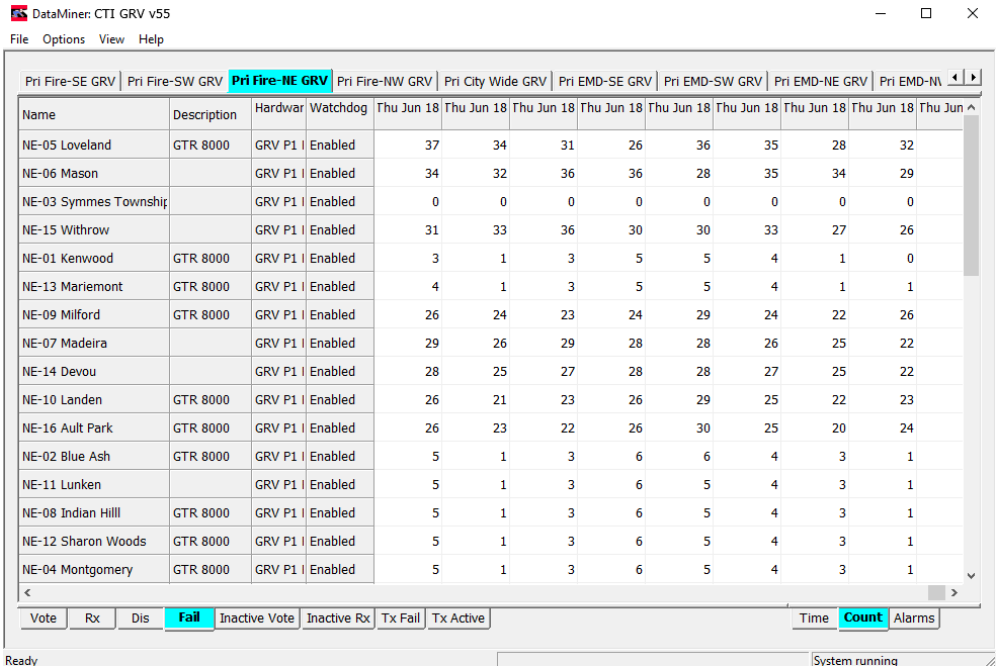
MCN™ System Performance Toolkit



Name	Description	Hardwar	Watchdog	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun 18	Thu Jun
NE-05 Loveland	GTR 8000	GRV P1 I	Enabled	37	34	31	26	36	35	28	32	
NE-06 Mason		GRV P1 I	Enabled	34	32	36	36	28	35	34	29	
NE-03 Symmes Townshi		GRV P1 I	Enabled	0	0	0	0	0	0	0	0	
NE-15 Withrow		GRV P1 I	Enabled	31	33	36	30	30	33	27	26	
NE-01 Kenwood	GTR 8000	GRV P1 I	Enabled	3	1	3	5	5	4	1	0	
NE-13 Mariemont	GTR 8000	GRV P1 I	Enabled	4	1	3	5	5	4	1	1	
NE-09 Milford	GTR 8000	GRV P1 I	Enabled	26	24	23	24	29	24	22	26	
NE-07 Madeira		GRV P1 I	Enabled	29	26	29	28	28	26	25	22	
NE-14 Devou		GRV P1 I	Enabled	28	25	27	28	28	27	25	22	
NE-10 Landen	GTR 8000	GRV P1 I	Enabled	26	21	23	26	29	25	22	23	
NE-16 Ault Park	GTR 8000	GRV P1 I	Enabled	26	23	22	26	30	25	20	24	
NE-02 Blue Ash	GTR 8000	GRV P1 I	Enabled	5	1	3	6	6	4	3	1	
NE-11 Lunken		GRV P1 I	Enabled	5	1	3	6	5	4	3	1	
NE-08 Indian Hilll	GTR 8000	GRV P1 I	Enabled	5	1	3	6	5	4	3	1	
NE-12 Sharon Woods	GTR 8000	GRV P1 I	Enabled	5	1	3	6	5	4	3	1	
NE-04 Montgomery	GTR 8000	GRV P1 I	Enabled	5	1	3	6	5	4	3	1	

DataMiner Channel Activity Window

Introduction

Most voting systems are designed with overlapping coverage areas on receivers, and adjacent receivers can provide partial coverage for a poorly performing receiver. It may be weeks or months before you notice the **system degradation** associated with a problem such as this. And it may only be noticed when the adjacent receiver fails or a field unit gets into a particular critical location.

The System Performance Toolkit (SPT) *)* is a set of programs used along with the MCN Server, MCN Advanced Server, or MCN Server 8000 Software to provide enhanced system performance monitoring and statistical data collection for equipment connected to the Monitoring and Control Network (MCN) system.
The SPT software can help the system manager or technician to:

- Monitor overall system performance,
- Identify receivers that may have coverage issues,
- Gather system statistics,
- Monitor the radio system for long-term performance changes.

The SPT consists of several software modules; System Watchdog Service and Data Miner.

System Watchdog

System Watchdog is a software module within the SPT. It runs as a service in the background and monitors the system activity for problems other than the obvious. It issues alerts based on user specified parameters. It also builds Activity Summary files that can be viewed with the Data Miner module.

Standard voting systems include failure indications for receivers. These **Fail** outputs indicate gross problems such as broken IP links or receivers that are completely dead. However, other serious problems can occur that simply cannot be detected by those **Fail** indications. To help identify these types of problems, System Watchdog generates an alert in response to conditions such as:

- Receivers that have not received
- Receivers that have not been voted.

The System Watchdog will alert the Data Miner to log these errors to the PC screen, a printer, and a disk file. The Error Log includes a time and date stamp, error type, receiver name and description.

Those conditions can be caused by:

- Defective or missing input modules on a comparator
- IP link issues,
- Faulty RF, IF, or Audio sections of a receiver
- Damaged or noisy antennas
- Poorly performing receivers

While the System Watchdog cannot identify the exact cause of the problem (such as bad antenna, unplugged comparator input board,

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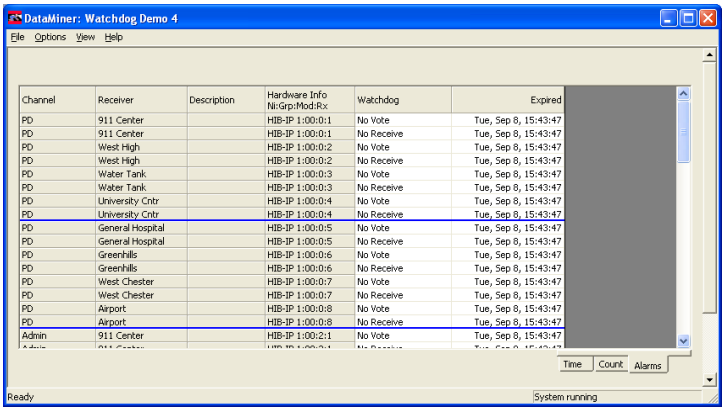
etc.), its power is the ability to give a notification about possible system problems before they escalate into larger ones.

Some features of the System Watchdog module include:

- User-programmable Look-Back Time for activity,
- User-defined channels & receivers to watch,
- Alerts logged on screen, disk, & printer.



Alarm Window

Data Miner

The ***Data Miner*** module is a display and export program that allows the user to view the Activity Summary Files generated by the System Watchdog service. System activity data can be viewed for each of the MCN channel being monitored. Activity times and counts can be viewed for each of the following events:

- Vote,
- Receive,
- Disable,
- Fail.

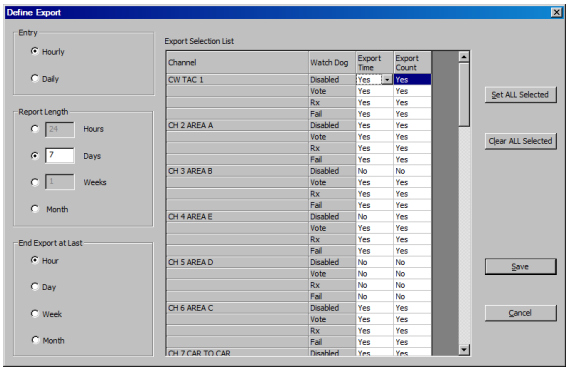
Using this information, the Data Miner viewer module can be used to help diagnose system problems. Data Miner makes it easy to see at a glance the activity level on receivers and channels, and can be used to indicate:

- Channel loading statistics,
- Receiver performance,
- Needed radio maintenance.

It can also be used for site-selection planning and administrative reports.

Exporting Data to Excel

The DataMiner program uses Export Definitions to transfer data to Microsoft Excel. A typical Export Definition is shown in the screen below. The exported data includes receiver names and descriptions, along with the selected activity type (Vote Time, Vote Count, Receive Time, Receive Count, etc.).



Separate files are generated for each radio channel. Activity times and counts can be summarized by hour or by day.

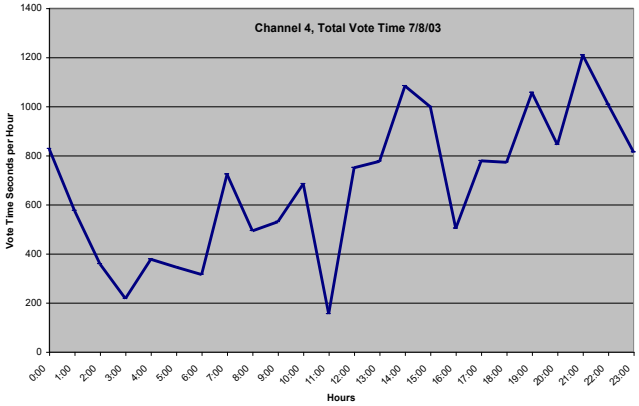
External Analysis with Excel

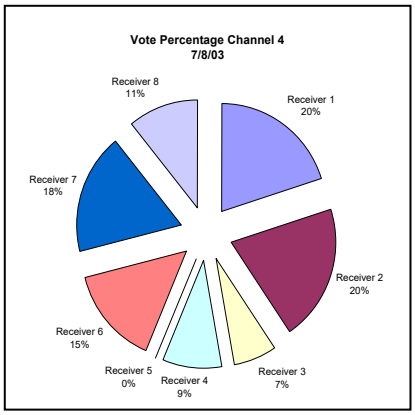
Possible uses of Microsoft Excel include:

- Total Channel Vote Time,
- Percentage of Vote Time per Channel by Receiver,
- Average Vote Length by Receiver,
- Graphs of Receiver or Channel Activity,
- Percentage of Vote Time vs. Receive Time by Receiver.

Two examples are shown below.

Typical Graphs from Excel





Odering Information for System Performance Toolkit

Product	CTI Order Number	Maximum Receivers or I/O Points Monitored	Licensed Installations
SPT Level 1	S1-61434	128	1
SPT Level 2	S1-61435	512	1
SPT Level 3	S1-61436	Unlimited (Limited only by MCN Server Capability)	1

MCN System Performance Toolkit

Receiver and Point Quantities

Receivers and I/O point quantities are calculated based on the maximum number of receivers or I/O points in the MCN module or IP comparator configured in the customer's system.

Examples:	CIB Module	8 Receivers or 32 I/O Points
	AIB Module:	8 to 64 Receivers (Banks of 8)
	MLC 8000	64 Receivers
	GCM 8000	64 Receivers
	GRV 8000	96 Receivers
	GPIO-1208C	20 Points

For example, SPT Level 1 software would support up to (2) MLC 8000 or GCM 8000 comparators.

Specifications

Application Type	Native 32 Bit Windows Application
Operating System	Win 10 Pro 64 Bit or newer
PC Requirements (min.)	Intel I3 – 3.0 GHz quad-core processor or better. At least 8 GB RAM
Requires	MCN Comparator Display System MCN Advanced Server Software MCN Server 8000 Software Microsoft Excel 2010 or up for exports
Runs on	Separate PC connected over LAN.
Alerts Based on	No Vote or No Receive activity (selectable)
Activity Look-Back Time	Global, 1 to 100 Hours, user configured
Receiver Configuration	- Receiver configuration retrieved from MCNRCD Server database - Receiver Watch / Ignore state specified by user
Alert Audio Outputs	Selectable .WAV File
Logging	Errors logged to Screen, Printer, Disk
Activity Summary File	1000 hours Time (seconds) and Counts for: -Vote -Receive - Disable - Fail
Export File Format	XLS 1 file per Radio Channel Microsoft Excel required.

Feature Comparison

Feature	MCN RCD Server	System Performance Toolkit
Alerts:		
Vote	✓	
Receive	✓	
Disable	✓	
Fail	✓	
Transmit Select	✓	
Receiver Timed Inactivity		✓
Vote Timed Inactivity		✓
Programmable Look-Back Time		✓
RCD Server Not Running		✓
Logging:		
Screen	✓	✓
Disk	✓	✓
Printer	✓	✓
Audible	✓	✓
Email	✓ (Not for MCN Server 8000)	
Data Export (Requires Microsoft Excel):		
Export Data		✓
Scheduled Exports		✓

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