

# Tyrone

# TSM



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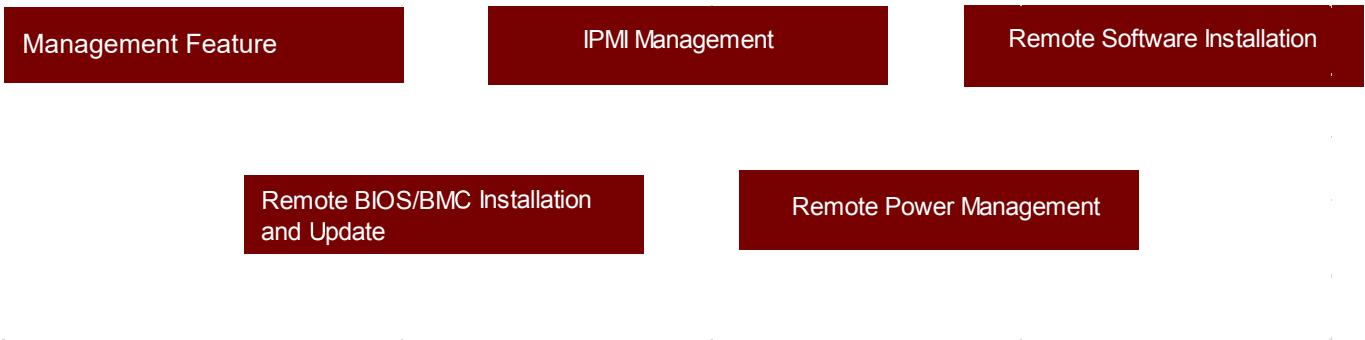
## Tyrone Server Management Software

The TSM (Tyrone Server Management) suite is a web-based group server management solution that enables users to remotely access, manage, monitor, analyze and report the status of all their compatible Tyrone servers via a single secured network connection and interface. TSM monitors remote BMC and IPMI devices as pluggable components of TSM Server Management, and is installable in Linux and Windows operating systems. TSM has an AMI generic user-friendly Graphics User Interface (GUI) that designed to be easily deployed and used. It has a low learning curve and you can easily hand on the operations within five minutes once the suite is successfully installed.

## TSM Features

- Device Discovery
- Sensor Monitoring
- Event Log Management
- Alert Management
- User Management
- Asset Tracking and Management
- Remote Control
- Alert Management
- Firmware Upgrade Management
- Reports

### TSM Packages



### Tyrone TSM ( Tyrone Server Management Software )

Tyrone TSM suite enables users to remotely manage TYRONE servers deployed worldwide. The TSM server is installed on either Linux or Windows platform with local repository without impacting managed servers' hardware and software infrastructures. It is based on Apache server and SQLite database technologies that helps users quickly access to and manage servers easily.



#### Device Discovery & Sensor Monitoring

TSM server will automatically discover IP devices within the subnet range and display discovered servers in the TSM server console. IT managers can then access the authenticated devices and read associate system hardware/firmware status/server health status remotely.



#### Alert Management

The email alert notifications can be sent to designate receivers when critical events are generated on the system. IT managers can define notification criteria in terms of event severity and identify the sent-to email addresses on TSM server in advance. Once a critical event is generated, the alert notification mechanism shall be triggered accordingly.



#### Event Log Management

TSM server provides detailed event reports of authenticated servers. Users can retrieve all event records or selected ones within a period of time and download to local drive in .csv format.



#### User Management

The user management function allows administrators to create, grant, or delete user accounts' privileges to the TSM server suite and supports for out of band management, RESTful API.



#### Asset Tracking and Management

TSM server provides a global server view in the device panel. Users can then easily access managed servers by right-clicking the mouse for hardware asset and embedded firmware revision lookup, platform inventory.



#### Remote Control

TSM server provides remote accessibility for managed servers for management tasks such as asset tracking, network traffic statistics, power On/Shutdown ,firmware revision upgrades, Management over LAN & WAN with SSL encryption, virtual media support and KVM –over-IP operations.



#### Firmware Upgrade Management

User can remotely upgrade the embedded firmware of managed servers through TSM individually or in a batch operation.



#### Reports

The Report Manager tool retrieves TSM event log and SNMP trap log on selected servers. Users can read the records on screen or download it for further analysis.

## IPMI 2.0 based management

- BMC stack with a full IPMI 2.0 implementation
- Hardware health monitor
- Remote power control

## Keyboard, Video & Mouse (KVM) Console Redirection with multi language support

## HTML web Console Redirection

## Serial over LAN (SOL)

## Media Redirection

- Simultaneous floppy and CD/ DVD redirection
- Efficient USB 2.0 based CD/DVD redirection, With typical speed greater than 15xCD
- Support for USB key

## VLAN support

## Event Log and Alerting

## Read Log events

- Full SMTP support
- Sensor readings
- SNMPtrap

## Sophisticated User Management

- IPMI based user management
- Added security with SSL (HTTPS)
- Multiple user permission level
- Multiple user profiles

## Active Directory/LDAP Client support

- Direct LDAP support from the device
- Windows Active Directory and Open-LDAP

## Common Information Model (CIM)

- CIM Object Manager (CIMOM)
- True Object Manager with CIM class handling
- Creating class instance and working with the instances
- Core support for all DMTF profiles

## SMASH and CLP support

- SSH based SOL
- Power control of the server
- Support for all DMTF Profiles
- Complete command support

## WSMAN Support

Supports WSMAN as well as WS-CIM  
Fully organically developed code as library  
LIGHTTPD  
HTTP and HTTPS support  
Complete WSMAN support (Discovery Enumeration)  
Get, Put, Subscribe and Eventing  
Rich client library support (C, Java, JavaScript)  
Web Interface Multilanguage support  
Full Unicode support  
Multiple language support for multiple clients simultaneously

## Web based configuration

Full configuration using web UI

## Firmware Firewall

## Watchdog Timer

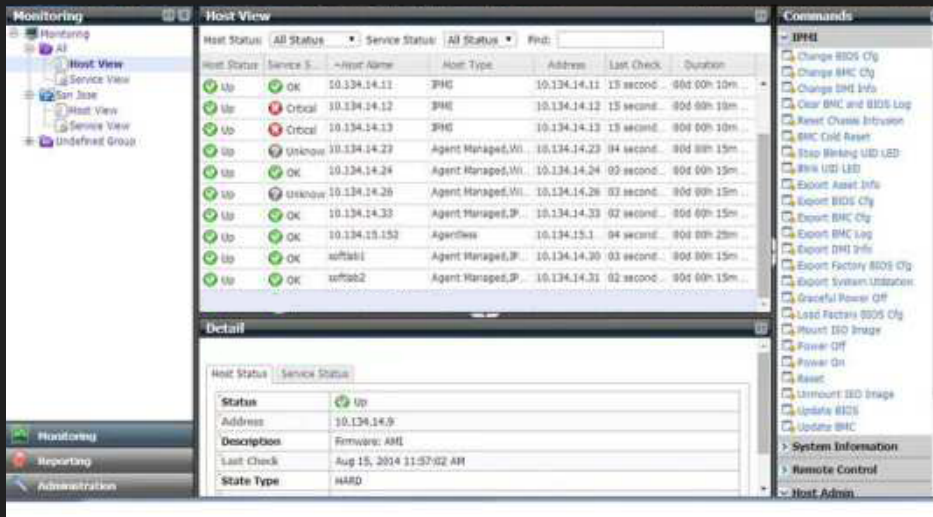
## Fail-safe firmware upgrade

## Tools to flash firmware in DOS, Linux and Windows

# Tyrone Server Manager (TSM/ DCMS)

Maximizes server uptime and health with minimal efforts from an Enterprise IT administrator

The Tyrone Server Manager utility monitors and manages a wide portfolio across multiple generations of Tyrone servers within a single console as in Figure 1 below. TSM provides capabilities to monitor the health of server components including memory, hard drives and RAID controllers. It enables the data center administrator to monitor and manage power usage across all Tyrone servers allowing users to maximize their CPU payload while mitigating the risk of tripped circuit. Firmware upgrades on Tyrone servers became easier now with a couple of clicks. Administrators can now mount an ISO image on multiple servers and reboot the servers with those images. The tool also provides pre-defined reports and many more features that will make managing Tyrone servers simpler.



## BENEFITS

- Easy to use console reduces deployment time of Tyrone servers to hours
- Upgrade and Configuration commands on multiple machines in parallel exponentially reduces hardware maintenance time
- Single tool installation and single console to harness the advantages of multiple features
- CU and WebUI provides options to integrate Tyrone server management in existing Framework
- Support for open source Nagios Plugins leverages existing work from the community

## Key Features

1. Monitor Server hardware and service health. Upgrade Server BIOS and IPMI firmware and configurations
2. Groups together server clusters spread across different networks and manage remotely as in Figure 2
3. Check Asset information (SD5 should be installed)
4. Check System utilization through IPMI (Only available on X10)
5. Mount bootable iso image to install operating systems
6. Flexibility to monitor and manage power on a node or in a rack across your datacenter with configurable policies
7. Remote console to target machines through VNC
8. Log and Report the server information and availability
9. Update Tyrone Management Software on target systems
10. Maintain repository for Firmware Security and drivers recipes to aid rollback of compromised firmware
11. Support Scripting Tool (STK) for Windows and Linux
12. Supports Scripting Tool for Windows PowerShell
13. Supports browser based GUI Remote Console along with virtual power button, remote booting by external source.
14. Supports upgrade of software and patches from remote client.
15. Supports server power capping, historical reporting and multifactor authentication.
16. Dedicated 1Gbps IPMI Management Port for out-of-band remote management port
17. Supports monitoring and recording changes in server hardware and configuration
18. Android or Apple IOS is available for remote access
19. Supports RESTful API integration
20. Stores factory recovery recipe to rollback to factory tested secured firmware
21. Front panel Lockout Provision.
22. Ability to Enable / Disable Individual ports

## Tyrone IPMI Utilities

**Firmware level Encryption for Integrated Platform Management Interface through Tyrone DCMS for management activity and Security purpose.**

Some commonly used utilities are highlighted below-

### IPMICFG - BMC/FRU Configuration Utility

- Set up BMC IP Address
- NM (Node Manager) 2.0 Management
- IPMI User and Configuration Management
- IPMI Sensor and Event Management
- FRU Management

### Tyrone IPMI Tool- CLI Based IPMI Utility

#### Tyrone IPMI Tool Feature List

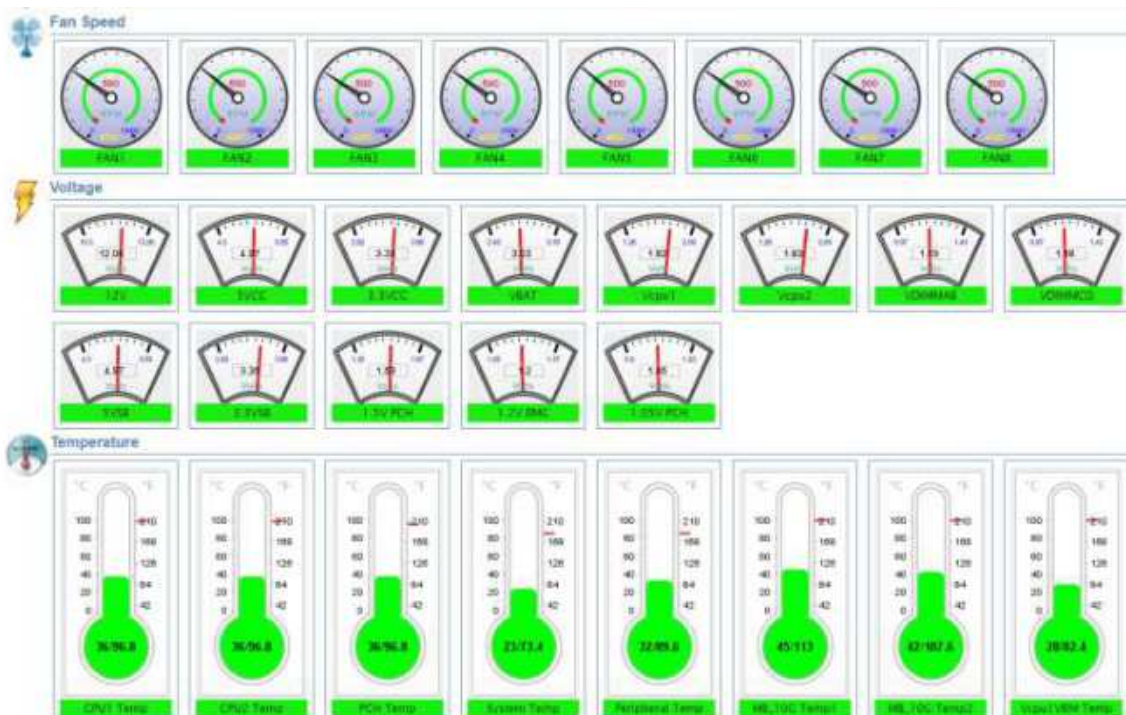
- Remote IPMI Management
- Remote NM (Node Manager) Management
- Remote IPMI Sensor and Event Management
- Remote FRU Management
- Remote IPMI User/Group Management
- Remote Blade System Management
- IPMI Firmware Upgrade

### IPMI View - GUI Based IPMI Utility

#### IPMI View Feature List

- IPMI System Management
- KVM Console Redirection
- Text Console Redirection
- Virtual Media Management
- IPMI User/Group Management
- Trap Receiver
- Mobile App (Android/iOS)

## Tyrone Management Software API



# Tyrone Server Management - IPMI Firmware Security

## Silicon-based Hardware Root of Trust

Tyrone innovation in server security is the use of a hardware root of trust based in silicon. This feature validates both IPMI and BIOS firmware as each module is booted in a chain of trust. All firmware for critical components (NICs, HBAs, RAID, storage drives, PSUs, etc.) is likewise validated using cryptographic signatures to ensure that only authentic firmware is running in the server.

Tyrone servers have featured robust security for several generations, including the innovation of using silicon-based security and cryptographic root of trust to authenticate server booting and firmware updates. A new security feature to encrypt passwords is available from Tyrone for systems running IPMI 1.5 & 2.0 protocols and/or BMC firmware.

## Best Practices for managing servers with IPMI features enabled in Datacenters

Baseboard Management controllers (BMC) with IPMI is commonly used to manage servers. Most Tyrone server models support IPMI either through a dedicated management interface or through a shared LAN. All X7 and later generation products have IPMI 2.0 enabled that provides security through encryption algorithms. BMC provides powerful remote debugging capabilities in the data centers but at the same time if not configured properly, causes unwarranted access to BMCs from Internet or within the company and can compromise the security of your machines. Tyrone recommends the following steps that data centers need to consider while using IPMI to manage your machines.

### 1. Network Configuration

- Restrict inbound traffic over internet directly to BMCs. Logon to a secure management server in data center and manage all BMCs from the management server.
- Reserve special IP address range (private subnets) to BMC management interfaces and management servers. Don't use reserved IP subnets with LAN interfaces of the managed machines.
- Configure the firewall to restrict outbound traffic from BMC including alerts within the reserved IP range.
- Use dedicated management interfaces for managing BMCs. If dedicated management interfaces are absent and have to use shared LAN, then configure separate VLANs for BMC traffic.

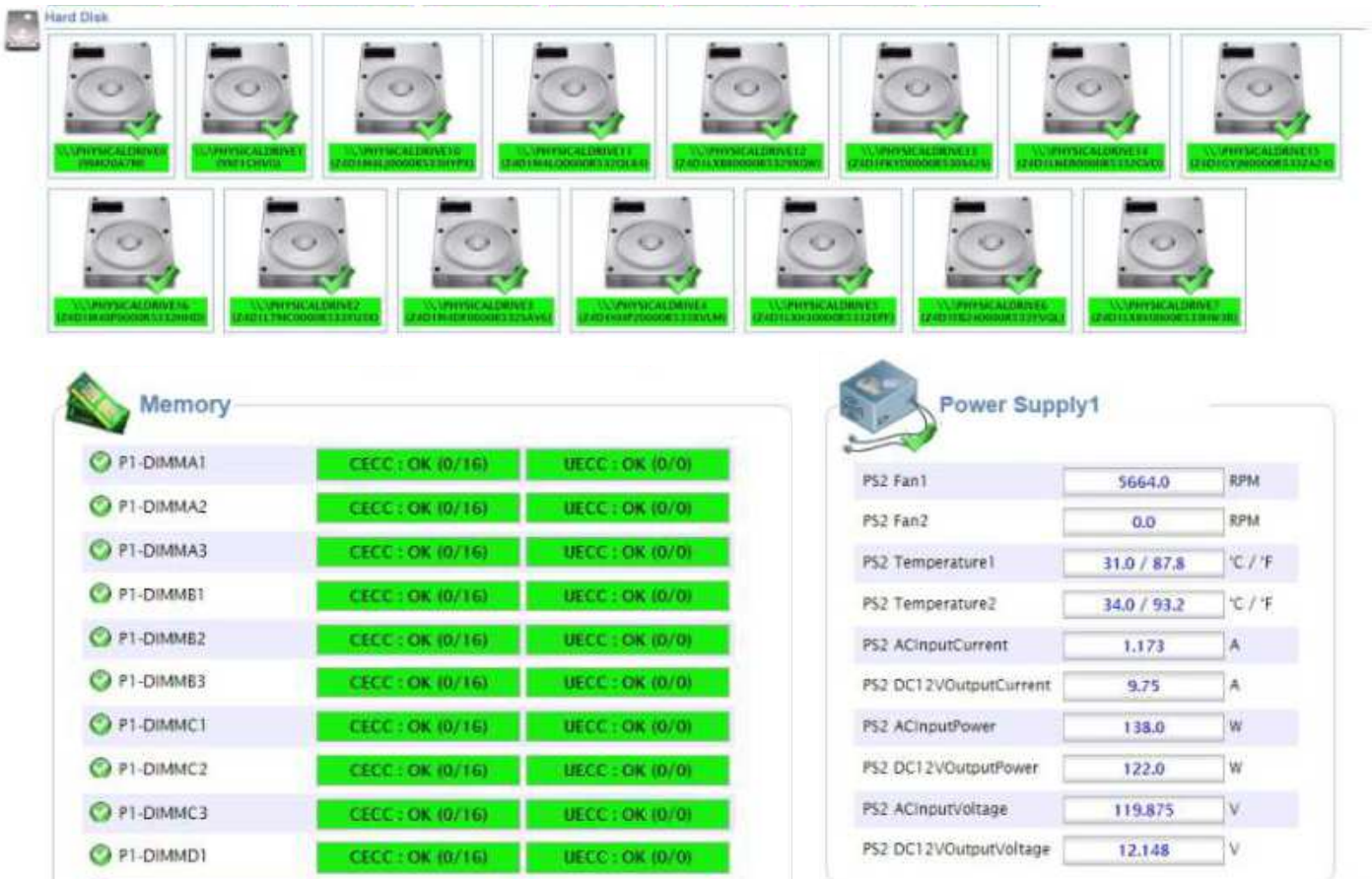
### 1. BMC Configuration

- Customize service ports information on the BMC to your data centre specifications. For example; you can configure http port to 57880 instead of 80.
- Change the default password during installation and use strong passwords
- Create user policies and roles on BMC
- Use the IP Access Policy to enable access rules to BMC from management servers

### 3. Additional measures

- Monitor for unusual traffic between BMC and other machines in the network
- Pay attention to firmware release notes (especially related to security fixes) and plan upgrades of the firmware during maintenance cycles





## Tyrone Management Software-key Benefit and Features

Supports monitoring, control, and management functions.

Hardware Monitoring: fan speed, temperature, voltage, chassis intrusion, redundant power failure, power consumption, disk health, raid health, and memory health.

20 Types of system information: BIOS, Baseboard, Chassis, Computer System, Disk Drives, Memory, Network, Printer, Processor, System Slot, IPMI, Power Supply, Account, Operating System, Process, Service, Share, Time Zone, OEM Strings, and System Cfg Options.

System supports feature for improved workload throughput for applications sensitive to frequency fluctuations. The feature allows processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2.

Provides SNMP extensions for network management system. Supports workload Profiles for simple performance optimization. Easy to use Web-based and command line interfaces. Notifications sent via email and SNMP traps.

Easy to customize:

- Pluggable hardware and software monitoring plug-ins.

- Compatible with Nagios plug-ins.

Supports Windows and Linux platforms.

## Tyrone Management Software-key Features

	Tyrone Management Relationship
<b>Management Relationship</b>	One-to-Many
<b>Management Interface</b>	
Internationalization Support	Y (Simplified/Traditional Chinese, English)
Command Line Interface (CLI)	Y
Web-based Interface	Y
SNMP Support	Y
<b>Monitoring</b> Nagios Compatible Plug-Ins	
Host Monitoring : Agent Managed / Agent-less / IPMI	Y
MB build-in Hardware Health Monitoring: FAN Speed / Temperature / Voltage	Y
Memory Health Monitoring	Y
Storage Health Monitoring	Y
System Information Monitoring	Y
Service Monitoring: FTP / HTTP / SM TP	Y
Execute a Custom Monitoring Script or program	Y
<b>Monitoring</b> Nagios Compatible Plug-Ins	
In- Band Power Control (Graceful Power off/reboot)	Y
In-band YNC ( Graphical Mode )	Y
Reset Chassis instruction	Y
Remote Software Update	Y
Out-of-band (OOB) IPMI Power Control	Y
Out-of-band (OOB) IPMI Integration	Y(IPMI KVM, IPMI Web)
Wake-on-KAN (WOI)	Y
Update BIOS	Y
Update BMC firmware	Y
Export BIOS / BMC / DMI Configuration	Y
Change BIOS / BMC / DMI Configuration	Y
Getting / Clearing Events Log	Y
Check System Utilization	Y
Mount / Unmount ISO Image from SAMBA / HTTP	Y
Reset App	Y

## Log And Report

System Information	
Health Information on Log	
Event Log	Y
SSM Server Log	
Availability Report	Y
Status Change report	Y

## Event Alert Notification

Email SMTP	Y
Log File	Y
SNMP Trap	
<b>Other</b>	
Database (DB) Support	Microsoft SQL (v 2008 and above) and PostgreSQL (v9.1.12 and above)



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**Let's Talk**

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