



ECA4.0

Platform

ECAOS5.0

Operating System

User Guide

Revision 1a

Copyright 2018 © GSF Solutions Sdn Bhd

- ECA Operating System (ECAOS)1
- Security Key1

- 1. Notification Bar2
 - 1.1 Notification event list3

- 2. System Manager 4
 - 2.1 Change Windows Settings5
 - 2.2 Setting IP address6
 - 2.3 Disk Management6

- 3. Task Scheduler7

- 4. SmartLogic8
 - 4.1 DiskHealth8
 - 4.2 DiskActivity9
 - 4.3 NetworkActivity10
 - 4.4 Notification Setting10

- 5. TrueBlue Remote Support11

- 6. Layer Manager12
 - 6.1 User Mode12
 - 6.2 SI Mode13
 - 6.3 How to ‘Soft Reset’ 14
 - 6.4 How to ‘save Deployment’14
 - 6.5 How to ‘Hard Reset’14
 - 6.6 Forgot SI Password 15

- 7. HeartBeat16
 - 7.1 HeartBeat Behavior16
 - 7.2 ECA power LED indication16
 - 7.3 HeartBeat PIN out17

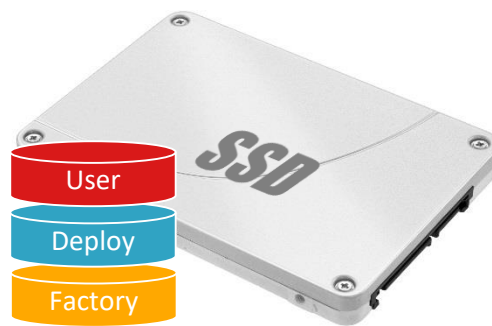
- 8. System Interface18
 - 8.1 HY Series System Interface18
 - 8.2 EX Series System Interface19
 - 8.3 DX Series System Interface20
 - 8.4 MX Series System Interface.....21

Introduction

1.1 Engineering Computer Appliance Operating System (ECAOS)

ECAOS is a protected operating system environment, equipped with a unique and practical feature called **Triple Layers**, essential for both reliable and secure operation of the ECA.

Its ability to Soft Reset within few minutes significantly reduces system down time in the event of, though rare, system disaster, such as corrupted Video Management Software or misconfiguration.



User Layer

(Current working layer)

is a normal user operation layer with protected OS environment, any system changes without using the Embedded Security Key will be discarded after system reboot (Fast Reset)

Deployment Layer

(Backup)

is a good working state layer, usually saved by System Integrator with pre-configured NVR & camera settings

Factory Layer

(Hard Reset, restoration to this layer only accessible by System Integrator)

is a good working state layer, with original default settings shipped from factory

2.1 Login Screen

By default, ECAOS will



1. ECAOS LOGIN

By default, ECAOS Login screen



1.1 List of event will show on the notification bar;

Notification	Desktop Notification	Email Notification	Default State
Disk Guard			
Disk Incorrectly Placed	Yes	Yes	On
Disk Correctly Placed	Yes	Yes	On
Disk Removed	Yes	Yes	On
New Disk Installed	Yes	Yes	On
Old Disk Replaced	Yes	Yes	On
Disk Health			
Health Dropped to Warning Level	Yes	Yes	On
Health Dropped to Critical Level	Yes	Yes	On
Disk Monitor			
Read Consistently Above the Threshold	Yes	Yes	Off
Write Consistently Below the Threshold	Yes	Yes	Off
Network Monitor			
Send Consistently Above the Threshold	Yes	Yes	Off
Receive Consistently Below the Threshold	Yes	Yes	Off
Adapter Plugged/Unplugged	Yes	Yes	On
Network Available/Unavailable	Yes	Yes (Only works for network available)	On
CPU Monitor			
Usage Consistently Above the Threshold	Yes	Yes	Off
Usage Consistently Below the Threshold	Yes	Yes	Off
Sudden Rise in CPU Usage	Yes	Not supported	Off
Sudden Drop in CPU Usage	Yes	Not supported	Off
Memory Monitor			
Usage Consistently Above the Threshold	Yes	Yes	Off
Usage Consistently Below the Threshold	Yes	Yes	Off
Sudden Rise in Memory Usage	Yes	Not supported	Off
Sudden Drop in Memory Usage	Yes	Not supported	Off

2. System Manager

System Manager can be launched by inserting the Embedded Security Key into any USB port on the ECA while ECA is in Windows operating environment.

There is 2-way to run 'SYSTEM MANAGER' menu

- By plug in Security key to the front USB Security Port
- By Windows menu. You need 'Virtual Access Code'



1	ECA Digital Certificate. Each of ECA come with their own unit serial number.	6	TrueBlue Remote Support Remotely support ECA system via Internet
2	NVR Run Time. This is the time counter to indicate system Run time	7	Restart Reboot ECA
3	Session Shield Protect 'C:\' partition.	8	Shutdown Shutdown the ECA
4	Layer Management Reboot the NVR into Layer Manager (for System Restoration or Backup purpose)	9	Exit Exit System Manager
5	SmartLogic Hard disk Health, Network monitoring, Application monitoring	10	Setting Notification setup

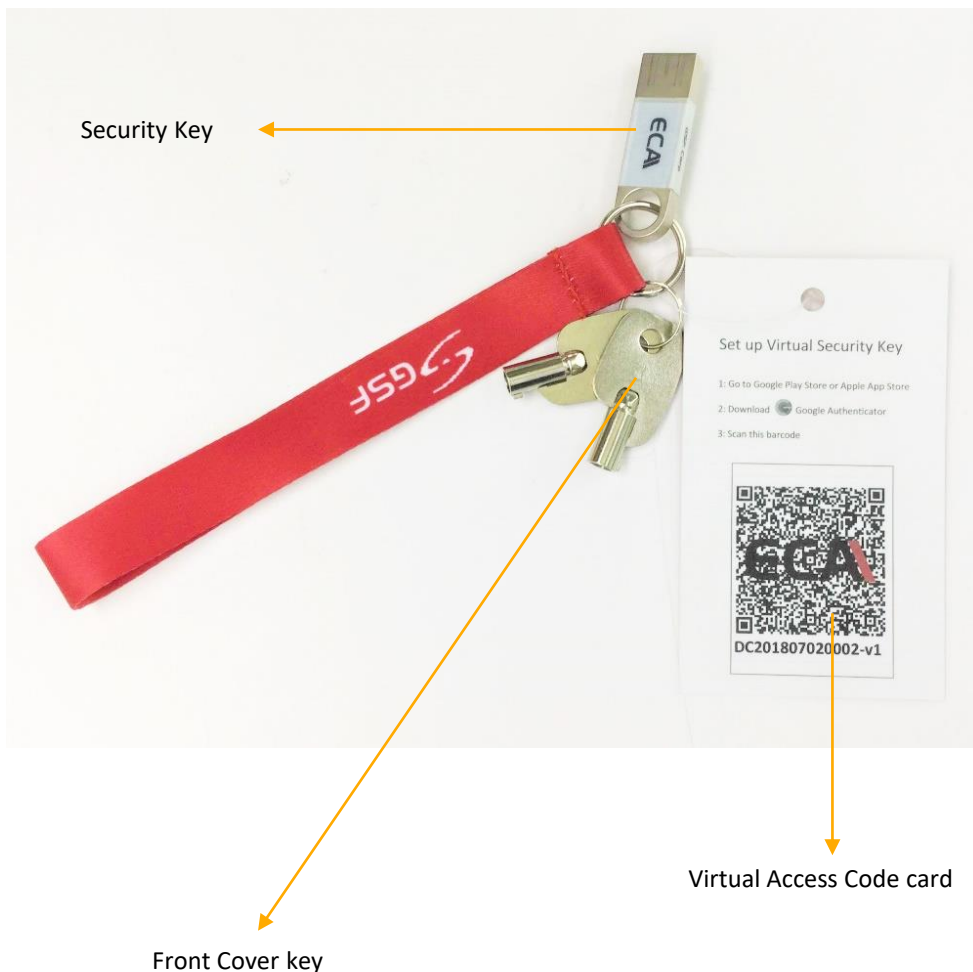
Security Key (USB Type) & Virtual Security Key

Security Key is a uniquely designed USB security key which is paired to the ECA. It only can be used with the paired ECA.

If the key is lost, new key can be issued by GSF and the paired ECA will automatically reject the usage of the lost key, should they be recovered later.

Run 'SYSTEM MANAGER' menu via Security key

Plug in Security key to the front USB Security Port. 'SYSTEM MANAGER' menu will pop up.



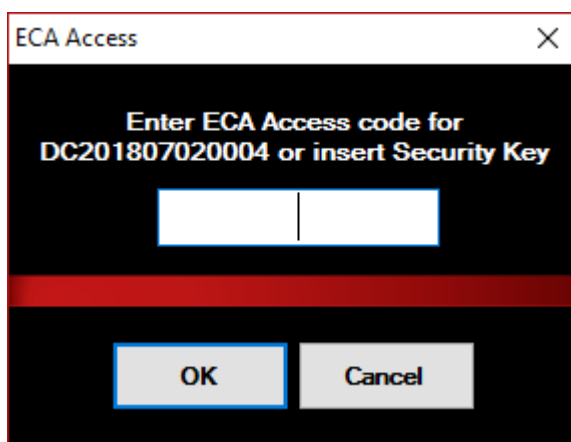
2. System Manager

Run 'SYSTEM MANAGER' menu via OS menu

Without Security Key, to access to SYSTEM MANAGER require ECA Access code. This is to protect from any un-authorized person accessing SYSTEM MANAGER.



Call out System from Windows startup button

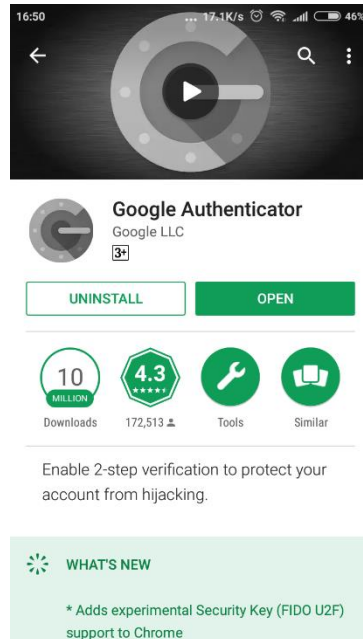


Call up System via Windows menu, require 6-digit one-time Access Code to grant access to System Manager.

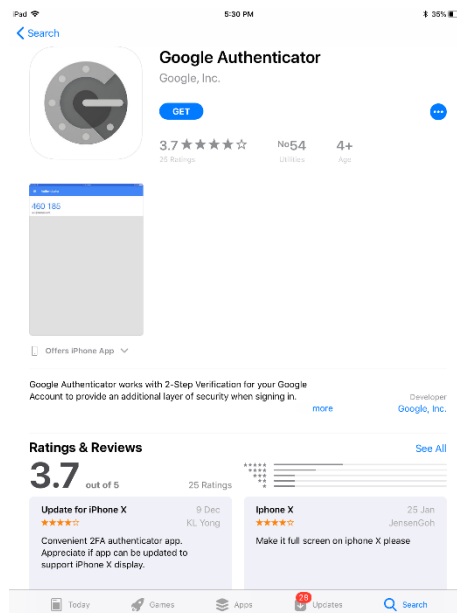
- Refer to next page on how to get the 6-digit Access Code by using 'Google Authenticator'
- Each Access Code only valid for 30 seconds.
- **IMPORTANT!** ECA and your phone must have same time clock..

2. ECA Access Code generator

For 6-digit Access Code, Download 'Google Authenticator' from Google Play OR App Store

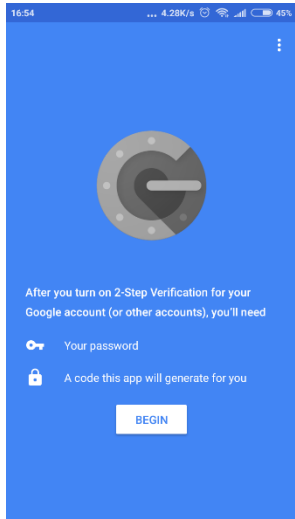


'Google Authenticator' for Android

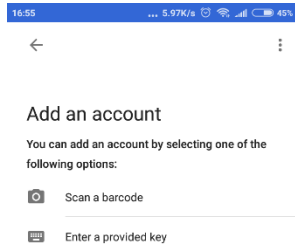


'Google Authenticator' for IOS

Using Google Authenticator to get 'Access Code'



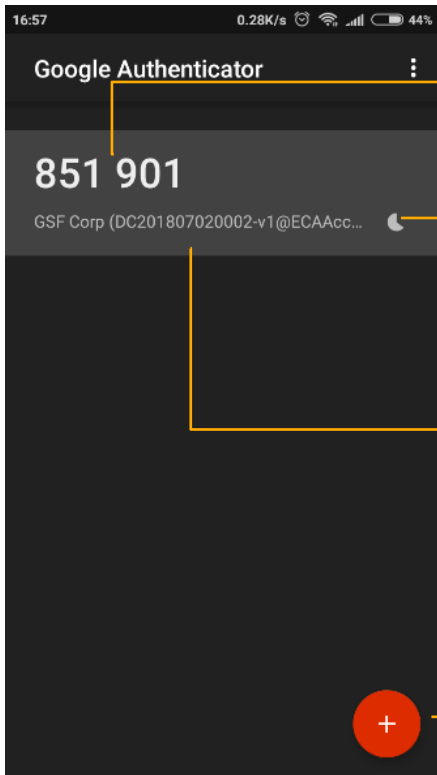
Click 'BEGIN' button



Choose 'Scan a barcode' to start scanning code on Virtual Access Code card



Place 'Barcode' in the middle of the scanner box



6-digit Access Code

6-digit Access Code

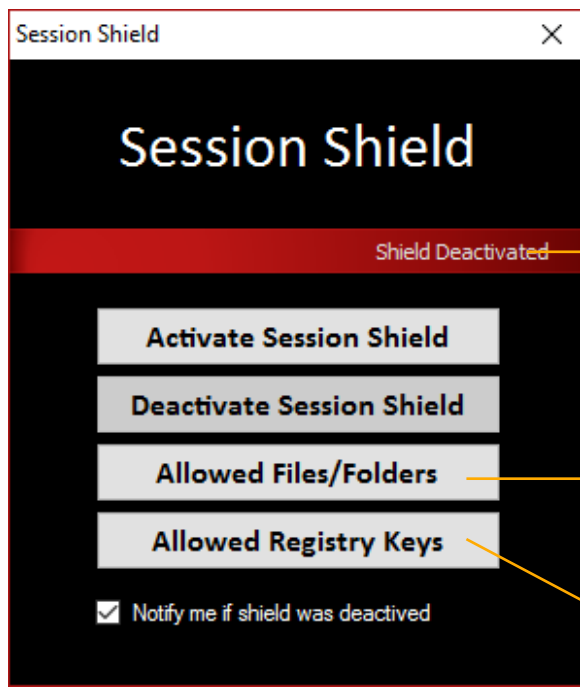
- 6-digit Access Code countdown.
- Access code change for every 30 seconds.

ECA Digital Certificate information

Click here to scan another QR Code for others ECA Digital Certificate.

2. System Manager - Session Shield

Session shield which permanently stores all modifications into the User Layer. Without doing so, all modifications of settings, software or Windows, are temporary only, and will be discarded once the ECA is powered off or reboot.

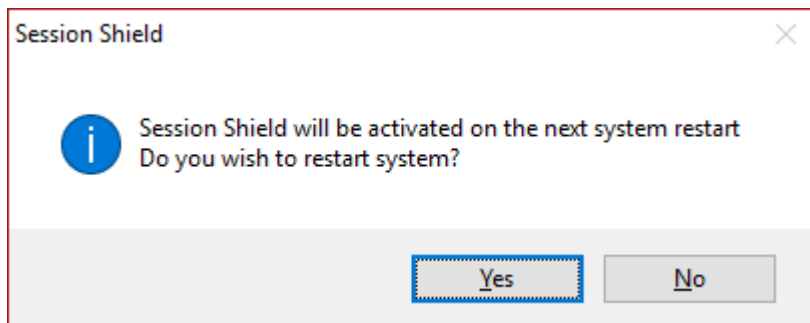


Shield status

Allowed files or Folders to be written permanently when 'Session Shield' status is 'Activated'

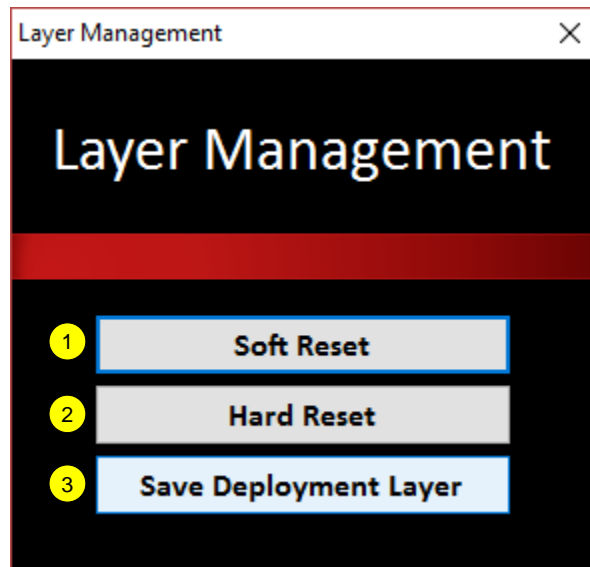
Allowed registry to be written permanently when 'Session Shield' status is 'Activated'

* By default the 'Session Shield' is in 'Deactivate' status



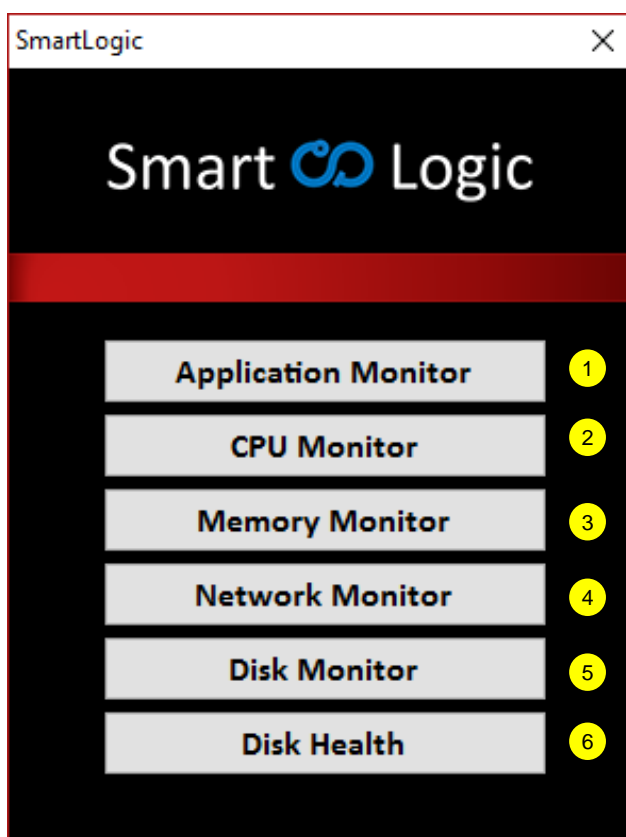
'Session Shield' only can be activate/deactivated after reboot.

2. System Manager – Layer Manager



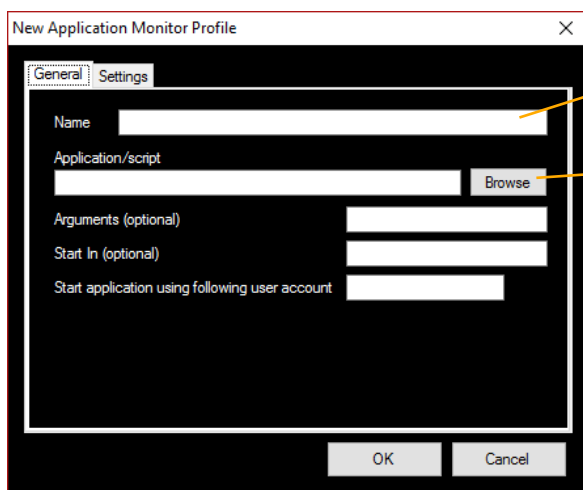
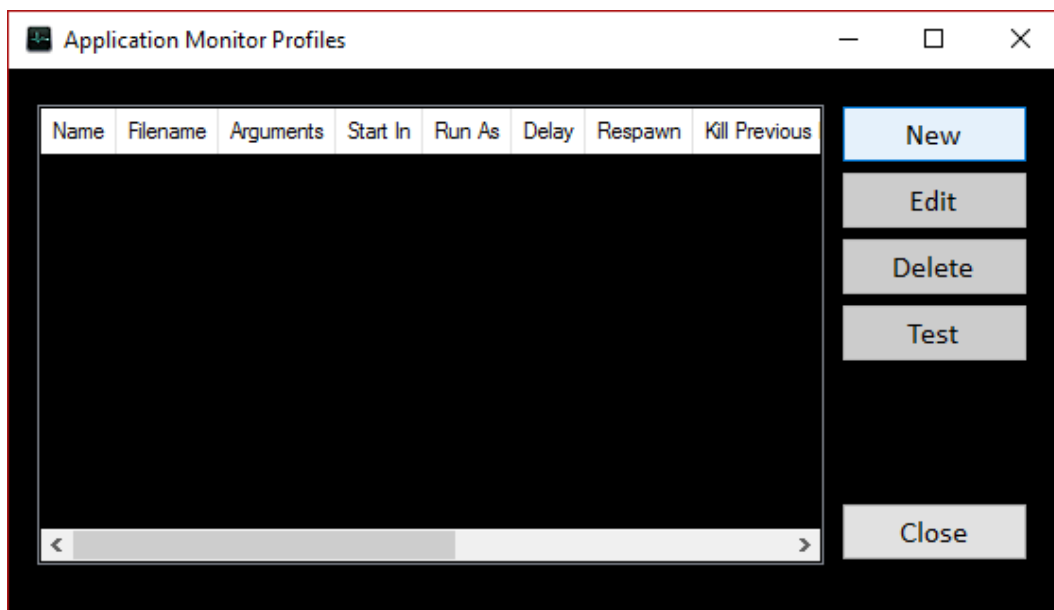
- 1 Software Reset**
ECA will reboot & go to Layer Manager. It will reset the ECA to Deployment Layer , Layer which previously saved by user.
- 2 Hard Reset**
ECA will reboot & go to Layer Manager. It will reset the ECA to Factory Layer , Layer which previously saved by Manufacturer
- 3 Save Deployment Layer**
ECA will reboot & go to Layer Manager. It will save/overwrite Deployment Layer

2. System Manager - SmartLogic



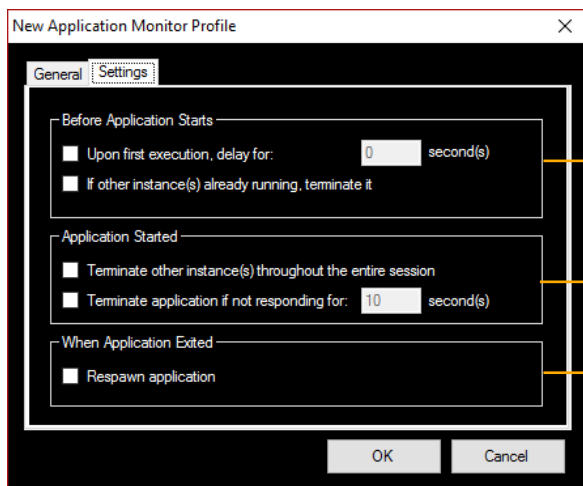
- 1 Application Monitor**
Configure which application to start when login to Operating System
- 2 CPU Monitor**
Monitor network incoming/outgoing bandwidth activity.
- 3 Memory Activity**
Monitor network incoming/outgoing bandwidth activity.
- 4 Network Monitor**
Monitor network incoming/outgoing bandwidth activity.
- 5 Disk Monitor**
Monitor disk read write activity & set the periodically email sent frequency whenever detected the activity below certain threshold
- 6 DiskHealth**
Monitor disk health & set the periodically email sent frequency whenever detected the health below certain threshold

2. System Manager – SmartLog – Application Monitor



Enter any name to represent current profile

Browse application/ script to be configure



Startup delay & kill any other instance application before the application start

Kill any other instance application when application was running

Application respawn when its been kill

2. System Manager – SmartLogic – CPU Monitor

Monitoring CPU usage

The screenshot shows the 'CPU MONITOR SETTINGS' window. It features a dark theme with a blue header. The SmartLogic logo and 'CPU Monitoring' text are in the top left. The version 'ECA4.0-FX' and device ID 'DC201807020004' are in the top right. The settings are organized into sections: 1. 'ENABLE' with a checkbox. 2. 'THRESHOLD' with 'Usage is above 90 +/- % for 10 +/- minutes' and an 'Estimate' button. 3. 'ACTIONS' with a checkbox and radio buttons for 'Restart' and 'Shutdown'. 4. 'NOTIFICATION' with checkboxes for 'Notification' and 'Send Email'. A graph on the right displays CPU usage percentage from 0% to 100% over time, with a red horizontal line at 90% and a blue area chart below it. A 'Save' button is at the bottom right.

- 1 CPU monitoring only active when the feature enable
- 2 Threshold value to notify when the threshold value is hit.
- 3 Set the notification if the activity below ratio by set the notification by Notification on screen OR send via email
- 4 Graphical CPU usage base on current setting

Not sure the value to be enter?

If user doesn't any idea on the value need to be enter, just press the 'Estimate'. The application will take 1 hour of data and display the value.

2. System Manager – SmartLogic – Memory Monitor

Monitoring memory usage

The screenshot shows the 'MEMORY MONITOR SETTINGS' window. The interface includes a header with the SmartLogic logo and version information. The main settings area is divided into several sections: 'ENABLE' (checkbox 1), 'Usage is above 90 +/- % for 10 +/- minutes' (checkbox 2), 'ACTIONS' (radio buttons for Restart and Shutdown), and 'NOTIFICATION' (checkboxes for Notification 3 and Send Email). On the right, a vertical bar chart displays memory usage at approximately 12% (4). A 'Save' button is located at the bottom right.

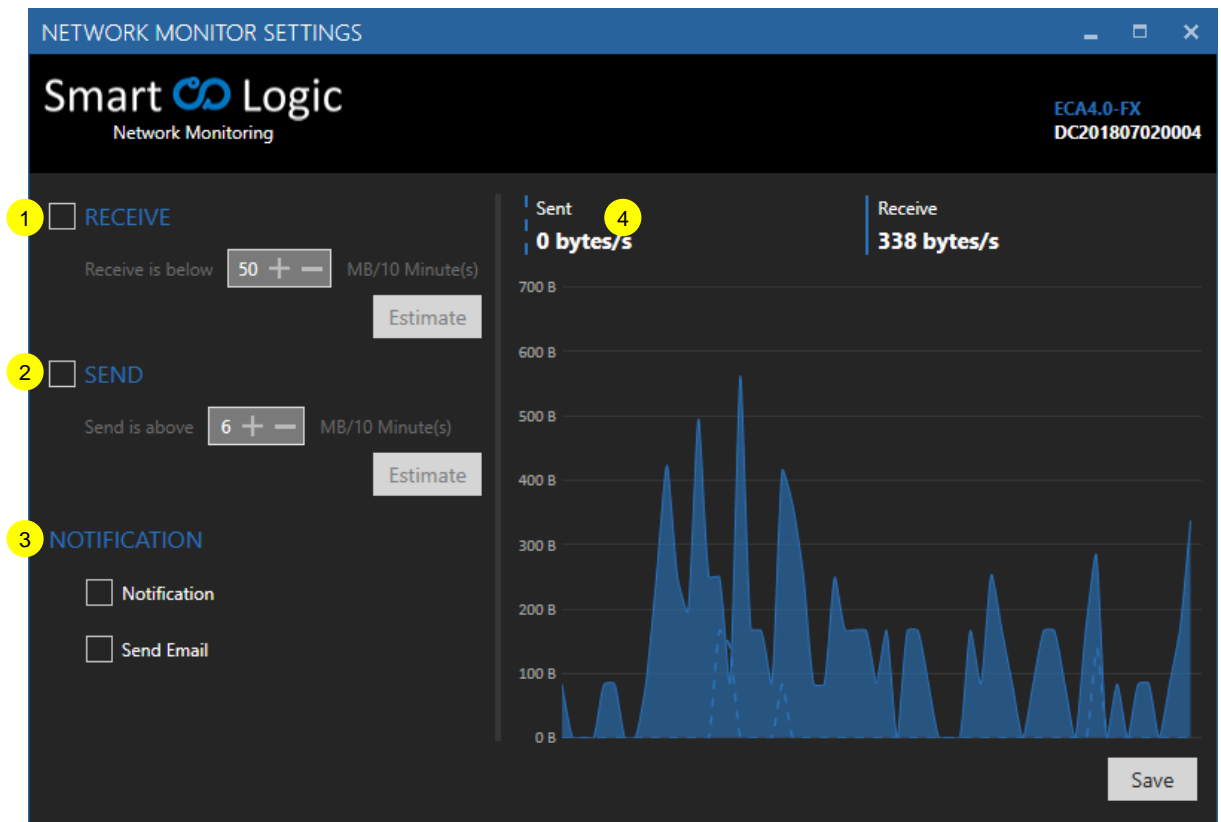
- 1 Memory monitoring only active is the feature enable
- 2 Threshold value to notify when the threshold value is hit.
- 3 Set the notification if the activity below ratio by notification on screen OR send via email
- 4 Graphical memory usage base on current setting

Not sure the value to be enter?

If user doesn't any idea on the value need to be enter, just press the 'Estimate'. The application will take 1 hour of data and display the value.

2. System Manager – SmartLogic – Network Monitor

Monitoring network usage



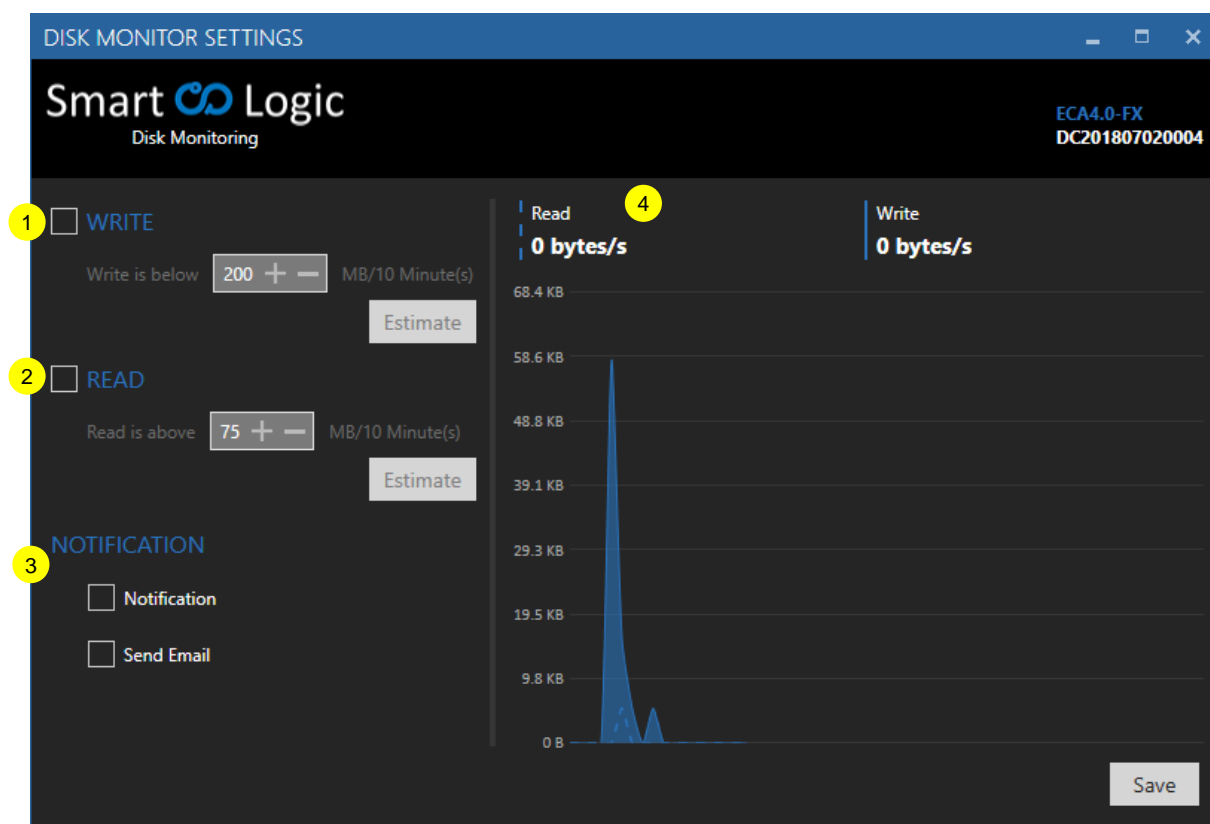
- 1 Set the minimum receive network activity to trigger notification
- 2 Set the minimum send out network activity to trigger notification
- 3 Set the notification if the activity below ratio by Notification on screen OR send via email
- 4 Graphical memory usage base on current setting

Not sure the value to be enter?

If user doesn't any idea on the value need to be enter, just press the 'Estimate'. The application will take 1 hour of data and display the value.

2. System Manager – SmartLogic – Disk Monitor

Monitoring disk write and read activity



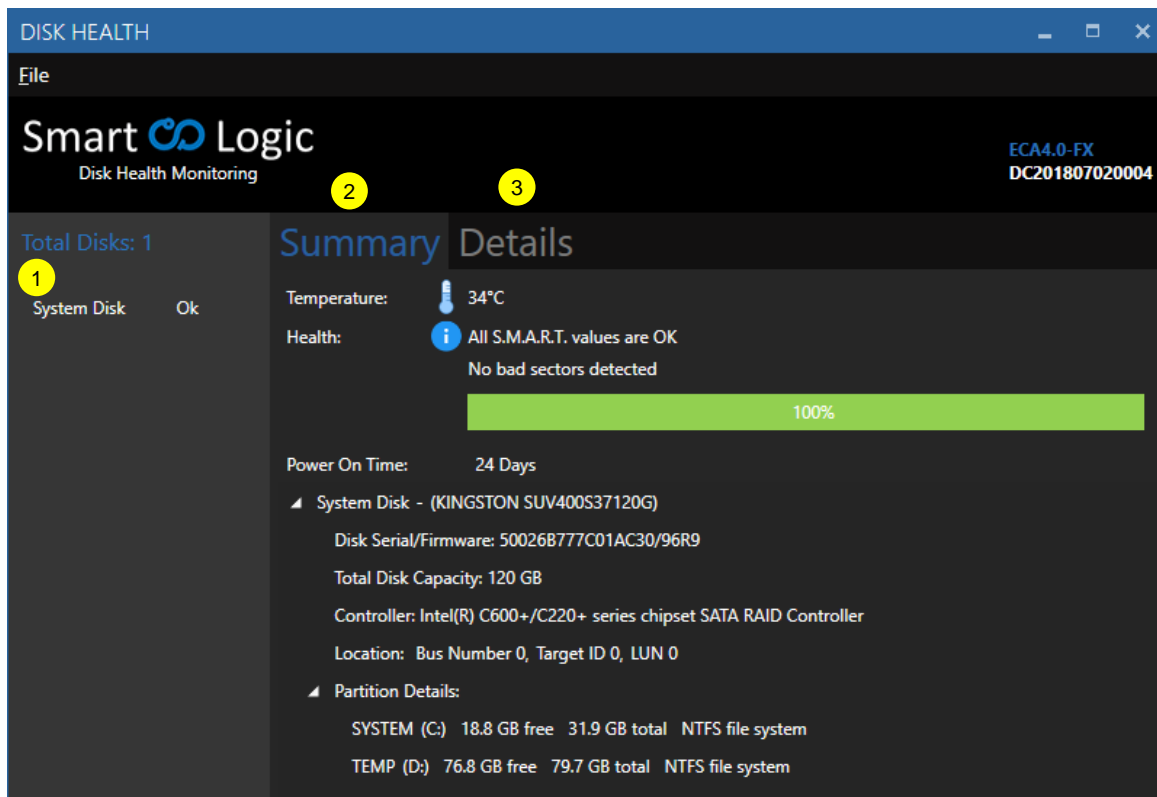
- 1 Set the minimum write hddisk activity value to trigger notification
- 2 Set the minimum read hddisk activity value to trigger notification
- 3 Set the notification if the activity below ratio by Notification on screen OR send via email
- 4 Graphical memory usage base on current setting

Not sure the value to be enter?

If user doesn't any idea on the value need to be enter, just press the 'Estimate'. The application will take 1 hour of data and display the value.

2. System Manager – SmartLogic – DiskHealth

Monitor disk health & set the periodically email sent frequency whenever detected the health below certain threshold



- 1 Show the total hard disk & status
- 2 Detail for selected disk
- 3 Attribute detail for selected disk

Type of Event:

Warning:

- Hard disk still safe to be used, recommend to change the hard disk

Critical:

- Please change the hard disk immediately

5 TrueBlue Remote Support

TrueBlue Remote Support is an online live support service backed by the professional TrueBlue Support team. This service allows our TrueBlue Engineer to remotely access the targeted ECA, and gain full control for troubleshooting, usually on software and OS related issues. Remote Support session works similar to Remote Desktop.

To establish TrueBlue Remote Support session, the targeted ECA

1. Must be connected to internet (check with your network administrator for appropriate settings);
2. Must be able to launch either in System Manager if the issue is Software or OS related; or
3. Must be able to launch in Layer Manager if the issue is OS related, example, cannot boot into Windows.

System Manager

To begin a TrueBlue Remote Support session in

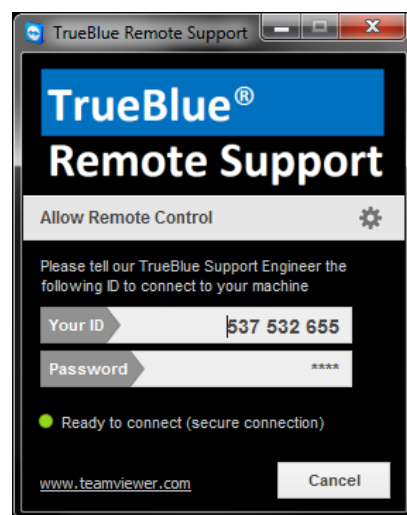
1. Call TrueBlue Support Line:
+60-3-8090 8088;
1. Insert Security key into any USB port on the ECA;
2. Press the “TrueBlue Quick Support” button;
3. Inform the ID number and password (if any) shown on the TrueBlue Quick Support window to the TrueBlue Engineer over the phone call.

Layer Manager,

To begin a TrueBlue Remote Support session in

1. Call TrueBlue Support Line:
+60-3-8090 8088;
1. Insert Security key into any USB port on the ECA.;
2. Power Up the ECA;
3. While in Layer Manager, log in to SI Mode (*Refer page 13*)
4. Press the “TrueBlue Quick Support” button;
5. Inform the information as below to TrueBlue Engineer over the phone
 1. ID number
 2. password (ignore)

TrueBlue® Support



TrueBlue Engineer will keep you informed via phone call when they are done with the troubleshooting.

4.4 Notification Setting

The screenshot shows the 'Settings' window with the 'Notification' tab selected. The 'Recipients' section contains the following fields and controls:

- Mail Server:** A dropdown menu set to 'SmartLogic Mail Server' (callout 1).
- From:** A text input field containing 'wilson-sl@gsf.com.my' (callout 2).
- To:** A text input field containing 'trueblue@gsfcorp.com' (callout 3).
- CC:** An empty text input field (callout 4).
- BCC:** An empty text input field (callout 5).
- Prefix Subject:** A checked checkbox followed by a text input field containing '[%DC%]'.

At the bottom right, there are two buttons: 'Save and Send Test Email' and 'Save'.

- 1 Notification toggle
- 2 Primary email to receive notification
- 3 Carbon copy email to receive notification
- 4 Set front prefix subject for easier to recognize from which ECA the notification receive from
- 5 Send test email to recipient

How to add multiple email address? email@email.com, email2@email.com, email3@email.com
Example 'Subject Prefix': SVR1blockA, NVR@Factory B.

6. Layer Manager

Layer Manager is the second management mode on the Embedded Security Key that allows its user to perform administrative tasks to its paired ECA, such as Soft Reset, Hard Reset (Factory Default) and Save Deploy layer.

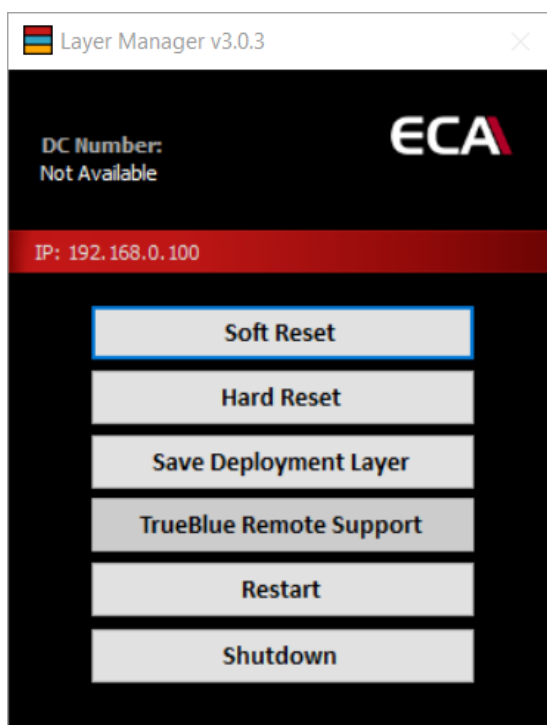
Accessing to Layer Manager

Access Layer Manager mode on OFF-STATE

1. Insert the Security Key to any USB port on the ECA
2. Power On the ECA.

Access Layer Manager mode from Windows

1. Insert Security key front USB port on the ECA
2. Click '**Layer Management**' menu on System Manager
3. Remove the key from USB port & ECA will reboot



Soft Reset

Reset the ECA to Deployment Layer
(Layer previously saved by user)

Hard Reset

Reset the ECA to Factory Layer
(Layer previously saved by manufacturer)

Save Deployment Layer

Save/Overwrite current Deployment Layer

TrueBlue Remote Support

Reset the ECA to Deployment Layer
(Layer previously saved)

Restart

Reboot the NVR

Shutdown

Shutdown the NVR system

7 Heartbeat





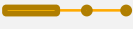
Heartbeat is a round the clock hardware safeguard. Its micro controller overlooks the whole hardware platform to ensure continuous operation even in the event of critical breakdown.

In the event the server failed, it will send help signal via digital I/O or can be connect to CMS Alarm.

In what event the HeartBeat will react?

- Unauthorized Shutdown:** The HeartBeat will reboot the ECA
- Unauthorized Power Unplug:** HeartBeat will produce beep tone (Tone Pattern 5)
- ECA hang:** HeartBeat will force restart the ECA after 2 minutes no respond
- Blue screen:** HeartBeat will force restart the ECA after 2 minutes no respond

7.1 HeartBeat Behavior

Beep Tone Pattern	Repeating Interval	ECA scenario	Description
1 	No repeat	•ECA OFF •In OS/BIOS	•Shutdown/Power Cut detected •HeartBeat initiate reboot
2 	20s	•ECA OFF •ECA ON	•Low HeartBeat battery ¹ •HeartBeat failed to reboot
3 	No repeat	ECA Rebooting	HeartBeat initializing after first reset .
4 	No repeat	ECA Rebooting	HeartBeat establish USB link.
5 	10s	•ECA OFF •ECA ON	•Unauthorized power unplug ² •Unauthorized ECA reboot more than 3 times ³

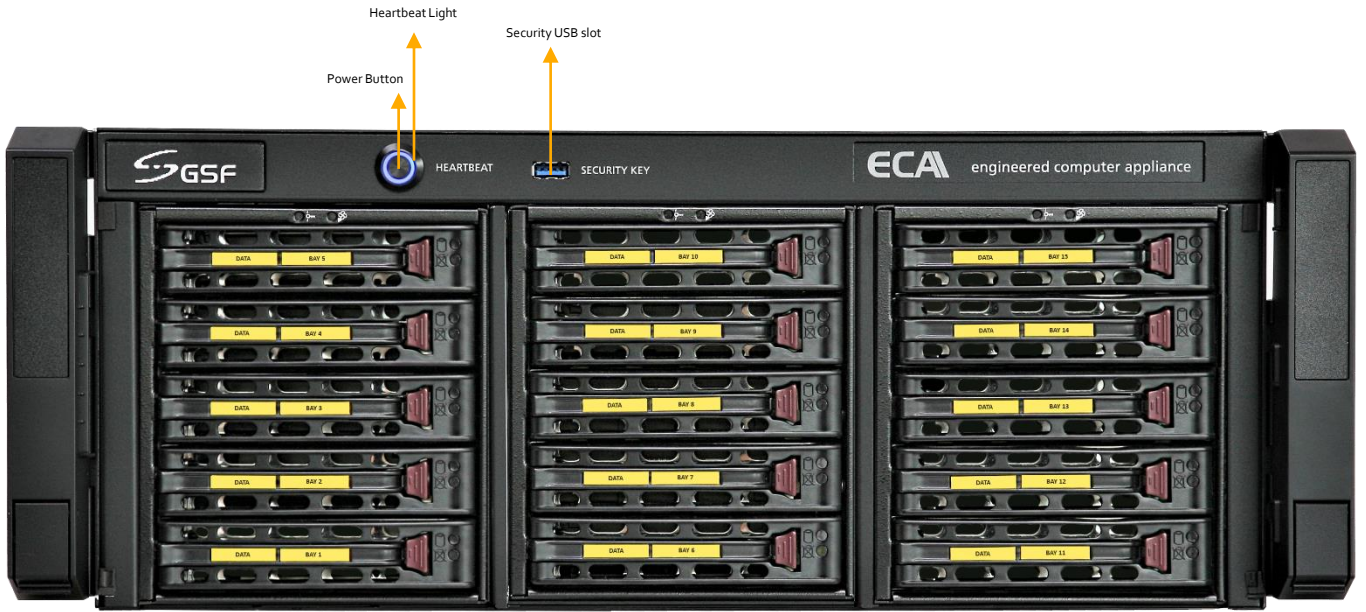
^{1, 2} Power ON the ECA will mute the beep tone

³ Shutdown the ECA will mute the beep tone (This doesn't apply to AC power cut)

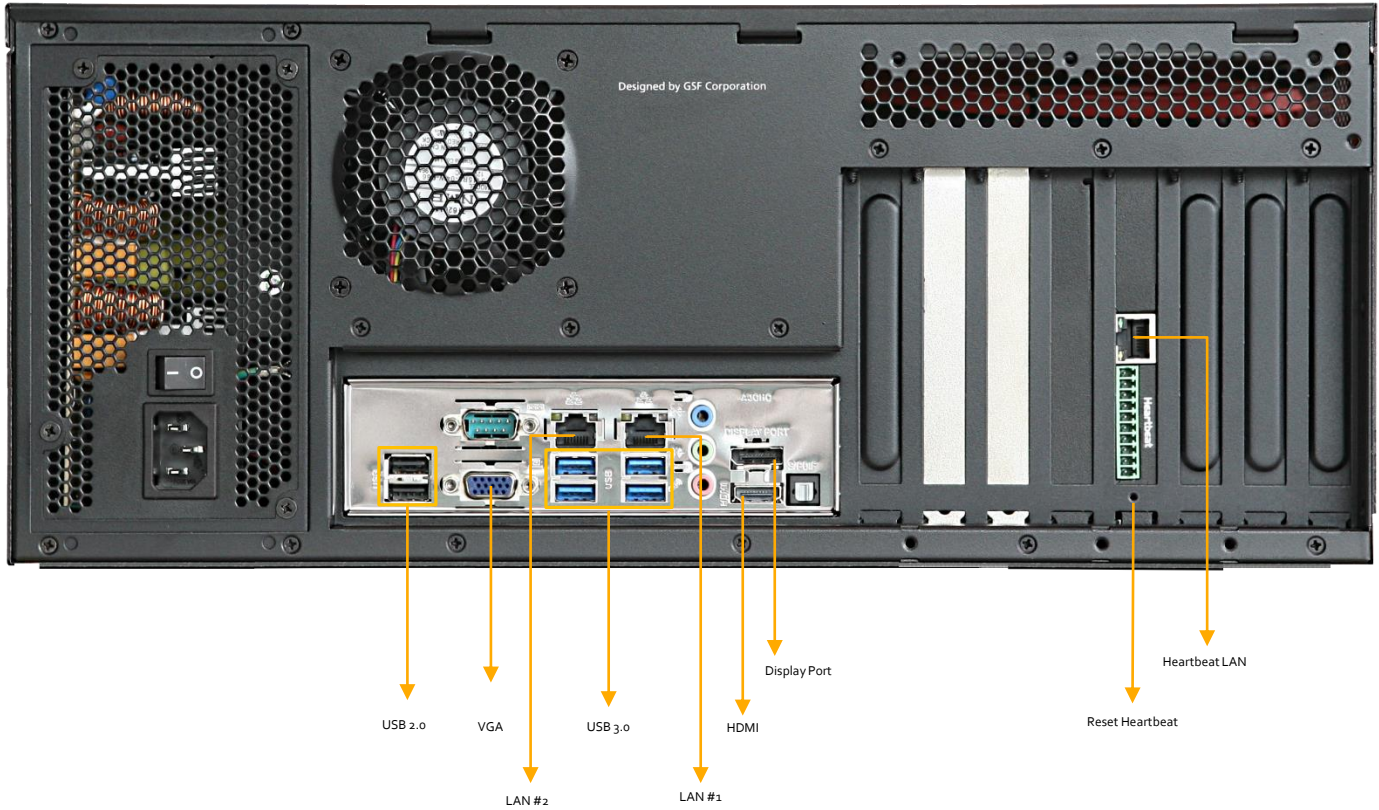
7.2 ECA power LED indication

LED Status	ECA scenario	Description
Slow glow and dim	System running in OS	•HeartBeat operating normally
Blinking	•ECA OFF •ECA rebooting •System running in OS	•Low HeartBeat battery •ECA in rebooting status • Heartbeat not ready

8.1 HY & FX Series System Interface



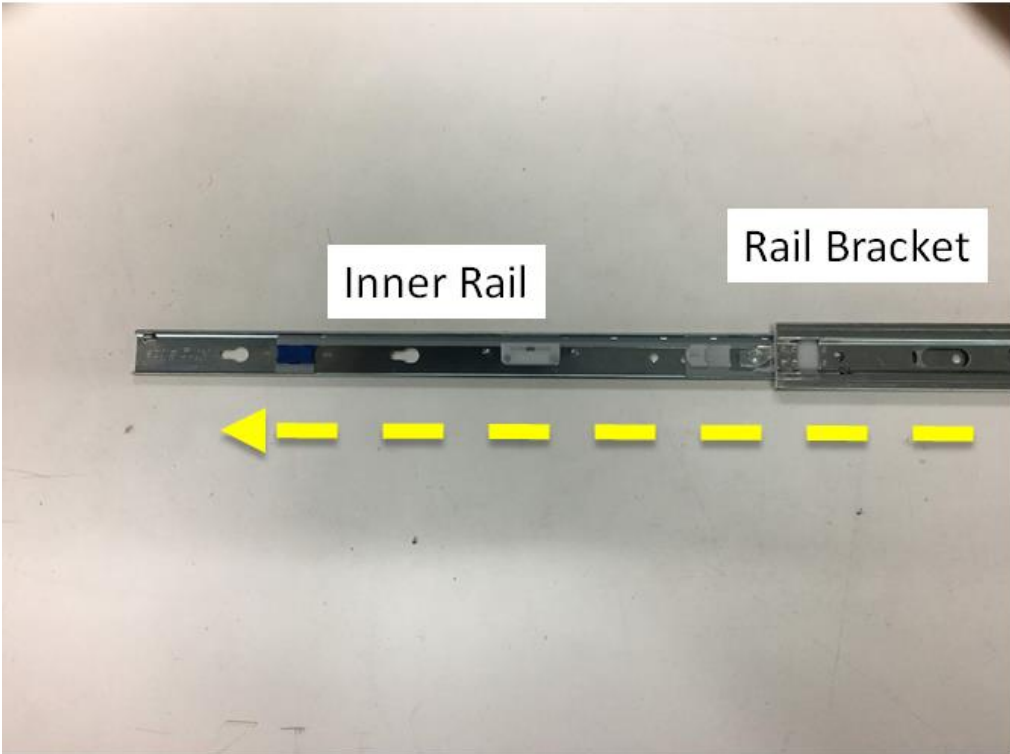
Front View



Rear View

9.0 Install Slide Rails On the ECA4.0 series chassis

Disassemble Bolt-On Slide-Rails

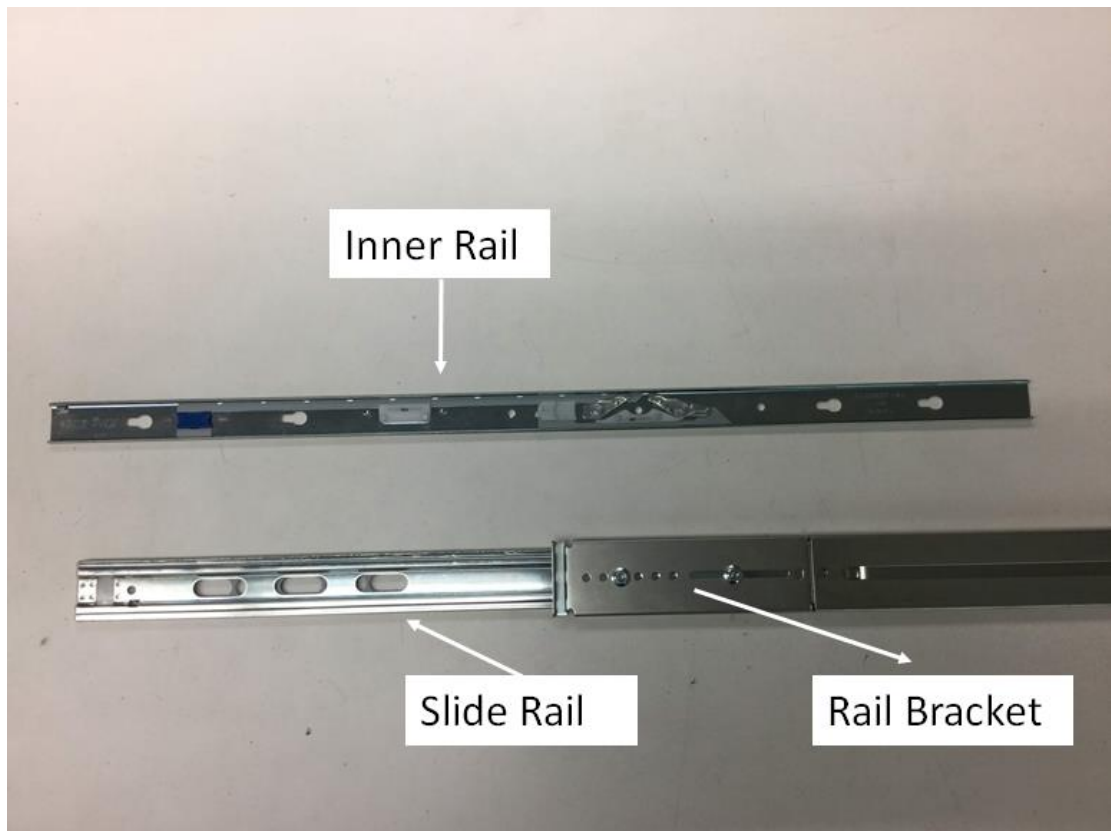


Fully extend **Slide Rail** so that **Inner Rail** segment is protruding.



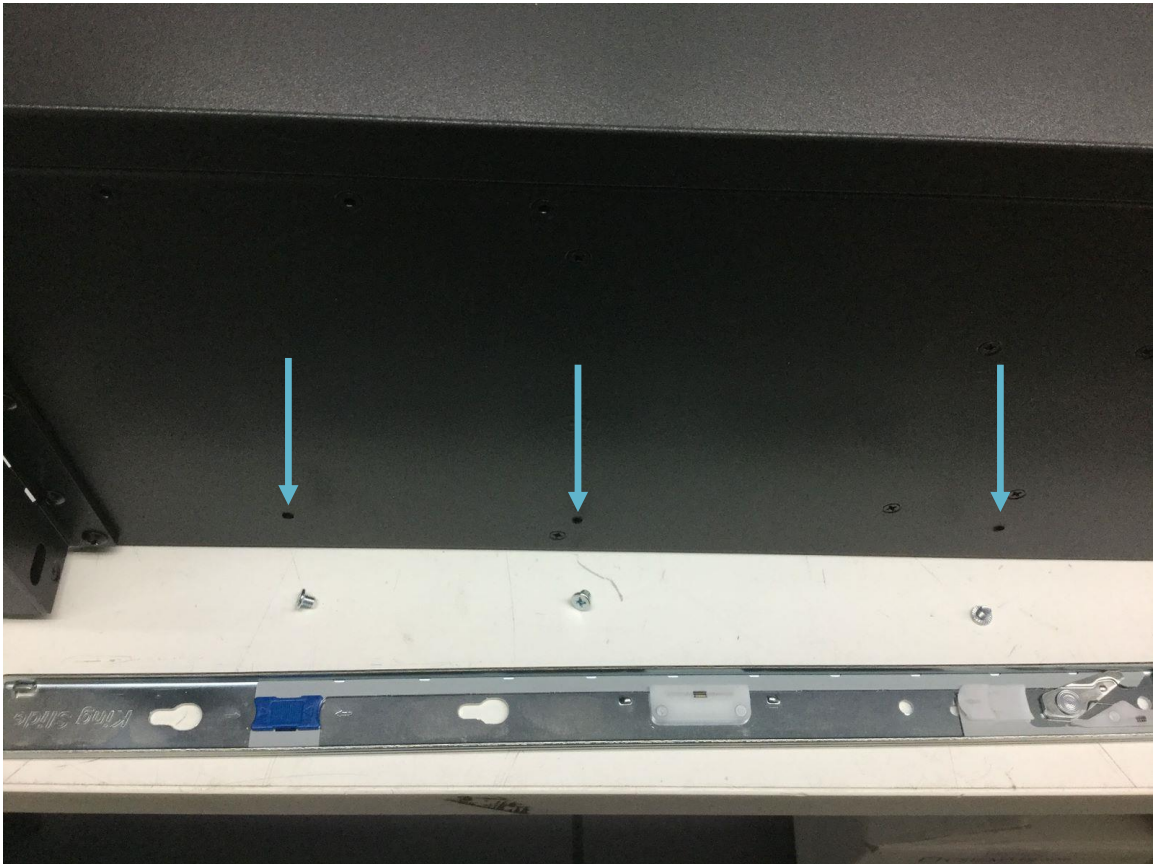
Pull the **Inner Rail** segment away from the rest of the **Slide Rail** to detach it.

8.1 Install Slide Rails On the ECA4.0 series chassis



Detached **Inner Rail**

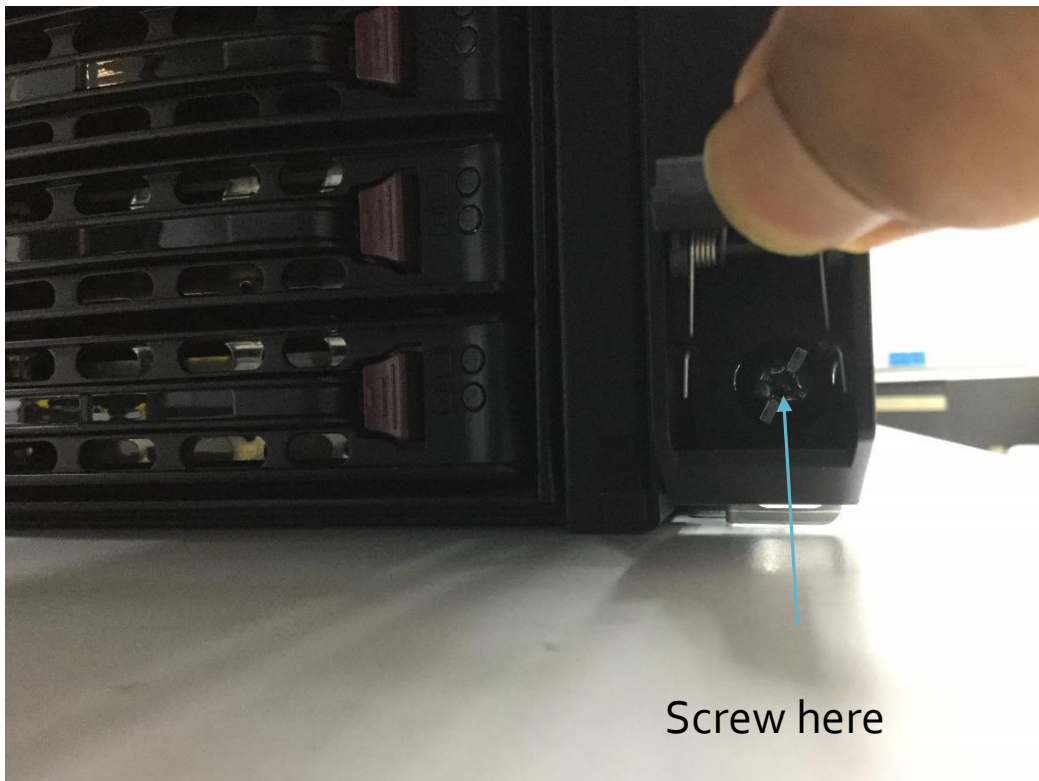
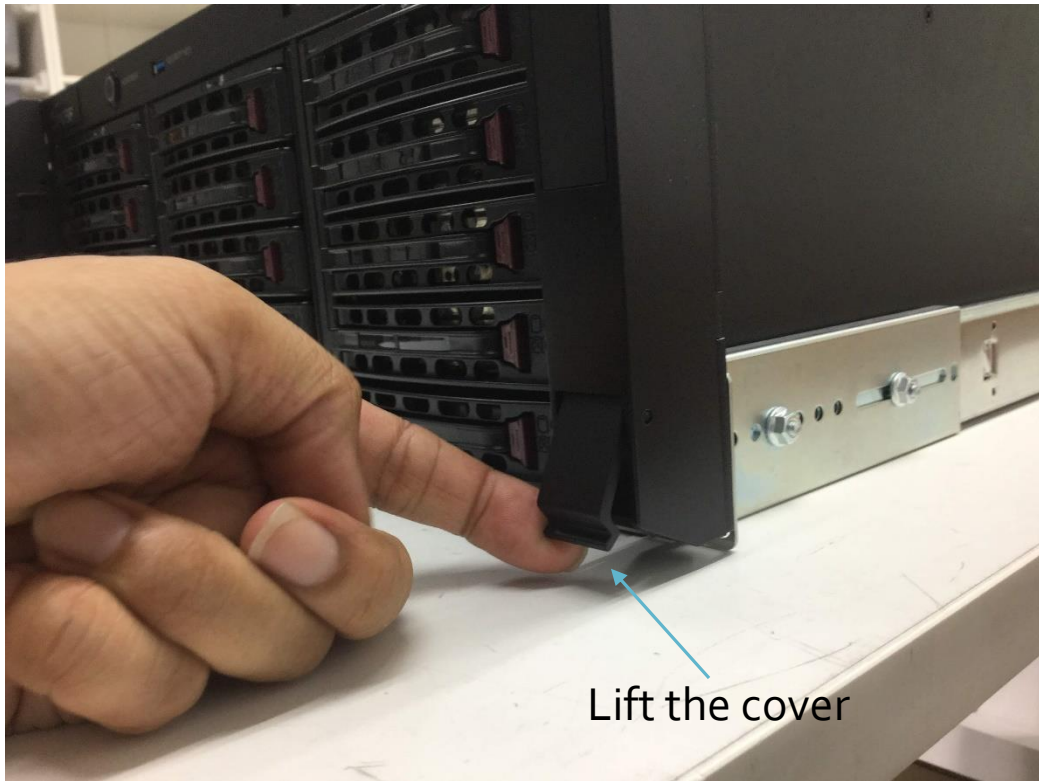
8.1 Install Slide Rails On the ECA4.0 series chassis



Attach Inner Rail to chassis



8.1 Install Slide Rails On the ECA4.0 series chassis





GSF Coporation

Unit 21, Level 3A, IOI Boulevard, Jalan Kenari 5, Bandar Puchong Jaya, 47170 Puchong, Selangor D.E., Malaysia.

Tel: +603 8090 8080

Email: info@gsfcorp.com Web: <http://www.gsfcorp.com>