ECA4.4 & ECAOS5.2

USER GUIDE

Version 1.0
09 March 2021

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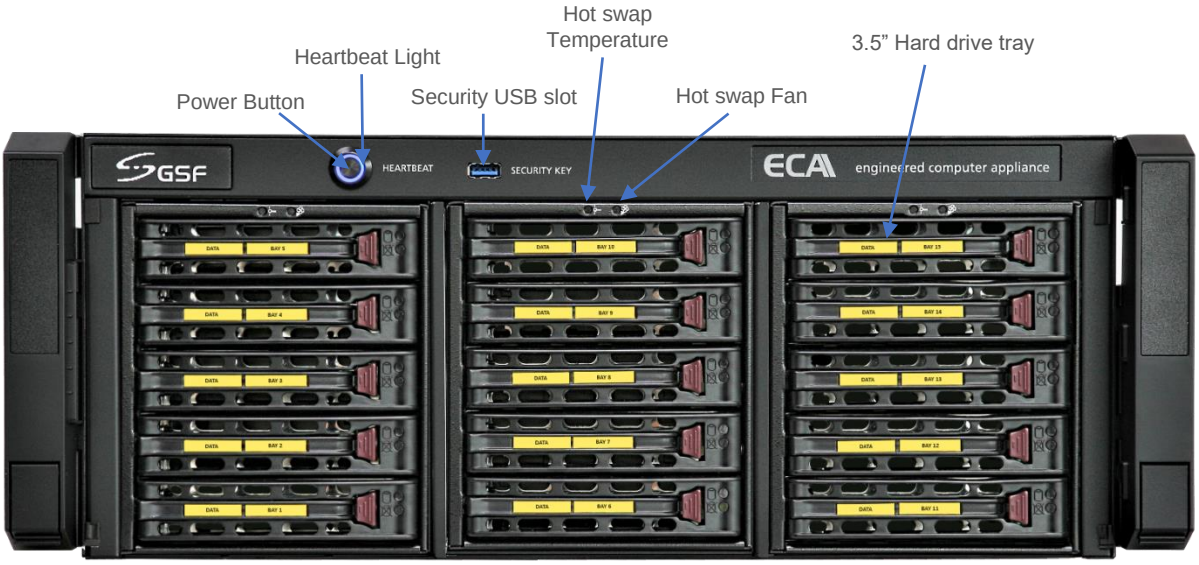
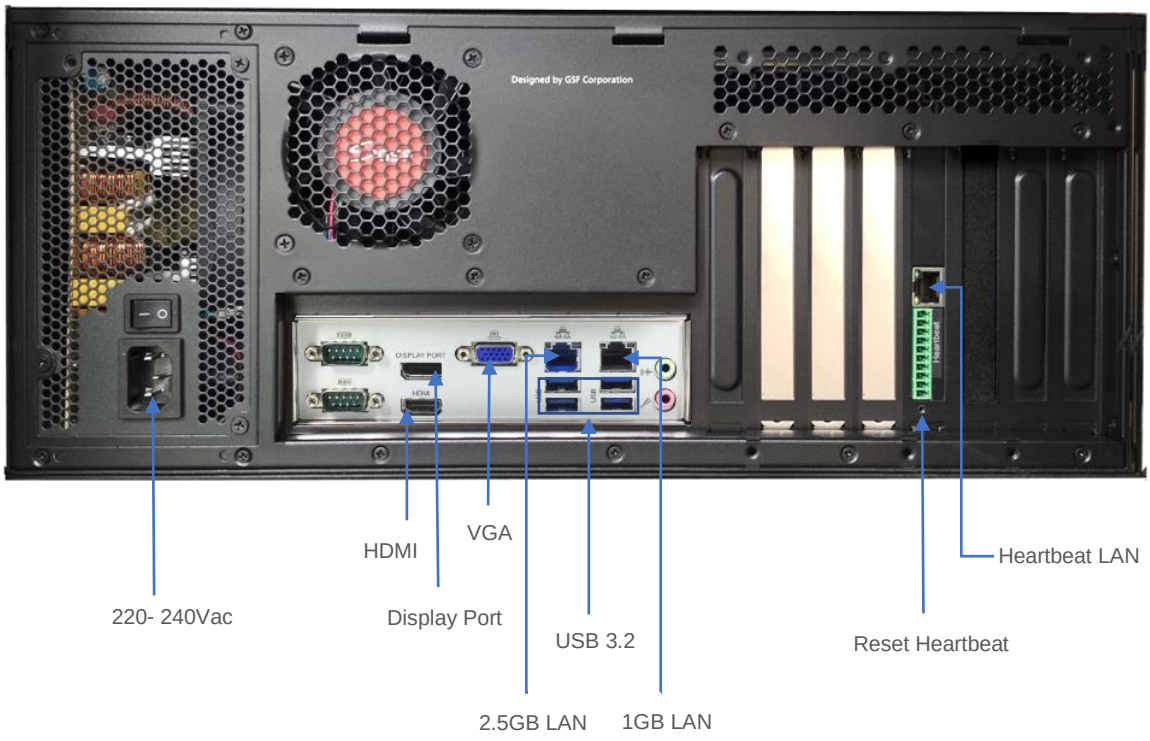
1 ECA4.4 (Hardware)

1.1 FX series



Power Button : Power button ECA
Heartbeat light : ECA operational indication
Security USB slot : This port for security key use to call ‘System Manager’
Hot swap Temperature: The LED will light up if the temperature above 53°c
Hot swap fan: The LED will light up if no hot swap fan detected or not functioning



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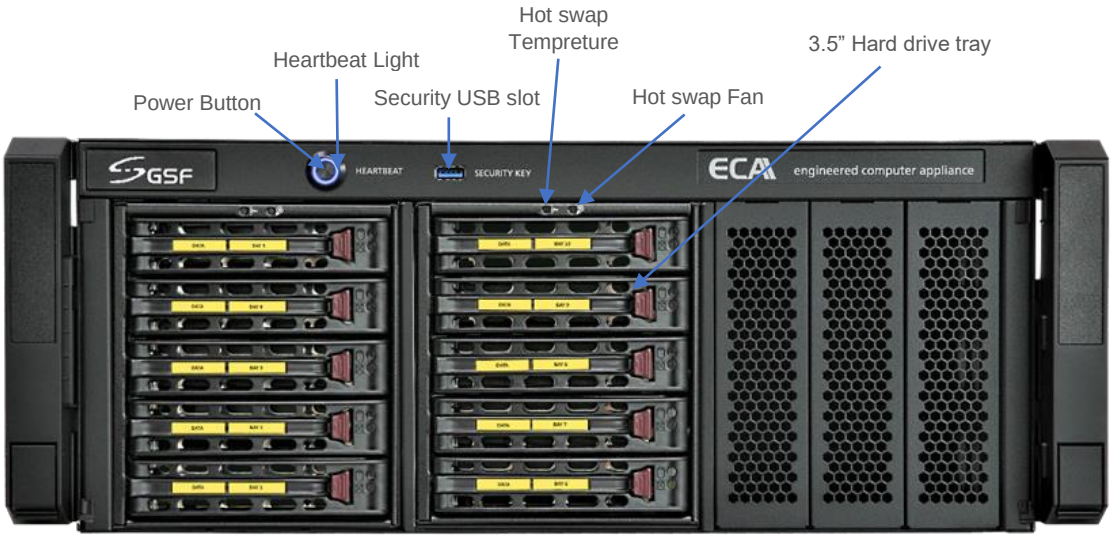
1.2 EX Series



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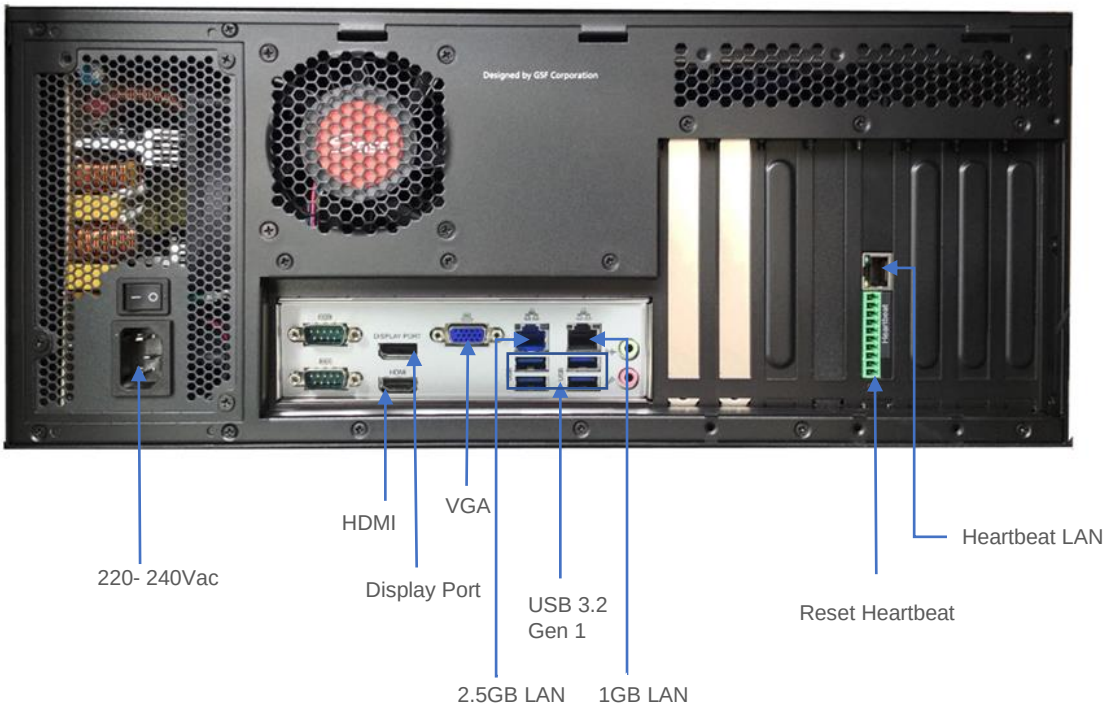

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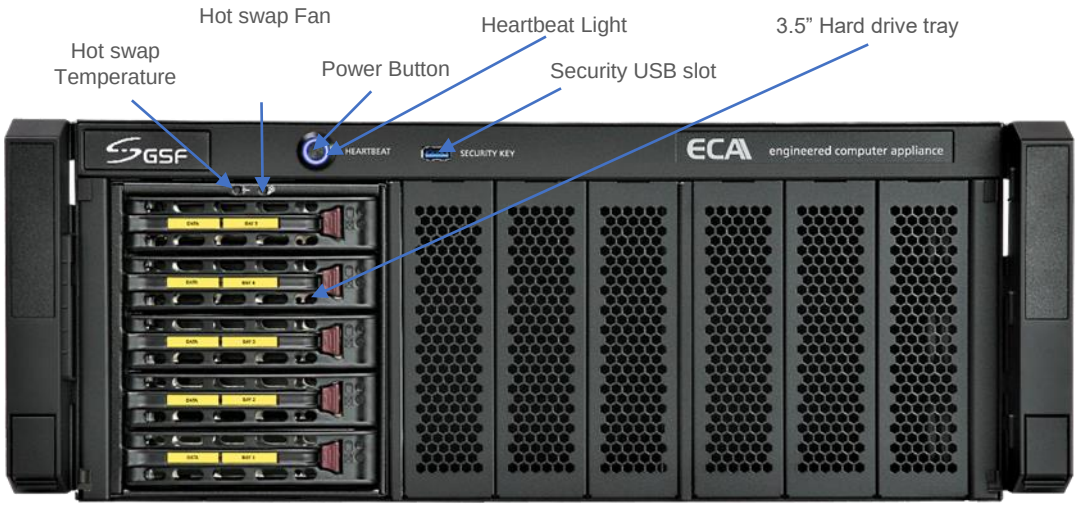
1.3 DX Series



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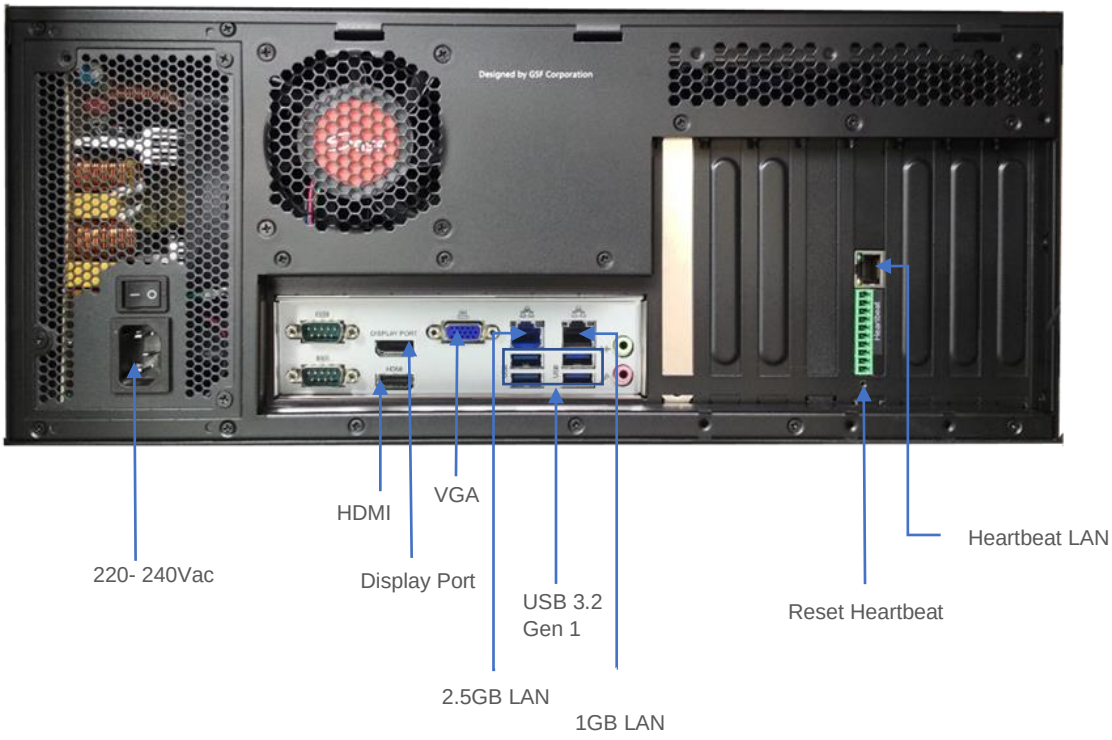

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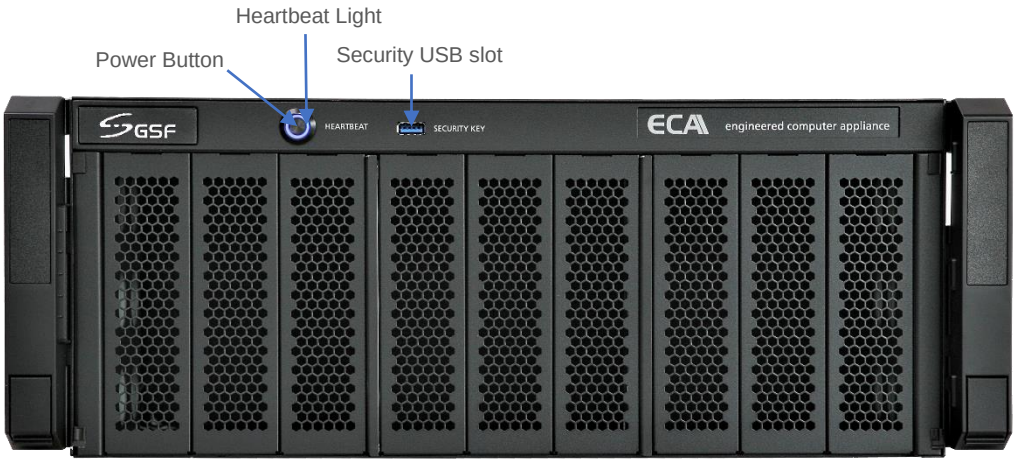
1.4 MX Series



Power Button : Power button ECA
Heartbeat light : ECA operational indication
Security USB slot : This port for security key use to call 'System Manager'
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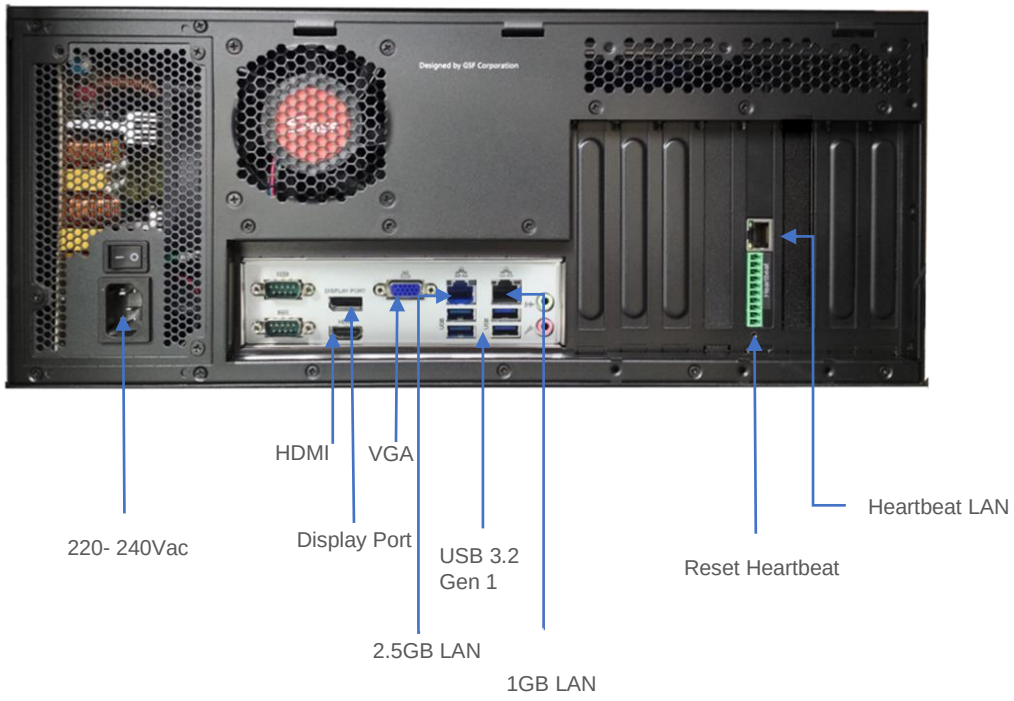

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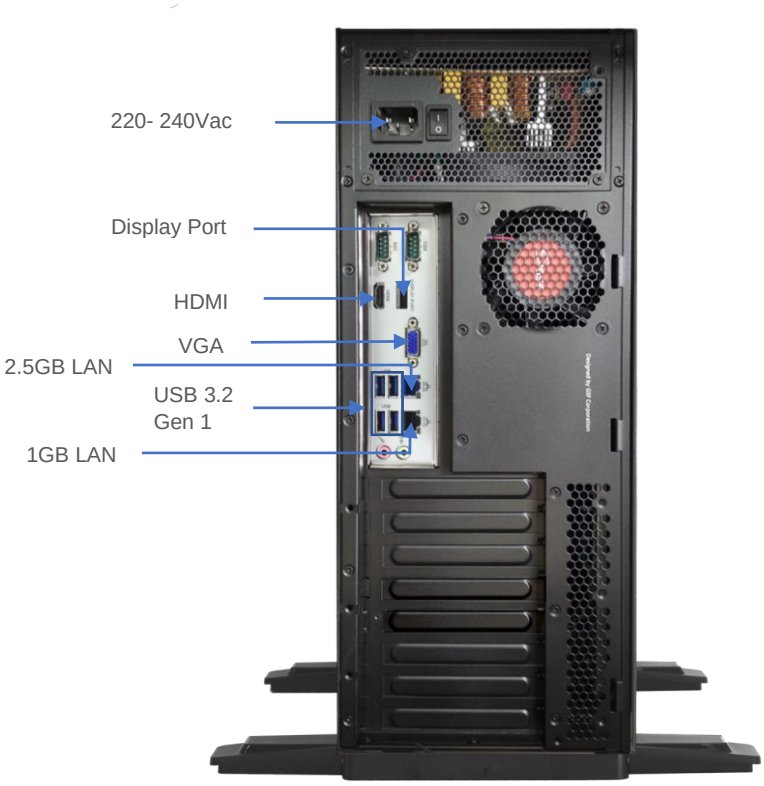
1.5 VW Series



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1.6 Security Key

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.

The Security key is used to gain access to ‘System Manager’.
Virtual Access Code :
Virtual Access Code gain access to ‘System Manager’ without need security key. ‘Google Authenticator’ is required to install on your device such as phone or tablet.

When to use Virtual Access Code?

- Access ‘System Manager’ but no Security Key.
- Access ‘System Manager’ remotely access ECA from another desktop.

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1.7 HeartBeat

i. What is HeartBeat?

HeartBeat is around 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.

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.

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

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ii. HeartBeat Alert

	Beep Tone	Tone Description	Repeating Interval	ECA State	Scenario
1		Normal event	No repeat	ECA ON or OFF	Chassis closed.
				ECA ON	ECA powering up
				ECA OFF	1. Expected AC power loss. 2. AC power resumed. 3. Authorized shutdown
2		Bad event	No repeat	ECA ON	1. ECA failed to enter ecaOS after 15 minutes. 2. ecaOS not responsive for 2 minutes.
					1. Unauthorized shutdown
3		linked with ecaOS	No repeat	In ecaOS or Layer Manager	1. Heartbeat established link with ecaOS/Layer Manager.
4		Require human attention	10s	ECA ON	1. Repetitive ECA reboot (more than 3 times within half an hour)[1\] 2. Chassis opened (when not in Authorized Shutdown state)[2] 3. ECA failed to enter ecaOS (3 HB reboot attempts in 45 minutes)[1,3]
				ECA OFF	1. Unexpected AC power loss[4]

NOTE:

[1] Shutdown the ECA will mute the beep tone (Authorize or Unauthorize)
- Authorize shutdown: Shutdown the ECA via System Manager menu
- Unauthorize shutdown: Shutdown the ECA via OS shutdown or Force shutdown by long press Power button.

[2] Closing chassis cover will mute the beep tone
[3] Successful entered OS will mute the beep tone
[4] Resumed AC power to ECA will mute the beep tone

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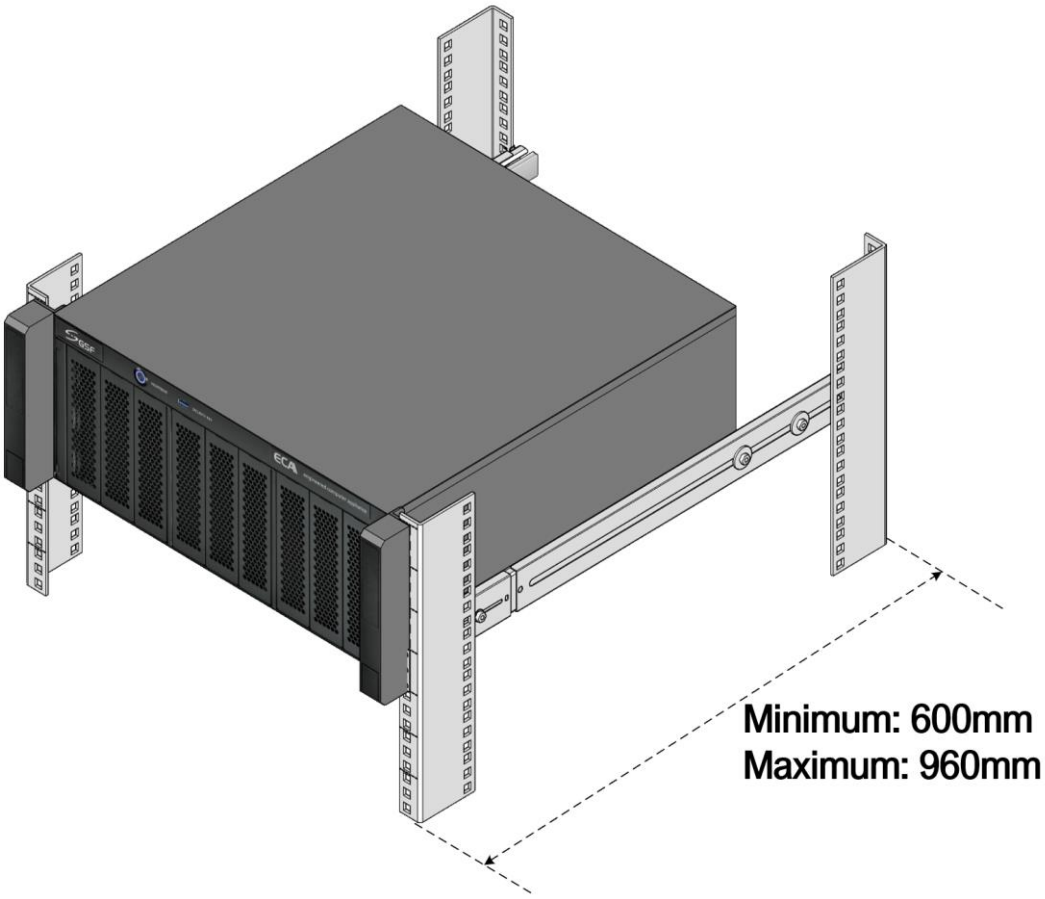
1.8 Rail

IMPORTANT NOTE

Before beginning with the installation, it is important to make sure that the ECA can fit into the equipment rack you are using. Use of improperly rack size may result in injury.

Minimum requirement[1] for equipment rack depth, front to rear vertical mounting column, is 600mm.



To avoid injury, it is strongly recommended the installation to be done by TWO persons.

[1]*Based on slide rail part number: King Slide 3A68-584BPZZ11ED.*

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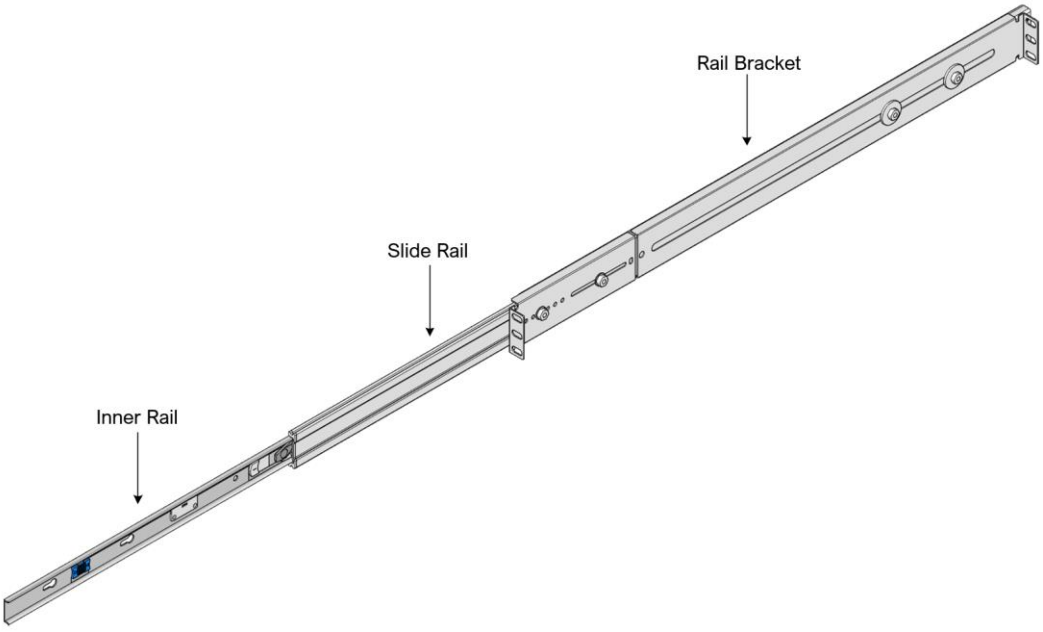
1.8.1 Package Content

Content	Description	Quantity
	Sliding rail assembly	2
	CH Screw	2
	SL Screw	8
	CL Screw	6
	RK Nut	10

1.8.2 Sliding Rail Assembly

The Sliding Rail assembly is comprised of 3 parts:

- Inner Rail
- Slide Rail
- Rail Bracket



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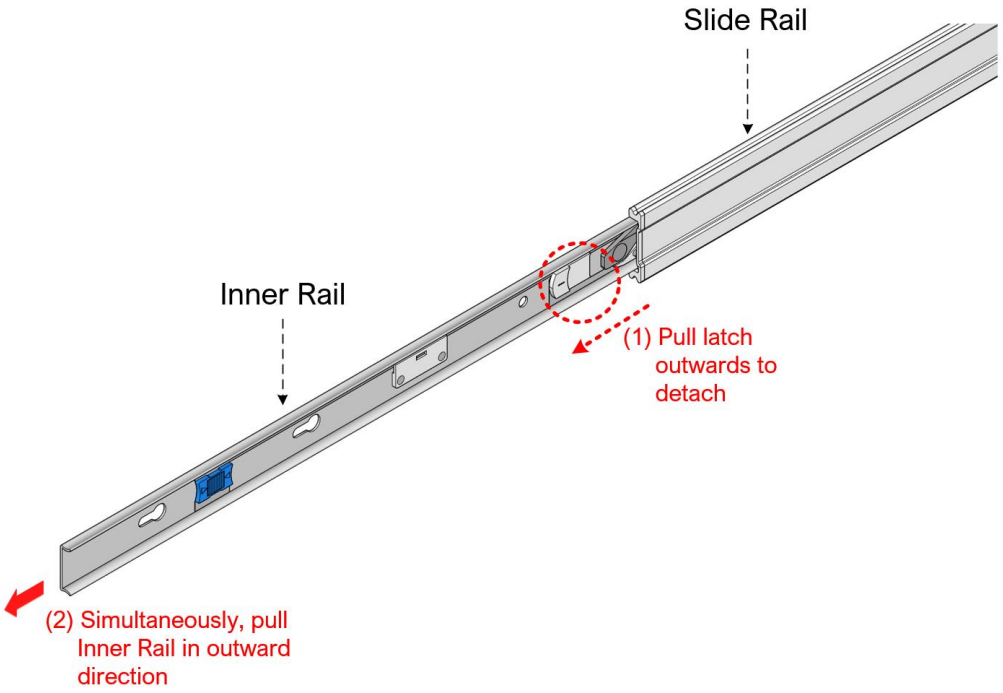
1.8.3 Installation Steps

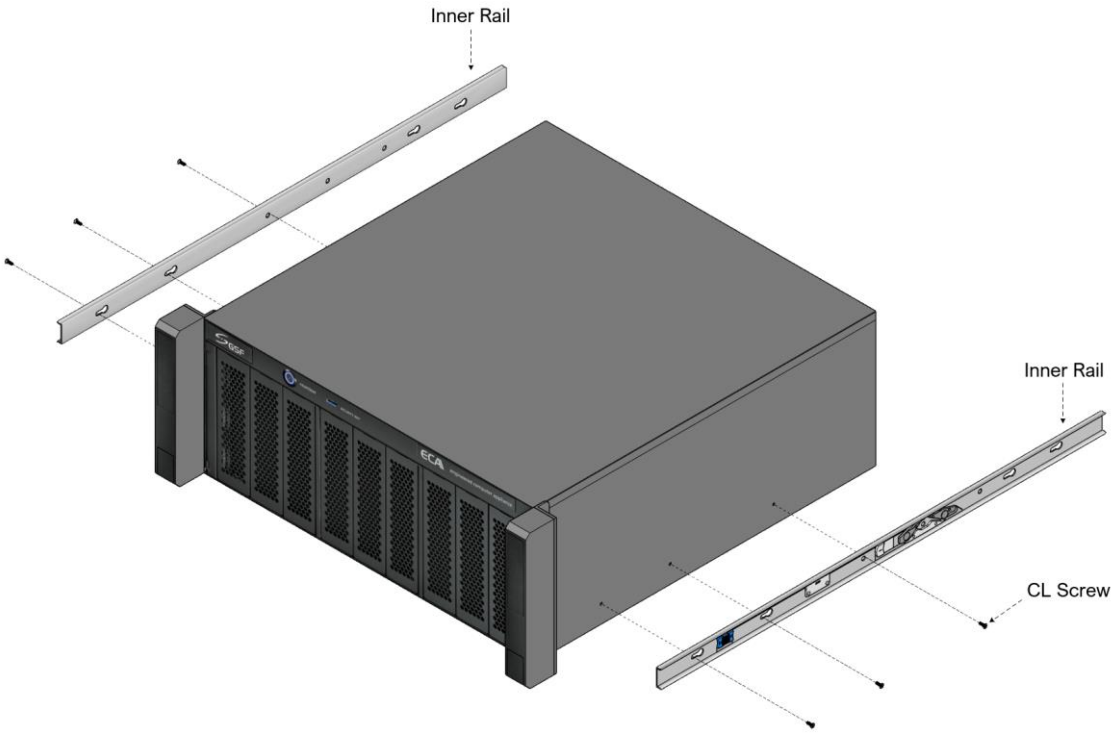
Step 1: Detach the Inner Rail from the Sliding Rail assembly.

Extend the parts of the Sliding rail to reveal the WHITE color latch on the Inner Rail.
Pull and hold the **WHITE** color latch outwards, while simultaneously pulling the Inner Rail in outward direction. This shall remove the Inner Rail from the assembly.



DO NOT remove the Slide rail from the Rail assembly. It is **NOT removable**.

Step 2: Attach Inner Rail to ECA Chassis.



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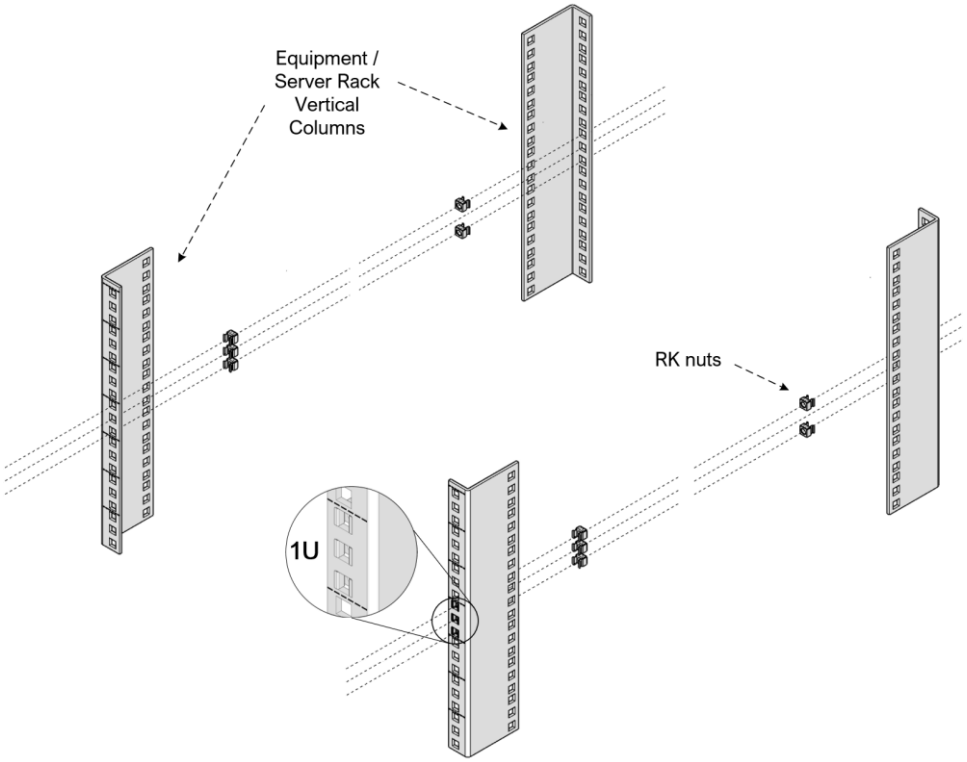
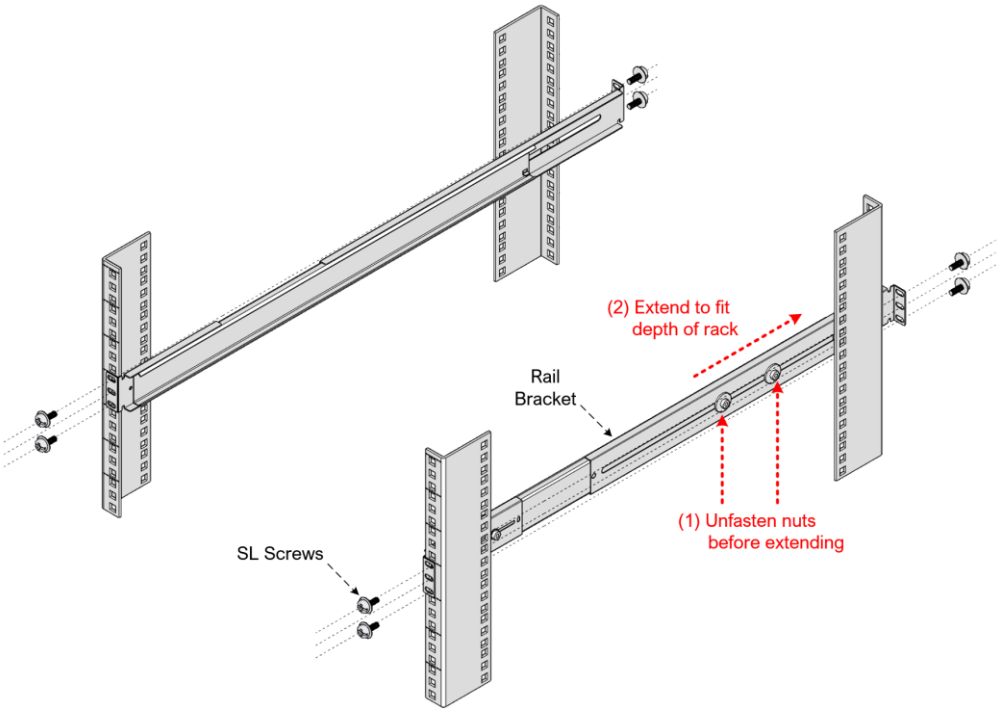
Step 3: Insert the RK nuts to Equipment Rack or Server Rack.

- **Before inserting the nuts, make sure to reserve total 4U height and spacing for every ECA.**
- **The Sliding Rail is attached to the lowest 1U on the ECA.**
- **Ensure above the sliding rail, there is another 3U clearance space for the ECA.**
- **Take note of proper and correct spacing for 1U height.**



Step 4: Install the Rail Brackets to the Equipment rack or Server Rack. Place the Rail Brackets to the same level as the RK nuts, inserted in the previous step. Use SL screws and fasten them to the nuts. For the front, **DO NOT fasten any screw to the middle nut**. The middle nut is reserved for fastening the ECA.



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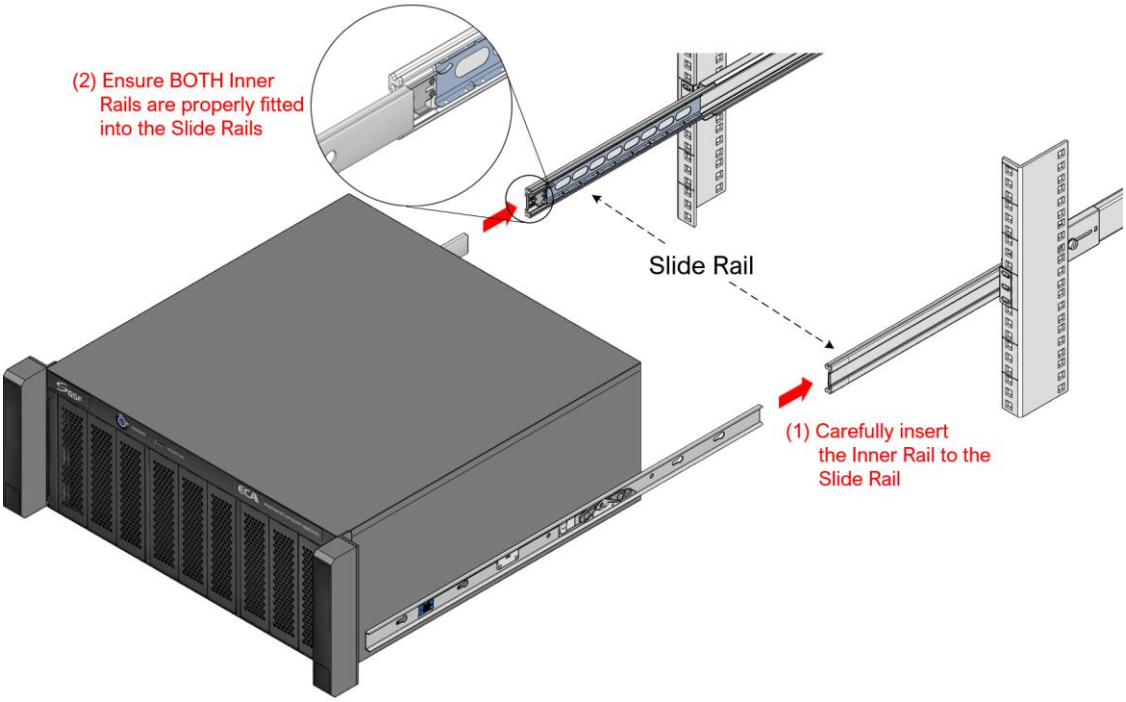
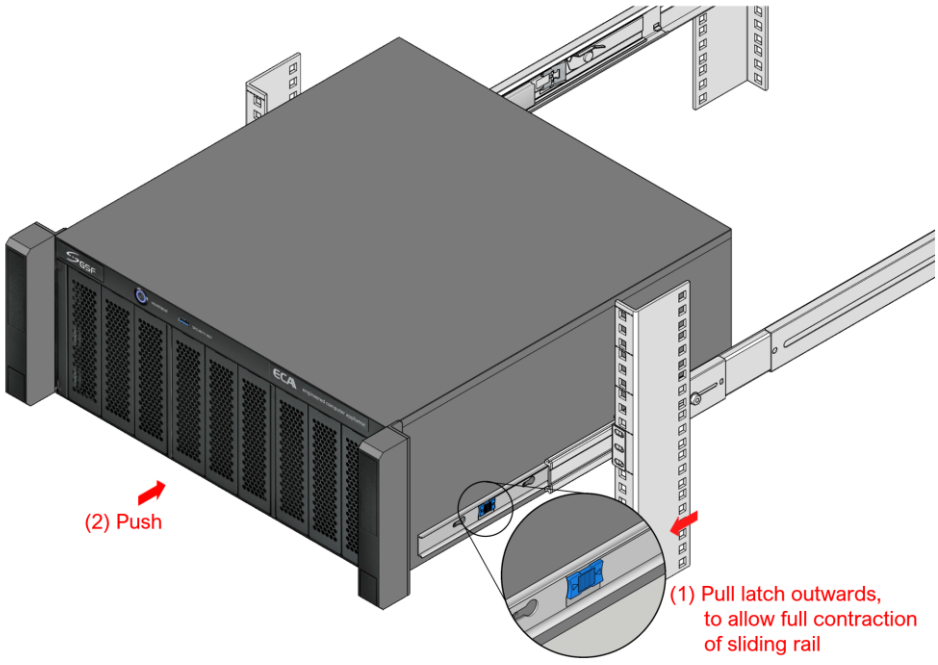
Step 5: Carry the ECA, which now has the Inner Rails attached, and ensure both Inner Rails are securely inserted into the Sliding Rail.



Step 6: Push the ECA inwards to the rack until the mounting brackets encounter the slide-rail stop. Then, simultaneously pull and hold the **BLUE** latch on the Inner Rail, while pushing the ECA inwards. This will fully contract the whole Sliding Rail assembly.



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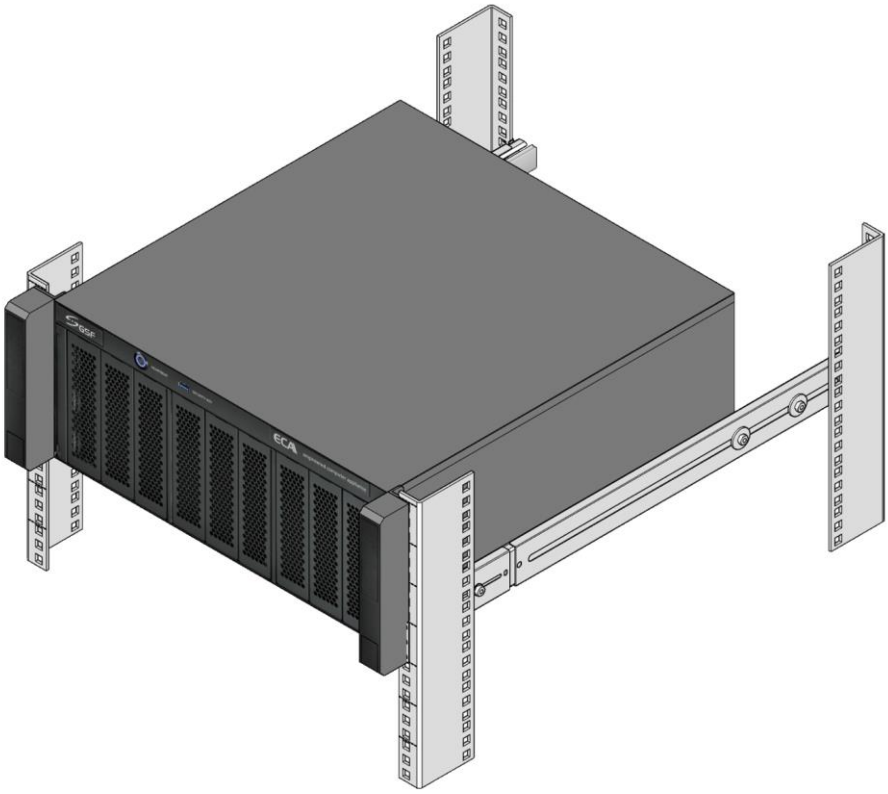
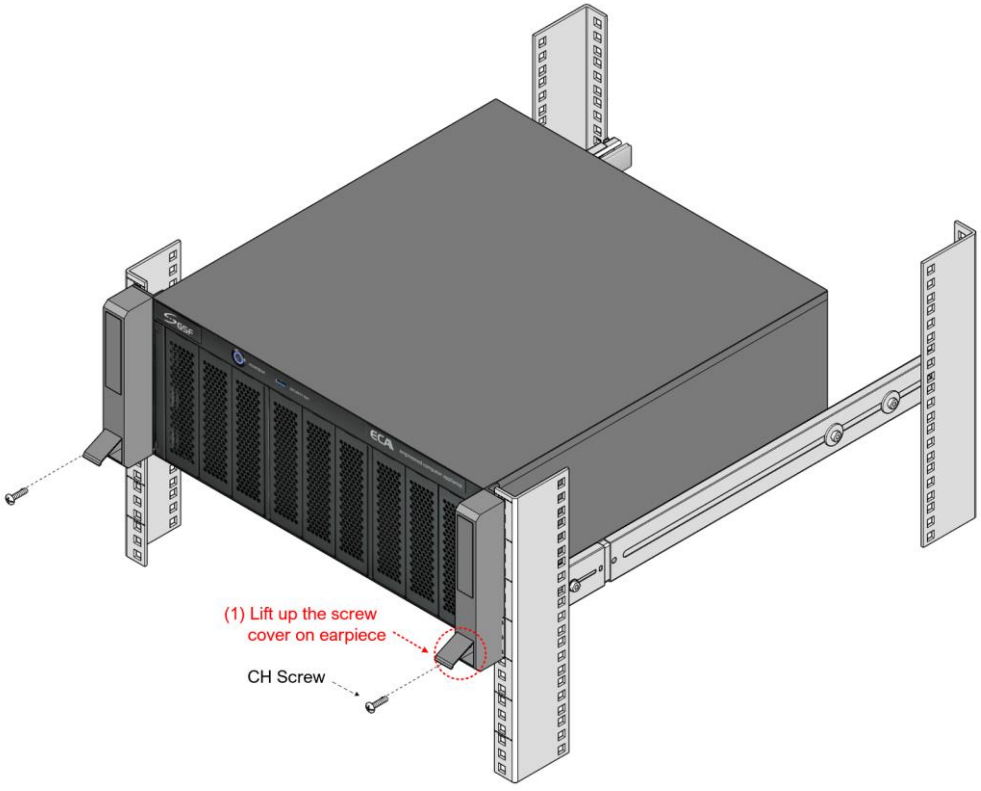
Step 7: The ECA, with the Sliding Rail at full contracted position, shall look like this:



Step 8: Lift the screw cover on the earpiece of the ECA. Fasten ECA to the Sliding Rail using the CH Screw.



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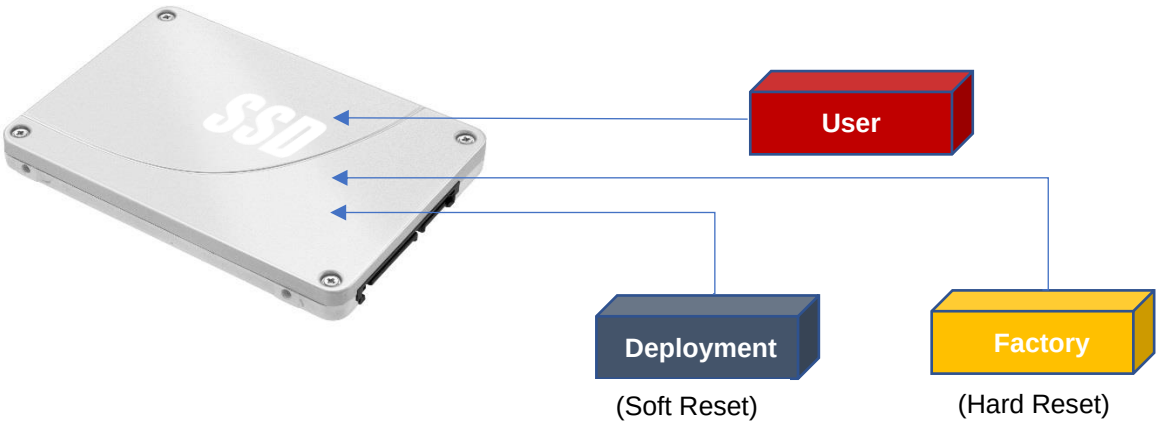
2 ECAOS

2.1 ecaOS Login Screen

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



1) **User Layer** *(Current working layer)*
   This 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)
2) **Deployment Layer** *(Backup layer)*
   This is a good working state layer, usually saved by System Integrator with pre-configured NVR & camera settings
3) **Factory Layer** *(Backup layer)*
   This is a good working state layer, with original default settings shipped from factor

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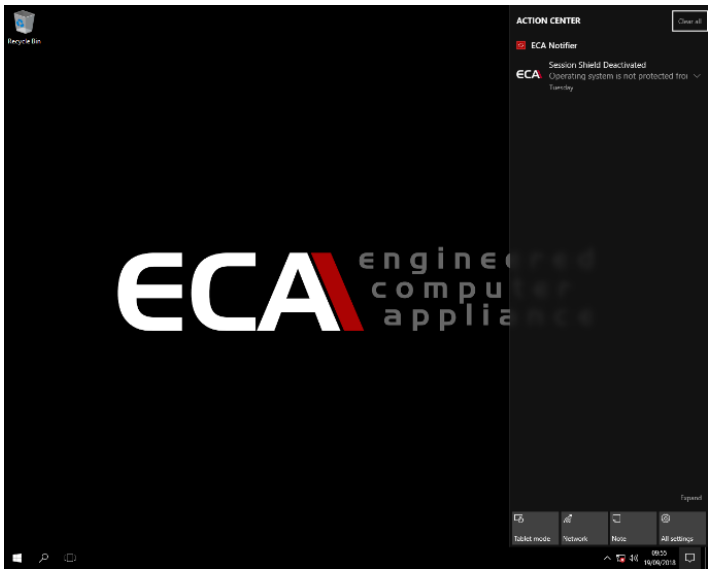
2.2 Notifications

a. By default, ECAOS will lock at login screen.

b. Username: localadmin Password: password123

c. The default repository for Session Shield and SmartLogic related notifications.



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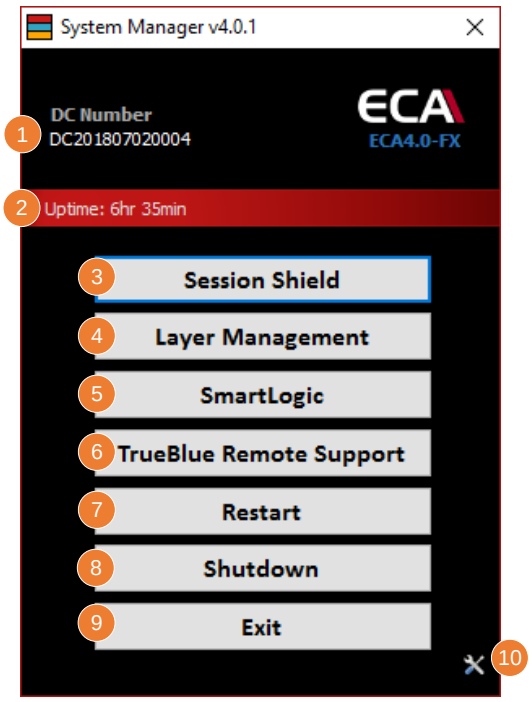
2.3 System Manager

'System Manager' is the main menu for all features offered in ecaOS.



1. **ECA Digital Certificate**.
   Each of ECA come with their own unit serial number.

2. **NVR Run Time.**
   This is the time counter to indicate system Run time

3. **Session Shield**
   Protect 'C:\' partition.

4. **Layer Management**
   Reboot the NVR into Layer Manager for System Restoration or Backup purpose

5. **SmartLogic**
   Hard disk Health, Network monitoring , Application monitoring

6. **TrueBlue Remote Support**
   Remotely support ECA system via Internet

7. **Restart**
   Reboot ECA

8. **Shutdown**
   Shutdown the ECA

9. **Exit**
   Exit System Manager

10. **Setting**
    Notification setup

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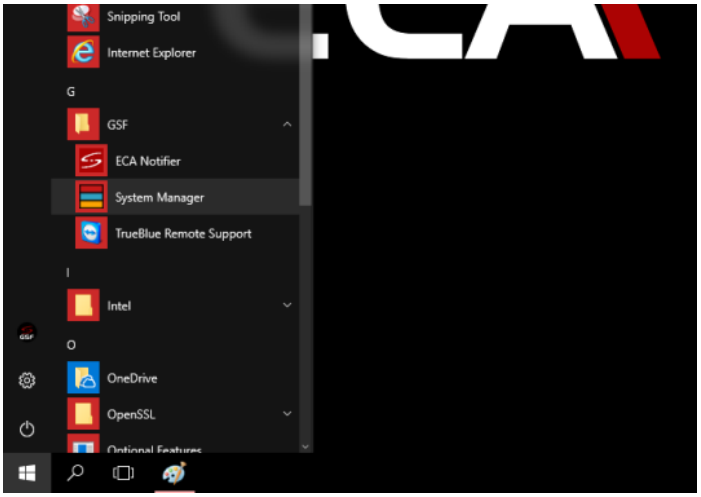
How to run ‘System Manager?

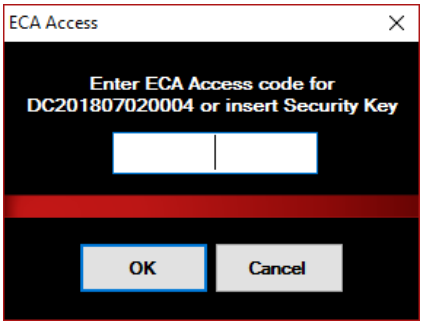
There is 2-way to run ‘System Manager’ menu

- Insert Security key to Security Key USB port

- Via Windows menu (require Virtual Access Code)
    1. Click no ‘Windows Start’ icon
    2. Go to ‘GSF’ and click on ‘System Manager’



1. ‘ECA Access’ code is require to gain access to ‘System Manager’ if no security key



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Virtual Access Code :
Virtual Access Code gain access to ‘System Manager’ without need security key. ‘Google Authenticator’ is required to install on your device such as phone or tablet.

When to use Virtual Access Code?

- When would like to access ‘ System Manager’ but no physical ‘Security Key’
- When would like to access ‘ System Manager’ remotely access ECA from another desktop

How to get Virtual Access Code?

- Go to *‘Google Play’* for Android OR *‘App Store’* for IOS
- Search for **‘Google Authenticator’** and install

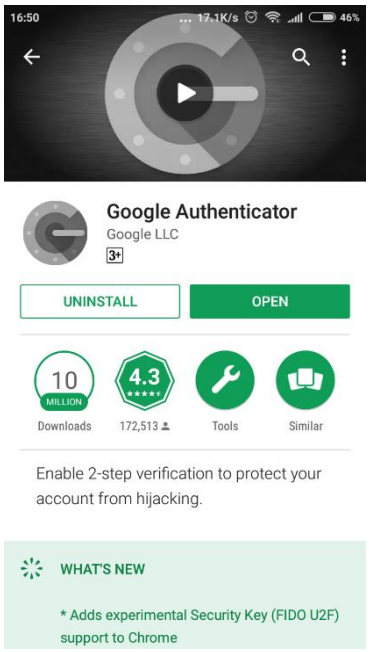

Figure 1: Google Play

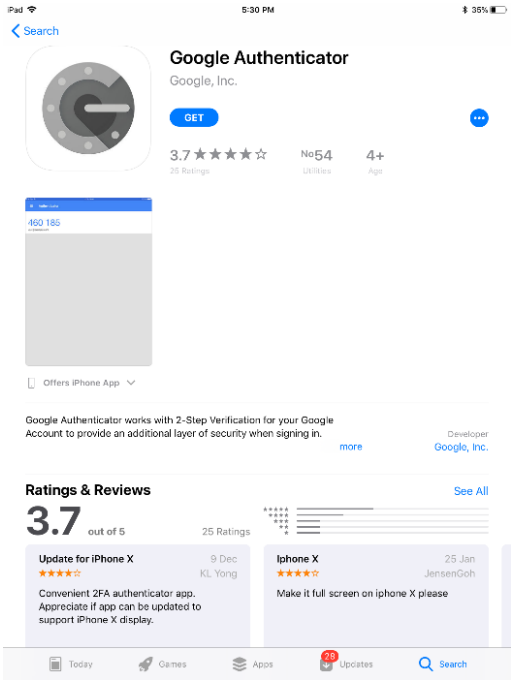

Figure 2: App Store

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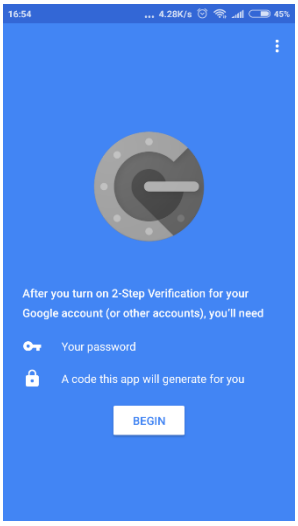
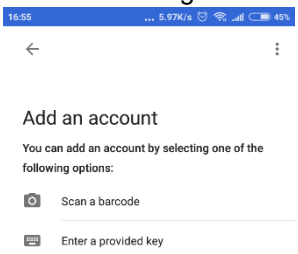
How to use ‘Google Authenticator’ to get ECA Access Code?

Before run this application make sure your device clock sync with ECA

- Run ‘Google Authenticator’
- Click ‘BEGIN’



- Choose ‘Scan a barcode’ to start scanning code on Virtual Access Code card



- Scan code on the Virtual card. Place ‘QRcode’ in the middle of the scanner box.

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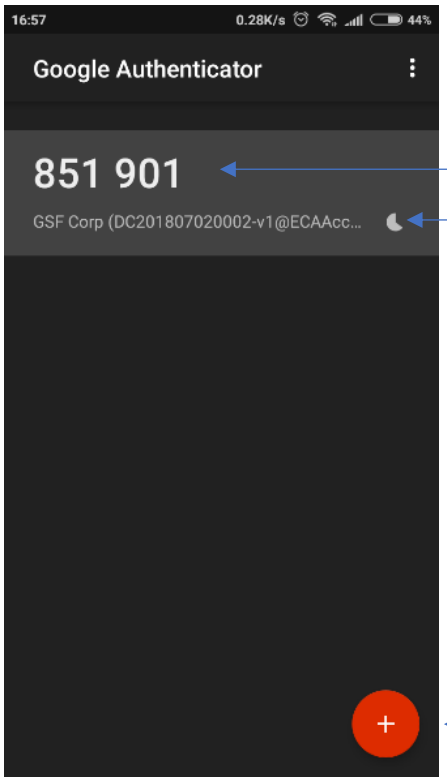
- The 6 digit code will show in the application

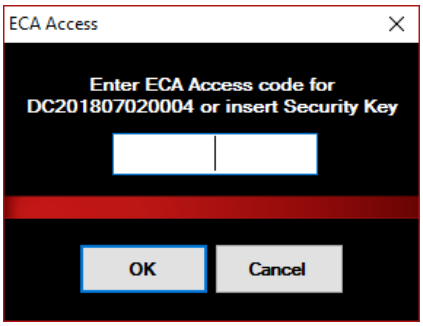


ECA Digital Certificate information

Access code change for every 30 seconds.

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

- Enter the code to gain access to ‘System Manager’ 6-digit Access Code



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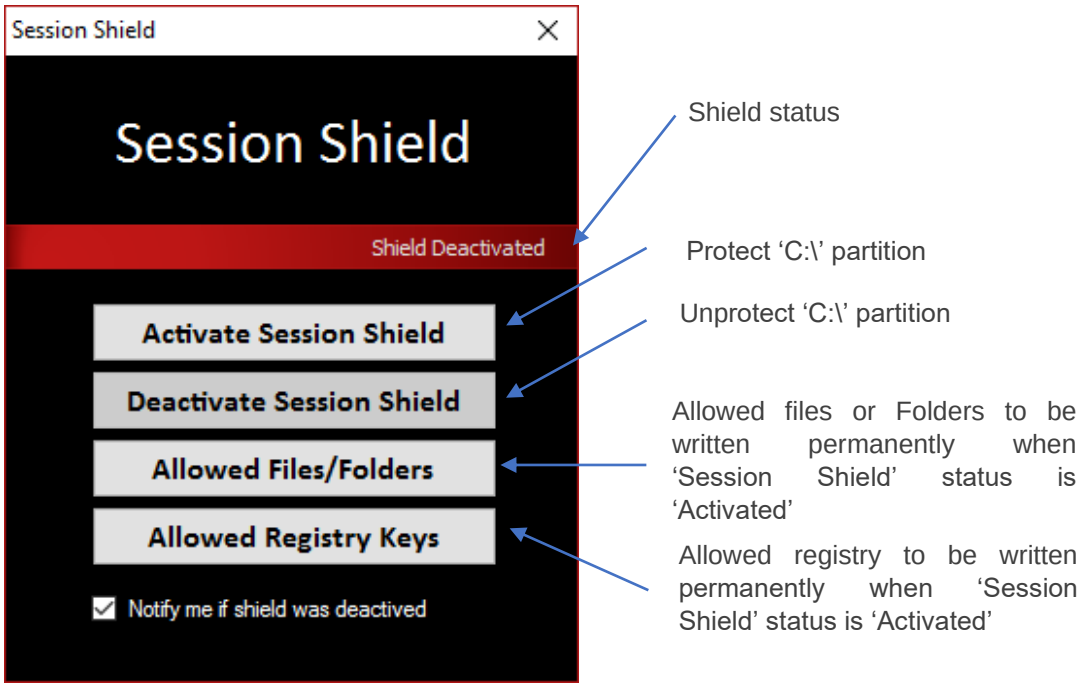
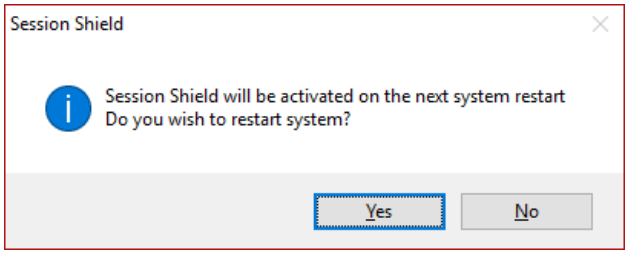
2.3.1 Session Shield

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.



1. **Activate Session Shield**
   All setting/files in the 'C:\' will be protected. All setting/files will be return to its original state after reboot the ECA.

   i. Click on 'Activate Session Shield'
   ii. Click 'Yes' to restart the ECA



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2. Deactivate Session Shield

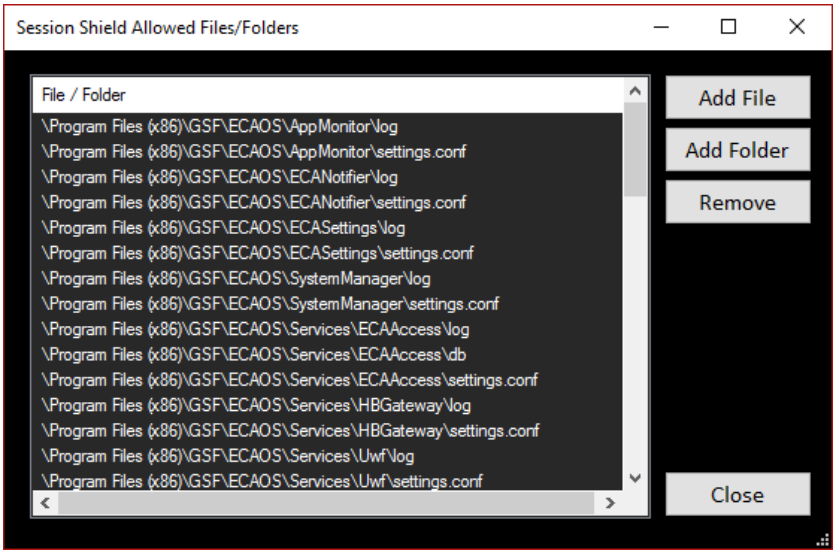
All setting/files in the ‘C:\’ will be not protected. All files/ setting will be permanently written.

i. Click on ‘Deactivate Session Shield’
ii. Click ‘Yes’ to restart the ECA

3. Allowed Files/Folder

Files or Folder been added will be allow to be written permanently when the ‘Shield’ is activate.

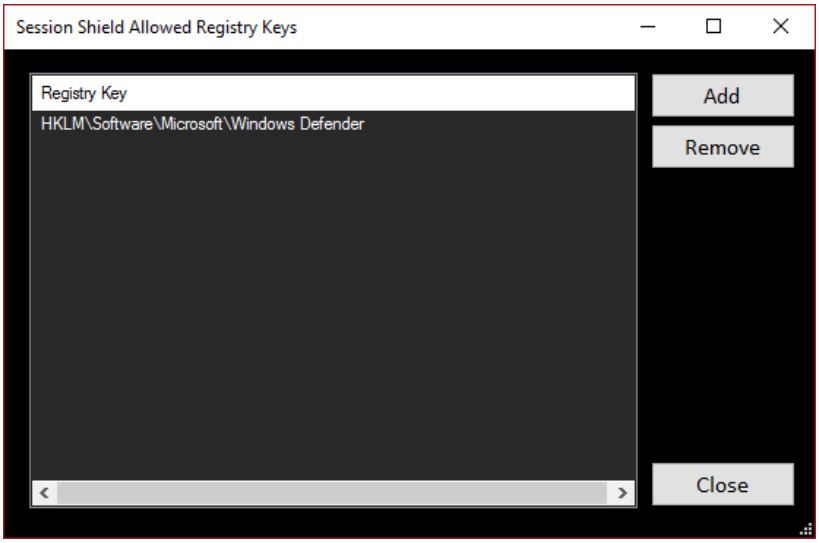
i. Click ‘Add file’ / ‘Add Folder’
ii. Browse for file/folder
iii. Select the files/folder to be add into



4. Allowed Registry Keys

Allow to be written permanently when the ‘Shield’ is activate.

i. Click ‘Add’
ii. Paste the Registry Keys



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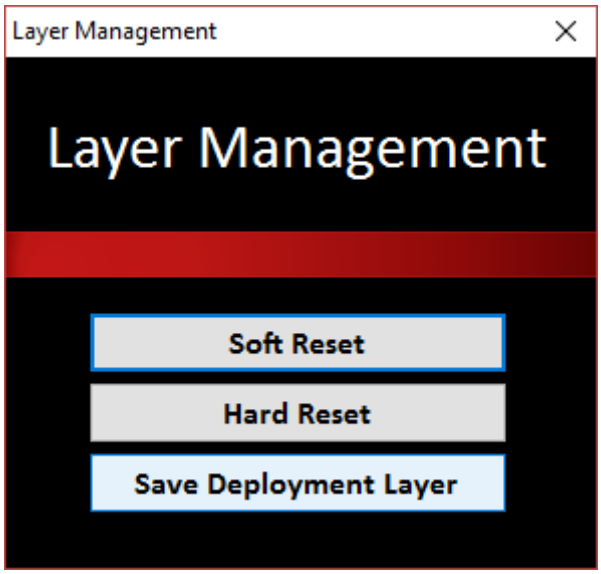
2.3.2 Layer Management

The Triple Layer ECA-OS is a protective tool that allows for swift recovery of operation in the event your system breaks down. It enables the system to be restored to working order easily by the end user.



Soft Reset (Time: 10 minutes)
Restore layer of ECA which previously saved by user via **'Save Deployment Layer**'

1. Click on 'Soft Reset'
2. Remove Security Key if any, Click 'Yes' to restart the ECA
3. ECA will boot to 'Layer Manager' User allow to cancel the operation within 10 seconds countdown, ECA will start perform selected operation if there no interruption by user

Hard Reset Time: 10 minutes
Restore layer of ECA which previously saved by factory which is **'Factory'** layer

1. Click on 'Hard Reset'
2. Remove Security Key if any, Click 'Yes' to restart the ECA
3. ECA will boot to 'Layer Manager' User allow to cancel the operation within 10 seconds countdown, ECA will start perform selected operation if there no interruption by user

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Save Deployment Layer (Time: 30 minutes)
Save current working layer of ecaOS. This layer able to recall via ‘Soft Reset’

1. Click on ‘Save Deployment Layer’
2. Remove Security Key if any, Click ‘Yes’ to restart the ECA
3. ECA will boot to ‘Layer Manager’ User allow to cancel the operation within 10 seconds countdown, ECA will start perform selected operation if there no interruption by user

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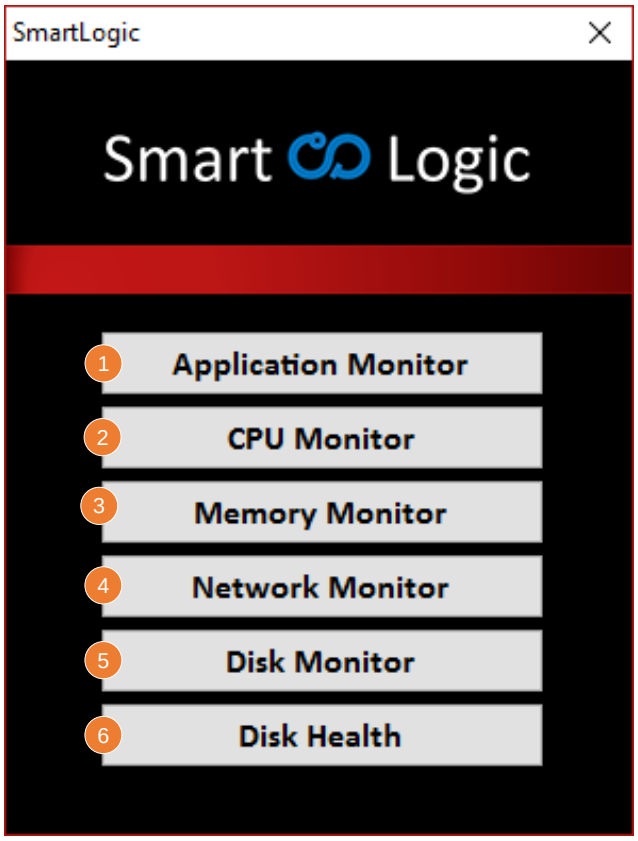
2.3.3 SmartLogic

Smart Logic alerts you whenever anything unusual or suspicious happen, helping ensure your video evidence is always preserved. It uses an array of smart software sensors that detects any abnormal activity affecting the integrity of stored video content and the network.



1 **Application Monitor**
Configure which application to start when login to Operating System

2 **CPU Monitor**
Monitor CPU usage / activity.

3 **Memory Activity**
Monitor Memory usage / activity.

4 **Network Monitor**
Monitor network incoming/outgoing bandwidth activity.

5 **Disk Monitor**
Disk Acivity Monitor read write activity & email sent whenever detected the activity below certain threshold

6 **DiskHealth**
Monitor disk health activity & email sent whenever detected the activity below certain threshold

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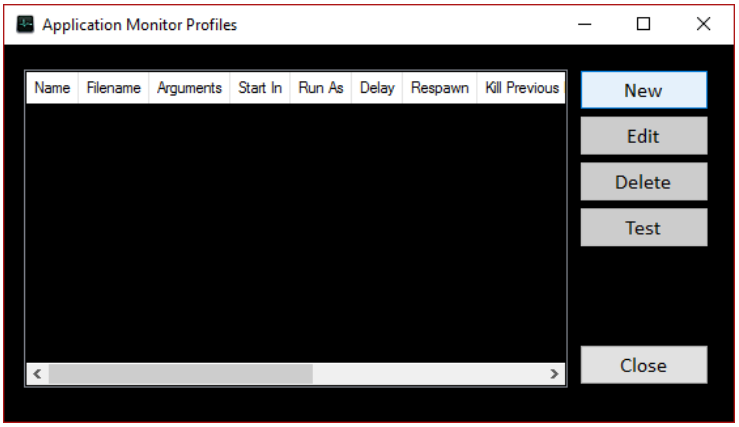
2.3.3.1 Application Monitor

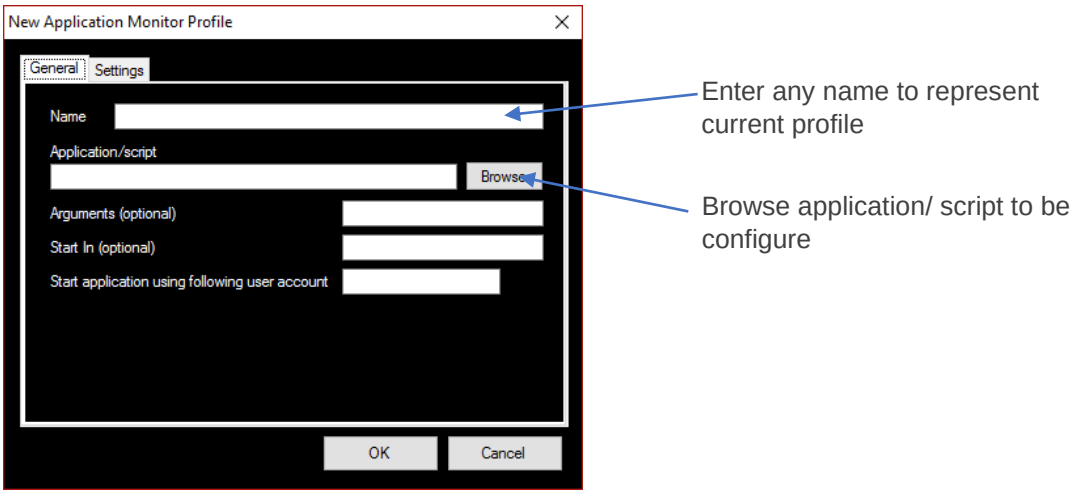
Set the application to auto start after login to OS environment and terminate any instance running at the same time



Add application

Create new profiles for selected application to auto start after login to OS

1. Click on ‘New’
2. Browse to select application and edit necessary field



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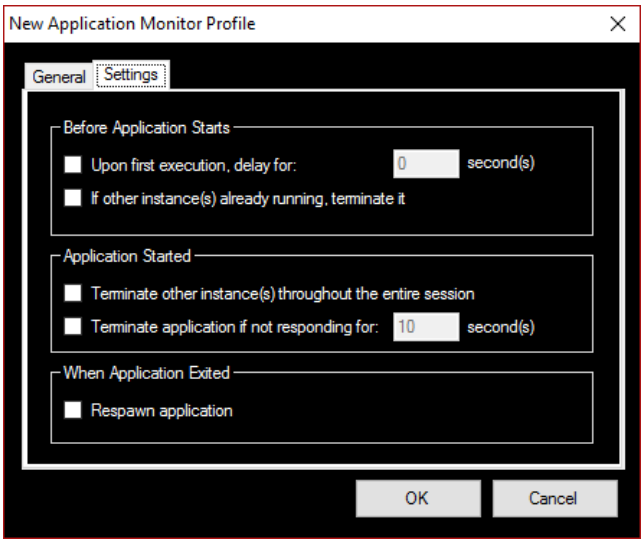

- **Upon first execution delay for**
  - Uncheck: Able to Run another instance before 'Upon First Execution' started.
  - Check: Another instance will be terminate
- **If other instance(s) already running, terminate it**
  - Uncheck: Able run another instance before 'Upon First Execution' started.
  - Check: Another instance will be terminate before 'Upon First Execution' started.
- **Terminate other instance(s) throughout the entire session**
  - Uncheck: Able to Run another instance
  - Check: Another instance will be terminate
- **Terminate application if not responding**
  - Uncheck: Application will not be terminate even not responding
  - Check: Application will terminate on set timer
- **Respawn**
  - Uncheck: The application will not respawn if it close
  - Check: The application will respawn if it close

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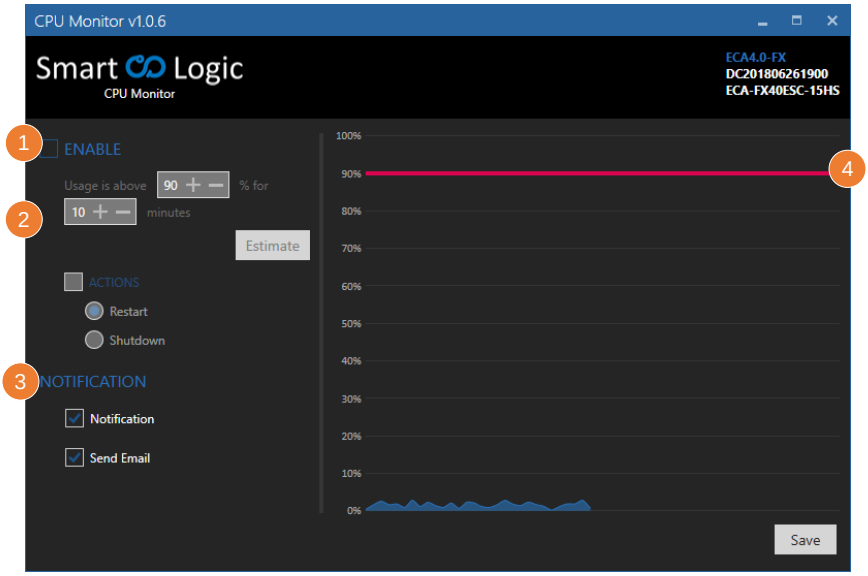
2.3.3.2 CPU Monitor

This application, monitor the CPU usage and notify/email if the usage above the threshold value. User able to choose to enable ACTION only without any notifications/email OR ONLY notifications without any ACTIONS.



1. This application monitoring only active when the feature enable
   Set the maximum % before trigger the ACTIONS/NOTIFICATIONS

   Not sure the value to be enter?
   Press the 'Estimate'. The application will take 1 hour of data and display the value.

   Minimum value CPU Usage: 1%, Minutes: 5 minutes

2. Instruct ECA what to do if it meets the above the usage

3. Choose to be notify at Notification or via email or both when the activity below/above ratio

4. Graphical memory usage base on current setting

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Example:

Screenshot below shows that the CPU % exceed above threshold value. With this configuration, user will receive Notifications & email without ‘ACTIONS’

*Email only be send out, if the valid email been set in the ‘Setting’ section and internet connection available.

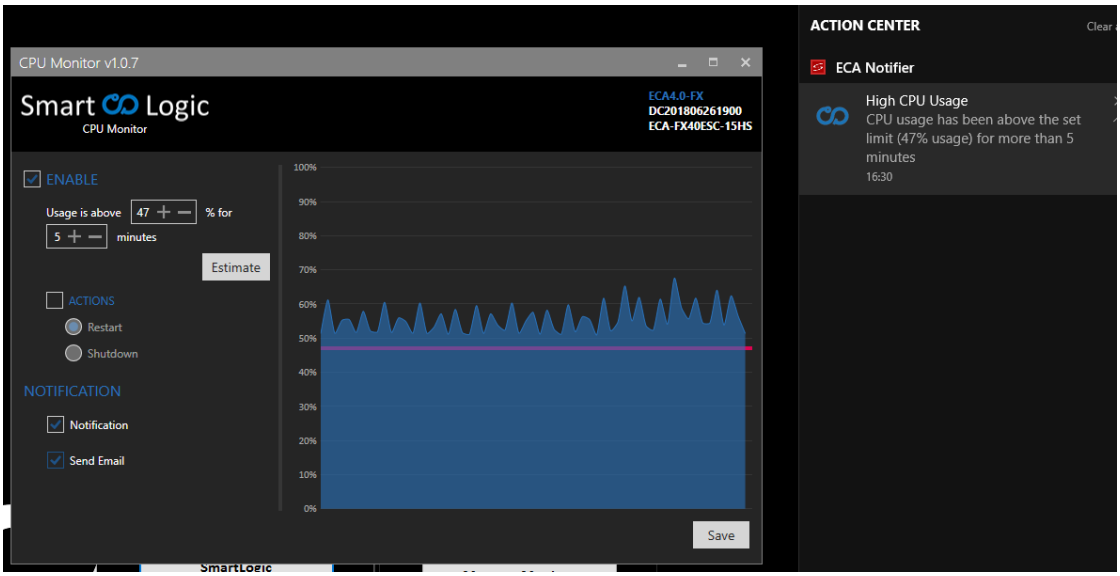

Figure 3above show that notifications will be receive if the CPU usage above the threshold.

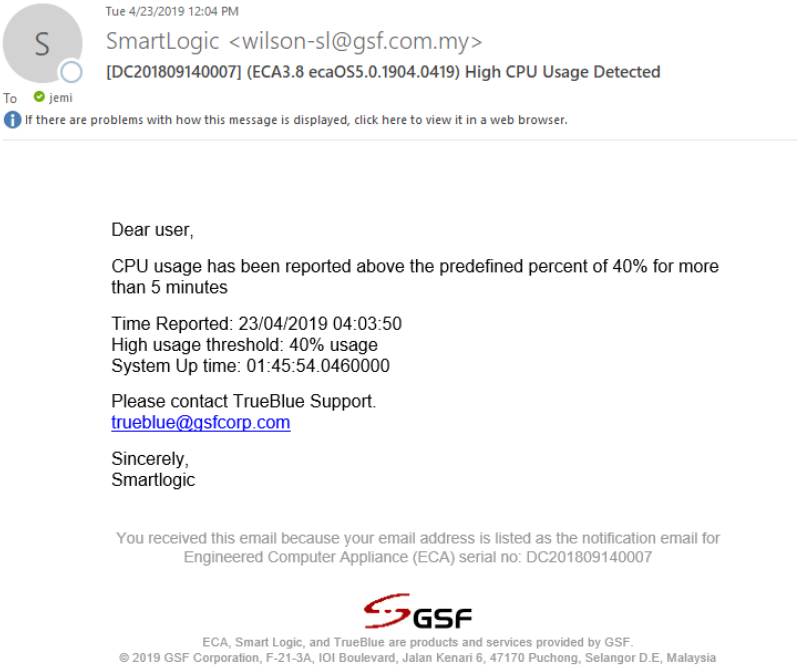

Figure 4 above show the email be receive if the CPU usage above the threshold.

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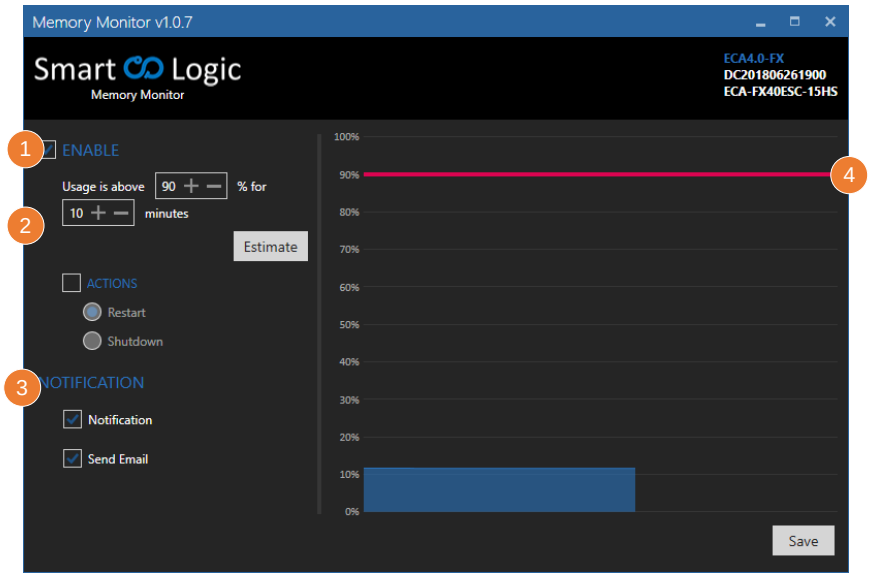
2.3.3.3 Memory Monitor

This application, monitor the Memory usage and notify/email if the usage above the threshold value if this feature been enable.



1. This application monitoring only active when the feature enable
   Set the maximum % before to trigger notification

   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.

   Minimum value: Memory Usage: 1%, Minutes: 5 minutes

2. Instruct ECA what to do if it meets the above the usage

3. Choose to be notify at Notification or via email or both when the activity above ratio

4. Graphical memory usage base on current setting

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Example:

Screenshot below shows that the Memory % exceed above threshold value. With this configuration, user will receive Notifications & email without ‘ACTIONS’

*Email only be send out, if the valid email been set in the ‘Setting’ section and internet connection available.

Figure 5 sample of notifications will be receive if the Memory usage above the threshold.

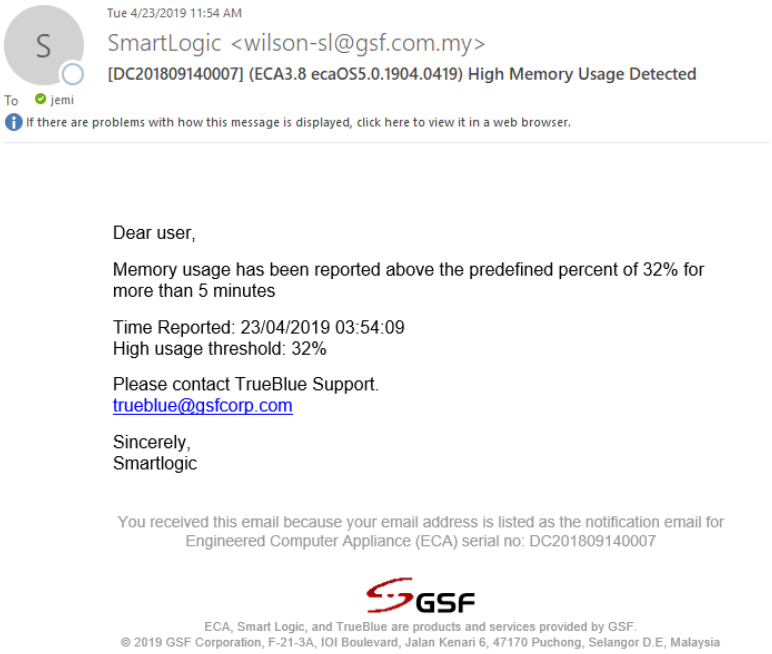

Figure 6 sample of an email be receive if the Memory usage above the threshold.

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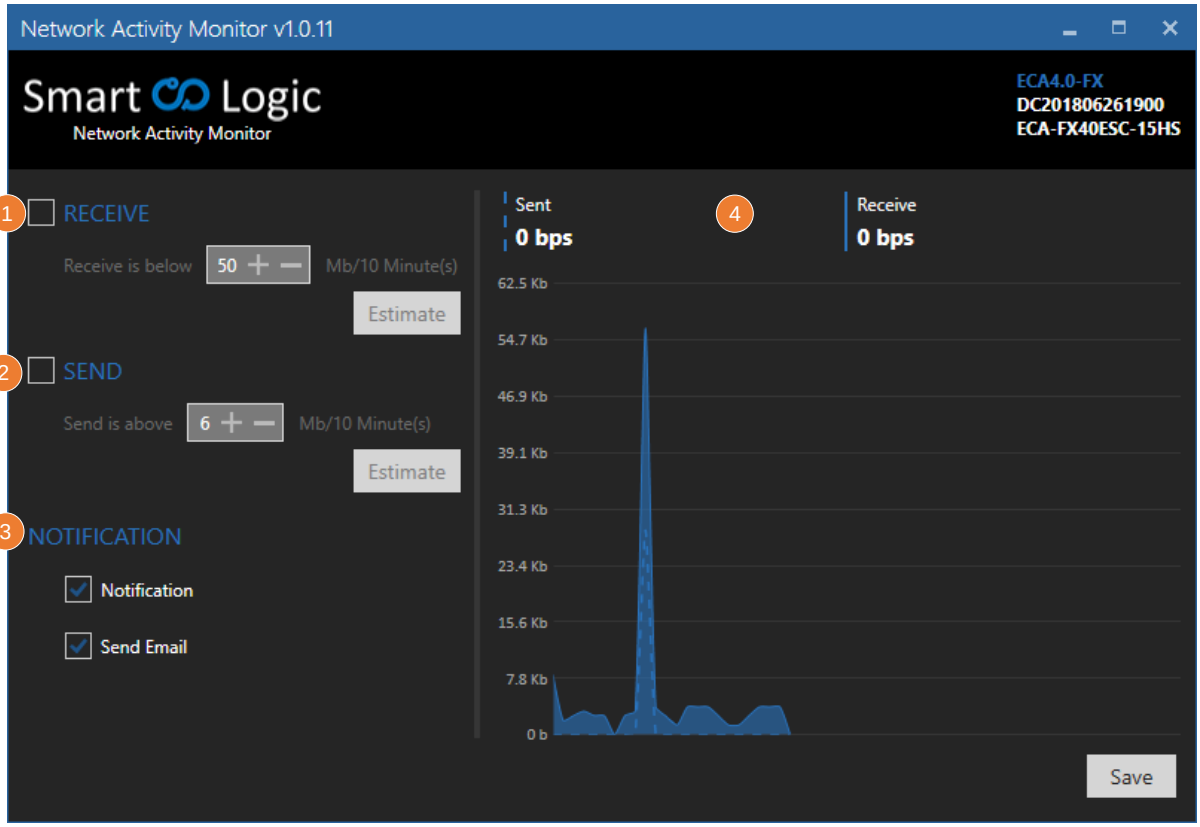
2.3.3.4 Network Monitor

This application, monitor the total amount of data RECEIVE in Megabait (MB). Also able to monitor total amount of data SEND out in Megabait (MB) in 10 minutes period.



1. This application monitoring only active when the feature enable.
   Set to trigger notification when the value in Megabytes receive below threshold value

   Not sure the value to be enter?
   If user doesn't any idea on the value need to be enter, just press the 'Estimate' button.

2. This application monitoring only active when the feature enable
   Set to trigger notification when the value in Megabytes send out above threshold value.

   Not sure the value to be enter?
   If user doesn't any idea on the value need to be enter, just press the 'Estimate' button.

3. Choose to be notify at Notification or via email or both when the activity below/above ratio

4. Graphical memory usage base on current setting

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Example:

Screenshot below shows that total data RECEIVE in Megabait(MB) below threshold value for 10 minutes.

*Email only be send out, if the valid email been set in the ‘Setting’ section and internet connection available.

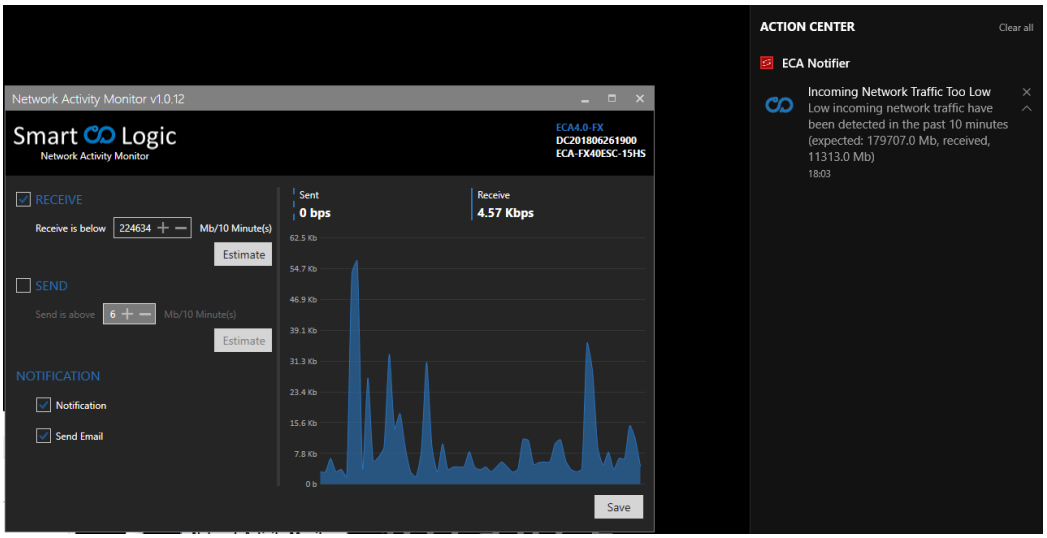

Figure 7 sample of notifications when total data RECEIVE in Megabait(MB) below thresholdvalue.

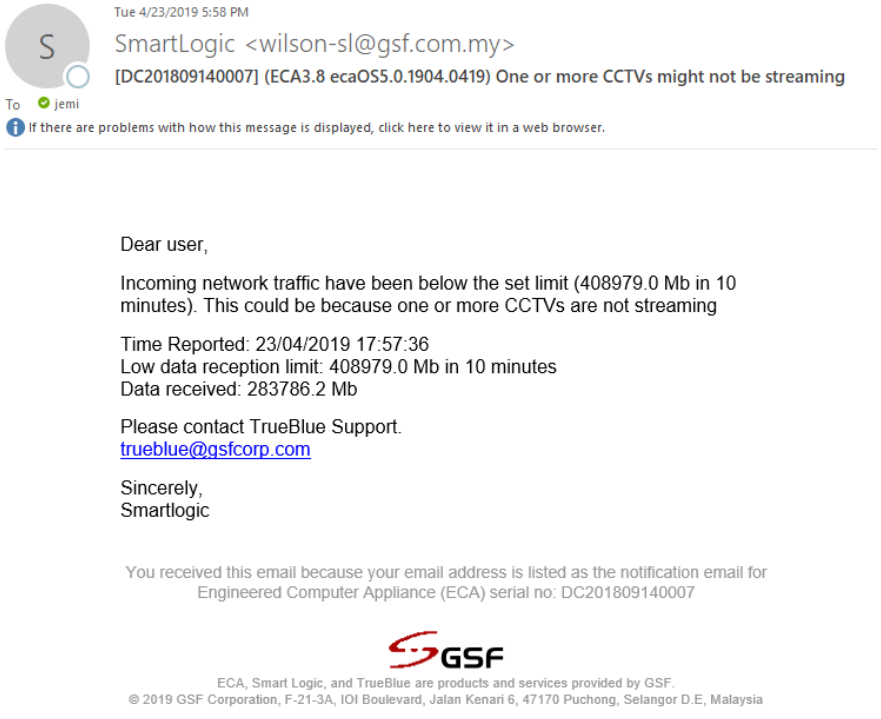

Figure 8 sample of an email be receive will be receive when total data RECEIVE in Megabait(MB) below threshold value.

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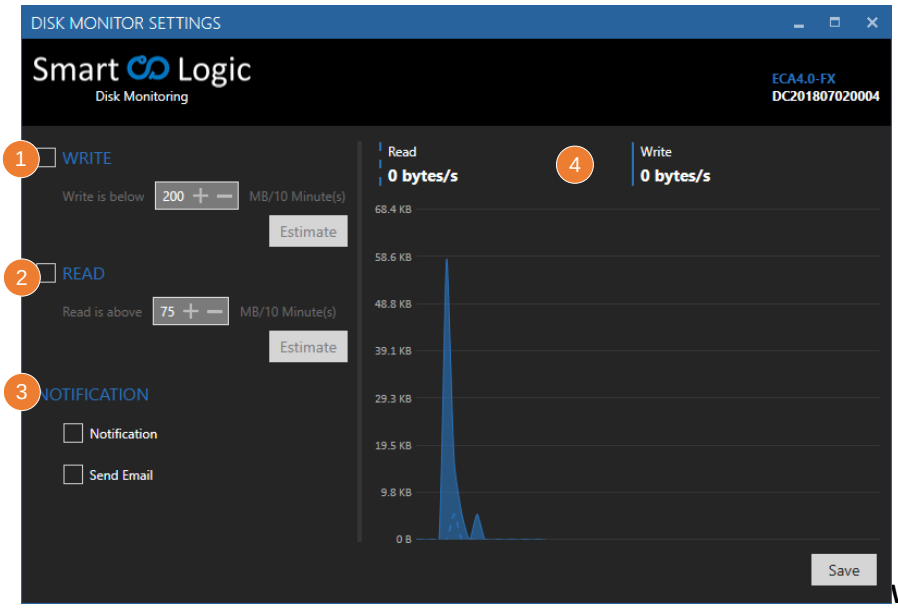
2.3.3.5 Disk Monitor

This application, monitor the disk write and read activity and notify/email if the usage above the threshold value if this feature been enabled.



W

1. This application monitoring only active when the feature enable.
   Set to trigger notification when the value in Megabytes write below threshold value

2. This application monitoring only active when the feature enable
   Set to trigger notification when the value in Megabytes read above threshold value

3. Choose to be notify at Notification or via email or both when the activity below/above ratio

4. Graphical memory usage base on current setting

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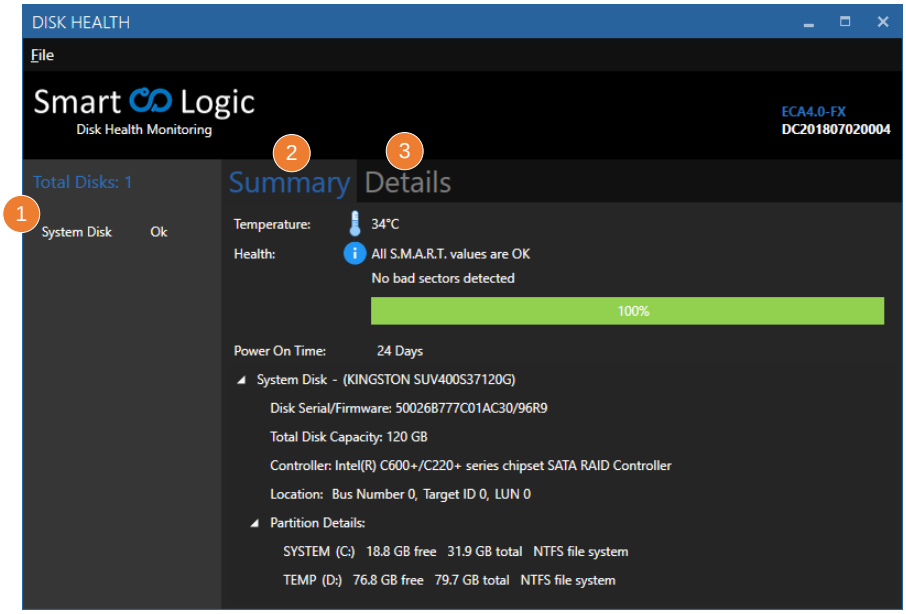
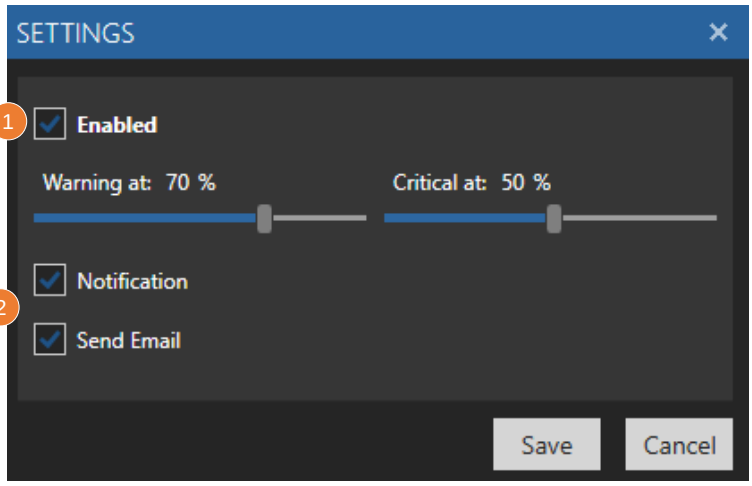
2.3.3.6 Disk Health

'Disk Health' able to show information of individual disk connected to ECA. 'Disk Health' also monitor disk status and notify 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

Customize threshold value



1. This application monitoring only active when the feature enable.
   Set the threshold value for warning/Critical notification

2. Choose to be notify at Notification or via email or both when the activity below/above ratio

Type of Event:

Warning : Harddisk still safe to be used, recommend to change the hard disk
Critical : Harddisk need immediately replacement

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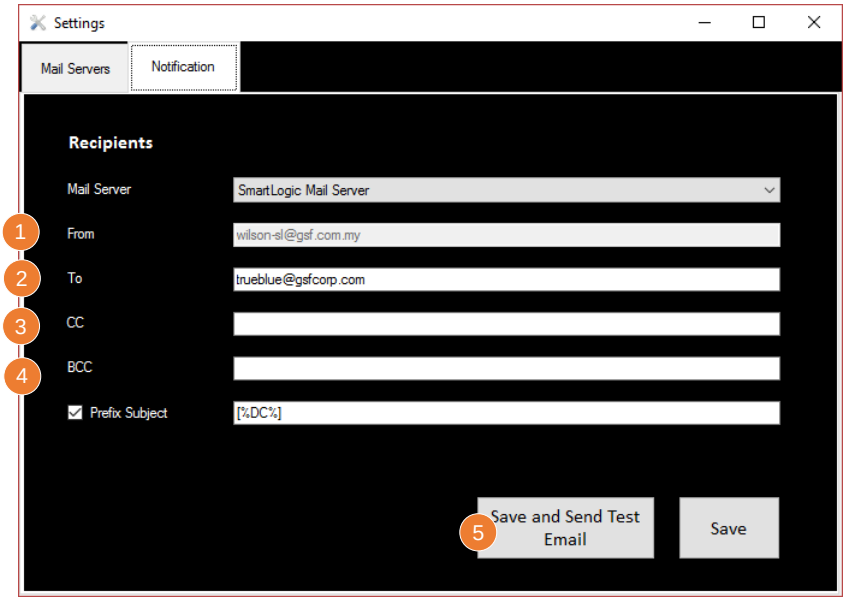
2.3.3.7 Notification Setting



1. Notification will be receive from this email
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': SVR1blockANVR@Factory B.

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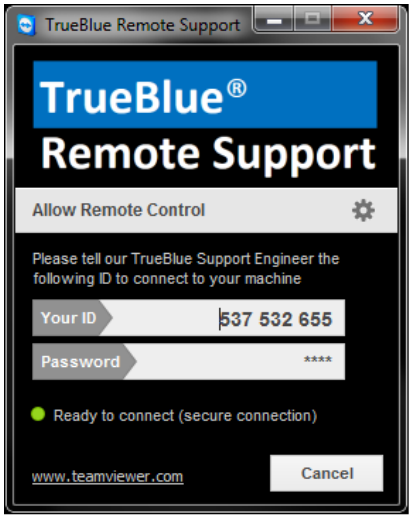
2.3.4 TrueBlue Remote Support

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 for targeted ECA

1. Must be connected to internet (check with your network administrator for appropriate settings);
2. Provide the 'Your ID' to Support Engineer in order to let support remotely.

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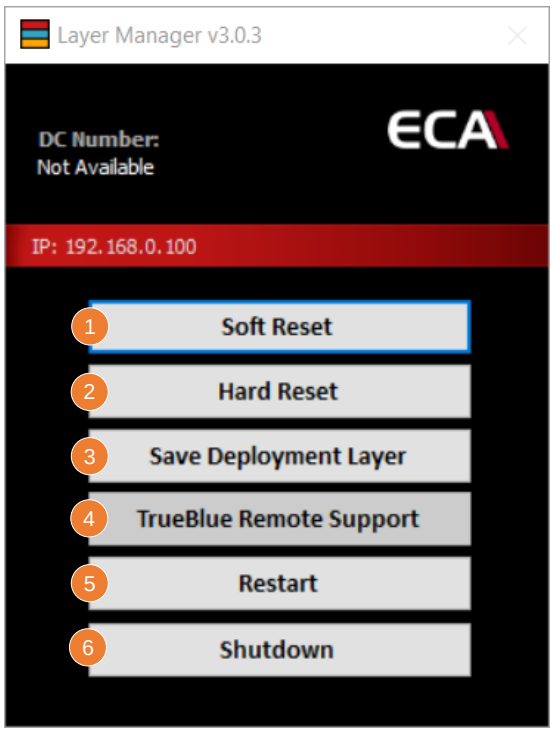
Layer Manager

The Triple Layer ECA-OS is a protective tool that allows for swift recovery of operation in the event your system breaks down. It enables the system to be restored to working order easily by the end user.



1. **Soft Reset**
   Restore layer of ECA which previously saved by user via **'Save Deployment Layer'**

2. **Hard Reset**
   Restore layer of ECA which previously saved by factory which is **'Factory'** layer

3. **Save Deployment Layer**
   Save/Overwrite current configuration.

4. **TrueBlue Remote Support**
   Reset the ECA to Deployment Layer (Layer previously saved)

5. **Restart**
   Reboot the NVR

6. **Shutdown**
   Shutdown the NVR system

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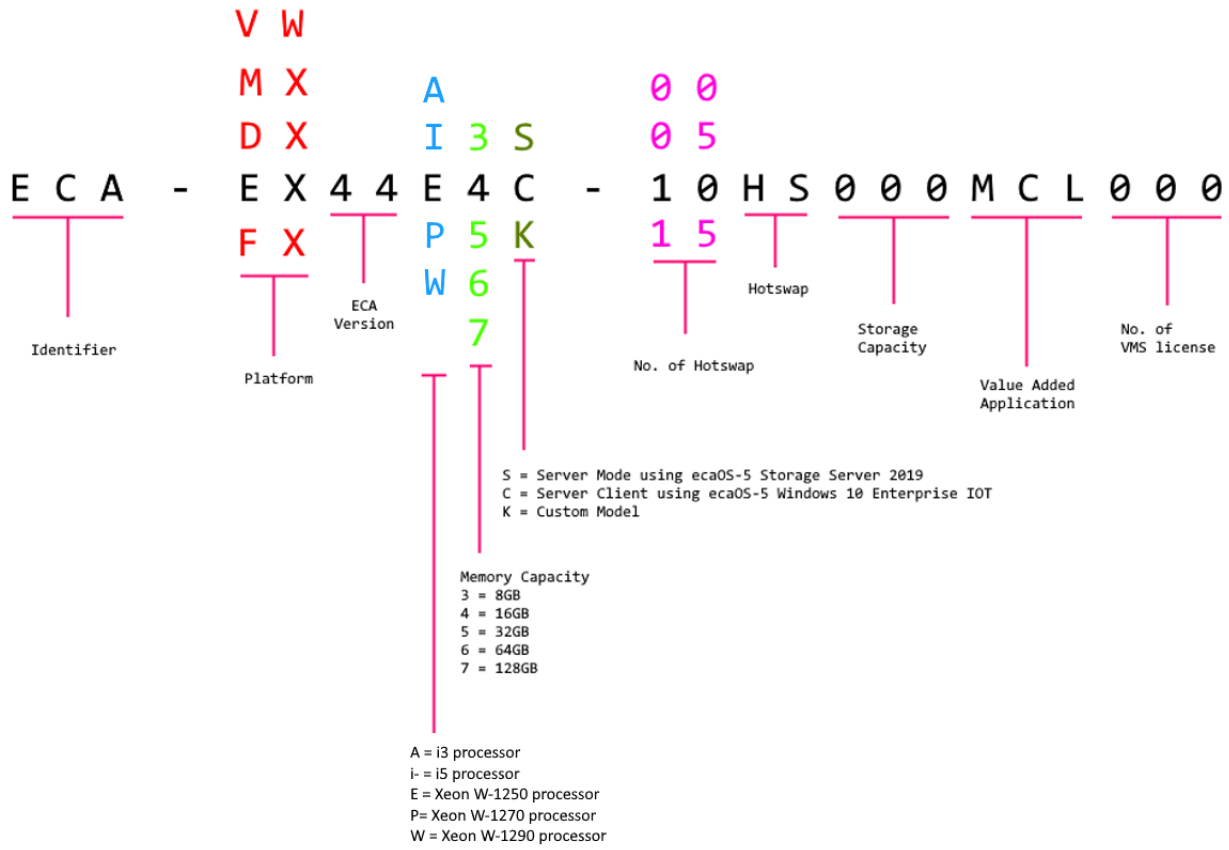
2.4 Appendix

ECA model naming

The ECA model will represent the specification of platform.



2.5 Appendix

The model of ECA available

Mount	Tower / Rack	Rack	Rack	Rack	Rack
Storage	Internal: Up to 3 HDDs	Internal: Up to 3 HDDs	Hot-swap: 5 HDDs Internal: Up to 2 HDDs	Hot-swap: 10 HDDs Internal: 1 HDD	Hot-swap: 15 HDDs Internal: None
Hot-swap Bay	None	None	5	10	15
Redundant Storage System (RSS)	No	Yes	Yes	Yes	Yes
Recommended Usage	Video Workstation	Recording Server	Recording Server	Recording Server	Recording Server
HeartBeat	No	Yes	Yes	Yes	Yes

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