time system faults through the Air Traffic Information (ATIA) feed from each of the CMSS components as well as from the Repeater Sites. This data is stored within GW3-TRBO and presented via intuitive live views, dashboards and detailed reports (*Figure 1*).

GW3-TRBO® CAPACITY MAX IS PRE-LICENSED FOR 6 SITES

The GW3-TRBO Capacity Max software package is pre-licensed to monitor 6 Capacity Max sites and additional site monitoring licenses may be purchased. There is no limit to the number of sites that GW3-TRBO can monitor with the proper licensing and computer specifications. The GW3-TRBO Capacity Max software package includes one simultaneous client user license which means that one user may be logged into each module at a time. Additional simultaneous client user licenses may be purchased. GW3-TRBO is licensed by the site and perpetual so there is no limit to the number of repeaters or subscribers that can be monitored.

GW3-TRBO HAS FLEXIBLE HARDWARE REQUIREMENTS

The hardware required for GW3-TRBO can be purchased through Genesis directly or sourced privately. In addition, the software may be placed on physical servers or virtualized. The current GW3-TRBO hardware specifications are located on the Genesis website. If your system has more than 7 sites or more than 1,200 radios GW3-TRBO will require a server-grade host machine.

Each new release of the software is accompanied by a set of Release Notes. The Release Notes include the current software version, a listing of new features as well as improvements made to the GW3-TRBO software. All Release Notes can be found on the Genesis website.

GW3-TRBO COMPLIES WITH IT SECURITY BEST PRACTICES

The GW3-TRBO software complies with IT Security best practices. iVISTA, in particular, is SSL encrypted and supports up to TLS 1.2. Since iVISTA is a browser-delivered solution, it can be deployed securely on the internet or intranet and has no limit to the number of users that can be given secure login credentials.

MANAGING THE CLUTTER OF SYSTEM ALARMS

GW3-TRBO filters much of the traffic coming from the SA to focus on operationally impacting alarms for consumption via Simple Network Management Protocol (SNMP). GW3-TRBO provides a complete picture of how traps received from the SA are impacting system performance, service, or delivery. This information can be found within iVISTA and GW3-TRBO modules such as Key Performance Indicators (KPI), Reports, and Trigger.

When forwarding notifications to an upstream manager, such as a Manager of Managers (MoM) or Network Operations Center (NOC), there are typically limits on the number of traps per second that it can receive. Regardless of the quantity and rate of traps coming out of the SA, GW3-TRBO filters and throttles these to send at a rate and quantity that such an application can handle. GW3-TRBO can also adjust the traps that come out of the SA to align with configurations already used in a customer's NOC. For example, the NOC might only recognize 3 levels of severity for alarms and traps received from the SA may be more granular than that.

MONITOR YOUR SYSTEM PERFORMANCE AT ANYTIME, FROM ANYWHERE

The GW3-TRBO Platform comes standard with iVISTA which consists of two main components, a map display and a dashboard of system KPIs. In addition to the software's ability to be deployed on the internet or intranet, System Administrators can provide secure login credentials to as many users as needed.

iVISTA MAP DISPLAY

The iVISTA map display, also known as SkyView, is a look at all of the sites in a system(s) and the radio traffic between those sites. Lines are drawn from each site to indicate which are involved in a call along with where the call originated. The color of the line is indicative of the type of call that is taking place as seen in *Figure 2*. Site Busies and Emergency Alarm notifications, also exhibited in *Figure 2*, are conveniently located at the top of the same map.

iVISTA includes a map tile server, Open Street Maps, requiring no internet connection to run the application. System Administrators may also choose to use their own map tile server or choose to use Google Maps.

Along the left-hand menu (not pictured), features can be toggled on and off to customize what is being shown on the map display, such as the call lines, site labels, and map widgets. A specific system or site can be selected from the same menu which will immediately zoom in and center to its configured location.
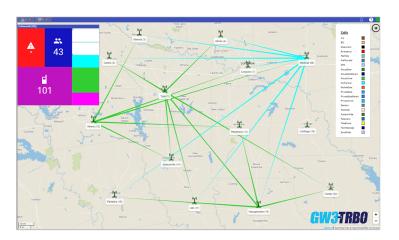
Figure 2: iVISTA SkyView Map Display with Call Lines and Legend

Map Widgets, as seen in the upper left of *Figure 2*, provide a more in-depth and real-time view of how an individual site is performing. Each widget shows summarized information pulled directly from a few modules within the GW3-TRBO® desktop application (Affiliations, Channel, and KPI). From one central screen, System Administrators are able to not only see activity between each site, but also the total number of talkgroups and radios affiliated, number of active alarms, as well as real-time channel usage with a corresponding high watermark. The highwater mark time period is dependent upon the value set within the KPI section of the Map Widget.

Each of the boxes within the Map Widget can be expanded for additional detail and presents a complete list of all talkgroups and radio IDs affiliated at that time. Site-specific KPIs ranging from Peak Channel Usage, to Busies and Group or Private Call Length are also included. The KPI timeframe is configurable, as mentioned above, and the data is refreshed every five minutes. Historical averages are also calculated to compare the current activity to what's typical for that time and day.

To generate a map widget, simply click on a site location. A green rectangular box will appear that may be moved anywhere on the map or resized. The box is able to be removed as easily as it is created.

iVISTA DASHBOARDS

The iVISTA Dashboard presents the same KPI categories found in the KPI section of the Map Widget, but provides more detail and greater visibility into how the entire system(s) is performing in addition to each site. Also similar to the Map Widget KPIs, is the ability to view historic averages and compare them to current values, otherwise referred to as "managing by exception". The dashboard; however, allows System Administrators to take things one step further by providing longer reported timeframe selections for greater historical trending. There is also a Site Status dashboard that displays the current alarm state of a particular site. Users may configure what thresholds trigger a site to turn red or yellow. *Figure 3* shows an example of the Dashboard screen including Site Status.

Snapshots of the individual graphs may be taken and saved to help validate decisions and provide a better way to communicate system trends.
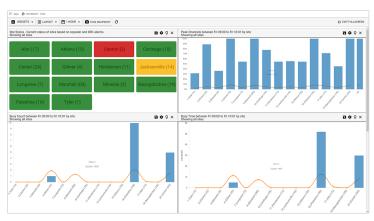

Figure 3: iVISTA Dashboards with Site Status

GW3-TRBO CAPACITY MAX

GW3-TRBO® MODULES PROVIDE SYSTEM PERFORMANCE DATA FROM EVERY ANGLE

Traditionally, GW3-TRBO has existed as a desktop application with several modules on a server/computer that functions in a host-client relationship. One host may be simultaneously connected to several clients. These Modules provide several key functions for GW3 in the form of setup, configuration, security, alerts, notifications, and live views.   All Modules are accessed via the GW3 LaunchPad (**Figure 4**).
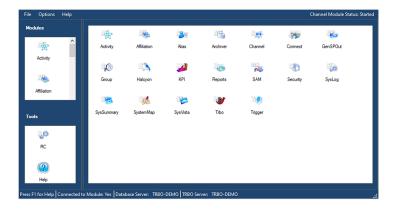
Figure 4: GW3-TRBO LaunchPad

Similar to iVISTA, System Administrators have the ability to create unique login credentials with defined user roles and associated access to the various Modules. The following is a list of the more frequently used Modules. For a complete list, please reach out to sales@genesisworld.com.

REPORTS MODULE

One of the most powerful tools in GW3-TRBO is the reporting capabilities.   All radio traffic information from the system is archived packet by packet and stored. Report categories include System (e.g., activities over time), Group (e.g., activities by talkgroup by site over time), Radio (e.g., radios with zero usage), Channel, Busy, Agency, Diagnostics, Radio Commands and optional Advanced Power Monitoring (APM).

Each report includes a wizard to help you choose report parameters from a drop-down list and Microsoft Excel is used to create and run reports (**Figure 5**).   GW3-TRBO reports may be easily modified and saved to create custom variations within the software, for example:

- Filter report results
- Change graph type
- Change or add a title
- Insert a logo
- Customize the color scheme
- Create a report comparing last week, month or year to this week, month or year

The data in the GW3-TRBO database is owned and stored by the customer and as such, they are able to write their own reports/queries on the GW3-TRBO database.
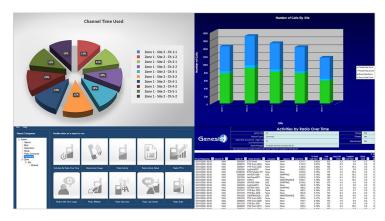
Figure 5: GW3-TRBO Reports

GW3-TRBO CAPACITY MAX

ACTIVITY MODULE

The Activity Module (*Figure 6*) displays real-time activity from all data received from the MOTOTRBO radio system, packet by packet. System Administrators are able to monitor incoming activity such as channel, system statuses, site and talkgroup affiliations, as well as private, talkgroup, and dispatch calls. This Module is especially helpful for troubleshooting as the data can be filtered by packet type, as well as paused and color-coded to avoid missing something important. Additionally, the advanced trunking feature offers filtering on a specific site, radio ID, and talkgroup.

Figure 6: Activity Module

AFFILIATION MODULE

The Affiliation Module (*Figure 7*) shows real-time affiliation information of every radio and talkgroup both system-wide by the site, and by talkgroup. This module helps System Administrators maintain better resource management by allowing them to track who has affiliated, a timestamp of their last contact, and where the affiliation occurred.

Figure 7: Affiliation Module

CHANNEL MODULE

The Channel Module (*Figure 8*) provides a real-time view of channel activity, busies, diagnostics, and radio rejects. Information is displayed using both a color legend, as well as text for "at-a-glance" verification of activity across every site, channel, and slot. The module shows current calls in progress, call types, and the radio ID, talkgroup, and aliases associated with each call. System Administrators are also able to quickly access detailed packet information about any call or event displayed as well as site statistics. In addition, the module includes an idle timer which features a visual indication of site inactivity over a set period of time.

Figure 8: Channel Module

KPI MODULE

The KPI Module (*Figure 9*) displays real-time, interactive, and statistical information from a system and site perspective. By including current utilization levels alongside historical averages, the customizable KPI dashboards provide the information needed to "manage by exception" rather than one event at a time. KPIs are capable of being displayed in time periods ranging from one hour to one week and can also be run historically.
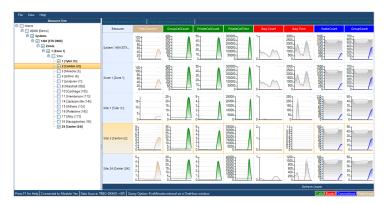

Figure 9: KPI Module

ADVANCED POWER MANAGEMENT (APM) MODULE

APM (*Figure 10*) Shows the real-time status of each channel monitored by an RFI APM device (sold separately). Each window contains information such as Transmit (Tx) Frequency, Receive (Rx) Frequency, Combiner Output Power, Rx Power, Combiner Insertion Loss, and Voltage Standing Wave Ratio (VSWR).

Figure 10: APM Module

SUSPECT ACTIVITY MONITOR (SAM) MODULE

SAM (*Figure 11*) is a comprehensive radio accountability solution that monitors an individual or range of resources (talkgroups and radios) for radio activity that breaks a predefined rule or expected behavior, for example usage outside of a predefined schedule (e.g., day shift, night shift, etc.).

If a radio or talkgroup's activity is deemed to break a rule, that resource will be added to the Quarantine List and an alert will be sent so further investigation may be done. SAM keeps detailed activity information for each radio in the Quarantine List which may be viewed in the Suspect History window.

Radios are able to be added to or removed from, the Quarantine List or Hotlist as well. If the activity of the resource violates the expected activity definitions, the resource is added to the Quarantine List. The Hotlist is a list of suspects, selected from the Quarantine List, which can be monitored more closely.

Figure 11: SAM Module

TRIGGER MODULE

Trigger allows System Administrators to create and set notifications on specific system activities such as the presence of an event, lack of an event, periodic evaluation, or presence of an event with minimum duration. These real-time notifications may be sent in the form of an email (with the use of an email gateway), SNMP trap, external relay activation, or desktop alert. Trigger is best used in conjunction with other GW3-TRBO functionality on various inputs the software has the ability to monitor and manage (e.g., radio activity, diagnostic alarms/alerts, SAM).

GENESIS SOFTWARE SOLUTION BRIEF
GW3-TRBO CAPACITY MAX

EXTENDED SERVICE AGREEMENT OPTIONS THAT PROTECT YOUR INVESTMENT

Genesis provides a 1-year standard warranty on all Genesis software products which begins on the date of installation (i.e., the software goes live). Beyond the standard warranty period, Genesis offers two tiers of extended support; Essential Service Agreement (ESA) and Premium Lifecycle Agreement (Lifecycle).

At a high-level, ESA's cover all things software related, while Lifecycle includes support on software, as well as hardware and third-party software (eg. Microsoft® Windows). Each executed agreement has a minimum of one year, however, multi-year agreements are also available upon request.

Figure 12 lists the services provided with each agreement. A few of the services can be added ala carte to any ESA. For more detail, including contact information and the Genesis hardware replacement policy, please refer to the "Genesis Service Agreement Overview" document.

CONTACT GENESIS

📞 +1 877-548-0465 — US or Canada
+1 903-787-7400 — International

✉ sales@genesisworld.com

🖥 genesisworld.com

SERVICE PROVIDED	PREMIUM LIFECYCLE	ESSENTIAL SERVICE
Multi-year Pricing	✓	✓
Phone, Email and/or Remote In Assistance (During Regular Business Hours)	✓	✓
24/7 "On-Call" Availability for Complete Software Failure	✓	✓
Software Updates and Version Upgrades	✓	✓
Hardware Refreshes	✓	
Hardware Warranty Extensions	✓	
On-Site Services	✓	ALA CARTE
Third Party Software Replacement	✓	
Training Following Software Upgrades	✓	ALA CARTE
Quarterly Preventative Maintenance Checks (Remote Only)	✓	

Figure 12: Genesis Service Agreement Overview Matrix