

GENESIS SOFTWARE SOLUTION BRIEF

GENWATCH® ATIA

SIMPLIFY REPORTING • SAVE TIME • VALIDATE DECISIONS

GenWatch® ATIA is a Windows-based software solution that monitors and manages all data collected from a Motorola ASTRO® 25 radio system. By using the software, Radio System Managers are able to maintain constant visibility into how their system is performing, which helps them make more informed and data driven decisions regarding their limited radio resources.

All of the radio data is brought into one centralized location to not only be monitored and managed, but also stored for as long as it is needed. From there, Radio System Managers can run reports from multiple angles, as well as generate important notifications on specific events.

There are two elements to GenWatch ATIA; 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 Radio System Managers time when needing to obtain answers to their system analysis questions.

AS ASTRO 25 SYSTEMS GROW, SO CAN GENWATCH ATIA

Given the breadth of functionality that exists within an ASTRO 25 radio system, GenWatch can pull information from several connection points to get a more comprehensive view of how the overall system is performing. As ASTRO 25 capabilities grow, the opportunity to enhance the GenWatch software and value does as well.

GenWatch is the foundation for all of these additional inputs (i.e., enhancements) and must be installed first. In order to begin receiving the ATIA stream, the Flexible ATIA license will need to be enabled on the Motorola side. Following is a list of available GenWatch Enhancements, and their required Motorola licenses. Note, GenWatch is licensed on a per zone basis and those licenses are perpetual.

● GENWATCH LOCATION SERVICES

Connects to the Motorola Intelligent Middleware (IMW) and provides presence and location data for subscribers that are capable of and enabled for GPS.

● GENWATCH UEM

Connects to the Motorola Northbound Interface (NBI) to receive Motorola Unified Event Manager (UEM) or alarm data packets. This enhancement is a prerequisite to the Genesis Operations Bridge Manager of Managers.

● GENWATCH DATA

Connects to the Motorola Gateway Support Node (GGSN) to receive Charging Gateway Function data packets and monitor network data usage. This enhancement is included in the base GW3 software bundle.

● GENWATCH PMI

Allows for simple remote provisioning on the Motorola Provisioning Manager Interface (PMI) and synchronization with third party asset management or accounting software. The Provisioning Manager (PM) must be licensed on the Motorola side. Genesis' Interoperability Information Broker (GenIIB), which is used to send data to the PMI, must also be enabled.

● GENWATCH APM

Connects to RFI Wireless' Advanced Power Monitor (APM) to show and report site power levels at user-defined intervals.

● GENESIS AIDED DISPATCH INTERFACE (GADI)

Enhancement to the standard features of the Motorola MCC 7100/7500 Dispatch Console.

GENWATCH ATIA

GENWATCH® SITS AS CLOSE TO ASTRO 25 CORE AS POSSIBLE

The GenWatch software resides on the Motorola Customer Enterprise Network (CEN). This allows GenWatch to get as close to the radio system as possible in order to eliminate the risk of losing important data packets. The Flexible ATIA license, mentioned earlier, needs to be licensed and enabled on all Zone ATR's, and the CEN network must be configured to send ATIA data.

Figure 1 shows what a basic single zone system diagram would look like. As radio traffic occurs, the Motorola Zone Controller's ATIA port sends the packets of data about each radio event to a GenWatch Reader (Reader). The Reader listens for that data via UDP and passes it to the GenWatch Data Processor (DP) as TCP/IP. The DP then takes the packets, parses them out, and sends them to the GenWatch Data Server (DS), which writes the information into Microsoft SQL datatables. The DP also provides the data feed to the GenWatch Host (Host) for the Module screens and iVISTA. All GenWatch Clients connect to the Host. If connection issues arise between the Reader and the DP, the Reader will buffer for about 30 days to avoid losing any data.

Figure 2 shows the same basic single zone system with the addition of a Dynamic System Resilience (DSR). DSRs add a geographically separate ASTRO 25 zone to protect against a catastrophic failure of the Primary Zone. GenWatch is capturing the same data packets with the DSR, and in the same manner, as it is with the Primary Zone. If the Primary Zone were to fail and switch to the DSR, GenWatch would continue to receive and store the data packets. Radio System Managers would also still have use of their Modules and iVISTA.

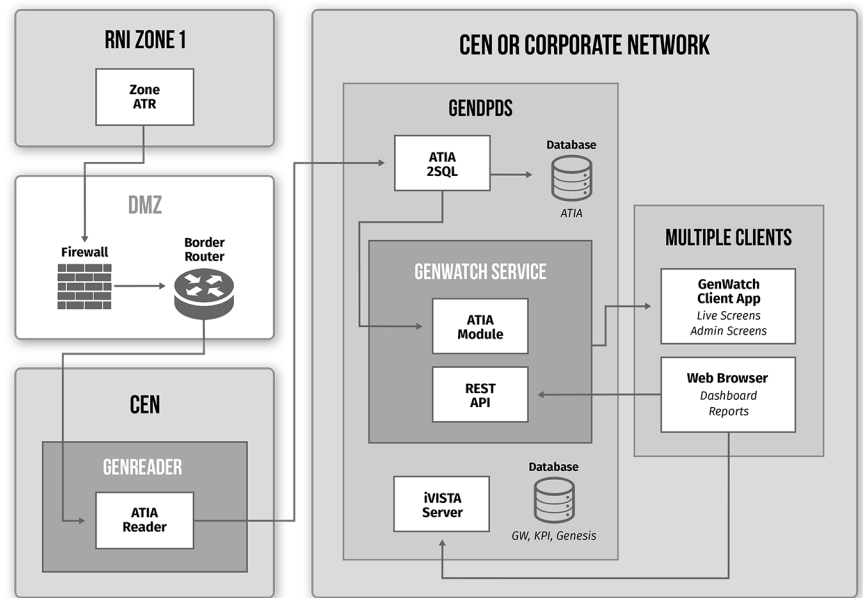


Figure 1: Basic Single Zone System Diagram

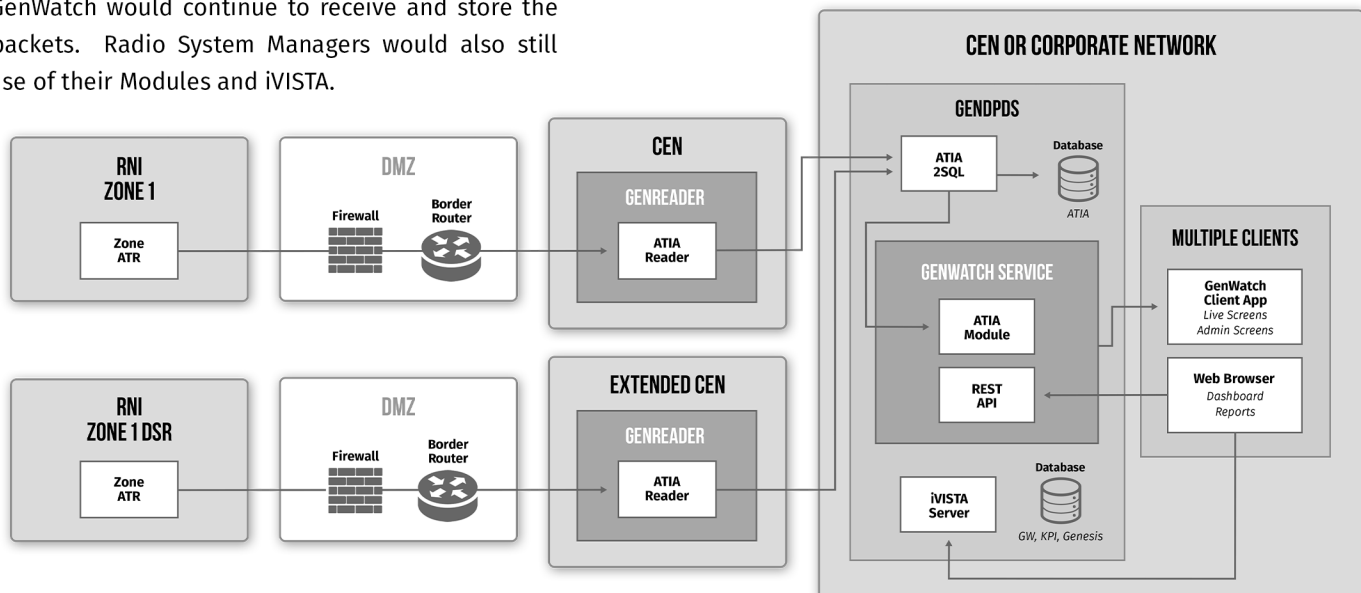


Figure 2: Basic Single Zone with DSR System Diagram

GENWATCH ATIA

GENWATCH® HAS FLEXIBLE HARDWARE REQUIREMENTS

The hardware required for GenWatch to operate can be purchased through Genesis directly or sourced privately. In addition, the software may be placed on physical servers or virtualized. It is recommended, however, that dedicated hardware is used for the Reader. The current GenWatch hardware specifications are located on the [Genesis website](#).

Each new release of 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 GenWatch software. All Release Notes can be found on the [Genesis website](#).

GENWATCH COMPLIES WITH IT SECURITY BEST PRACTICES

The GenWatch software complies with IT Security best practices. iVISTA, in particular, is SSL encrypted and supports up to TLS 1.2. Because iVISTA is browser-delivered, the software is capable of being deployed securely on the internet or intranet.

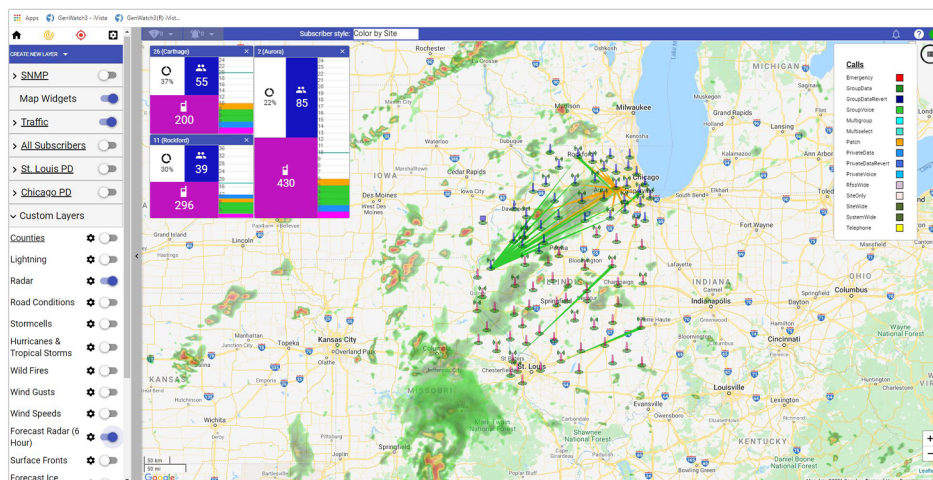


Figure 3: GenWatch Map Display with Call Lines, Legend and Custom Layers

MONITOR SYSTEM PERFORMANCE ANYTIME FROM ANYWHERE

The GenWatch Platform comes standard with iVISTA which consists of three main components, a map display, dashboard of system Key Performance Indicators (KPI), and reporting. In addition to the software's ability to be deployed on the internet or intranet, Radio System Managers can provide secure login credentials to as many users as needed. They are also able to filter the information seen on iVISTA by Member Agency and control which screens, including reports, that agency has access to. When a Member Agency logs into iVISTA they will only see their own data (eg. talkgroups or radio IDs).

IVISTA MAP DISPLAY

The iVISTA map display is a look at all of the sites in a zone(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 3**. Site Buses and Emergency Alarm notifications, also exhibited in **Figure 3**, 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. Radio System Managers may choose to use an ESRI or any GIS map as well as Google Maps.

Along the left-hand menu, 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 zone or site can be selected from the same menu which will immediately zoom in and center to its configured location. For a more comprehensive picture of what is or about to occur, additional custom layers such as a global weather radar, hurricanes and tropical storms, snow/ice accumulation, wildfires, and road conditions.

GENESIS SOFTWARE SOLUTION BRIEF GENWATCH ATIA



Map Widgets, **Figure 4**, 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 GenWatch desktop application (Affiliations, Channel and KPI). From one central screen, Radio System Managers are able to not only see activity between each site, but also the total number of talkgroups and radios affiliated, the percentage of channel utilization, as well as real-time channel usage with a corresponding high-water mark. The high-water 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 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 and zone(s) are performing in addition to each site.

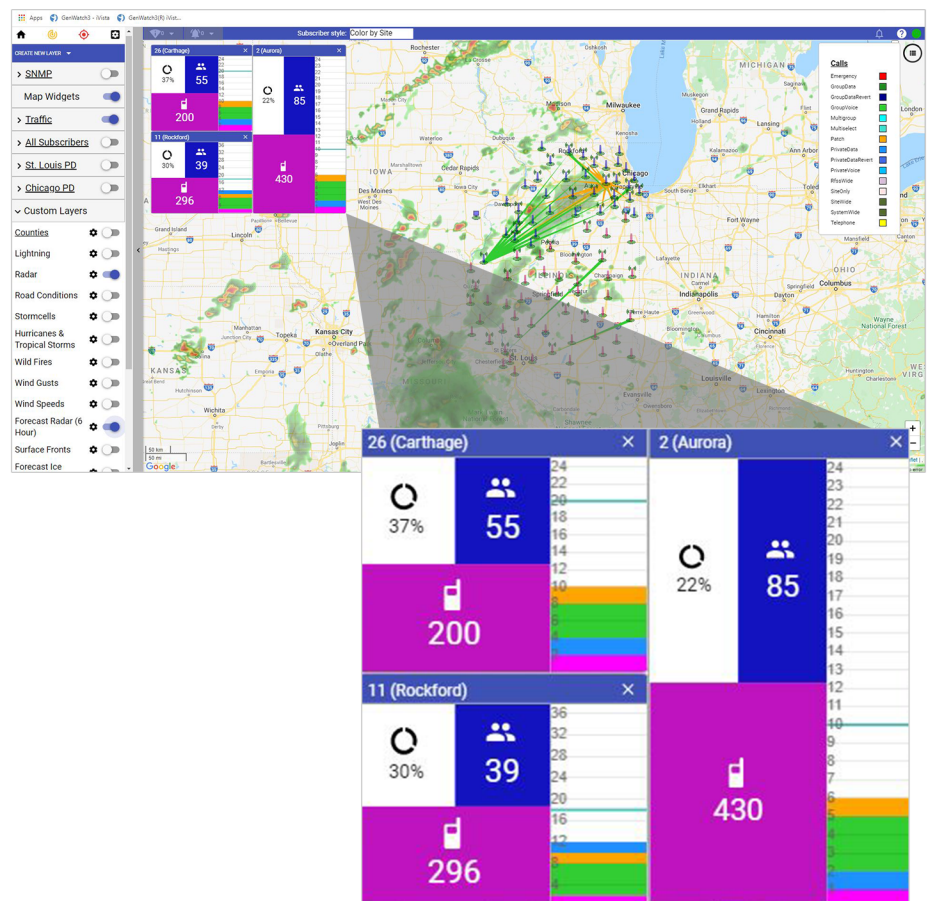


Figure 4: Map Widgets

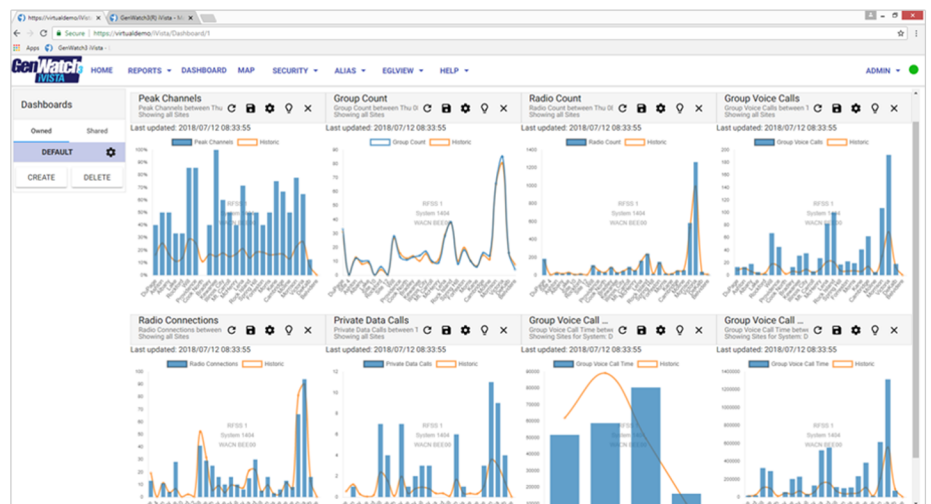


Figure 5: GenWatch Dashboard

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 Radio System Managers to take things one step further by providing longer reported timeframe selections for greater historical trending. **Figure 5** shows an example of the Dashboard screen.

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

IVISTA REPORTING

One of the most powerful tools in GenWatch is the reporting capabilities. As mentioned, radio traffic information from the ATIA is archived packet by packet for as long as desired. Reports are delivered in the iVISTA browser and accessed in the Reports Selection tab. Report categories include: System, Airtime, Busy, Call, Group, Subscriber, and Zone.

Every report within iVISTA is derived from a set of parameters (**Figure 6**). Radio System Managers, or other authorized users, may select a time and date, as well as other resource considerations before running the report. Results can be viewed in a browser window at which point the data can be sorted, filtered, pivoted, and charted (**Figure 7**). Multiple templates can be created for each report based on personal preferences to save time. For recurring reports, iVISTA includes the ability to create a schedule for the report (or template) to generate on a specified cadence. All reports (or templates) may be downloaded into any spreadsheet file such as .csv, .xls, etc.

GENWATCH® MODULES PROVIDE SYSTEM PERFORMANCE DATA FROM EVERY ANGLE

Traditionally, GenWatch has existed as a desktop application with several modules on a network of servers/computers that function in a host-client relationship. One host may be simultaneously connected to several clients. These Modules provide several key functions for GenWatch in the form of setup, configuration, security, alerts, notifications and live views. All modules are accessed via the GenWatch LaunchPad, a high-level menu located within the desktop application.

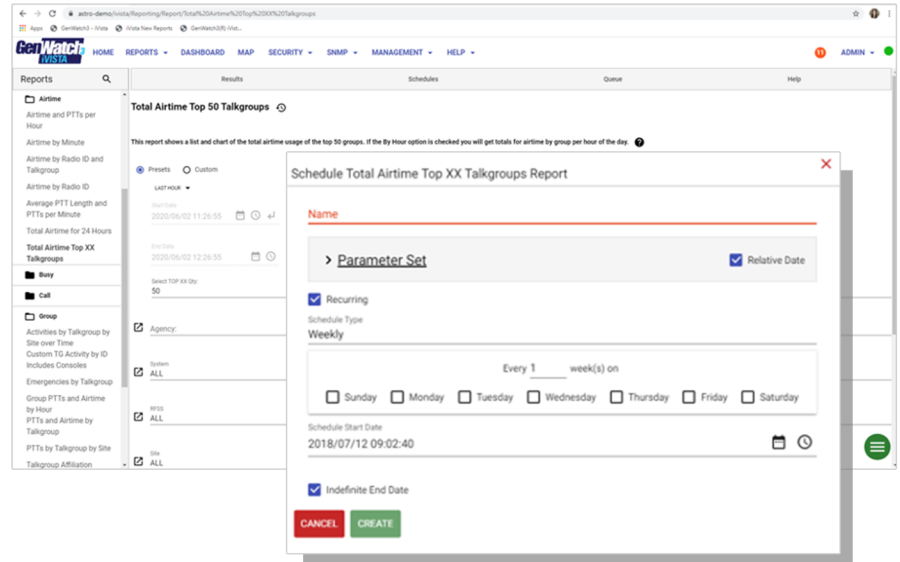


Figure 6: iVISTA Reporting and Scheduled Reports

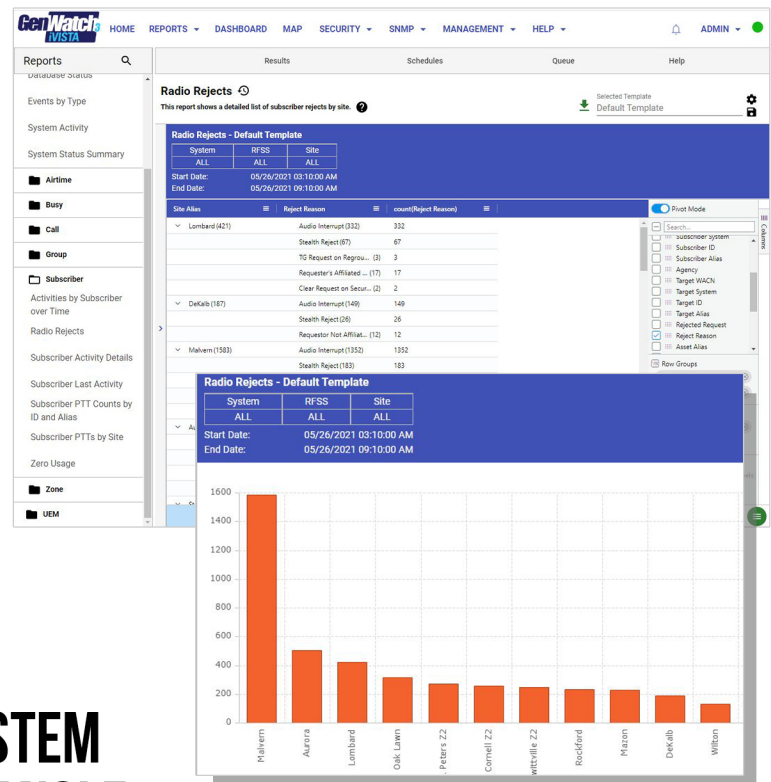


Figure 7: Pivoted iVISTA Report with Corresponding Chart

GENESIS SOFTWARE SOLUTION BRIEF

GENWATCH ATIA



Similar to iVISTA, Radio System Managers have the ability to create unique login credentials with defined user roles and associated access to the various Modules. Following is a list of the more frequently used Modules. For a full list, please reach out to sales@genesishworld.com.

AFFILIATION MODULE

The Affiliation Module (**Figure 8**) shows real-time affiliation information of every radio and talkgroup both system-wide and by site. This module helps Radio System Managers maintain better resource management by allowing them to track who has affiliated, a timestamp of their last contact, and where the affiliation occurred. There is also the ability to identify whether the radio used operates in TDMA, FDMA or TDMA/FDMA.

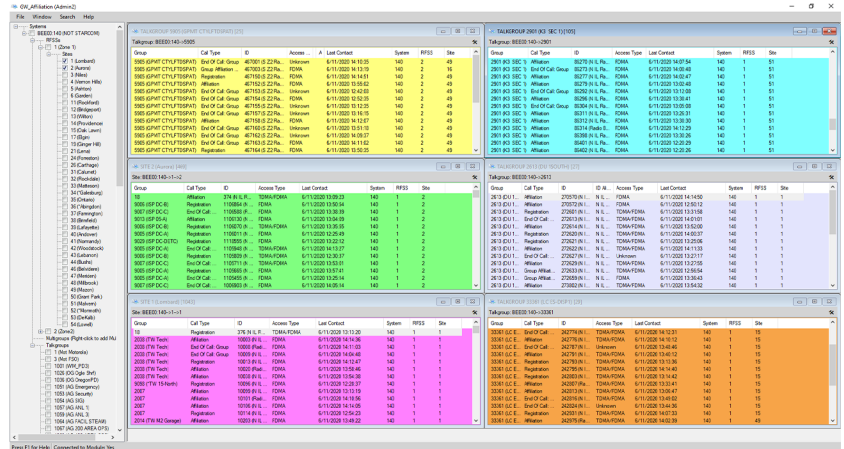


Figure 8: Affiliation Module

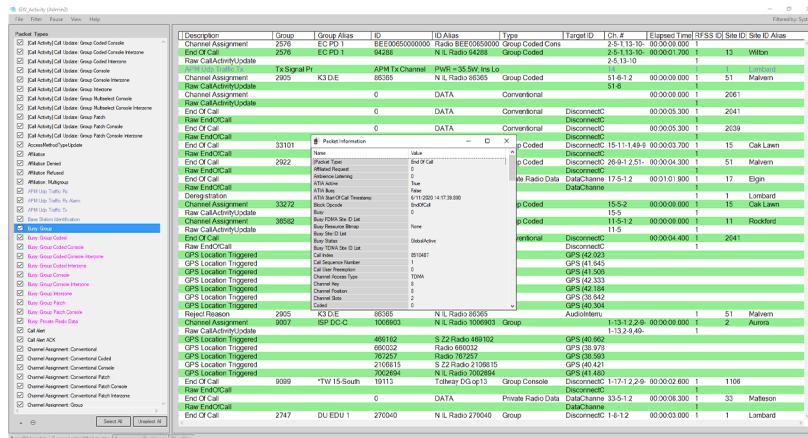


Figure 9: Activity Module

ACTIVITY MODULE

The Activity Module (**Figure 9**) displays real-time activity from all data received from the ASTRO 250 radio system packet by packet. Radio System Managers 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 issues 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.

CHANNEL MODULE

The Channel Module (**Figure 10**) provides a real-time view of channel activity, busies 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 (FDMA) and slot (TDMA). The Module shows current calls in progress, call types, and the radio ID, talkgroup and aliases associated with each call. Radio System Managers 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.

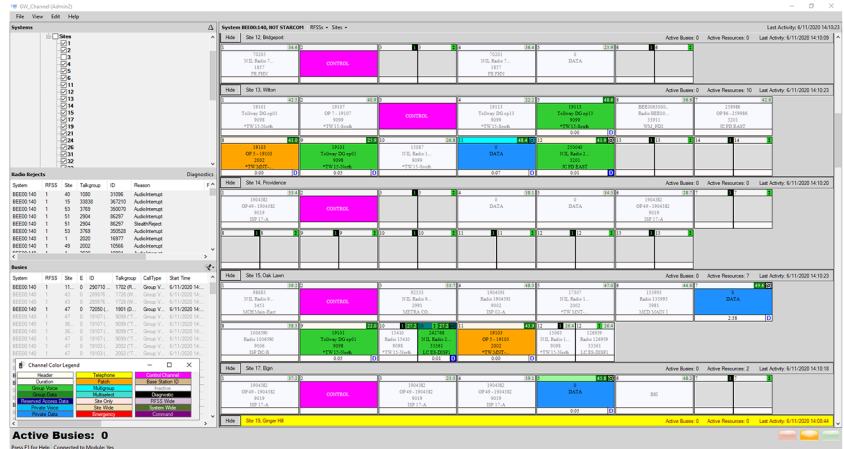


FIGURE 10: Channel Module

KPI MODULE

The KPI Module (**Figure 11**) displays real-time, interactive and statistical information from a WACN, System, Zone, 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.

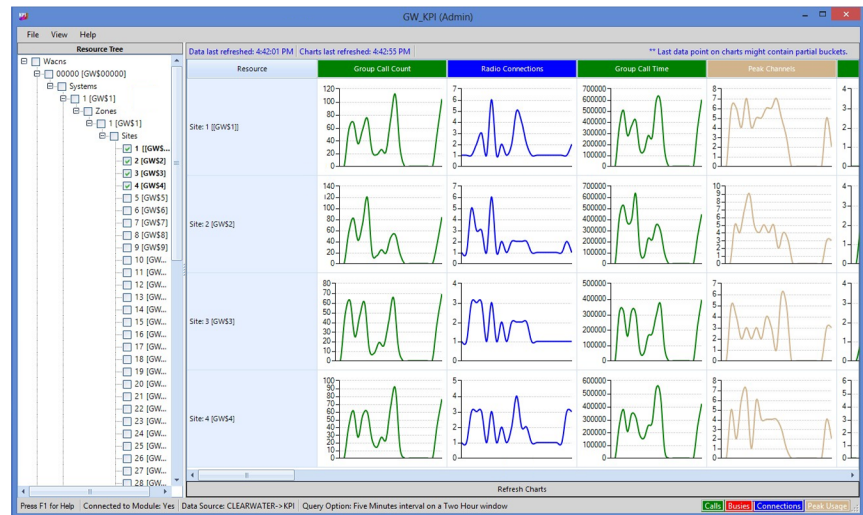


Figure 11: KPI Module

SUBSCRIBER ACCESS MANAGER (SAM)

SAM (**Figure 12**) is a comprehensive radio accountability solution that monitors an individual or range of resources (talkgroups and radios) for impossible or improbable radio activity that breaks a predefined rule or expected behavior. Examples include rapid affiliations (improbable) or a radio appearing on different sites at the same time (impossible).

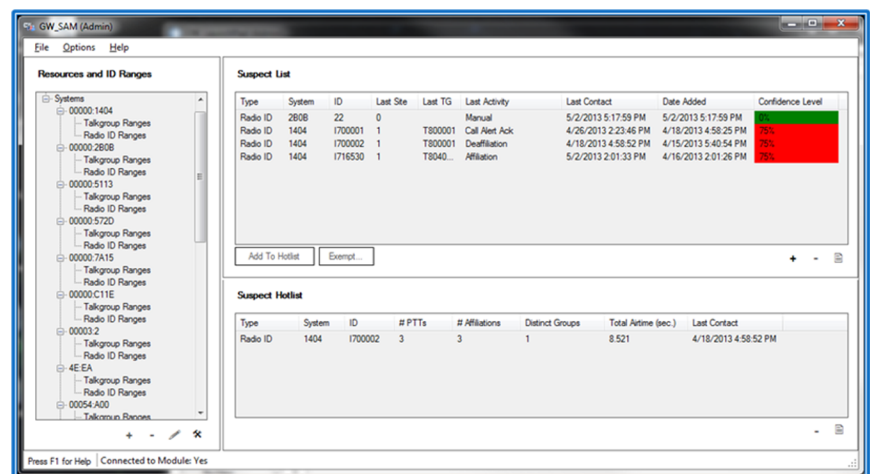


Figure 12: Subscriber Access Manager

If a radio or talkgroup’s activity is deemed impossible or improbable, that resource will be added to a Suspect List and an alert will be sent so further investigation may be done. A report of the suspicious activity can also be run within the SAM module and provides an exact reason why the radio was flagged.

Radios are able to be added to, or removed from, a Hotlist or Exemption List as well. The Hotlist will show how often, and for what reason, a particular resource has been targeted. The Exemption List is used to capture a radio that is deployed in a unique situation and has a high likelihood of being in violation of a predefined rule.

TRIGGER MODULE

Trigger allows Radio System Managers to create and set notifications on specific system activity such as, the presence of an event, lack of an event, periodic evaluation, or presence of an event with a 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 GenWatch functionality on various inputs the software has the ability to monitor and manage (eg. radio activity, UEM alarms, SAM).

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 13 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

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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 13: Genesis Service Agreement Overview Matrix