



# Engineered Computer Appliance Operating System

ECA45

ecaOS 6.4

## USER GUIDE

Revision 1.8  
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Digital Copy

**Document Title**

|                                                                       |
|-----------------------------------------------------------------------|
| Engineered Computer Appliance (ECA45) Operating System 6.4 User Guide |
|-----------------------------------------------------------------------|

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## Table of Contents

|        |                                                    |    |
|--------|----------------------------------------------------|----|
| 1      | ECA4.5 .....                                       | 7  |
| 1.1    | FX series .....                                    | 7  |
| 1.2    | EX series .....                                    | 8  |
| 1.3    | DX series .....                                    | 9  |
| 1.4    | MX series .....                                    | 10 |
| 1.5    | VW series .....                                    | 11 |
| 1.6    | ECA with redundant PSU .....                       | 12 |
| 1.7    | AX Series .....                                    | 13 |
| 1.8    | Security & Virtual Key .....                       | 14 |
| 2      | Heartbeat .....                                    | 15 |
| 2.1    | What is Heartbeat .....                            | 15 |
| 2.2    | Heartbeat Alert .....                              | 15 |
| 3      | Rail .....                                         | 17 |
| 3.1    | Package Content .....                              | 18 |
| 3.2    | Sliding Rail Assembly .....                        | 18 |
| 3.3    | Installation Steps .....                           | 19 |
| 4      | ECA Naming .....                                   | 24 |
| 5      | ECA Series .....                                   | 25 |
| 6      | ecaOS .....                                        | 26 |
| 6.1    | ecaOS Login .....                                  | 27 |
| 6.2    | ecaOS Locked Out .....                             | 27 |
| 7      | Dashboard and Notification .....                   | 28 |
| 7.1    | Accessing ecaOS Dashboard .....                    | 29 |
| 7.1.1  | Using Virtual Security Key (ECA Access Code) ..... | 29 |
| 7.1.2  | Get Virtual Security Key (ECA Access Code) .....   | 30 |
| 7.1.3  | Remotely Access ecaOS .....                        | 34 |
| 7.2    | ecaOS Dashboard ▶ Summary .....                    | 35 |
| 8      | System .....                                       | 37 |
| 8.1    | System Monitor .....                               | 37 |
| 8.2    | Service Monitor .....                              | 40 |
| 8.2.1  | Add Services .....                                 | 40 |
| 8.2.2  | Delete Services .....                              | 43 |
| 8.3    | Application Monitor .....                          | 44 |
| 8.3.1  | Add Application .....                              | 44 |
| 8.3.2  | Delete Application .....                           | 47 |
| 8.4    | Processor Activity .....                           | 48 |
| 8.5    | Memory Activity .....                              | 49 |
| 8.6    | Disk Activity .....                                | 50 |
| 8.7    | Network Activity .....                             | 52 |
| 8.8    | Disk Health .....                                  | 54 |
| 8.9    | Disk Guard .....                                   | 57 |
| 8.9.1  | Hard disk change during ECA Power Off .....        | 58 |
| 8.10   | Session Shield .....                               | 59 |
| 8.10.1 | Activate Session Shield .....                      | 59 |
| 8.10.2 | Deactivate Session Shield .....                    | 62 |
| 8.10.3 | Exclusion List .....                               | 63 |
| 8.10.4 | Add Exclusion Files or Folder .....                | 64 |
| 8.10.5 | Delete Exclusion Files or folder .....             | 65 |
| 8.10.6 | Add Registry Keys .....                            | 65 |
| 8.10.7 | Delete Exclusion Registry Key .....                | 67 |
| 8.10.8 | Status: Warning .....                              | 67 |

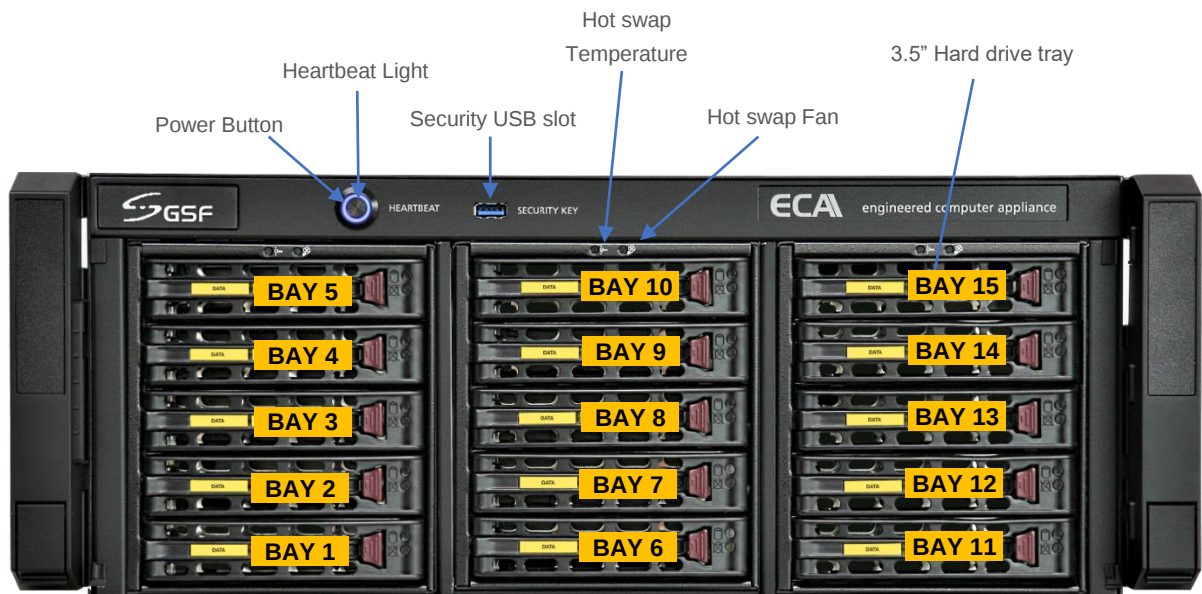
|         |                                                 |     |
|---------|-------------------------------------------------|-----|
| 8.10.9  | Status: Critical .....                          | 67  |
| 8.11    | Device Monitor.....                             | 69  |
| 8.11.1  | Add New Monitor .....                           | 69  |
| 8.11.2  | Delete Monitor .....                            | 71  |
| 8.12    | Recording Monitor .....                         | 72  |
| 8.12.1  | Add New Monitor .....                           | 73  |
| 8.12.2  | Delete Monitors .....                           | 74  |
| 9       | Management .....                                | 75  |
| 9.1     | General.....                                    | 75  |
| 9.1.1   | Authorize Restart.....                          | 75  |
| 9.1.2   | Authorize Shutdown .....                        | 76  |
| 9.1.3   | Saving & Deploy Layer .....                     | 77  |
| 9.1.3.1 | Save Layer .....                                | 77  |
| 9.1.3.2 | Soft Reset.....                                 | 79  |
| 9.1.3.3 | Hard Reset .....                                | 81  |
| 9.1.3.4 | Last Saved Layer Information .....              | 83  |
| 9.1.4   | Machine Name .....                              | 83  |
| 9.1.5   | Change Dashboard Port.....                      | 83  |
| 9.2     | Security Key .....                              | 84  |
| 9.2.1   | Register Security Key .....                     | 84  |
| 9.2.2   | Delete Security Key .....                       | 85  |
| 9.2.3   | Add Virtual Security Key.....                   | 86  |
| 9.2.4   | Delete Virtual Security Key.....                | 88  |
| 9.3     | Network .....                                   | 89  |
| 9.3.1   | Enable DDNS .....                               | 89  |
| 9.3.2   | Enable Network Teaming .....                    | 89  |
| 9.3.3   | Disable Network Teaming .....                   | 90  |
| 9.4     | RSS (Redundant Storage System) .....            | 91  |
| 9.4.1   | Create Storage Pool.....                        | 91  |
| 9.4.2   | Delete Storage Pool .....                       | 93  |
| 9.4.3   | Extend Storage Pool.....                        | 94  |
| 9.4.4   | Repair Storage Pool .....                       | 95  |
| 9.5     | Settings.....                                   | 99  |
| 9.5.1   | Email Recipient Settings .....                  | 99  |
| 9.5.2   | Mail Servers.....                               | 99  |
| 9.5.3   | Events.....                                     | 99  |
| 9.5.3.1 | Events List .....                               | 100 |
| 9.5.4   | SNMP Settings .....                             | 105 |
| 9.5.4.1 | Enable SNMP .....                               | 106 |
| 9.5.4.2 | Download ECA MIB Files .....                    | 106 |
| 9.5.5   | Central Registration.....                       | 107 |
| 10      | Events .....                                    | 108 |
| 10.1    | Notification.....                               | 108 |
| 10.2    | Logs.....                                       | 109 |
| 10.2.1  | Filtering Log.....                              | 109 |
| 10.2.2  | Exporting Log .....                             | 110 |
| 10.3    | Report.....                                     | 113 |
| 11      | Support.....                                    | 115 |
| 11.1    | Microsoft Remote Desktop .....                  | 115 |
| 11.2    | Chrome Remote Desktop .....                     | 116 |
| 11.2.1  | Setup ECA into your Chrome Remote Desktop ..... | 116 |
| 11.2.2  | Accessing ECA via Chrome Remote Desktop? .....  | 119 |
| 12      | About.....                                      | 121 |
| 12.1    | Machine Information .....                       | 121 |

|                                                                 |     |
|-----------------------------------------------------------------|-----|
| 12.2 Heartbeat Information.....                                 | 122 |
| 13 APPENDIX .....                                               | 123 |
| 13.1 Processor Activity .....                                   | 123 |
| 13.1.1 CPU activity above limit.....                            | 123 |
| 13.1.2 CPU activity back to normal .....                        | 124 |
| 13.2 Memory Activity .....                                      | 125 |
| 13.2.1 Memory usage above limit .....                           | 125 |
| 13.2.2 Memory activity back to normal .....                     | 126 |
| 13.3 Disk Activity .....                                        | 127 |
| 13.3.1 Disk read activity above limit .....                     | 127 |
| 13.3.2 Disk read activity back to normal.....                   | 128 |
| 13.3.3 Disk write activity below limit .....                    | 129 |
| 13.3.4 Disk write activity back to normal .....                 | 130 |
| 13.4 Network Activity .....                                     | 131 |
| 13.4.1 Network send activity above limit .....                  | 131 |
| 13.4.2 Network send activity back to normal.....                | 132 |
| 13.4.3 Network receive activity below limit.....                | 133 |
| 13.4.4 Network receive activity back to normal .....            | 134 |
| 13.5 Session Shield.....                                        | 135 |
| 13.5.1 Warning Status .....                                     | 135 |
| 13.5.2 Critical Status .....                                    | 136 |
| 13.5.3 Status back to normal.....                               | 137 |
| 13.6 Disk Health .....                                          | 138 |
| 13.6.1 Warning Status Disk.....                                 | 138 |
| 13.6.2 Critical Status Disk .....                               | 139 |
| 13.7 Disk Guard.....                                            | 140 |
| 13.7.1 New disk / Disk Inserted .....                           | 140 |
| 13.7.2 Disk Removed .....                                       | 141 |
| 13.7.3 Disk Removed Acknowledge.....                            | 142 |
| 13.7.4 Disk Replaced .....                                      | 143 |
| 13.7.5 Disk Replaced Acknowledge.....                           | 144 |
| 13.8 Log.....                                                   | 145 |
| 13.8.1 ECA reboot more than 3 times .....                       | 145 |
| 13.8.2 AC Power loss .....                                      | 145 |
| 13.8.3 Unauthorize ECA Reboot .....                             | 145 |
| 13.8.4 Unauthorize ECA Shutdown.....                            | 146 |
| 13.8.5 Authorize ECA Shutdown .....                             | 146 |
| 13.8.6 Authorize ECA Reboot .....                               | 146 |
| 13.8.7 Power up ECA by pressing power button .....              | 146 |
| 13.8.8 Force shutdown by pressing power (heartbeat) button..... | 147 |
| 13.8.9 Accessing Dashboard using Security Key .....             | 147 |
| 13.8.10 Accessing Dashboard using Virtual Security Key .....    | 147 |
| 13.8.11 Add new Security Key .....                              | 147 |
| 13.8.12 Delete paired Security Key .....                        | 148 |
| 13.8.13 Delete Virtual Security Key.....                        | 148 |
| 13.8.14 Add Virtual Security Key.....                           | 148 |
| 13.8.15 Open ECA cover chassis .....                            | 148 |
| 13.8.16 Close ECA cover chassis .....                           | 148 |
| 13.8.17 PSU Status .....                                        | 149 |



# 1 ECA4.5

## 1.1 FX series



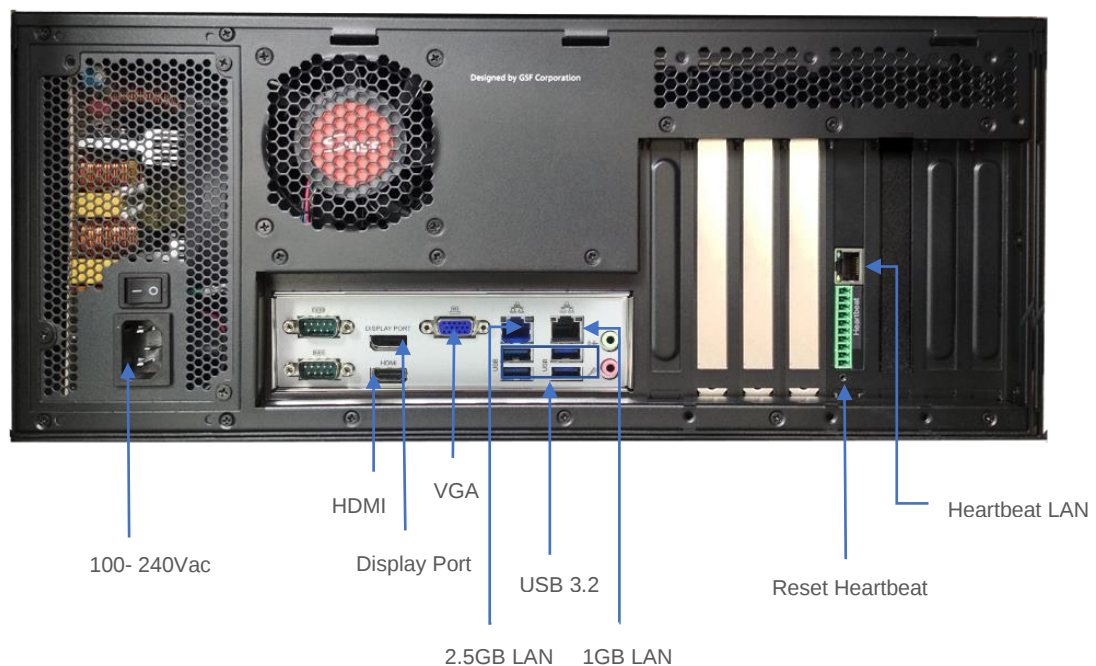
**Power Button :** Power button ECA

**Heartbeat light :** ECA operational indication

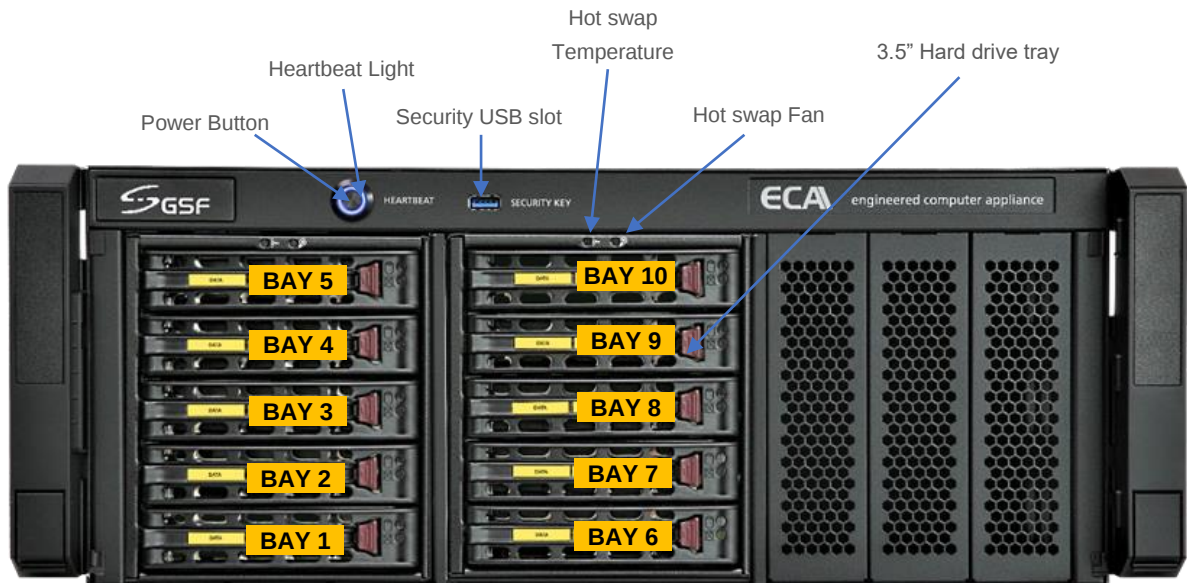
**Security USB slot :** This port for security key use to call 'System Manager'

**Hot swap Temperature:** The LED will light up if the temperature above 55°c

**Hot swap fan:** The LED will light up if no hot swap fan detected or not functioning



## 1.2 EX series



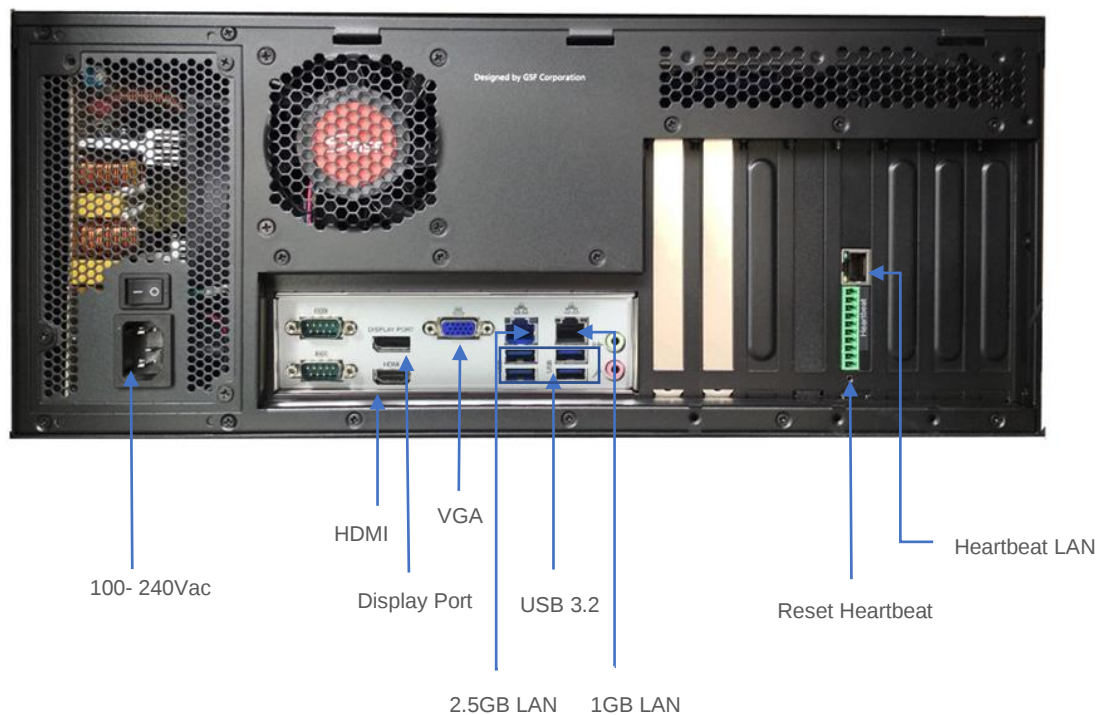
**Power Button :** Power button ECA

**Heartbeat light :** ECA operational indication

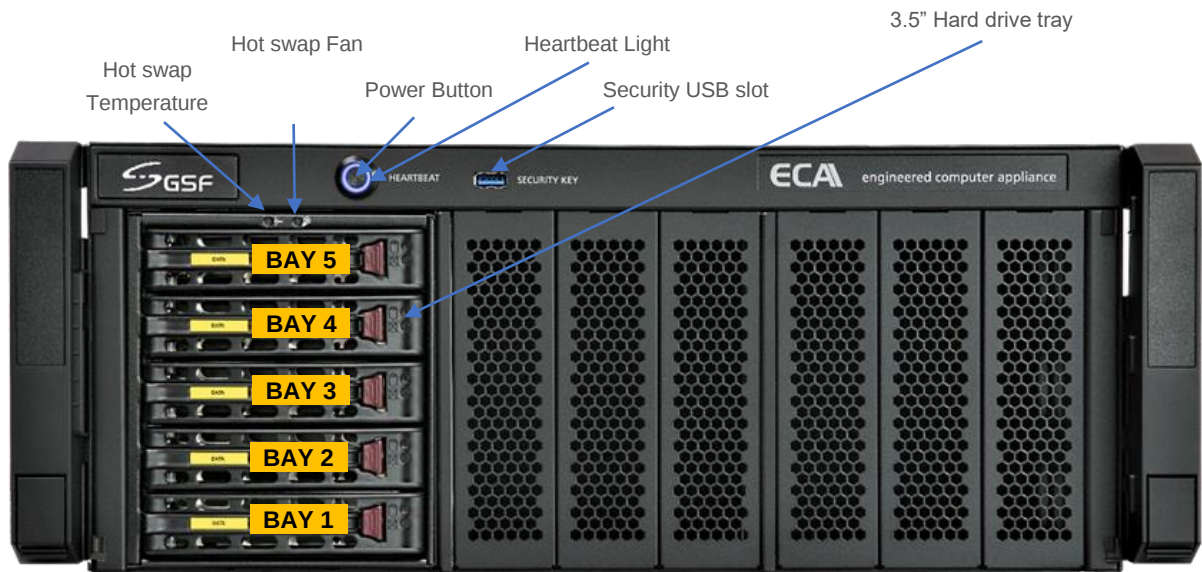
**Security USB slot :** This port for security key use to call 'System Manager'

**Hot swap Temperature:** The LED will light up if the temperature above 55 °c

**Hot swap fan:** The LED will light up if no hot swap fan detected or not functioning



## 1.3 DX series



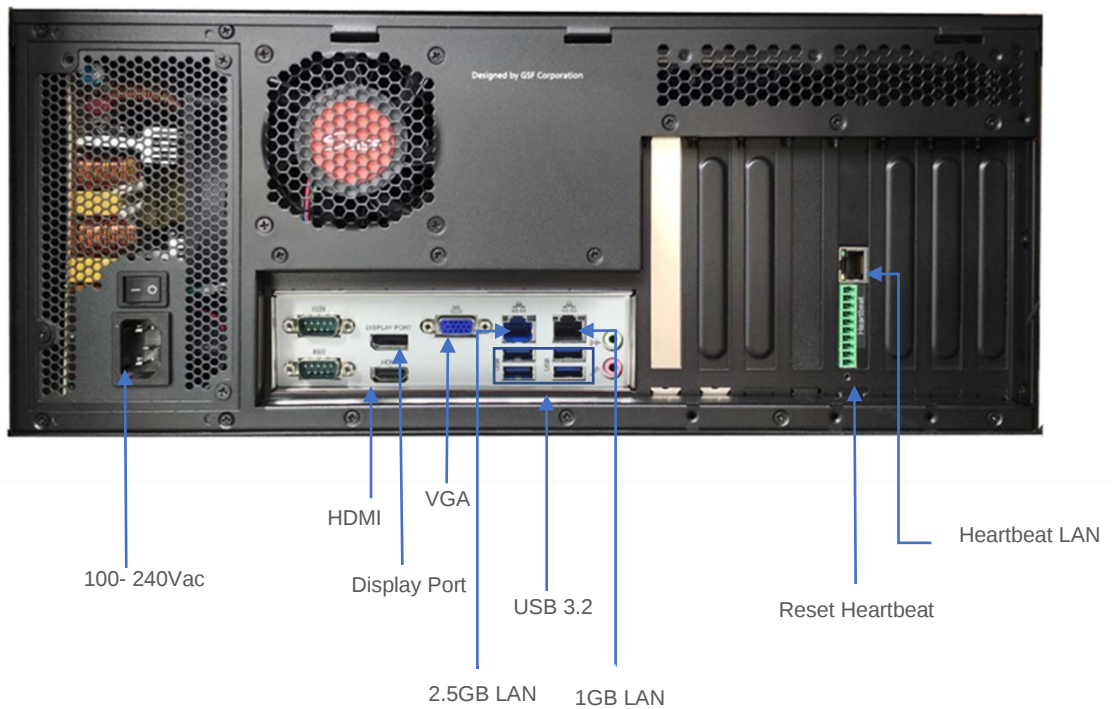
**Power Button :** Power button ECA

**Heartbeat light :** ECA operational indication

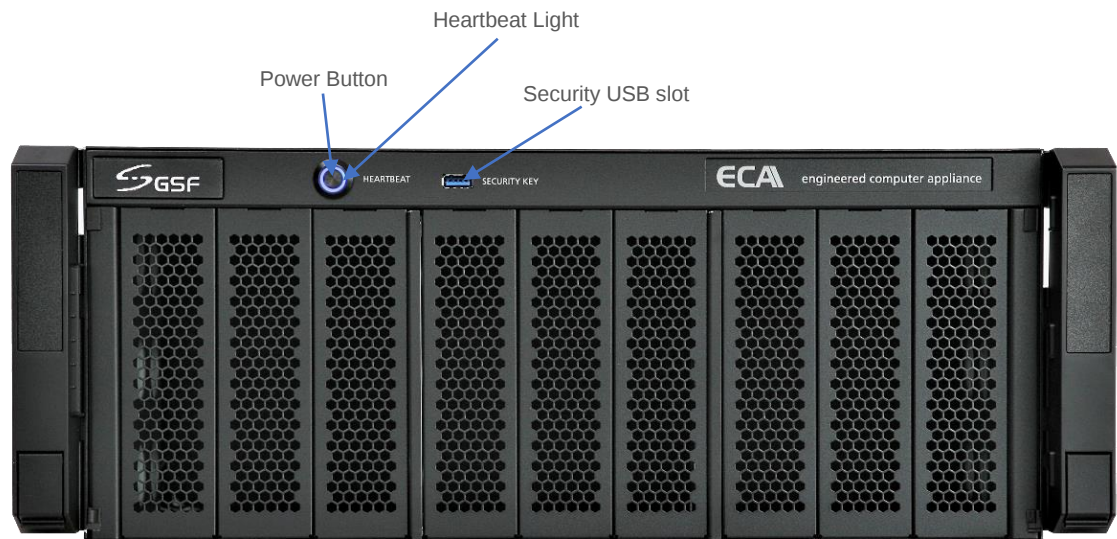
**Security USB slot :** This port for security key use to call 'System Manager'

**Hot swap Temperature:** The LED will light up if the temperature above 55°c

**Hot swap fan:** The LED will light up if no hot swap fan detected or not functioning



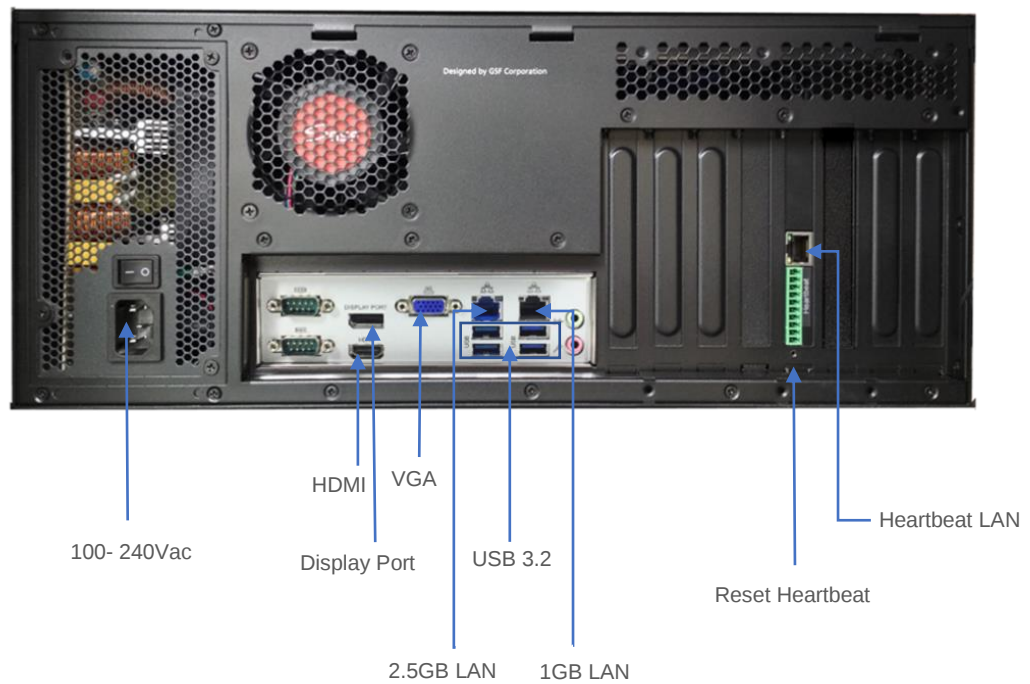
## 1.4 MX series



**Power Button :** Power button ECA

**Heartbeat light :** ECA operational indication

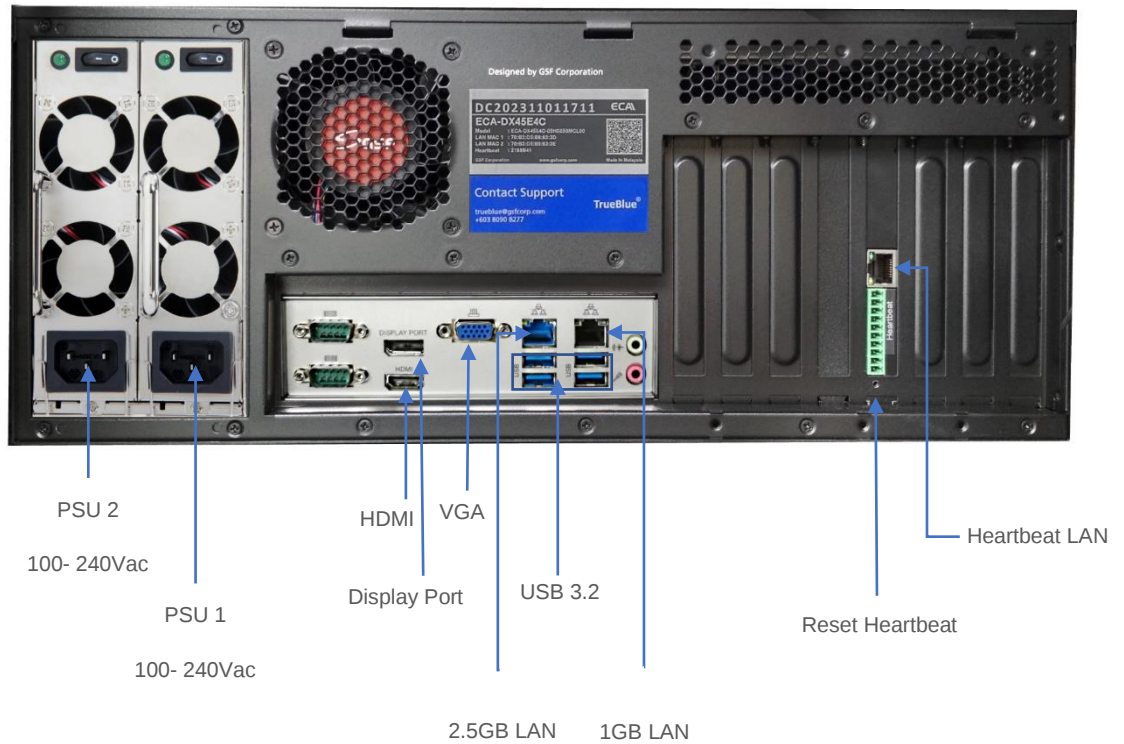
**Security USB slot :** This port for security key use to call 'System Manager'



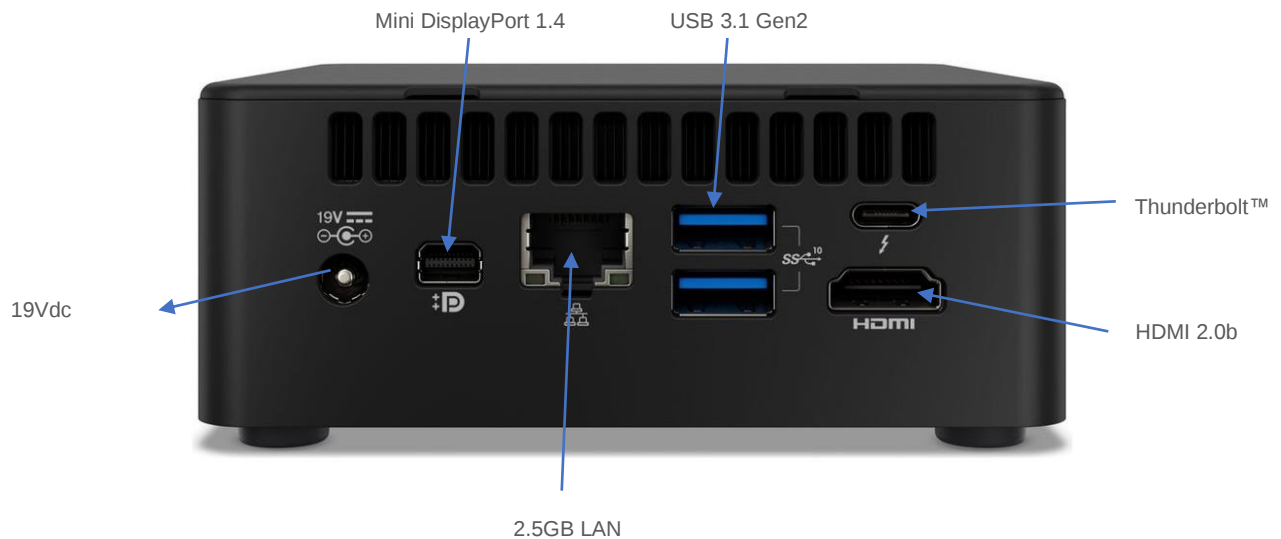
## 1.5 VW series



## 1.6 ECA with redundant PSU



## 1.7 AX Series



## 1.8 Security & Virtual 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

## 2 Heartbeat

### 2.1 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 not responding:** 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          | <ul style="list-style-type: none"> <li>• ECA OFF</li> <li>• ECA rebooting.</li> <li>• System running in OS</li> </ul> | <ul style="list-style-type: none"> <li>• Low HeartBeat battery</li> <li>• ECA in rebooting status</li> <li>• Heartbeat not ready</li> </ul> |

Click the link to view LED indication demonstration:

<https://www.gsfcorp.com/downloads/eca-hb-led.gif>

### 2.2 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       | <ol style="list-style-type: none"> <li>1. Expected AC power loss.</li> <li>2. AC power resumed.</li> <li>3. Authorized shutdown</li> </ol>       |
| 2 |                                                                                     | Bad event        | No repeat          | ECA ON        | <ol style="list-style-type: none"> <li>1. ECA failed to enter ecaOS after 15 minutes.</li> <li>2. ecaOS not responsive for 2 minutes.</li> </ol> |

|   |                                                                                   |                         |           |                           |                                                                                                                                                                                                                                             |
|---|-----------------------------------------------------------------------------------|-------------------------|-----------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   |  |                         |           |                           | 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) <sup>1</sup><br>2. Chassis opened (when not in Authorized Shutdown state) <sup>2</sup><br>3. ECA failed to enter ecaOS (3 HB reboot attempts in 45 minutes) <sup>1,3</sup> |
|   |                                                                                   |                         |           | ECA OFF                   | 1. Unexpected AC power loss <sup>4</sup>                                                                                                                                                                                                    |

**NOTE:**

<sup>1</sup> 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.

<sup>2</sup> Closing chassis cover will mute the beep tone

<sup>3</sup> Successful entered OS will mute the beep tone

<sup>4</sup> Resumed AC power to ECA will mute the beep tone

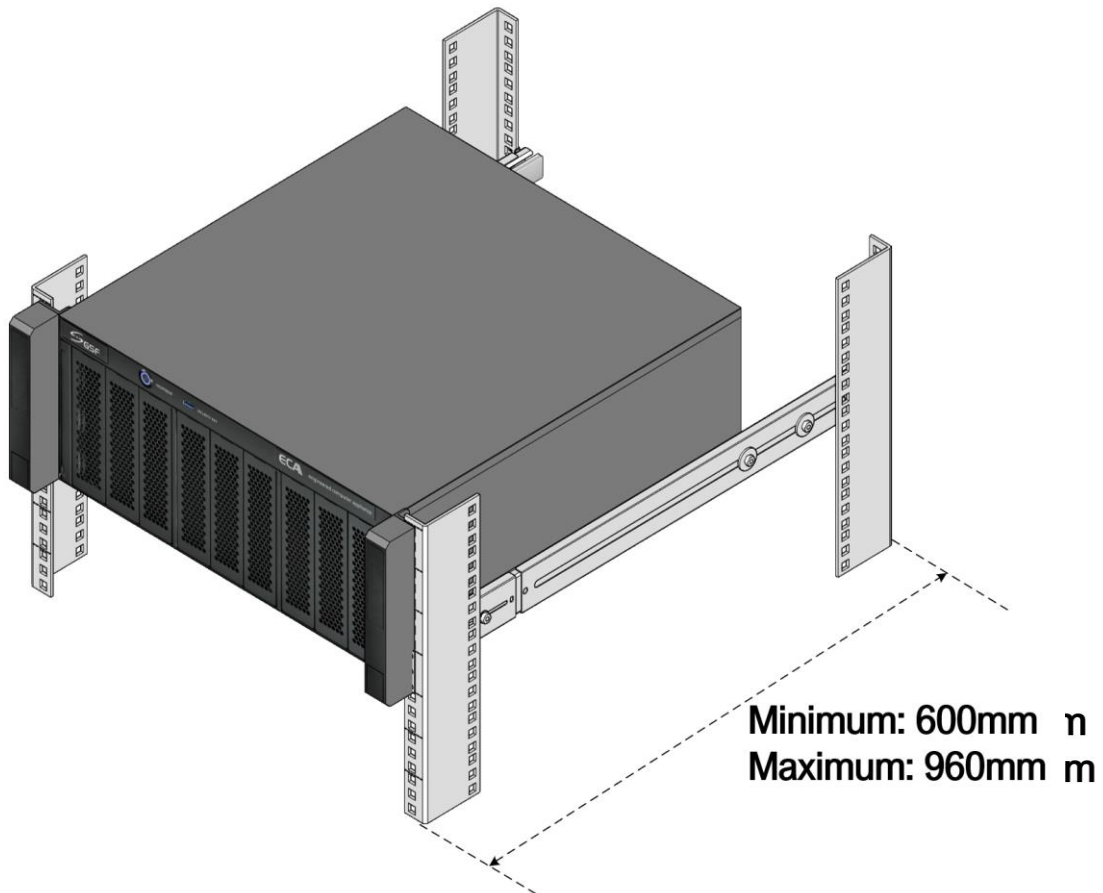
### 3 Rail

## 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<sup>1</sup> 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.

<sup>1</sup>Based on slide rail part number: King Slide 3A68-584BPZZ11ED.

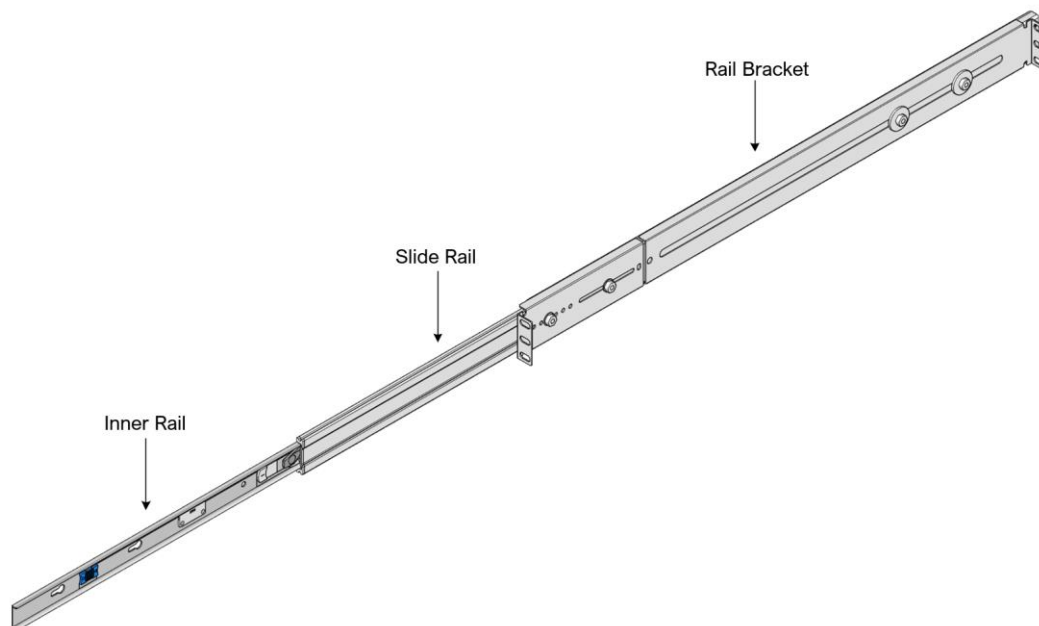
### 3.1 Package Content

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

### 3.2 Sliding Rail Assembly

The Sliding Rail assembly is comprised of 3 parts:

- Inner Rail
- Slide Rail
- Rail Bracket

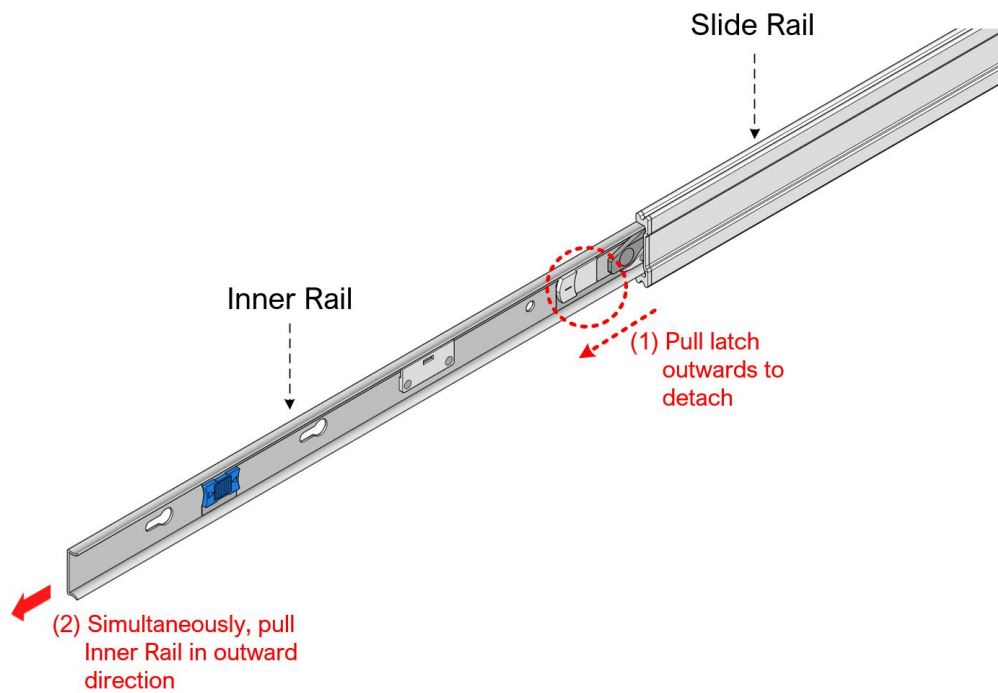


### 3.3 Installation Steps

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

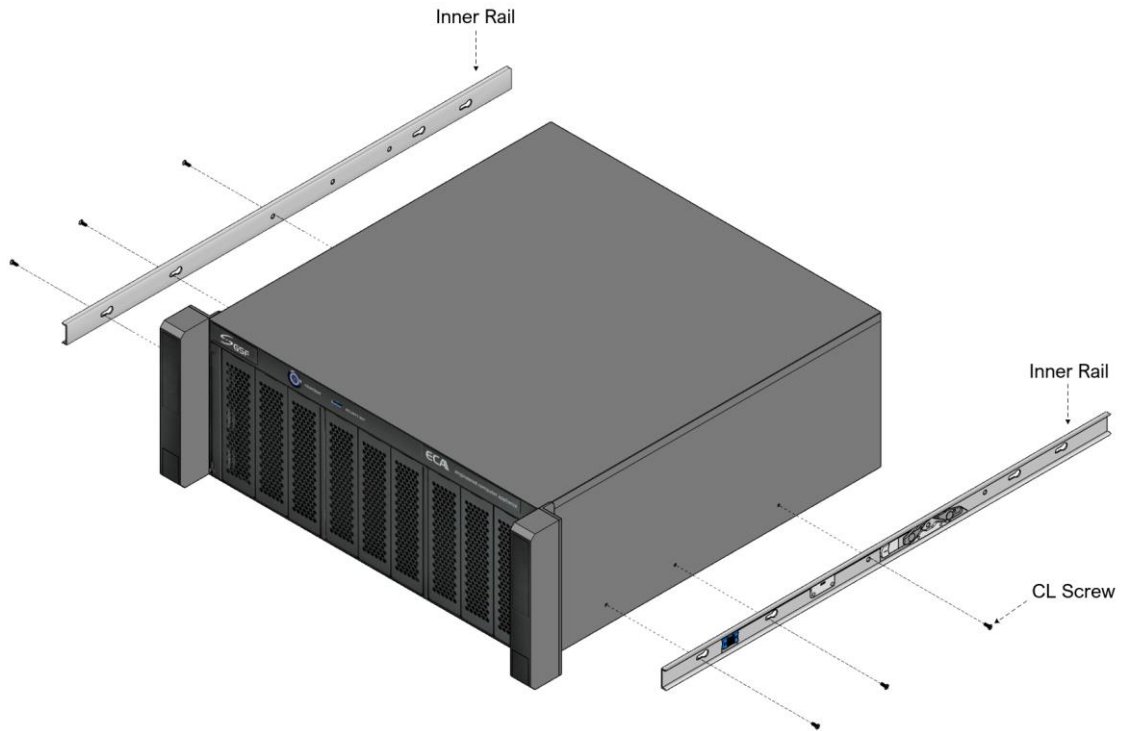
Extend the parts of the Sliding rail to reveal the WHITE color latch on the Inner Rail.

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.



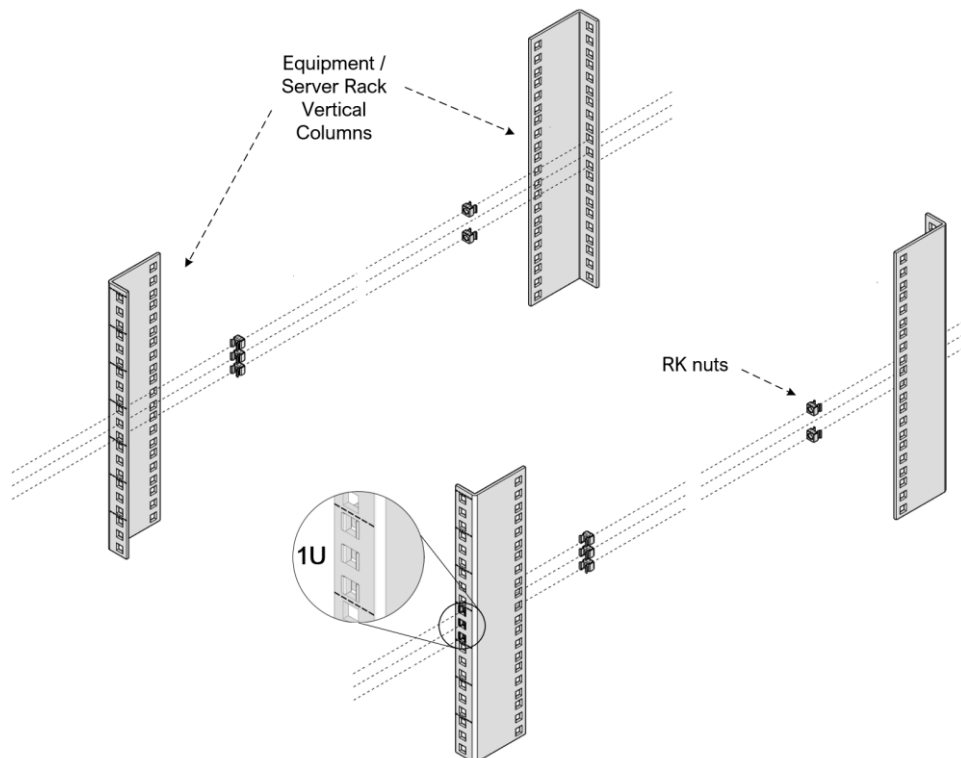
**DO NOT** remove the Slide rail from the Rail assembly. It is **NOT removable**.

**Step 2:** Attach Inner Rail to ECA Chassis.

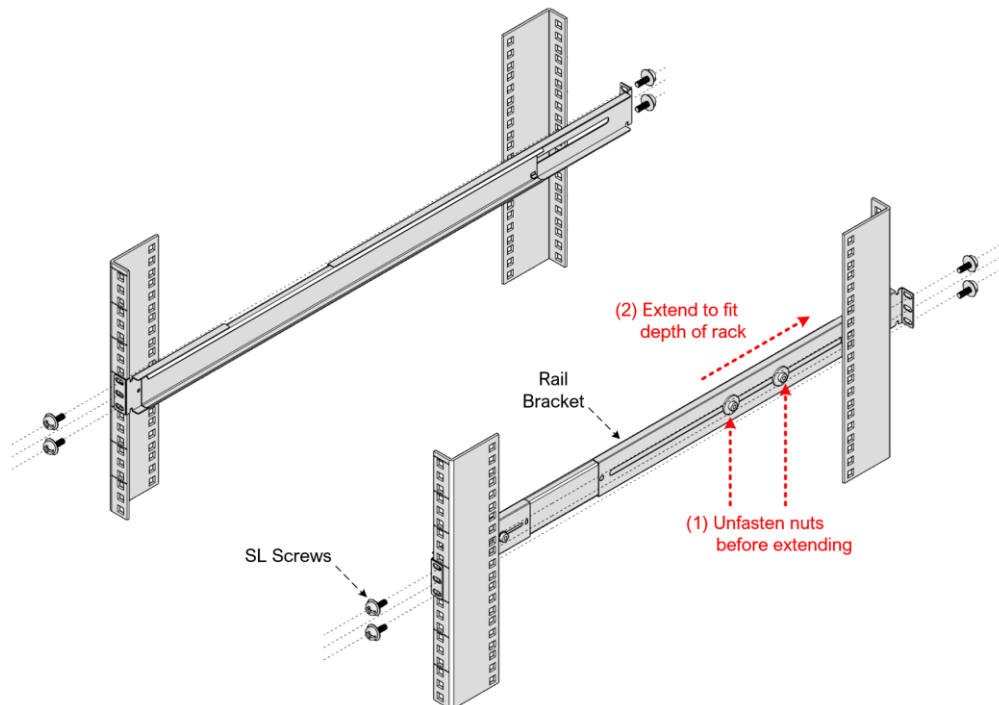


**Step 3:** Insert the RK nuts to Equipment Rack or Server Rack.

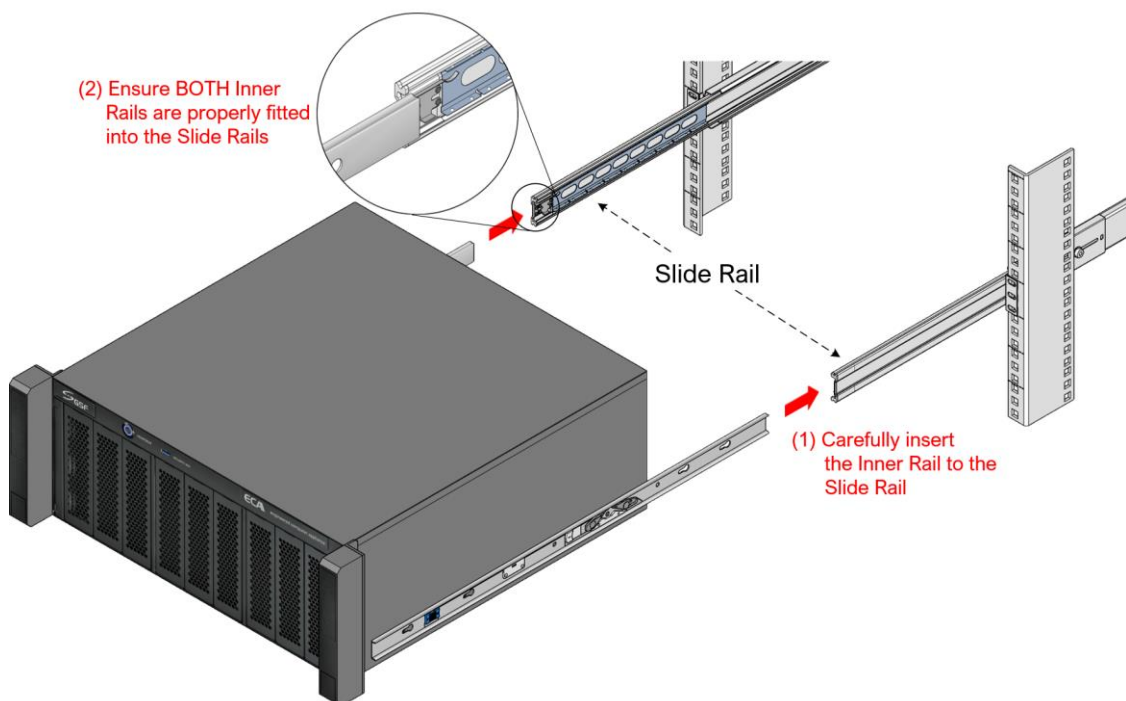
- Before inserting the nuts, make sure to reserve total 4U height and spacing for every ECA.
- The Sliding Rail is attached to the lowest 1U on the ECA.
- Ensure above the sliding rail, there is another 3U clearance space for the ECA.
- Take note of proper and correct spacing for 1U height.



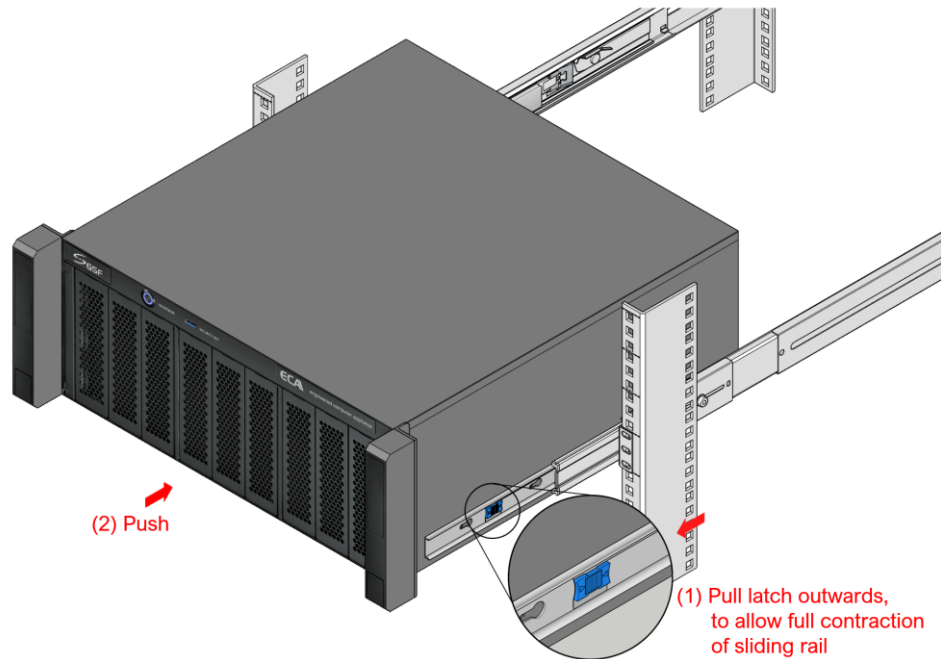
- Step 4:** Install the Rail Brackets to the Equipment rack or Server Rack. Place the Rail Brackets to the same level as the RK nuts, inserted in the previous step. Use SL screws and fasten them to the nuts. For the front, **DO NOT fasten any screw to the middle nut.** The middle nut is reserved for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



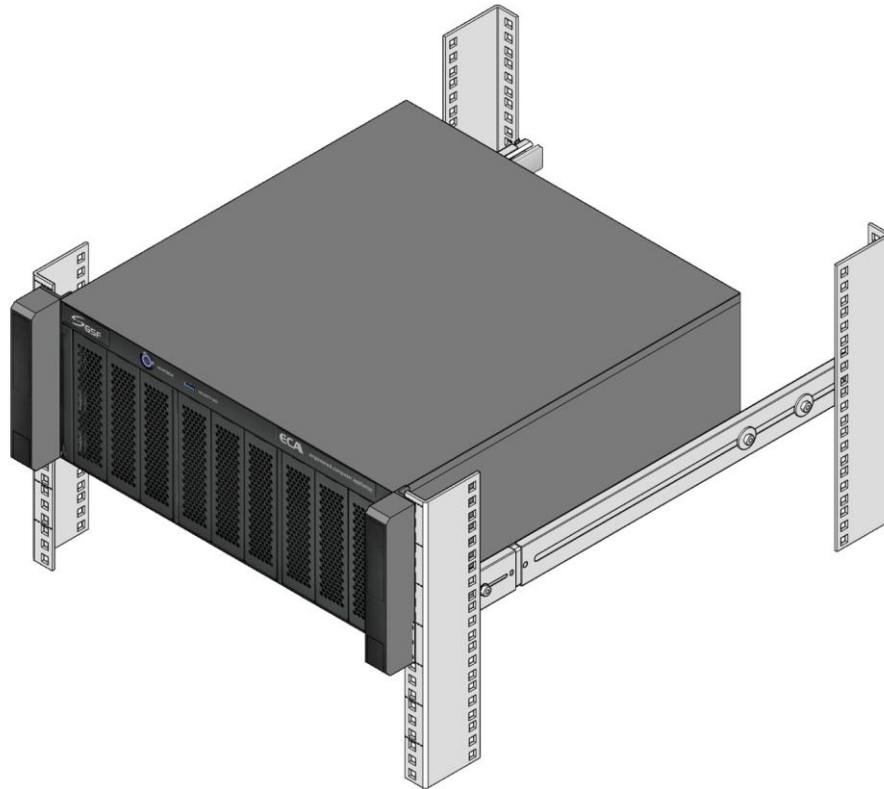
- Step 5:** Carry the ECA, which now has the Inner Rails attached, and ensure both Inner Rails are securely inserted into the Sliding Rail.



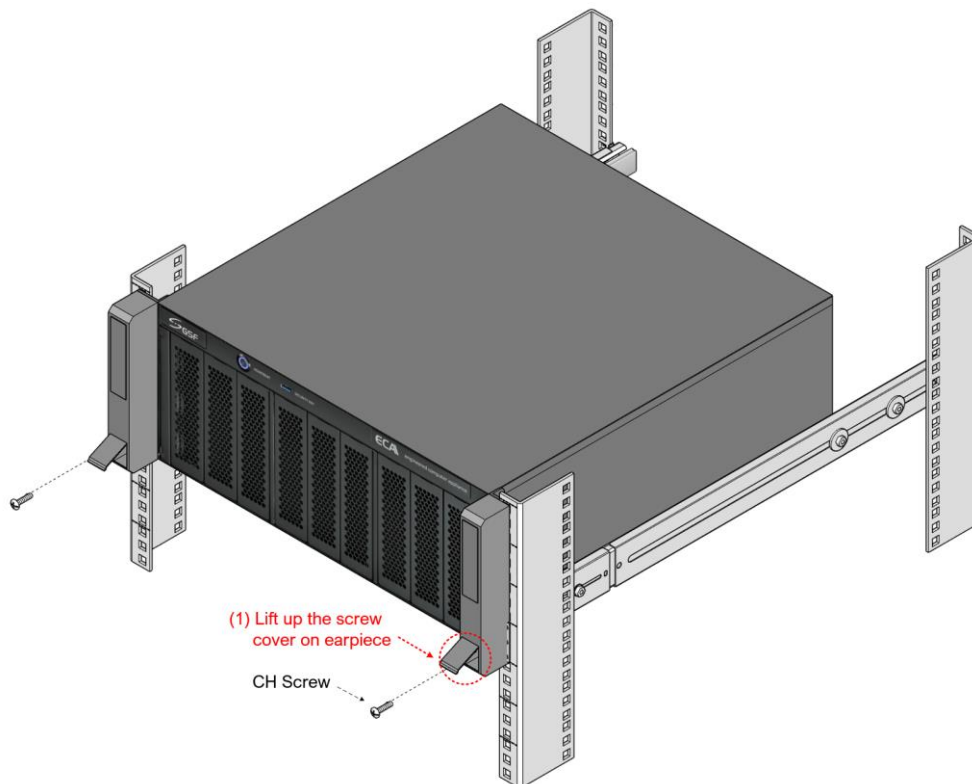
**Step 6:** Push the ECA inwards to the rack until the mounting brackets encounter the slide-rail stop. Then, simultaneously pull and hold the **BLUE** latch on the Inner Rail, while pushing the ECA inwards. This will fully contract the whole Sliding Rail assembly.



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

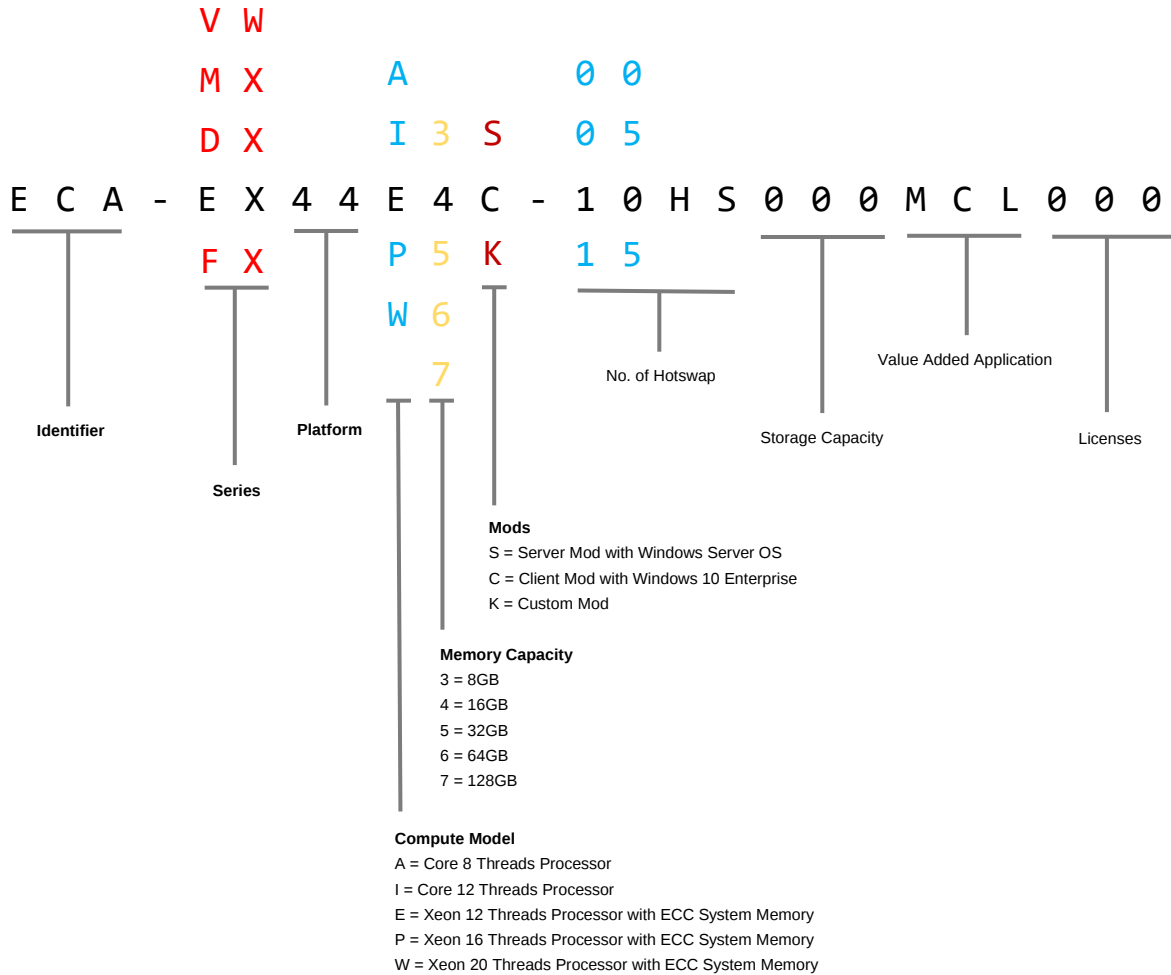


**Step 8:** Lift the screw cover on the earpiece of the ECA. Fasten ECA to the Sliding Rail using the CH Screw.



## 4 ECA Naming

The ECA naming will represent the specification of the platform.



## 5 ECA Series



VW-series



MX-series



DX-series



EX-series



FX-series

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

## 6 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

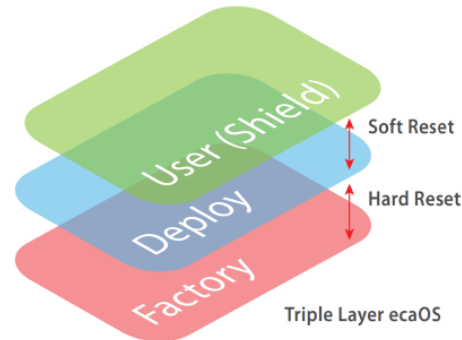


Figure 1: Triple Layers

### **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)

### **Deployment Layer** (Backup layer)

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

### **Factory Layer** (Backup layer)

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

## 6.1 ecaOS Login

Some ECA may be shipped without automatic login, subject to configurations. In such case, the ecaOS will boot until the login screen, and the prompt for login will be shown, as follow:

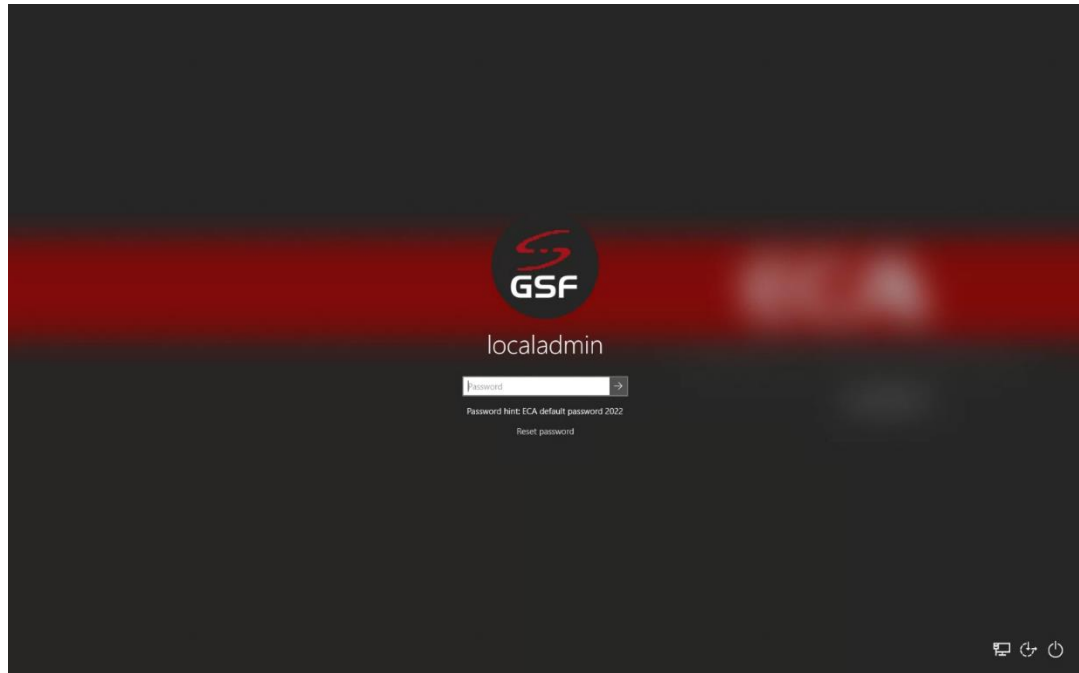


Figure 2: ecaOS Login Screen

Username : **localadmin**

Password : *\*Please contact TrueBlue support*  
[trueblue@gsfcorp.com](mailto:trueblue@gsfcorp.com) +60-3-80908277

## 6.2 ecaOS Locked Out

If the password enters in 3 times incorrectly, the logging screen will be lock for 15 minutes before retrying



Figure 3: Account Locked Out

## 7 Dashboard and Notification

Location of the Dashboard application and ecaOS Notification display area.

**Notification** area where all the activity within the ECA will be prompt out.

**Dashboard** is web base interface displaying overall information and system vitals of the ECA machine status

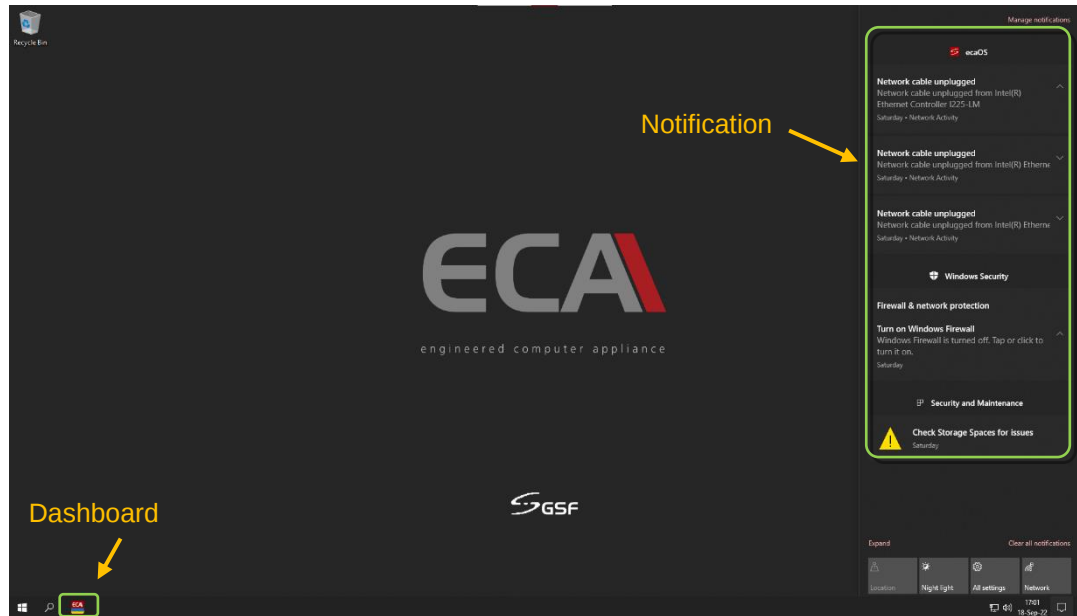


Figure 4: ecaOS Desktop

## 7.1 Accessing ecaOS Dashboard

There are two ways to access ecaOS Dashboard.

1. Security Key (USB)
2. Virtual Security Key card



Figure 5: Security Key & Virtual Security Key Card

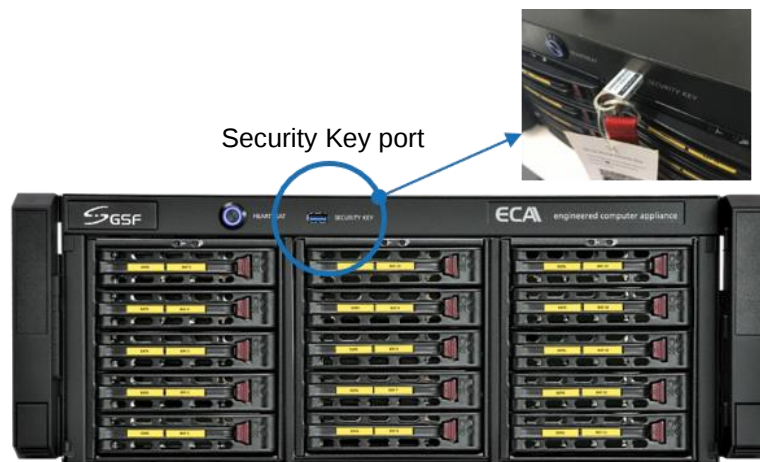


Figure 6: Security Key USB Port Location

1. Insert Security key to Security Key USB port
2. Run 'ecaOS Dashboard'  from the system taskbar.

### 7.1.1 Using Virtual Security Key (ECA Access Code)

Run 'ecaOS Dashboard'  from the desktop taskbar. Enter 'Access Code' from authenticator apps.

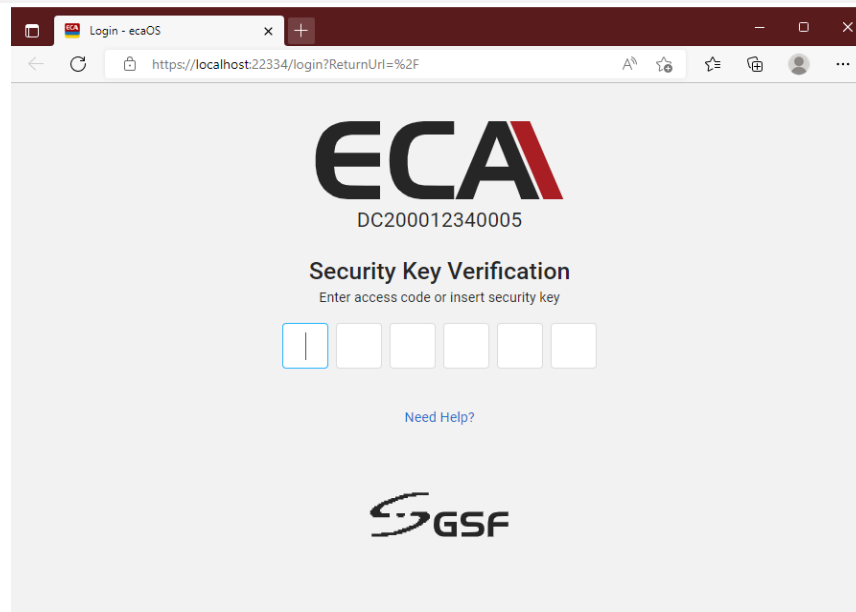


Figure 7: Dashboard Login Page

### 7.1.2 Get Virtual Security Key (ECA Access Code)

ECA Access code is mandatory for logging into the Dashboard. To obtain the ECA Access code, follow the procedures below:

1. Download an Authenticator app. For Android user, go to '**Google Play**'. For iOS user, go to '**App Store**'.
2. Search for 'authenticator'. 'Google Authenticator' or 'Microsoft Authenticator' should appear in the search result. You can install either one as the authenticator to use with ecaOS for obtaining the Access code.



Figure 8: App search results

3. This procedure is based on using Google Authenticator.



**Before using any authenticator app, it is important to check and make sure your device's time is synchronized with ECA's time. Otherwise, it the access code may not work correctly.**

4. Run 'Google Authenticator' on your device. Click 'Begin' button.

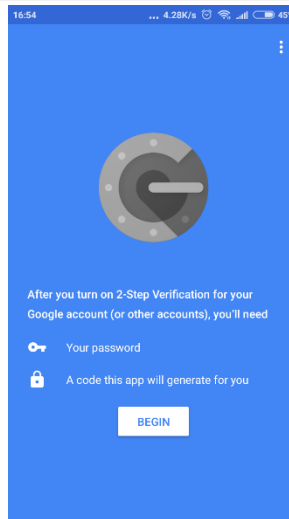


Figure 9: Authenticator Setup

5. Choose 'Scan a barcode' to start scanning the QR code, which can be found on the **Virtual Security card**.

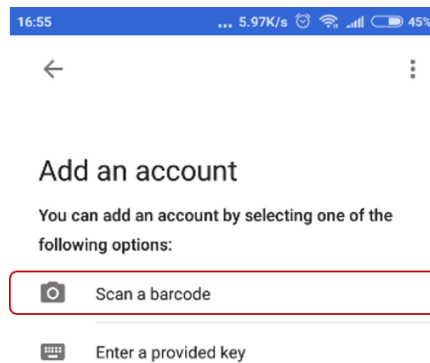


Figure 10: Authenticator Setup

6. Ensure the QR code is position correctly within the scanner frame.

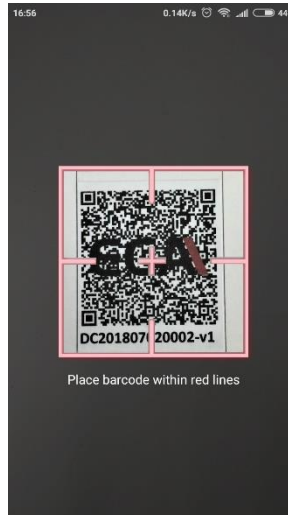


Figure 11: Authenticator Setup

7. The Access code will display in the app.

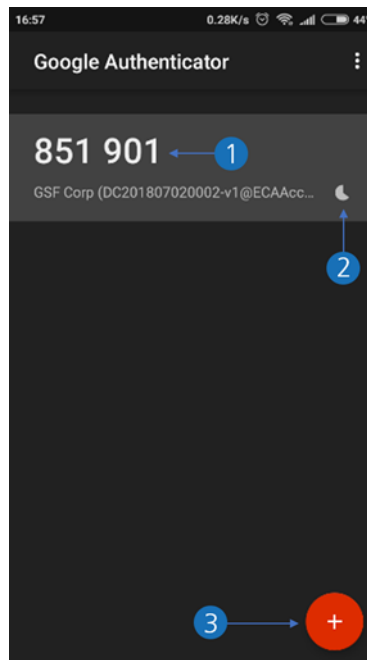


Figure 12: Authenticator Setup (4 of 4)

1. Access Code
2. Access Code will change for every 30 seconds
3. Click here to scan another QR Code for others ECA 'Virtual Security Key'.

8. Enter the 6-digits OTP access code into the Security Key Verification

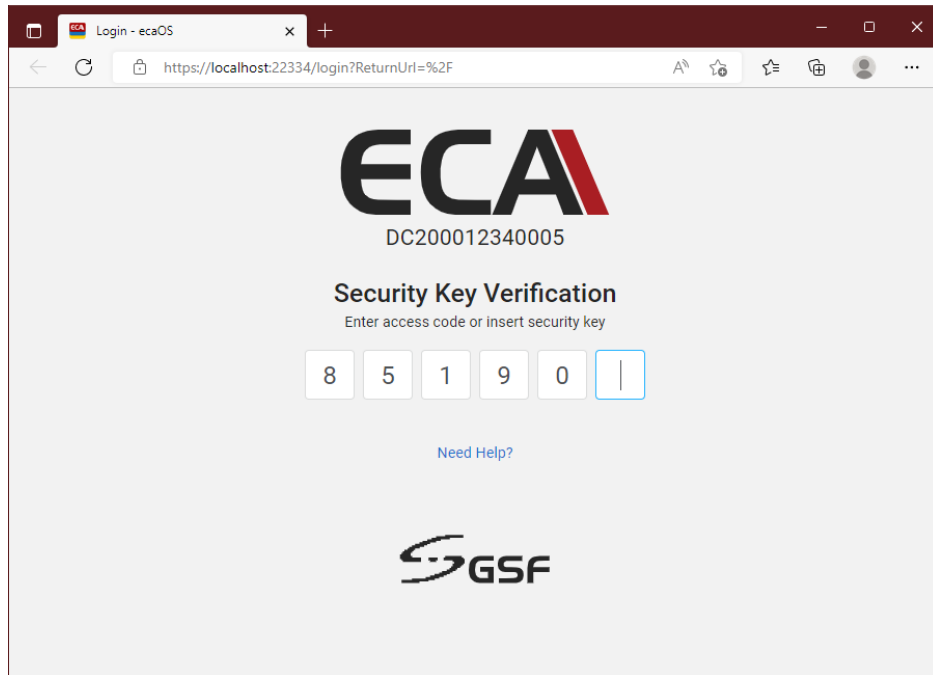


Figure 13: ecaOS Dashboard Login Page

### 7.1.3 Remotely Access ecaOS

Open web browser from remote computer. Enter the IP address of the ECA the address bar, following this URL format:

`https://<ipaddress>`

Example: `https://10.0.0.39`

Alternatively, you may insert the ECA's serial number at the browser's address bar, by following this format:

`https://<ECA serial number>`

Example: `https://DC200012340005`



**Default access port number for the dashboard is '443'. This port number is changeable in the Dashboard configuration.**

1. Click 'Advanced'

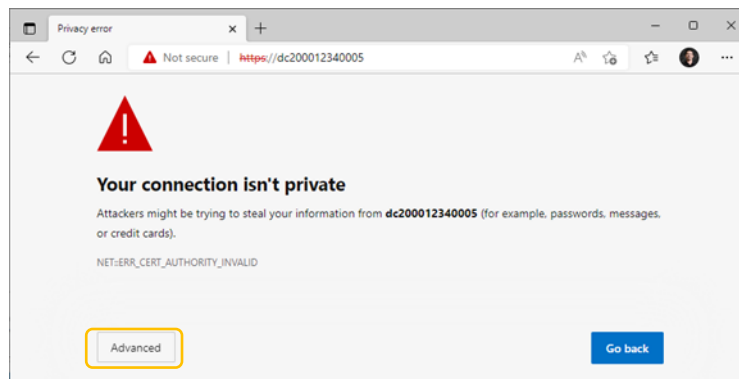


Figure 14: Dashboard Remote Access (1 of 2)

2. Click the link 'Continue to dcxxxxxxxxxx (unsafe)'

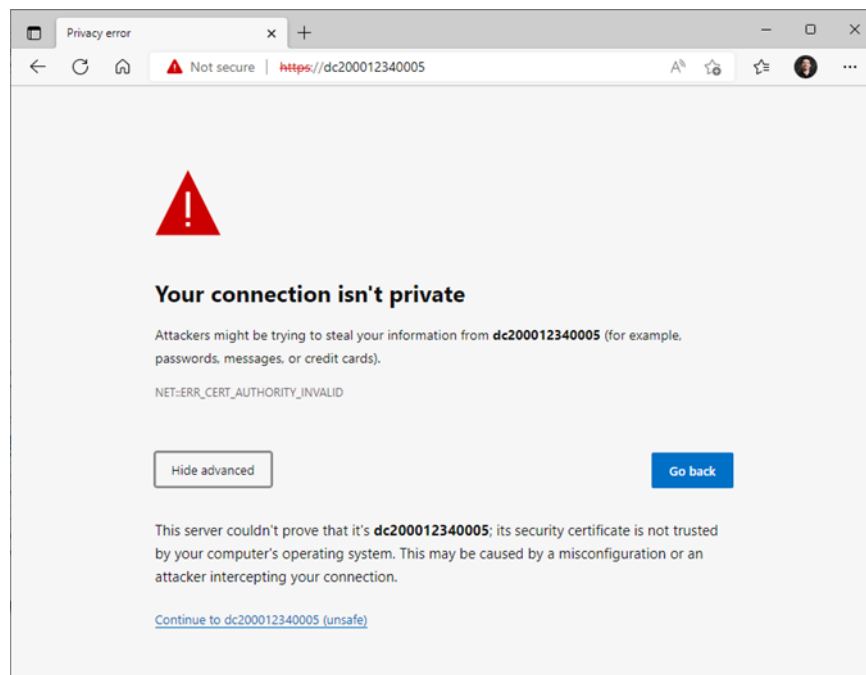


Figure 15: Dashboard Remote Access (2 of 2)

## 7.2 ecaOS Dashboard ▶ Summary

The summary Dashboard page able to offers overall information and system vitals of the ECA machine status. Example of information and status display on the Dashboard are:

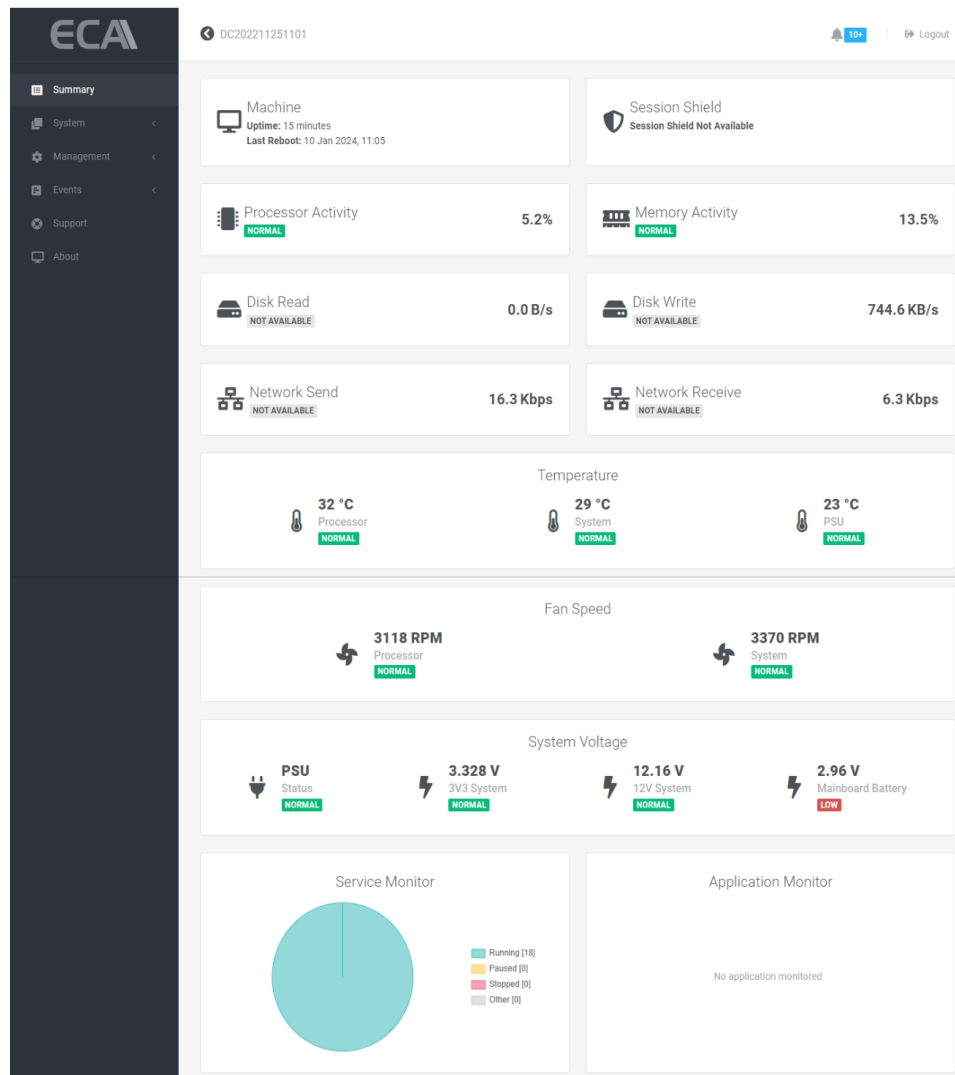


Figure 16: ecaOS Dashboard Summary

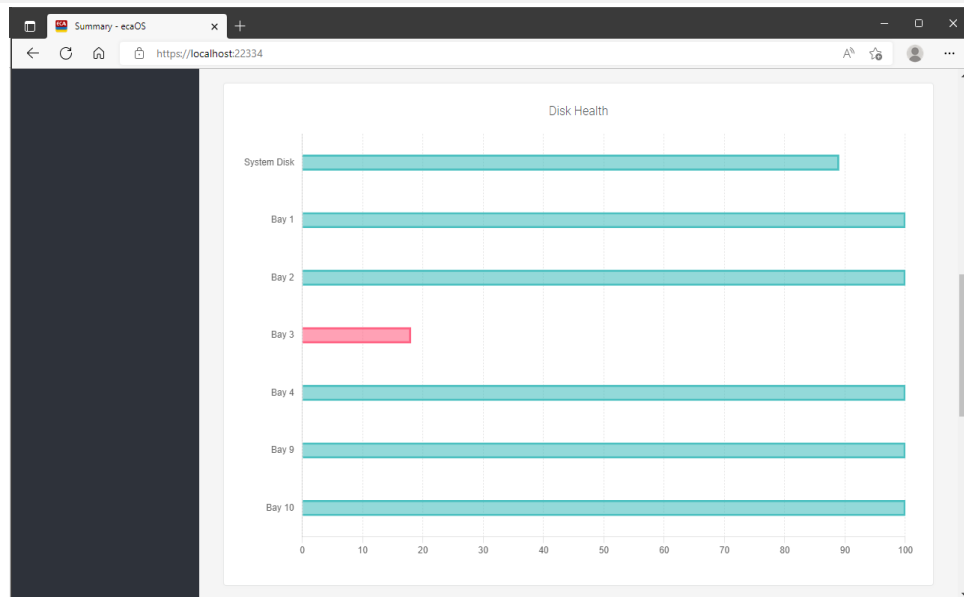
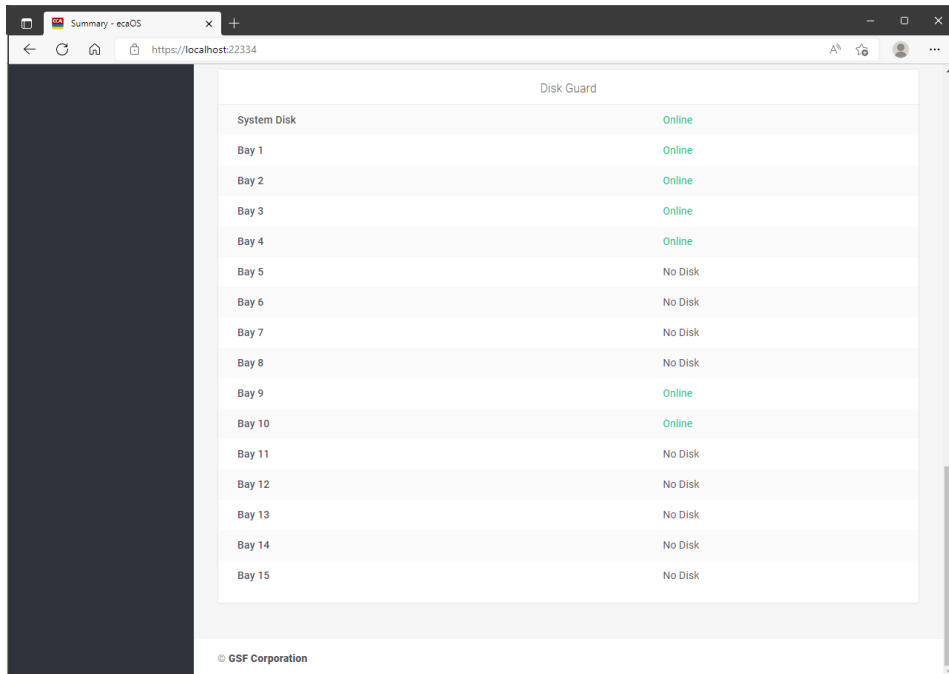


Figure 17: ecaOS Dashboard Summary – Disk Health



| Component   | Status  |
|-------------|---------|
| System Disk | Online  |
| Bay 1       | Online  |
| Bay 2       | Online  |
| Bay 3       | Online  |
| Bay 4       | Online  |
| Bay 5       | No Disk |
| Bay 6       | No Disk |
| Bay 7       | No Disk |
| Bay 8       | No Disk |
| Bay 9       | Online  |
| Bay 10      | Online  |
| Bay 11      | No Disk |
| Bay 12      | No Disk |
| Bay 13      | No Disk |
| Bay 14      | No Disk |
| Bay 15      | No Disk |

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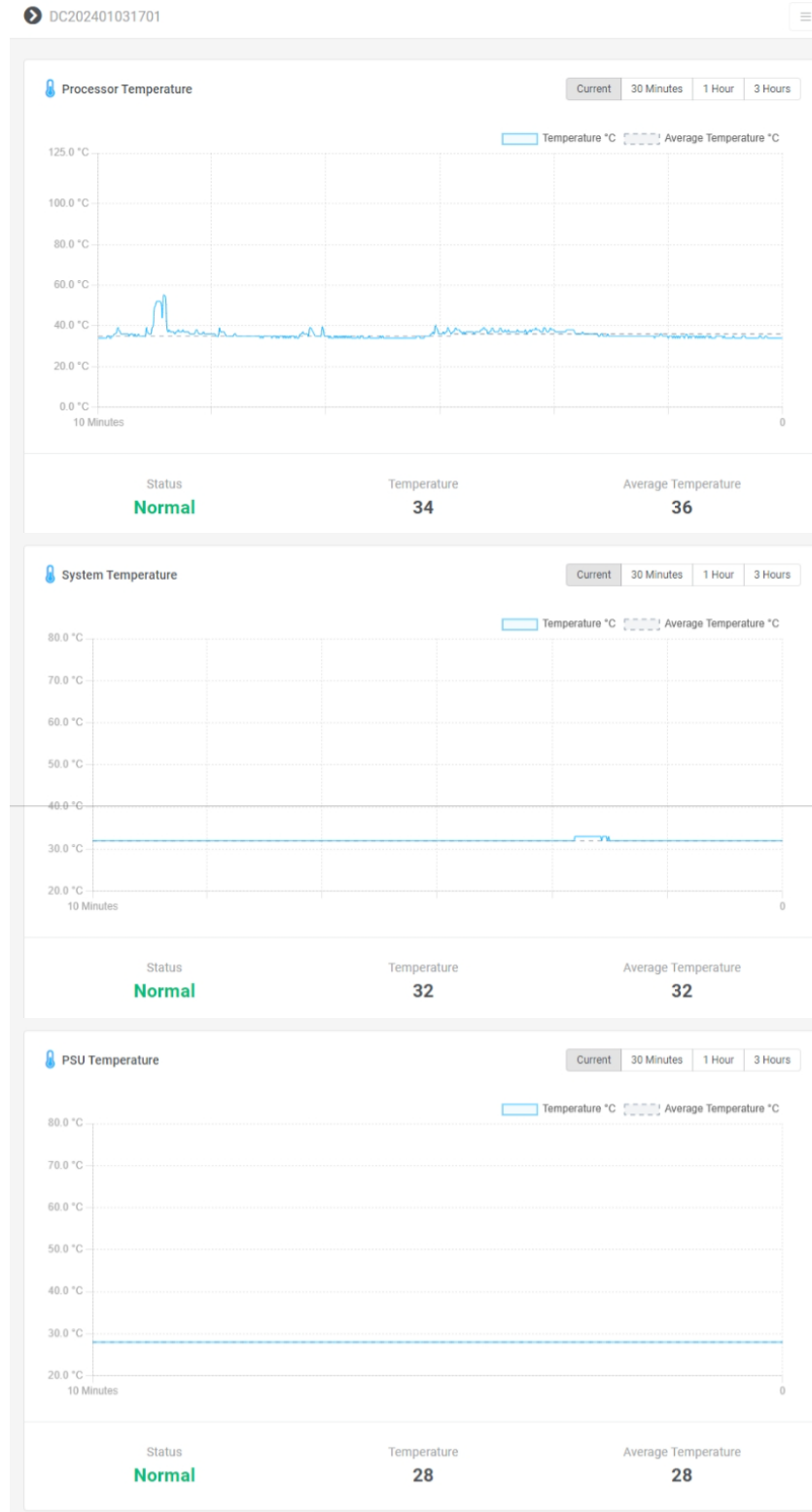
Figure 18: ecaOS Dashboard Summary – Disk Guard

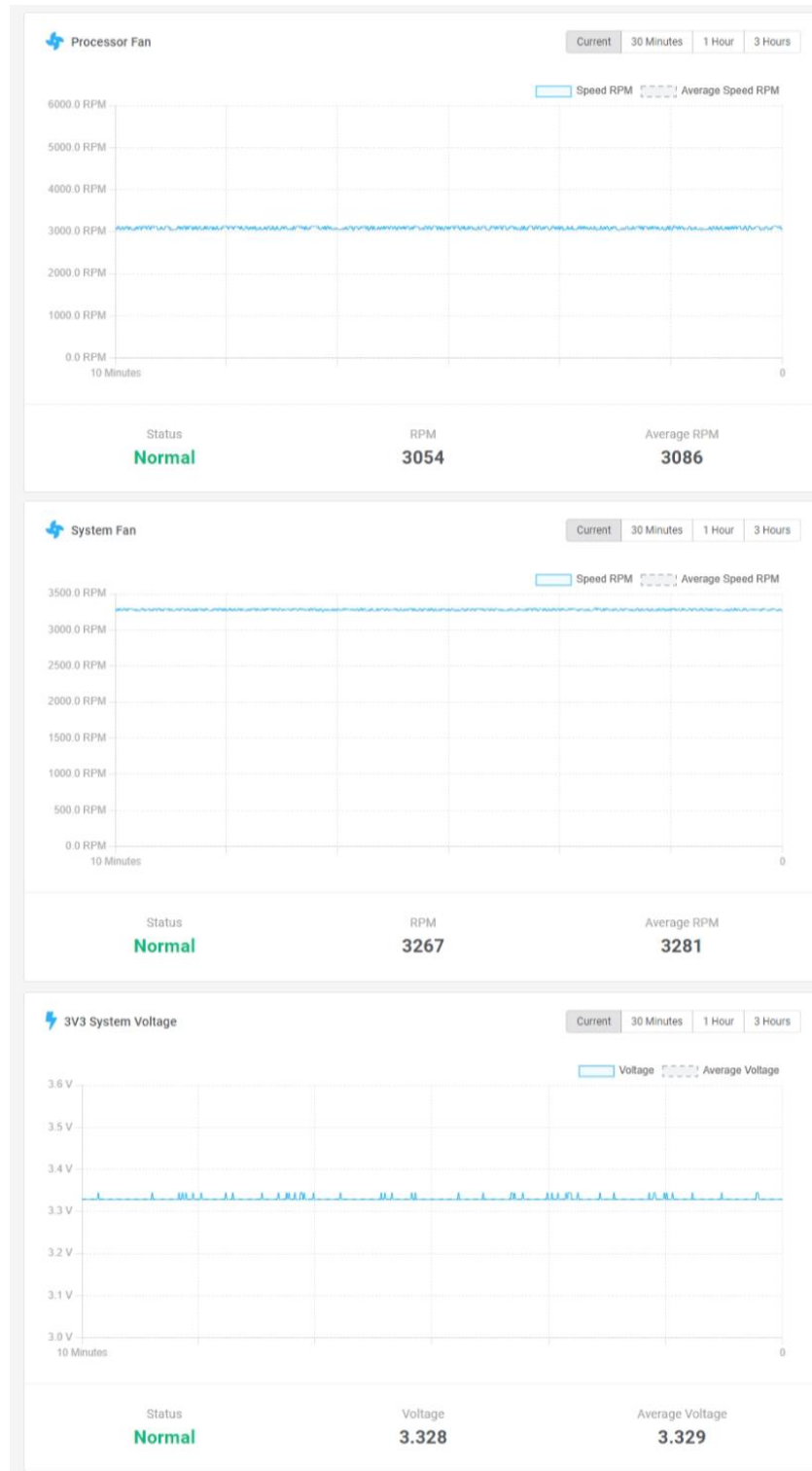
## 8 System

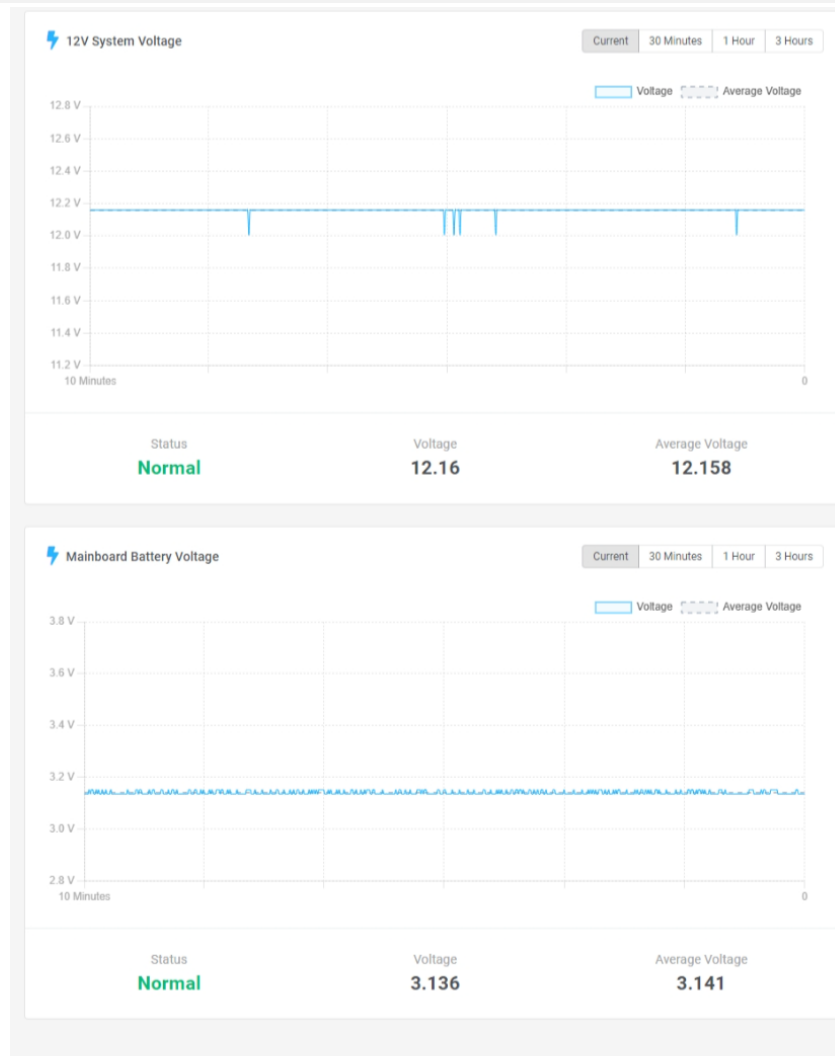
### 8.1 System Monitor

With System Monitor, users can view a list of current Processor Temperature, Mainboard Temperature, PSU Temperature\*, Processor Fan speed, System Fan speed, 3V3 System Voltage, 12V System Voltage & Mainboard Battery Voltage.

\*ONLY applies to ECA45 with TBSP-ECAPSU-R600 power supply unit (PSU).







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Figure 19: System Monitor Summary

## 8.2 Service Monitor

The tools will be displaying the status of all services in the ecaOS that have been added into Service Monitor.

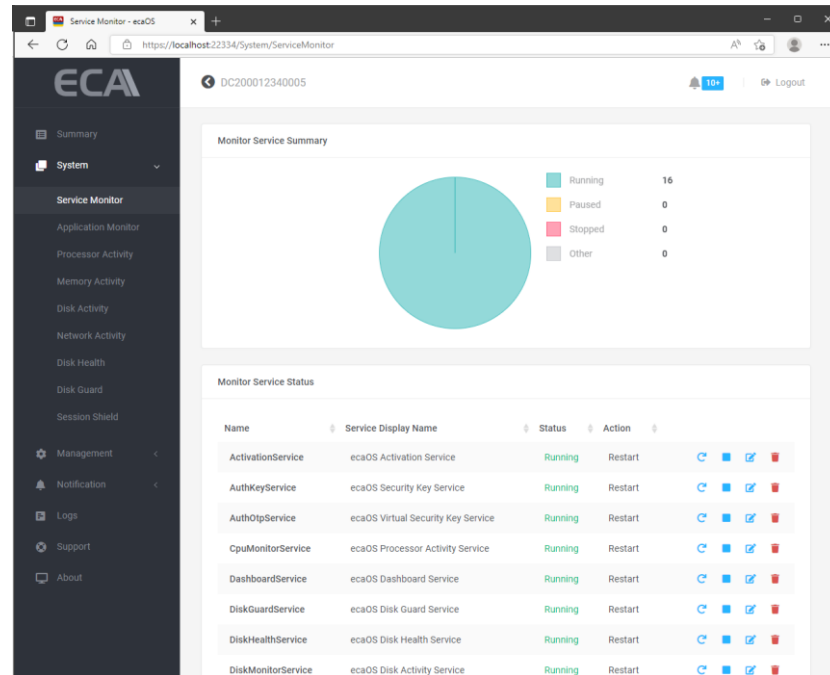


Figure 20: Service Monitor Summary

### 8.2.1 Add Services

1. To add services, click the [+ Add Service](#) button.

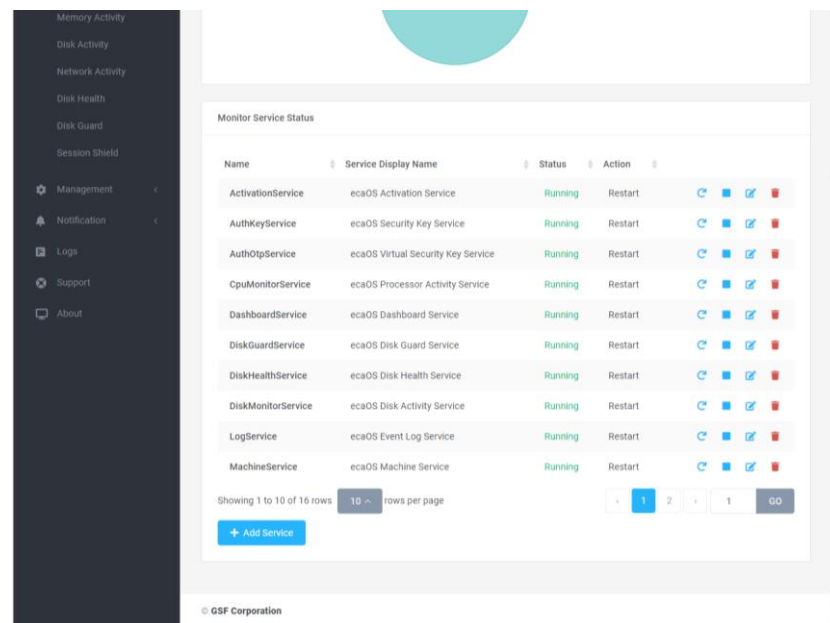


Figure 21: Add Services

2. Click the drop-down button.

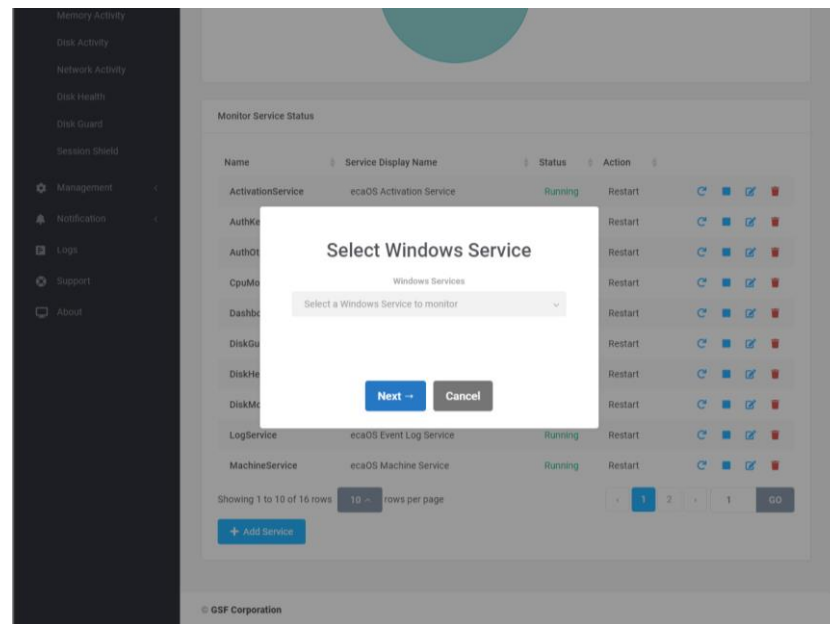


Figure 22: Select Windows Services (1 of 4)

3. Select the services to be added into Service Monitor.

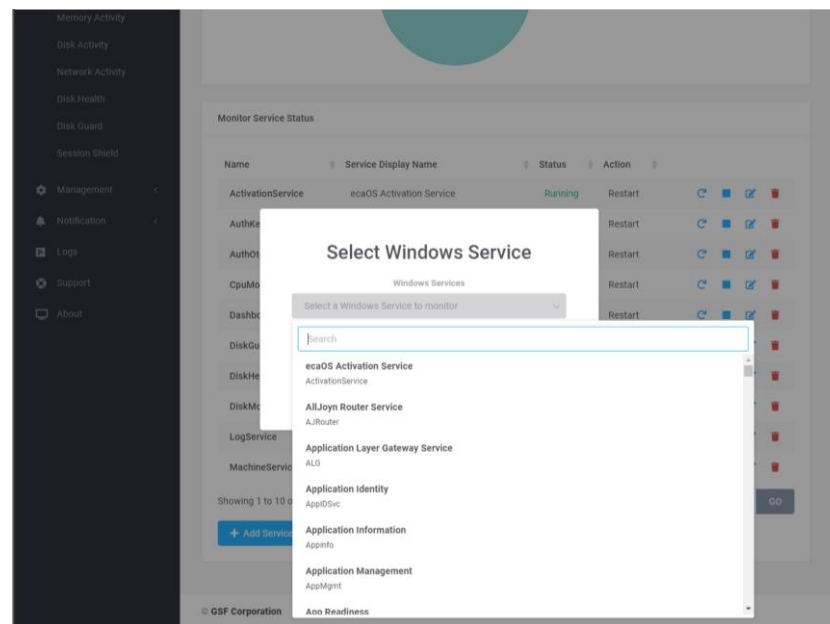


Figure 23: Select Windows Services (2 of 4)

4. Click **Next →** button

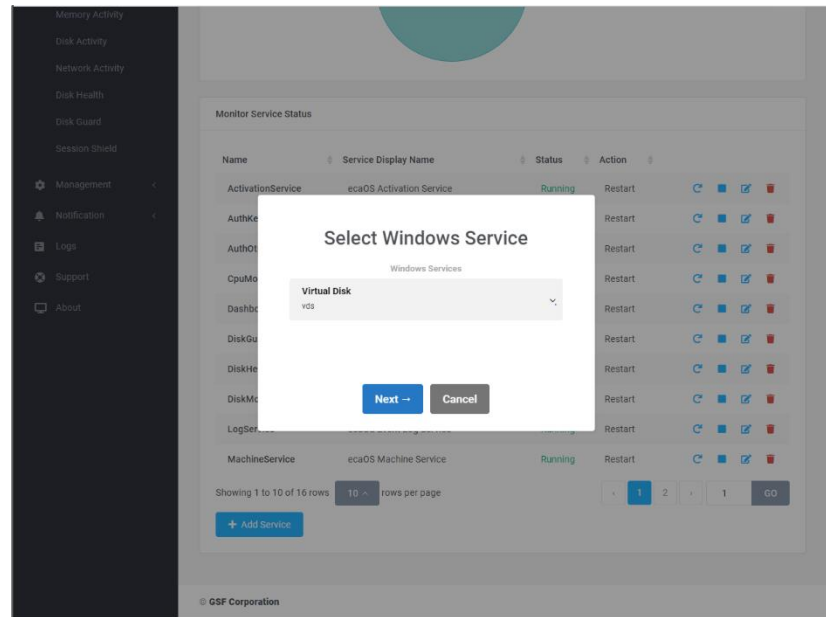


Figure 24: Select Windows services (3 of 4)

5. Select the actions that Service Monitor should perform when the services stop working. Click **Save** to save the setting.

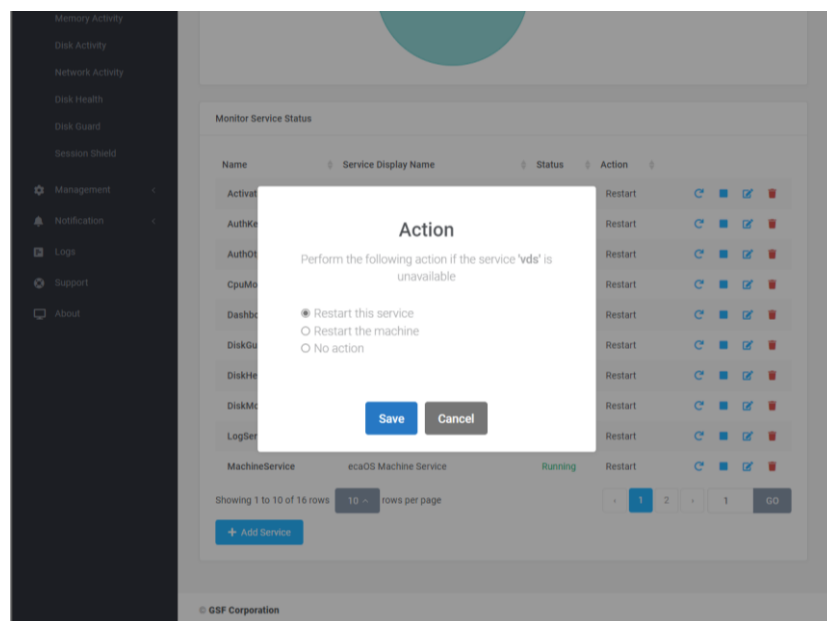


Figure 25: Select Windows Services (4 of 4)

## 8.2.2 Delete Services

- To delete services, click the  button of the service to be delete

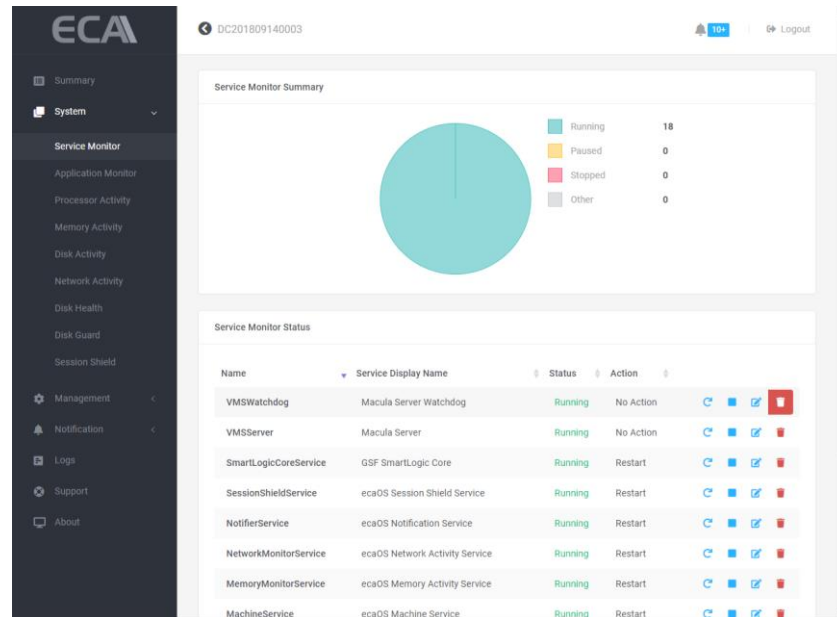


Figure 26: Delete Services (1 of 2)

- Click on  to proceed with the deletion

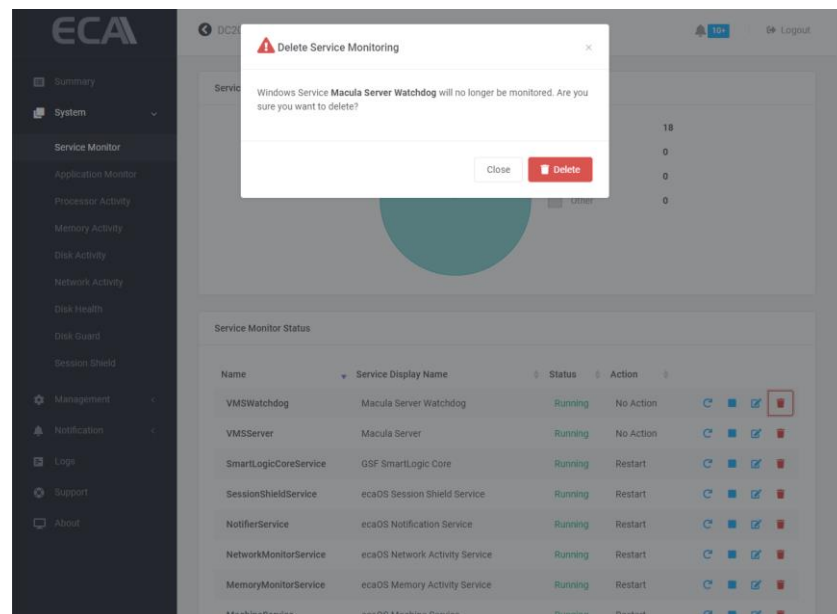


Figure 27: Delete Services (2 of 2)

## 8.3 Application Monitor

The tools will be displaying the status all application that added in 'Application Monitor'. Set the application to auto start after login to OS environment and terminate any instance running at the same time.

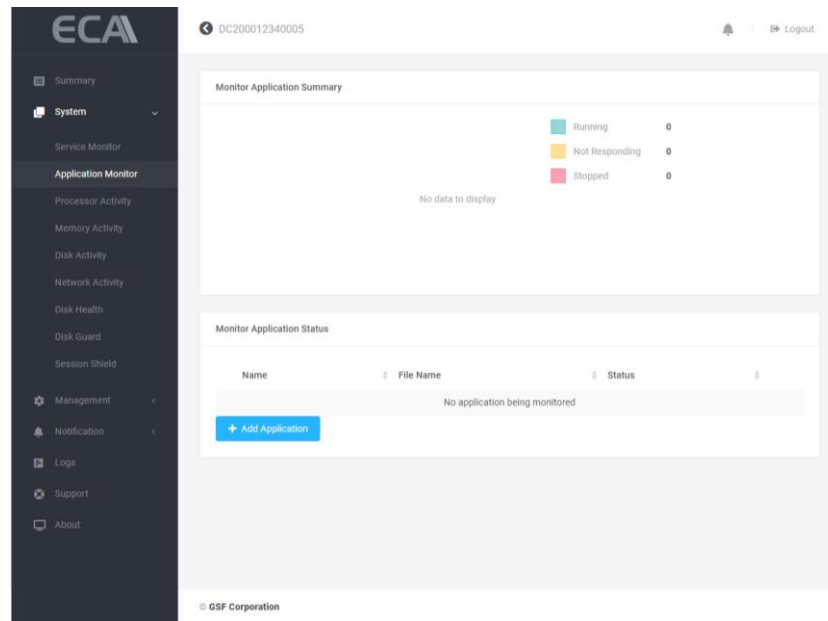
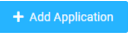


Figure 28: Application Monitor (1 of 5)

### 8.3.1 Add Application

1. To add application, click the  button.
2. Enter the application name

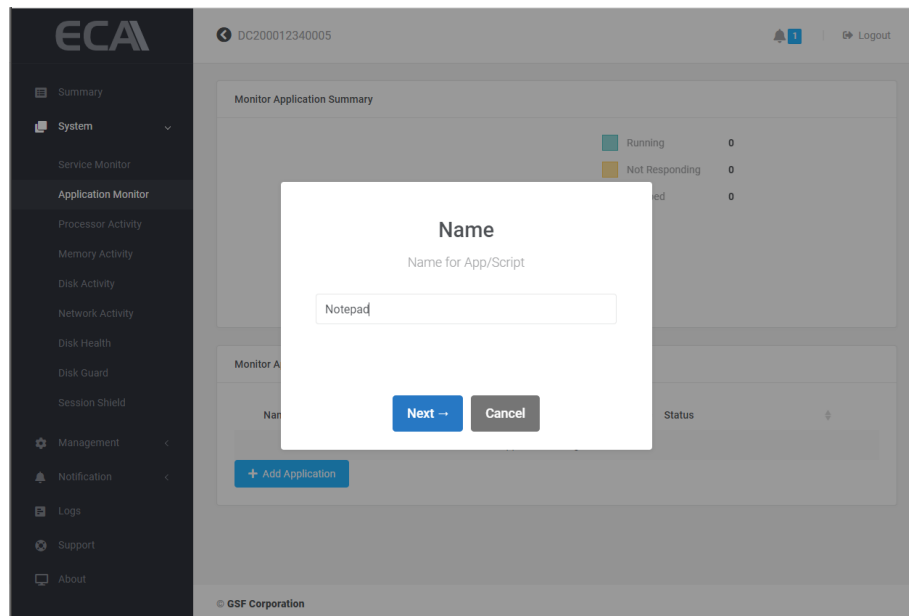


Figure 29: Application Monitor (2 of 5)

3. Paste the path of the application to be added.

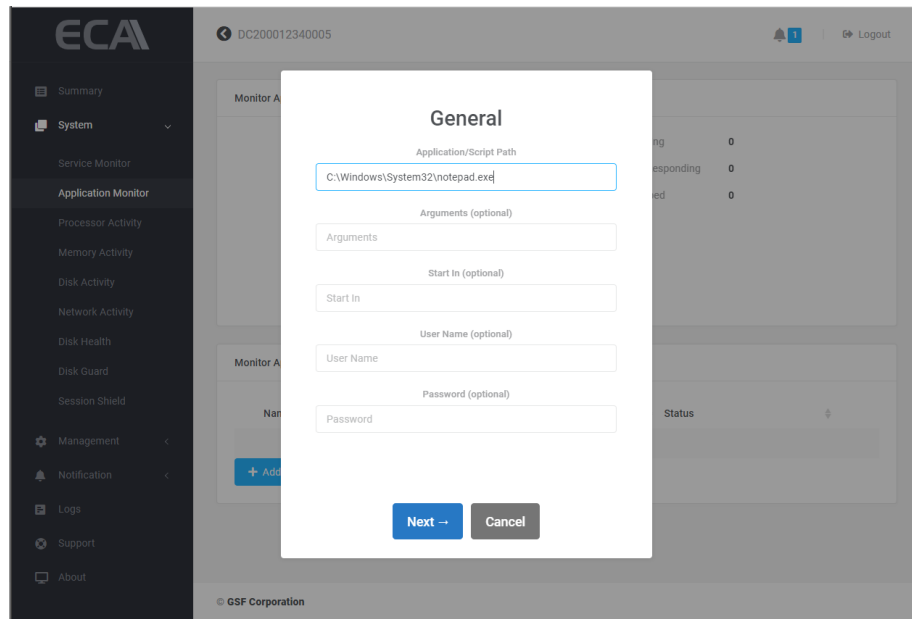


Figure 30: Application Monitor (3 of 5)

#### 4. Apply setting

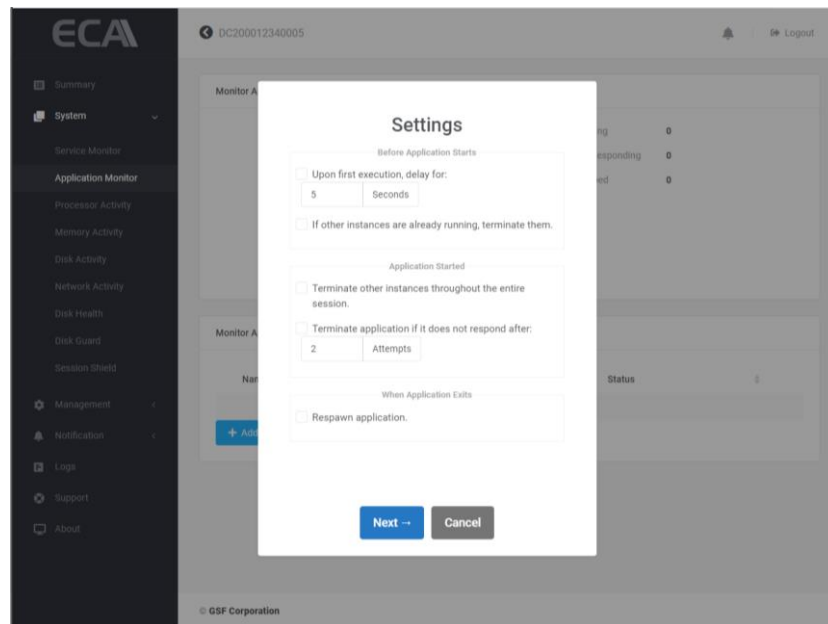


Figure 31: Application Monitor (4 of 5)

### Upon first execution delay for

Set the delay when for application to start.

### If other instance(s) already running, terminate it

Another instance will be terminated before 'Upon First Execution' started.

### Terminate other instance(s) throughout the entire session

Another instance will be terminated

### Terminate application if not responding

Application will terminate after number of attempts

### Respawn Application

The application will respawn if it close

5. After successfully add the application to be monitor. The application status will appear in the 'Application Monitor' page.

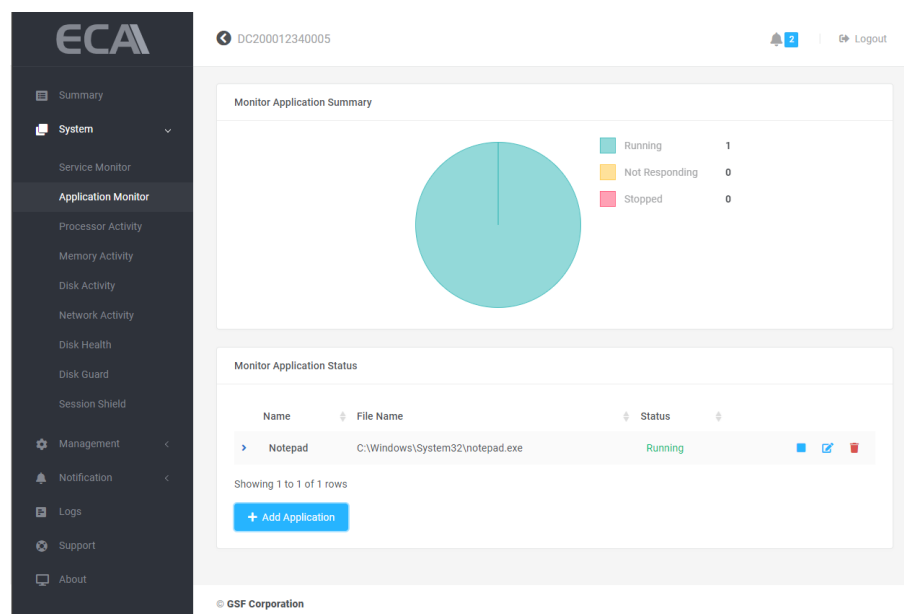


Figure 32: Application Monitor (5 of 5)

## 8.3.2 Delete Application

- To delete application to be monitor, click the  button of the application to be delete

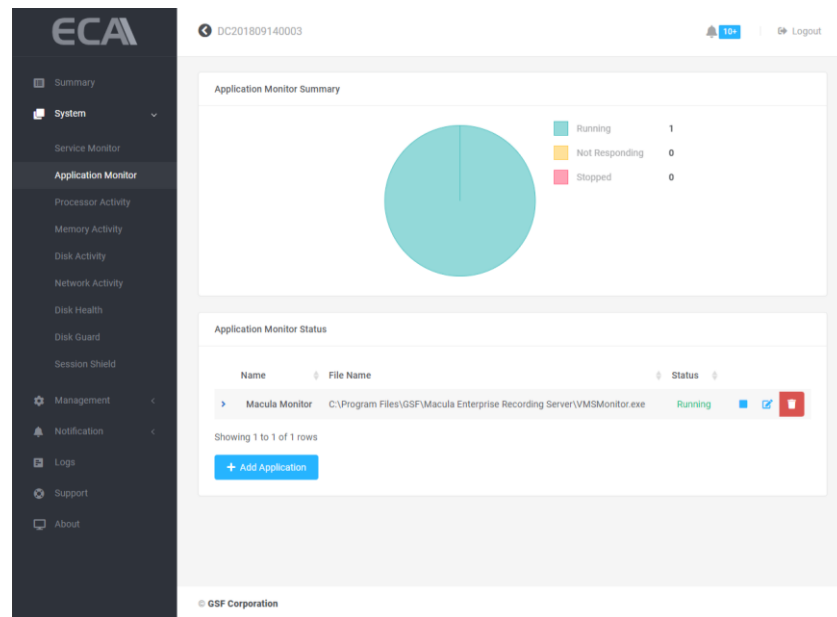


Figure 33: Delete monitored application (1 of 2)

- Click on  to proceed with the deletion

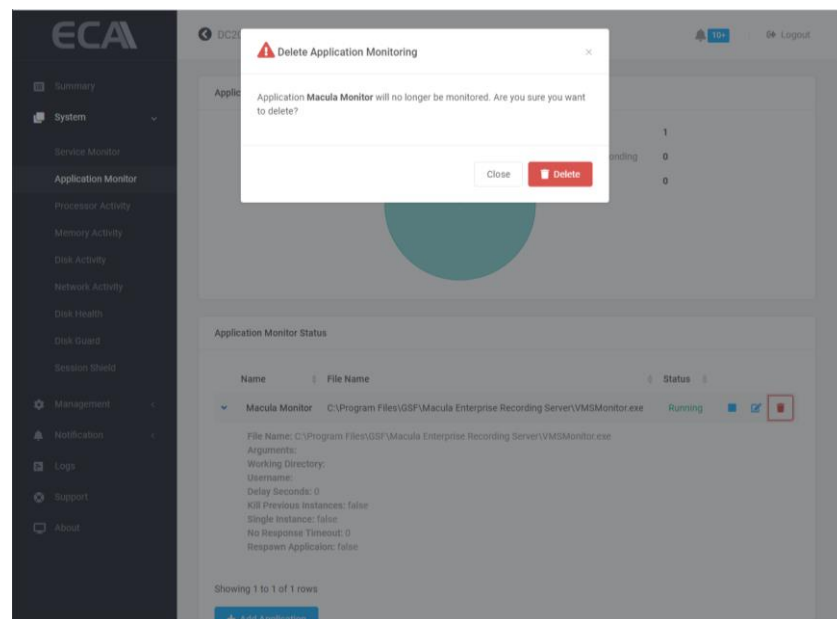


Figure 34: Delete monitored application (2 of 2)

## 8.4 Processor Activity

This application monitors the CPU usage and notify/email if the usage above the threshold value. ecaOS can generate notification to alert user when ECA CPU Alert utilization goes above the configured threshold for a pre-defined period.

**CPU Activity:** The status will base on Average CPU Utilization. The status will change to High if the Average CPU Utilization higher than threshold set under Processor Activity Monitor.

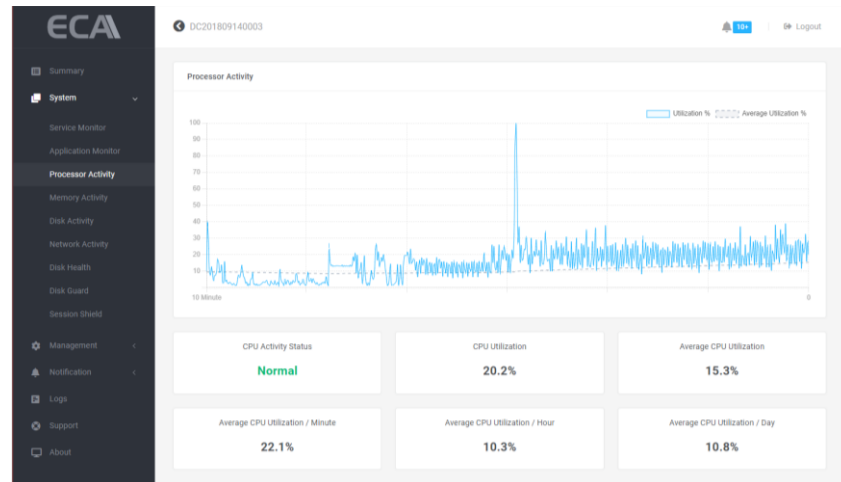


Figure 35: Processor Activity (1 of 2)

By the example below to demonstrate that the Processor Activity Monitor set to enable, the threshold set to 80% for 10 minutes. The CPU Activity status will change to High if the Average CPU Utilization higher than 80% for more than 10 minutes. This event will notify by email and at the notification.

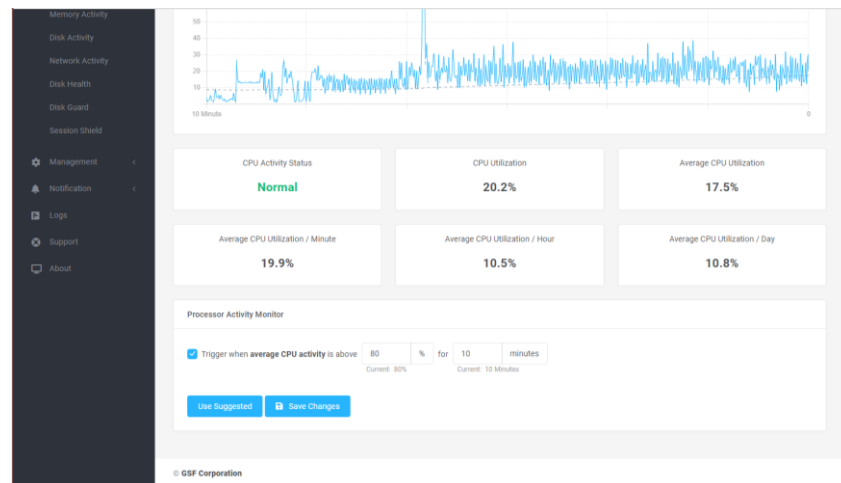


Figure 36: Processor Activity (2 of 2)

### NOTE:

- Click on 'Use Suggested' for reference value calculate by the system.
- For email and notification setting, go to [Events](#)
- Example email of the CPU activity event in the [Appendix Processor Activity](#)

## 8.5 Memory Activity

Monitor the memory usage and notify/email if the usage above the threshold value. ecaOS can generate notification to alert user when ECA Memory utilization goes above the configured threshold for a pre-defined period.

**Memory Activity:** The status will base on Average Memory Usage. The status will change to High if the Average Memory Usage higher than threshold set under Memory Activity Monitor.

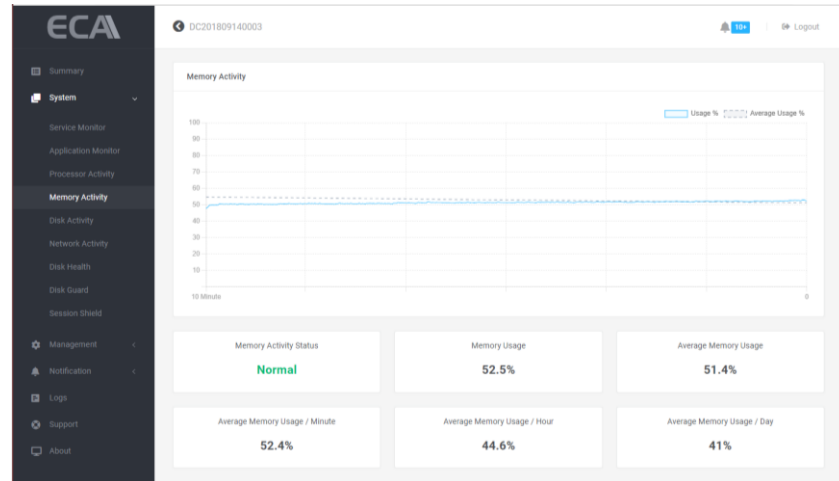


Figure 37: Memory Activity (1 of 2)

By the example below to demonstrate that the Memory Activity Monitor set to enable, the threshold set to 80% for 10 minutes. The Memory Activity status will change to High if the Average Memory Utilization higher than 80% for more than 10 minutes. This event will notify by email and at the notification.

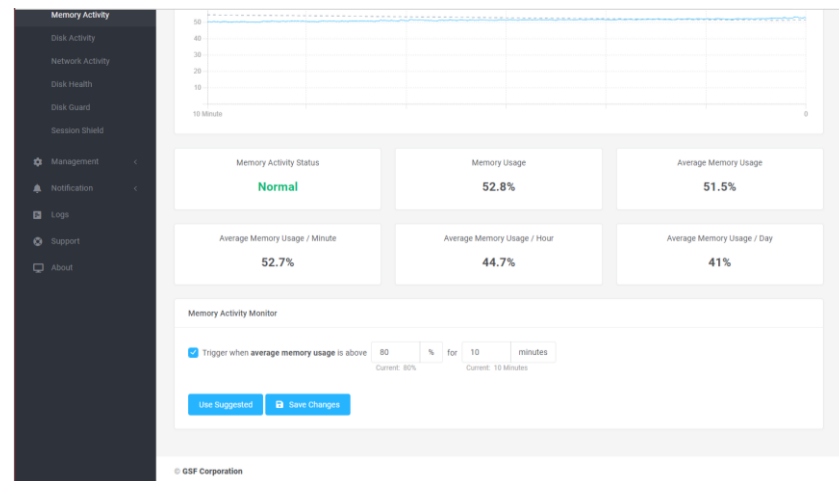


Figure 38: Memory Activity (2 of 2)

### NOTE:

- Click on 'Use Suggested' for reference value calculate by the system.
- For email and notification setting, go to [Events](#)
- Example email of the Memory activity event in the [Appendix Memory Activity](#)

## 8.6 Disk Activity

It displays real time disk usage (activity), it also auto calculates average disk usage per minute, per hour and per day. Automatic alert if disk write or read is fall or raise above threshold limit for a period. This is very useful if recording function in the VMS software was accidentally turned off. There will be no disk write activity when recording was turned off, thus the system will auto alert potential CCTV no recording to user.

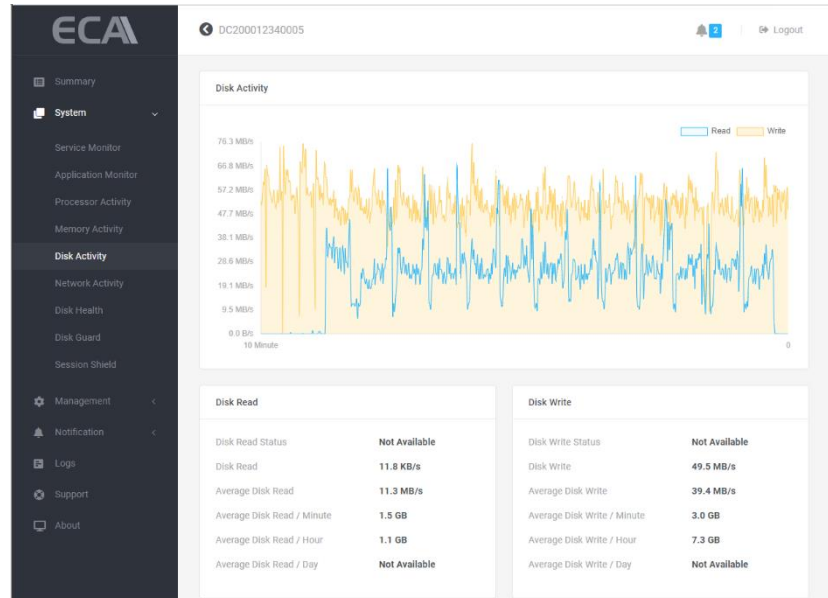


Figure 39: Disk Activity (1 of 2)

By the example below to demonstrate that the Disk Activity Monitor set to enable for both read & write.

The Average Disk read set to above 10GB/s for 10 minutes. The average disk write is below 15GB/s for 10 minutes. This event will notify by email and at the notification if exceed the set threshold.

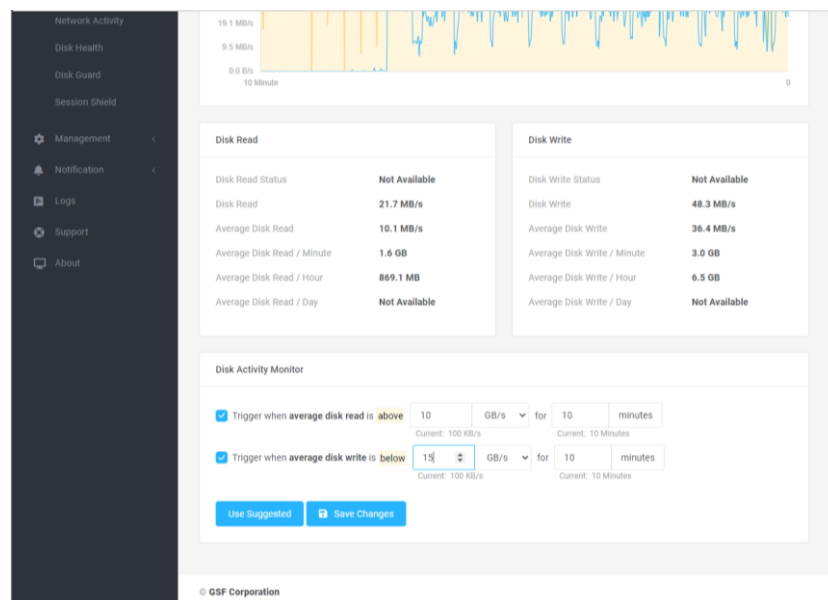


Figure 40: Disk Activity (2 of 2)

### NOTE:

- Click on 'Use Suggested' for reference value calculate by the system.

- For email and notification setting, go to [Events](#)
- Example email of the Disk activity event in the [Appendix Disk Activity](#)

## 8.7 Network Activity

Network Activity displays real time network usage activity. It can automatically calculate average network utilization per minute, per hour or per day. This average value is important for the estimation and observation of network utilization, as incoming throughput from the network cameras or video sources varies throughout the day, where daytime throughput is usually higher than nighttime.

Automatic alert if network received or sending is fall or raise above threshold limit for a period of time. This is very useful if some of the cameras was accidentally offline due to faulty PoE switch.

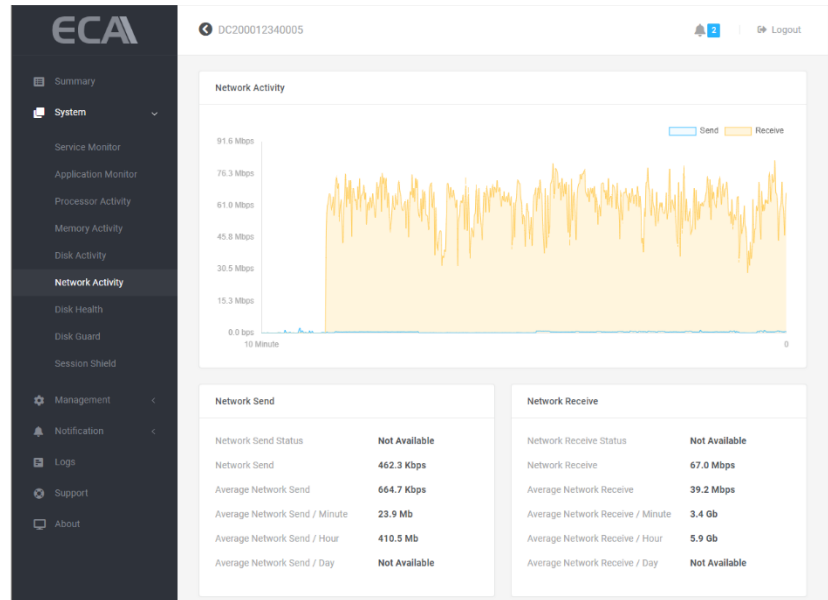


Figure 41: Network Activity (1 of 2)

By the example below to demonstrate that the Network Activity set to trigger email & desktop notifications.

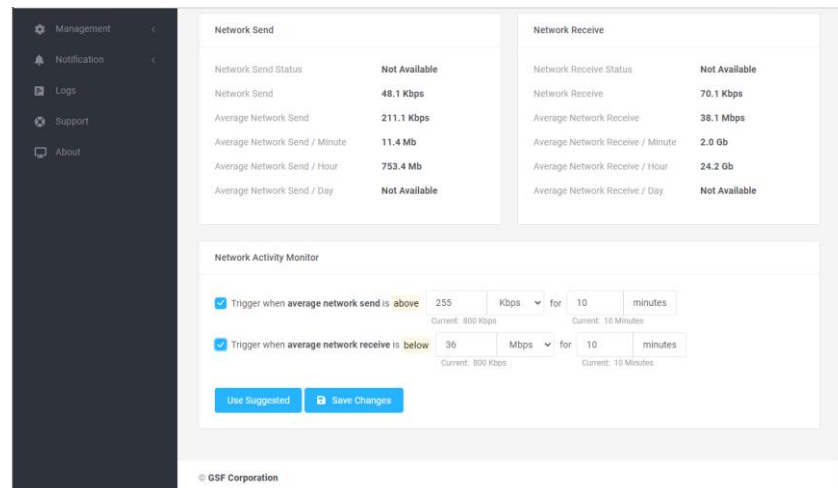


Figure 42: Network Activity (2 of 2)

It will trigger when the data send over network above 255Kbps for 10 minutes

It will trigger when the data receive below set threshold 36Mbps for 10 minutes

### NOTE:

- Click on 'Use Suggested' for reference value calculate by the system.
- For email and notification setting, go to [Events](#)
- Example email of the Network activity event in the [Appendix Network Activity](#)

## 8.8 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.

Oversee disk information and health such as, disk health, SMART value, temperature, drive wear level, power up hours, capacity, model and serial numbers, etc.

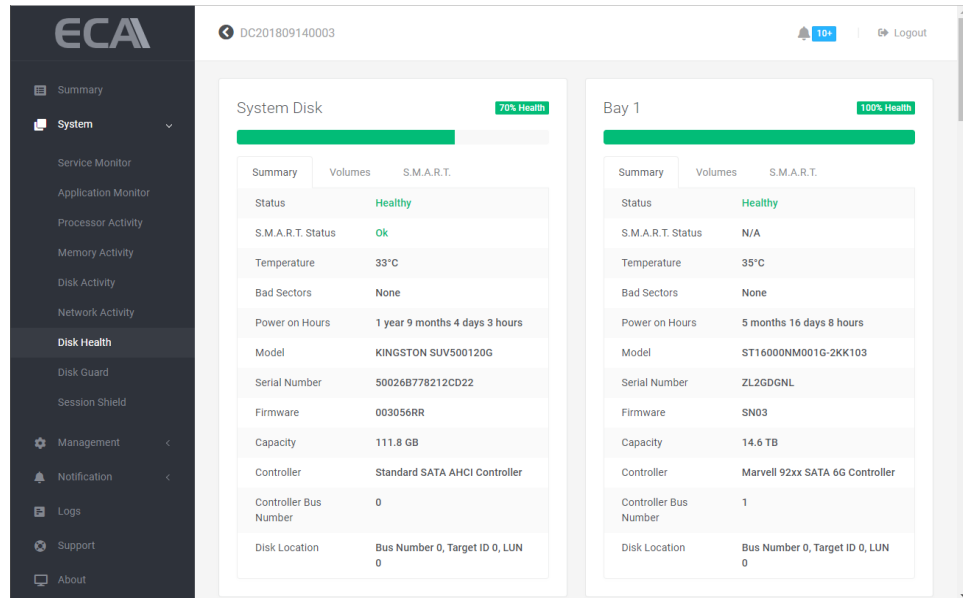


Figure 43: Disk Health (1 of 3)

Under Summary tab, can found drive information such health status, bad sector, temperature, model etc.

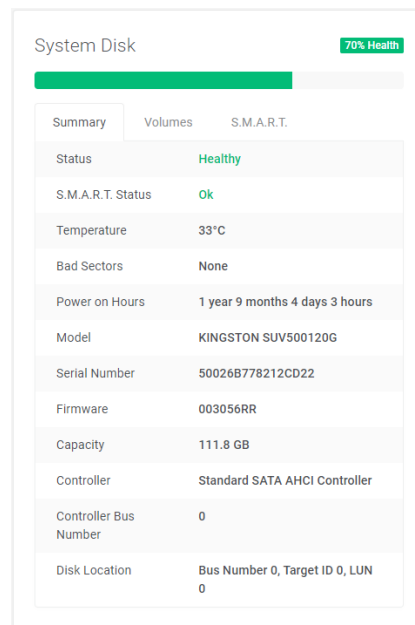


Figure 44: Disk Health – Healthy Disk (2 of 3)

| System Disk <span>67% Health</span> |                                  |            |
|-------------------------------------|----------------------------------|------------|
| Summary                             | Volumes                          | S.M.A.R.T. |
| Status                              | Warning                          |            |
| S.M.A.R.T. Status                   | Ok                               |            |
| Temperature                         | 34°C                             |            |
| Bad Sectors                         | None                             |            |
| Power on Hours                      | 1 year 9 months 19 days 4 hours  |            |
| Model                               | KINGSTON SUV500120G              |            |
| Serial Number                       | 50026B778212CD22                 |            |
| Firmware                            | 003056RR                         |            |
| Capacity                            | 111.8 GB                         |            |
| Controller                          | Standard SATA AHCI Controller    |            |
| Controller Bus Number               | 0                                |            |
| Disk Location                       | Bus Number 0, Target ID 0, LUN 0 |            |

Figure 45: Disk Health – Warning Status Disk (2 of 3)

| Bay 15 <span>23% Health</span> |                                  |            |
|--------------------------------|----------------------------------|------------|
| Summary                        | Volumes                          | S.M.A.R.T. |
| Status                         | Critical                         |            |
| S.M.A.R.T. Status              | Ok                               |            |
| Temperature                    | 32°C                             |            |
| Bad Sectors                    | 200                              |            |
| Power on Hours                 | 1 year 4 months 8 days 9 hours   |            |
| Model                          | TOSHIBA MC04ACA400E              |            |
| Serial Number                  | 44TSK00GFLSA                     |            |
| Firmware                       | FP1A                             |            |
| Capacity                       | 3.6 TB                           |            |
| Controller                     | Standard SATA AHCI Controller    |            |
| Controller Bus Number          | 0                                |            |
| Disk Location                  | Bus Number 3, Target ID 0, LUN 0 |            |

Figure 46: Disk Health – Critical Status Disk with Bad Sectors (2 of 3)

Under Volume, display partition & free space available information

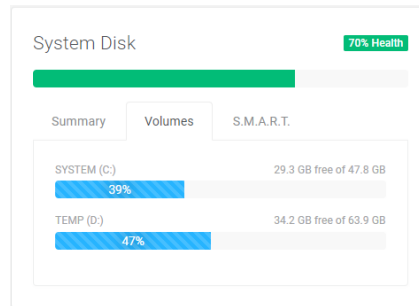
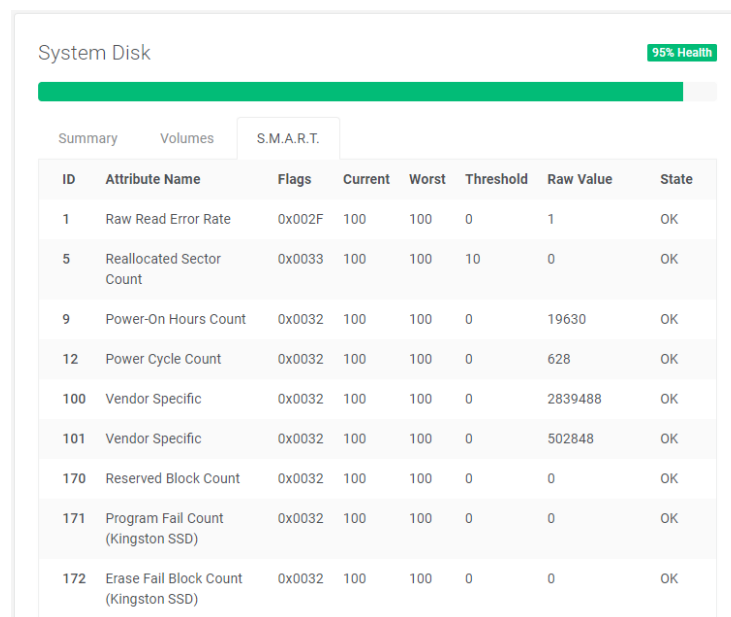


Figure 47: Disk Health (3 of 3)

Under S.M.A.R.T (Self-Monitoring, Analysis and Reporting Technology), will display S.M.A.R.T value. Its primary function is to detect and report various indicators of drive reliability with the intent of anticipating imminent hardware failures.



The screenshot shows the 'System Disk' health page with the 'S.M.A.R.T.' tab selected. It displays a table of S.M.A.R.T. attributes with columns: ID, Attribute Name, Flags, Current, Worst, Threshold, Raw Value, and State.

| ID  | Attribute Name                        | Flags  | Current | Worst | Threshold | Raw Value | State |
|-----|---------------------------------------|--------|---------|-------|-----------|-----------|-------|
| 1   | Raw Read Error Rate                   | 0x002F | 100     | 100   | 0         | 1         | OK    |
| 5   | Reallocated Sector Count              | 0x0033 | 100     | 100   | 10        | 0         | OK    |
| 9   | Power-On Hours Count                  | 0x0032 | 100     | 100   | 0         | 19630     | OK    |
| 12  | Power Cycle Count                     | 0x0032 | 100     | 100   | 0         | 628       | OK    |
| 100 | Vendor Specific                       | 0x0032 | 100     | 100   | 0         | 2839488   | OK    |
| 101 | Vendor Specific                       | 0x0032 | 100     | 100   | 0         | 502848    | OK    |
| 170 | Reserved Block Count                  | 0x0032 | 100     | 100   | 0         | 0         | OK    |
| 171 | Program Fail Count (Kingston SSD)     | 0x0032 | 100     | 100   | 0         | 0         | OK    |
| 172 | Erase Fail Block Count (Kingston SSD) | 0x0032 | 100     | 100   | 0         | 0         | OK    |

Figure 48: Disk Health (3 of 3)

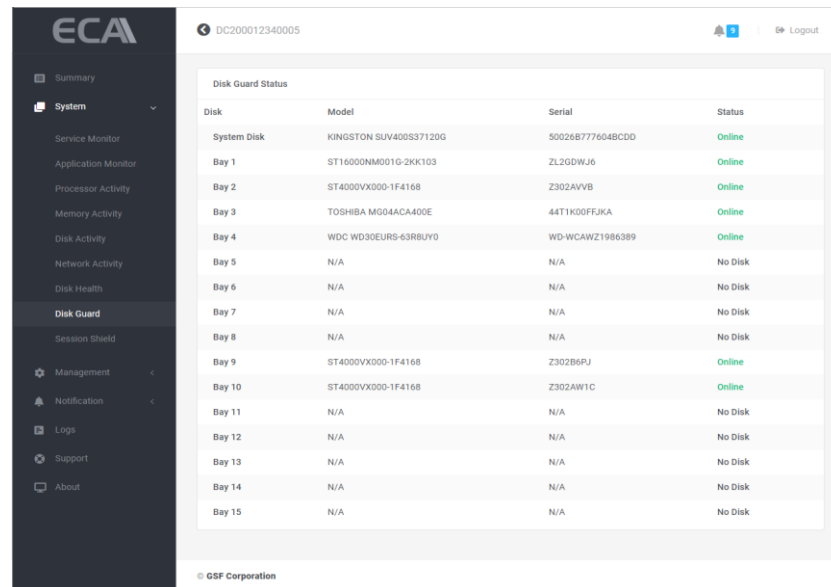
**NOTE:**

- Click on 'Use Suggested' for reference value calculate by the system.
- For email and notification setting, go to [Events](#)
- Example email of the Disk Health event in the [Appendix Disk Health](#)

## 8.9 Disk Guard

Display status all connected hard disk to the ECA.

HDD stores important video evidence data. It is important to ensure the data remains intact in the ECA. Disk Guard monitors HDD insertion and removal events on the ECA.



| Disk        | Model                  | Serial           | Status  |
|-------------|------------------------|------------------|---------|
| System Disk | KINGSTON SUV400S37120G | 500268777604BCDD | Online  |
| Bay 1       | ST16000NM001G-2KK103   | ZL2GDWJ6         | Online  |
| Bay 2       | ST4000VX000-1F4168     | Z302AVVB         | Online  |
| Bay 3       | TOSHIBA MG04ACA400E    | 44T1K00FFJKA     | Online  |
| Bay 4       | WDC WD30EURS-63R8UY0   | WD-WCAWZ1986389  | Online  |
| Bay 5       | N/A                    | N/A              | No Disk |
| Bay 6       | N/A                    | N/A              | No Disk |
| Bay 7       | N/A                    | N/A              | No Disk |
| Bay 8       | N/A                    | N/A              | No Disk |
| Bay 9       | ST4000VX000-1F4168     | Z302B6PJ         | Online  |
| Bay 10      | ST4000VX000-1F4168     | Z302AW1C         | Online  |
| Bay 11      | N/A                    | N/A              | No Disk |
| Bay 12      | N/A                    | N/A              | No Disk |
| Bay 13      | N/A                    | N/A              | No Disk |
| Bay 14      | N/A                    | N/A              | No Disk |
| Bay 15      | N/A                    | N/A              | No Disk |

Figure 49: Disk Guard

Disk list shown depending on the ECA model:

- ECA-FX44: System Disk, Bay 1 – Bay 15
- ECA-EX44: System Disk, Bay 1 – Bay 10 & HD1
- ECA-DX44: System Disk, Bay 1 – Bay 5, HDD1, HDD 2
- ECA-MX44: System Disk, HDD1, HDD 2
- ECA-VW44: System Disk, HDD1, HDD 2

Status:

- **Online:** Hard disk installed. Using by OS
- **Offline:** Hard disk installed. Not using by OS
- **No Disk:** No hard disk installed.
- **Removed:** Previous hard disk has been removed.
- **Replaced:** Hard disk has been replaced with different serial number.

**NOTE:**

- System Disk is the drive containing operating system.
- Hard disks insert in the hotswap bay will label shows as a 'Bay'.
- Internal hard disk will label HDD1 & HDD2 is for the internal hard disk.
- When hard disk removed, the hard disk information still shown with 'Removed' status. Acknowledge the removed hard disk will change to latest status.

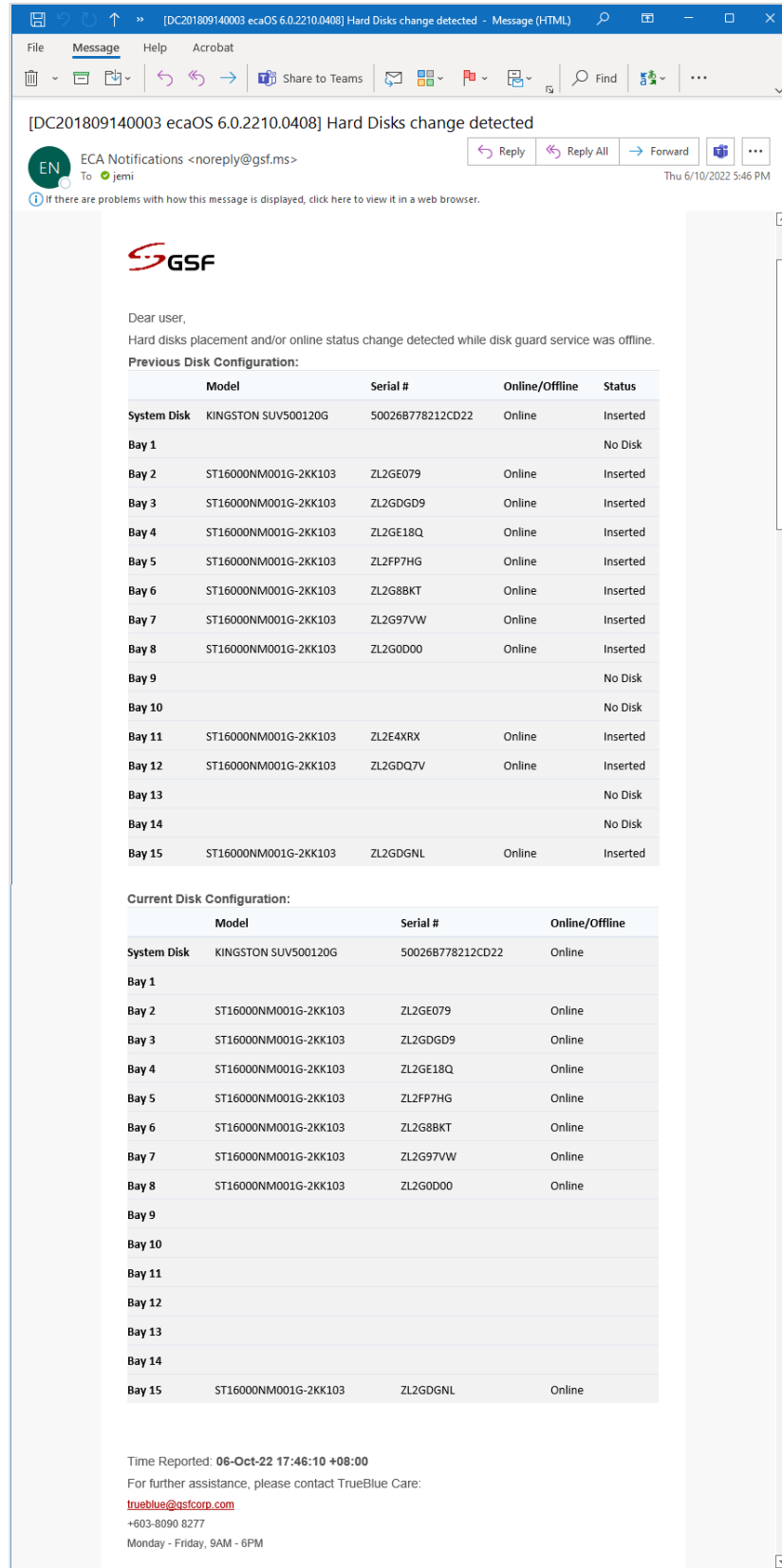
|        |          |                      |         |             |
|--------|----------|----------------------|---------|-------------|
| Bay 12 | ZL2GDQ7V | ST16000NM001G-2KK103 | Removed | Acknowledge |
|--------|----------|----------------------|---------|-------------|

Figure 50: Disk removed

- For email and notification setting, go to [Events](#)
- Example email of the Disk Guard event in the [Appendix Disk Guard](#)

### 8.9.1 Hard disk change during ECA Power Off

Dashboard will be sending notification via email to inform there is hard disk changing during ECA off stage (power off). This feature is part of Disk Guard, to protect the Data/Evidence, ensure the same serial number was in the ECA machine before and after power on.



[DC201809140003 ecaOS 6.0.2210.0408] Hard Disks change detected - Message (HTML)

File Message Help Acrobat

Share to Teams Find

[DC201809140003 ecaOS 6.0.2210.0408] Hard Disks change detected

ECA Notifications <noreply@gsf.ms>  
To jemi

Thu 6/10/2022 5:46 PM

If there are problems with how this message is displayed, click here to view it in a web browser.



Dear user,  
Hard disks placement and/or online status change detected while disk guard service was offline.

**Previous Disk Configuration:**

|             | Model                | Serial #         | Online/Offline | Status   |
|-------------|----------------------|------------------|----------------|----------|
| System Disk | KINGSTON SUV500120G  | 50026B778212CD22 | Online         | Inserted |
| Bay 1       |                      |                  |                | No Disk  |
| Bay 2       | ST16000NM001G-2KK103 | ZL2GE079         | Online         | Inserted |
| Bay 3       | ST16000NM001G-2KK103 | ZL2GDGD9         | Online         | Inserted |
| Bay 4       | ST16000NM001G-2KK103 | ZL2GE18Q         | Online         | Inserted |
| Bay 5       | ST16000NM001G-2KK103 | ZL2FP7HG         | Online         | Inserted |
| Bay 6       | ST16000NM001G-2KK103 | ZL2G88KT         | Online         | Inserted |
| Bay 7       | ST16000NM001G-2KK103 | ZL2G97VW         | Online         | Inserted |
| Bay 8       | ST16000NM001G-2KK103 | ZL2G0D00         | Online         | Inserted |
| Bay 9       |                      |                  |                | No Disk  |
| Bay 10      |                      |                  |                | No Disk  |
| Bay 11      | ST16000NM001G-2KK103 | ZL2E4RX          | Online         | Inserted |
| Bay 12      | ST16000NM001G-2KK103 | ZL2GDQ7V         | Online         | Inserted |
| Bay 13      |                      |                  |                | No Disk  |
| Bay 14      |                      |                  |                | No Disk  |
| Bay 15      | ST16000NM001G-2KK103 | ZL2GDGNL         | Online         | Inserted |

**Current Disk Configuration:**

|             | Model                | Serial #         | Online/Offline |
|-------------|----------------------|------------------|----------------|
| System Disk | KINGSTON SUV500120G  | 50026B778212CD22 | Online         |
| Bay 1       |                      |                  |                |
| Bay 2       | ST16000NM001G-2KK103 | ZL2GE079         | Online         |
| Bay 3       | ST16000NM001G-2KK103 | ZL2GDGD9         | Online         |
| Bay 4       | ST16000NM001G-2KK103 | ZL2GE18Q         | Online         |
| Bay 5       | ST16000NM001G-2KK103 | ZL2FP7HG         | Online         |
| Bay 6       | ST16000NM001G-2KK103 | ZL2G88KT         | Online         |
| Bay 7       | ST16000NM001G-2KK103 | ZL2G97VW         | Online         |
| Bay 8       | ST16000NM001G-2KK103 | ZL2G0D00         | Online         |
| Bay 9       |                      |                  |                |
| Bay 10      |                      |                  |                |
| Bay 11      |                      |                  |                |
| Bay 12      |                      |                  |                |
| Bay 13      |                      |                  |                |
| Bay 14      |                      |                  |                |
| Bay 15      | ST16000NM001G-2KK103 | ZL2GDGNL         | Online         |

Time Reported: 06-Oct-22 17:46:10 +08:00  
For further assistance, please contact TrueBlue Care:  
[trueblue@gsfcorp.com](mailto:trueblue@gsfcorp.com)  
+603-8090 8277  
Monday - Friday, 9AM - 6PM

Figure 51: Hard Disks change detected (1 of 1)

## 8.10 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.

Total size availability will be half of the amount of the RAM.

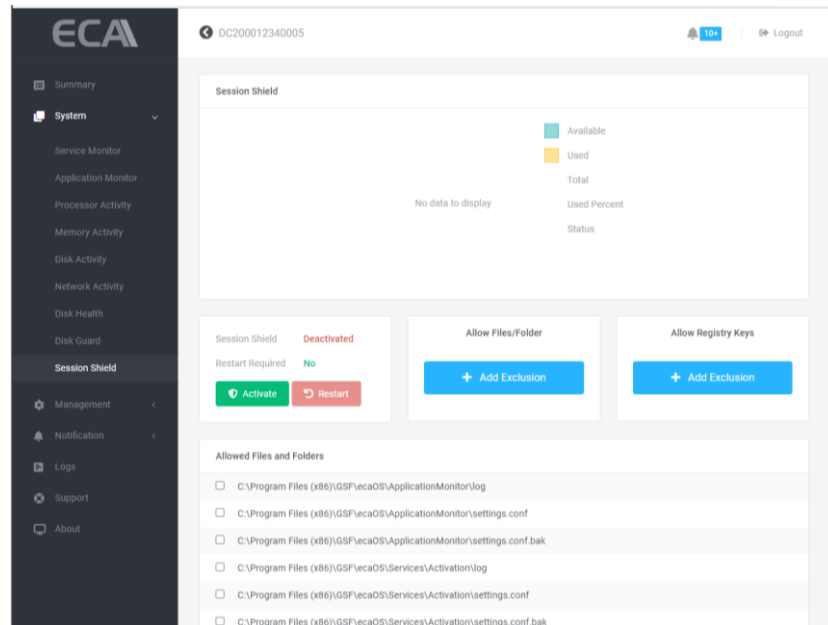


Figure 52: Session Shield

### 8.10.1 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.

1. Click on 'Activate'

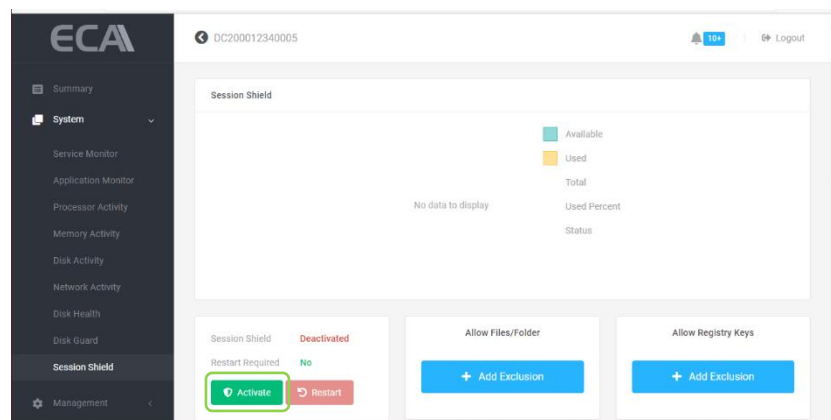


Figure 53: Activate Session Shield (1 of 5)

2. Click 'Change Settings' to save the setting

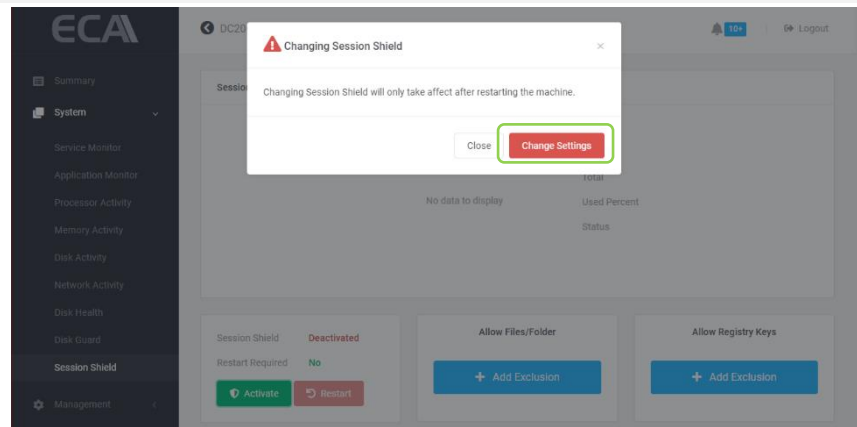


Figure 54: Activate Session Shield (2 of 5)

3. Click 'Restart' to reboot ECA and apply the setting.

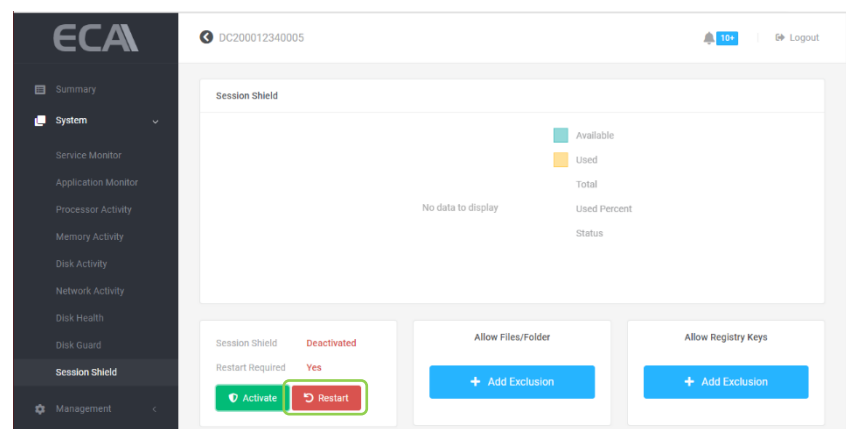


Figure 55: Activate Session Shield (4 of 6)

4. Type Restart then click 'Restart' button

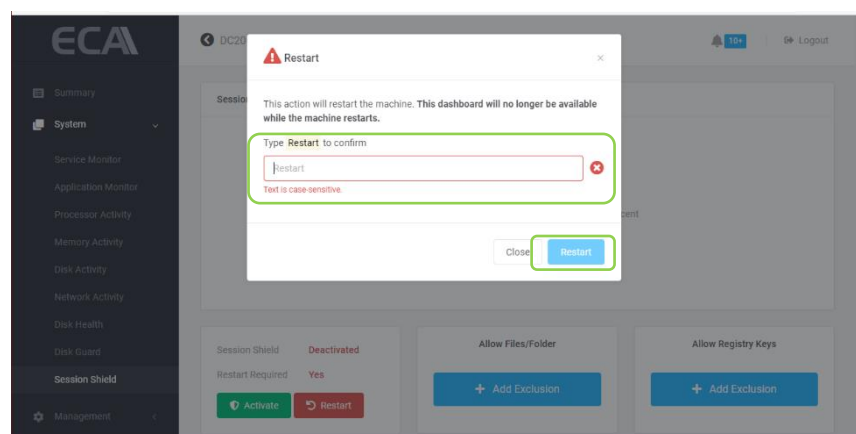


Figure 56: Activate Session Shield (5 of 6)

5. Once the Session Shield successfully activated. The Session Shield information shown as below

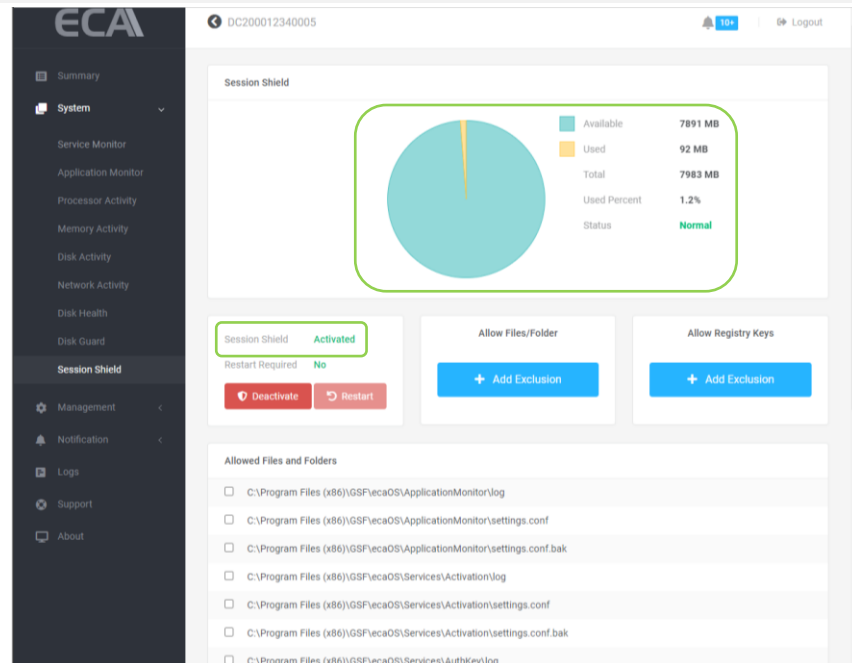


Figure 57: Activate Session Shield (6 of 6)

## 8.10.2 Deactivate Session Shield

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

1. Click on 'Deactivate'

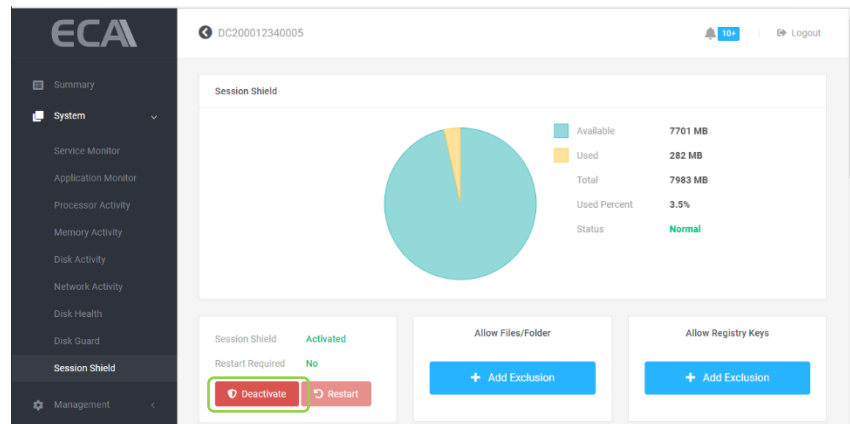


Figure 58: Deactivate Session Shield (1 of 3)

2. Click 'Change Settings' to save the setting

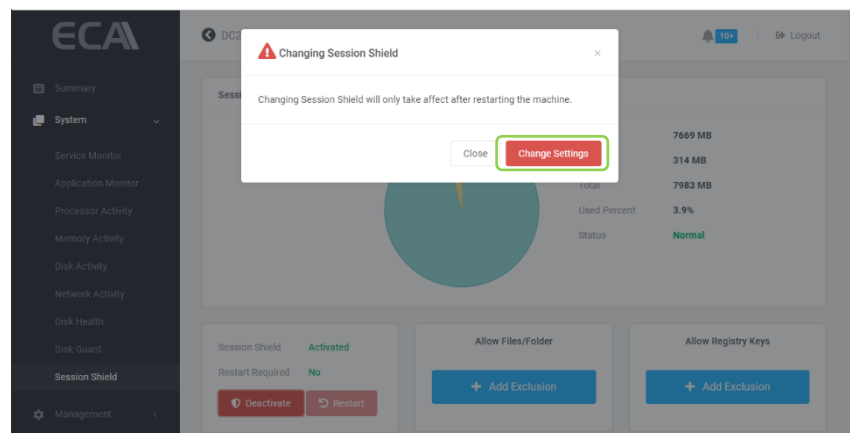


Figure 59: Deactivate Session Shield (2 of 3)

3. Click 'Restart' to reboot ECA and apply the setting

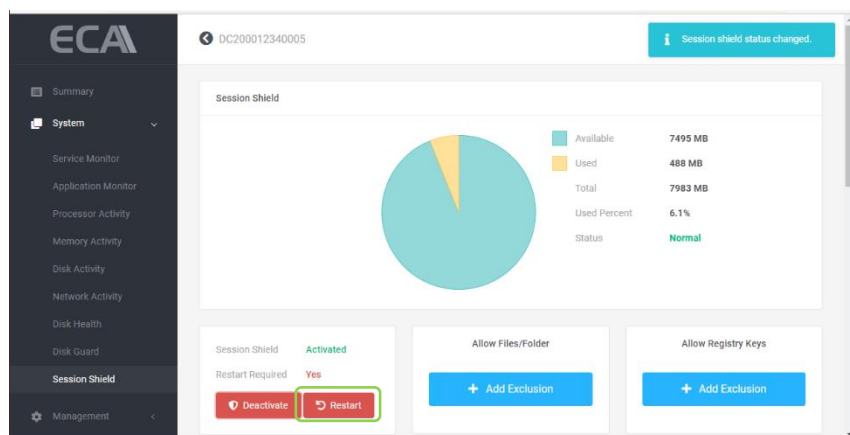


Figure 60: Deactivate Session Shield (2 of )

4. Type Restart then click 'Restart' button

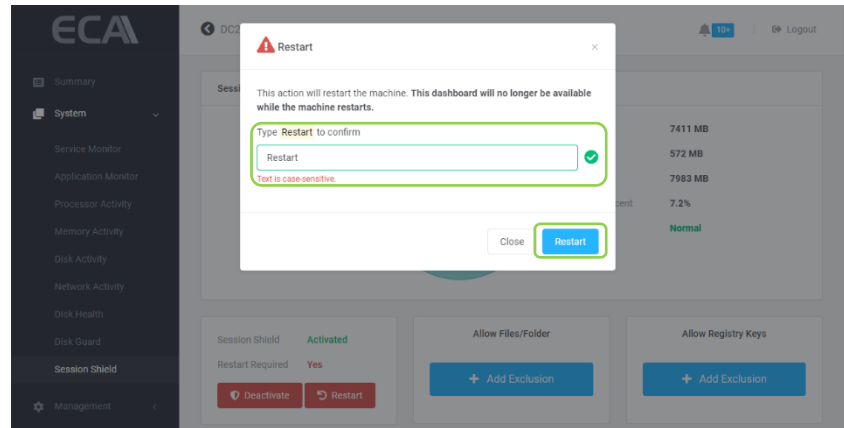


Figure 61: Deactivate Session Shield (3 of 3)

### 8.10.3 Exclusion List

All paths below will not be affected when Session Shield is activated. The data destined to these paths will be able to pass-through and written permanently:

```
C:\Program Files (x86)\GSF\eca05\ProcessMonitor\log
C:\Program Files (x86)\GSF\eca05\ProcessMonitor\settings.conf
C:\Program Files (x86)\GSF\eca05\ProcessMonitor\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\Activation\log
C:\Program Files (x86)\GSF\eca05\Services\Activation\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\Activation\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\AuthKey\log
C:\Program Files (x86)\GSF\eca05\Services\AuthKey\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\AuthKey\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\AuthOtp\log
C:\Program Files (x86)\GSF\eca05\Services\AuthOtp\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\AuthOtp\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\HB2Gateway\log
C:\Program Files (x86)\GSF\eca05\Services\HB2Gateway\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\HB2Gateway\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\Log\log
C:\Program Files (x86)\GSF\eca05\Services\Log\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\Log\settings.conf.bak
C:\Program Files\Microsoft SQL Server\MSSQL15.SQLEXPRESS\MSSQL\DATA
C:\Program Files (x86)\GSF\eca05\Services\Machine\log
C:\Program Files (x86)\GSF\eca05\Services\Machine\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\Machine\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\WindowsServiceMonitor\log
C:\Program Files (x86)\GSF\eca05\Services\WindowsServiceMonitor\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\WindowsServiceMonitor\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\SessionShield\log
C:\Program Files (x86)\GSF\eca05\Services\SessionShield\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\SessionShield\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\CPUMonitor\log
C:\Program Files (x86)\GSF\eca05\Services\CPUMonitor\Db
C:\Program Files (x86)\GSF\eca05\Services\CPUMonitor\appsettings.cpu_activity.json
C:\Program Files (x86)\GSF\eca05\Services\MemoryMonitor\log
C:\Program Files (x86)\GSF\eca05\Services\MemoryMonitor\Db
C:\Program Files (x86)\GSF\eca05\Services\MemoryMonitor\appsettings.memory_activity.json
C:\Program Files (x86)\GSF\eca05\Services\NetworkMonitor\log
C:\Program Files (x86)\GSF\eca05\Services\NetworkMonitor\Db
C:\Program Files (x86)\GSF\eca05\Services\NetworkMonitor\appsettings.network_activity.json
C:\Program Files (x86)\GSF\eca05\Services\DiskMonitor\log
C:\Program Files (x86)\GSF\eca05\Services\DiskMonitor\Db
C:\Program Files (x86)\GSF\eca05\Services\DiskMonitor\appsettings.disk_activity.json
C:\Program Files (x86)\GSF\eca05\Services\DiskHealth\log
C:\Program Files (x86)\GSF\eca05\Services\DiskHealth\Db
C:\Program Files (x86)\GSF\eca05\Services\DiskHealth\appsettings.disk_health.json
C:\Program Files (x86)\GSF\eca05\Services\Support\log
C:\Program Files (x86)\GSF\eca05\Services\Support\Db
C:\Program Files (x86)\GSF\eca05\Services\Support\appsettings.support.json
C:\Program Files (x86)\GSF\eca05\Services\DiskGuard\log
C:\Program Files (x86)\GSF\eca05\Services\DiskGuard\Db
C:\Program Files (x86)\GSF\eca05\Services\Notifier\log
```

```

C:\Program Files (x86)\GSF\eca05\Services\Notifier\Db
C:\Program Files (x86)\GSF\eca05\Services\Dashboard\log
C:\Program Files (x86)\GSF\eca05\Services\Dashboard\Db
C:\Program Files (x86)\GSF\eca05\Services\Dashboard\appsettings.json
C:\Windows\System32\config\systemprofile\AppData\Roaming\smartlogic
C:\Program Files\Windows Defender
C:\ProgramData\Microsoft\Windows Defender
C:\Windows\WindowsUpdate.log
C:\Windows\System32\winevt\Logs
C:\Windows\Logs
C:\Windows\assembly
C:\Windows\SoftwareDistribution
C:\Windows\MEMORY.DMP
C:\Users\localadmin\Desktop
C:\Users\localadmin\Documents
C:\Users\localadmin\Downloads
C:\Users\localadmin\Music
C:\Users\localadmin\Pictures
C:\Users\localadmin\Videos
C:\Program Files (x86)\GSF\eca05\ApplicationMonitor\log
C:\Program Files (x86)\GSF\eca05\ApplicationMonitor\settings.conf
C:\Program Files (x86)\GSF\eca05\ApplicationMonitor\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\Support\settings.conf
C:\Program Files (x86)\GSF\eca05\Services\Support\settings.conf.bak
C:\Program Files (x86)\GSF\eca05\Services\Support\TrueBlue\log
C:\Program Files (x86)\GSF\eca05\Services\Support\TrueBlue\Db
C:\Program Files (x86)\Google\Chrome Remote Desktop
C:\ProgramData\Google\Chrome Remote Desktop

```

#### 8.10.4 Add Exclusion Files or Folder

New files or folder can be added in the Exclusion List will be allowed to be written permanently when the 'Session Shield' is activated.

1. Click 'Add Exclusion' to add new file/folder

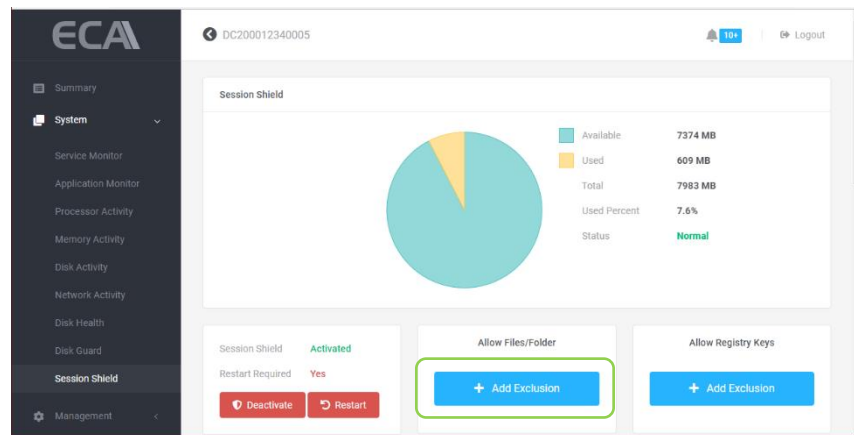


Figure 62: Allow Files/Folder (1 of 3)

2. Type or paste the new files/folder path to be include and click 'Exclude'

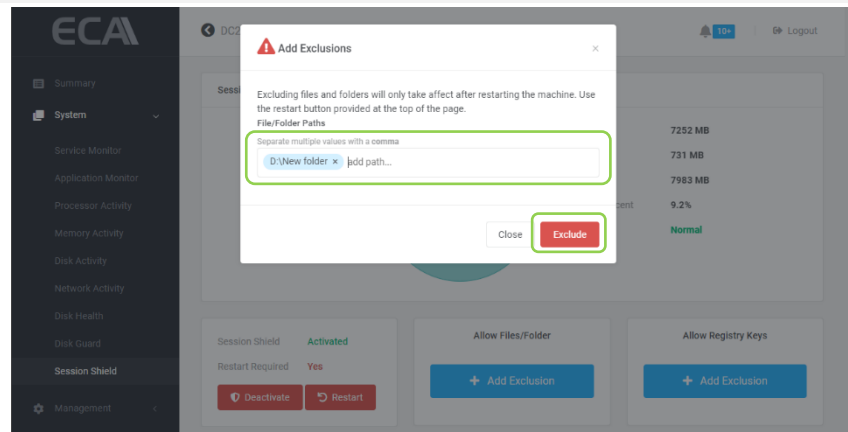


Figure 63: Allow Files/Folder (2 of 3)

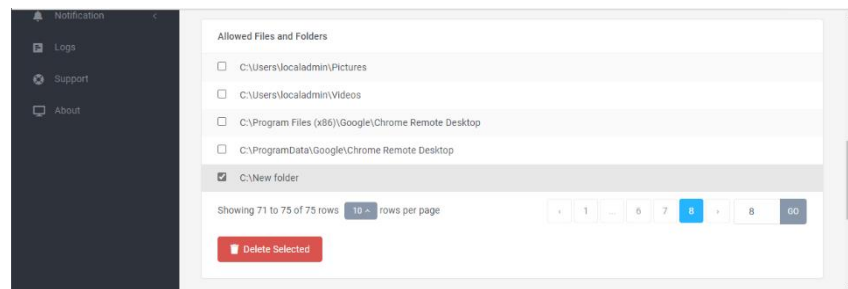


Figure 64: Allow Files/Folder (3 of 3)

### 8.10.5 Delete Exclusion Files or folder

1. Tick the check box which files/folder to be delete from the exclusion list and click 'Delete Selected'

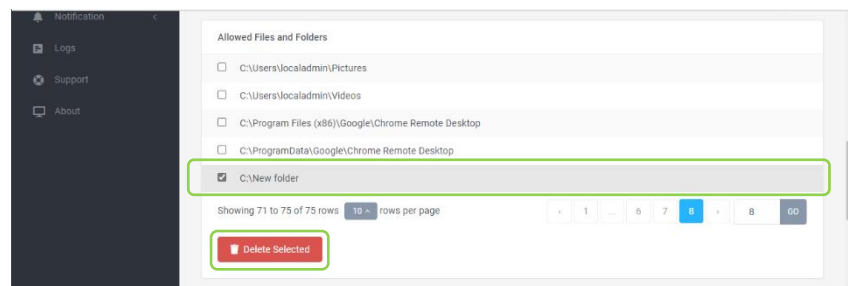


Figure 65: Delete Files/Folder (1 of 3)

2. Click 'Delete Exclusion' to confirm the operation

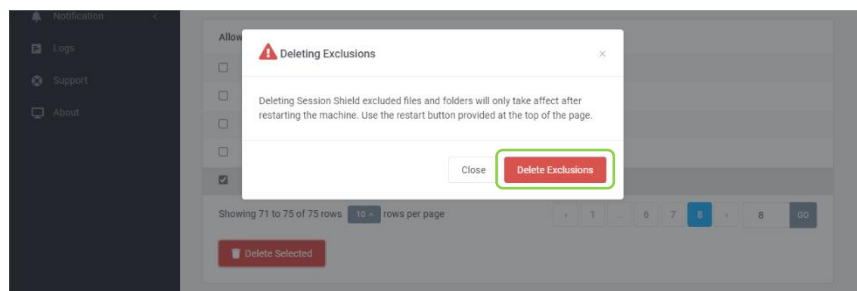


Figure 66: Delete Files/Folder (2 of 2)

### 8.10.6 Add Registry Keys

Allow to be written permanently when the 'Shield' is activated.

1. Click 'Add Exclusion' to add registry keys

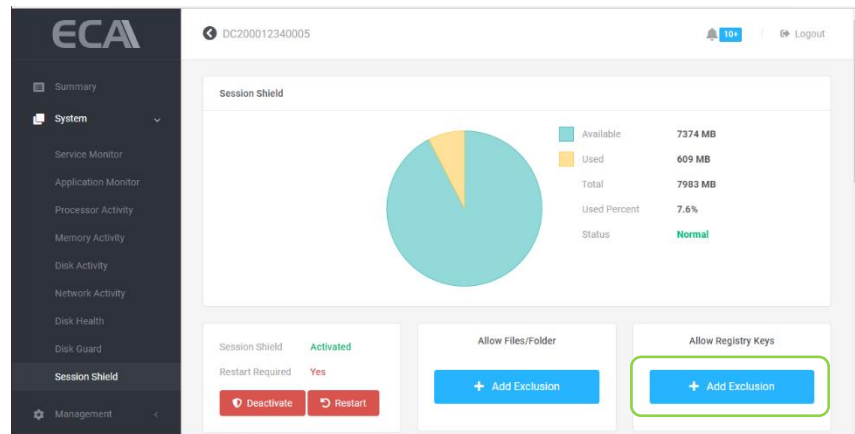


Figure 67: Allow Registry Keys (1 of 2)

2. Type or paste the registry key to be include and click 'Exclude'

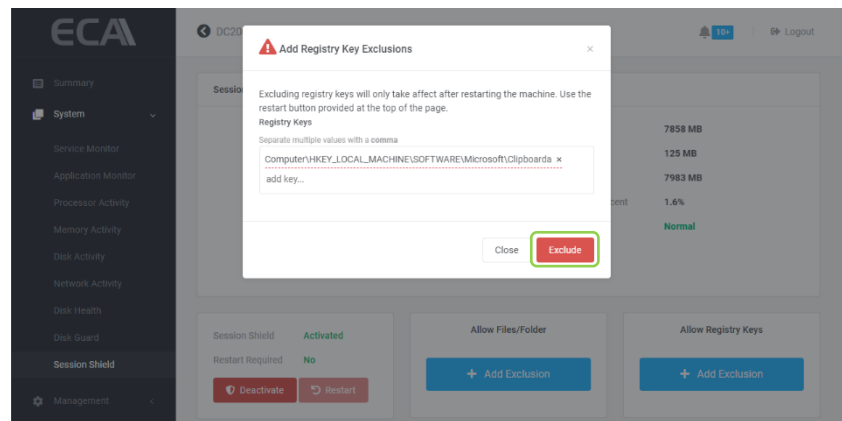


Figure 68: Allow Registry Keys (1 of 2)

## 8.10.7 Delete Exclusion Registry Key

1. Tick the check box which registry key to be delete from the exclusion list and click 'Delete Selected'

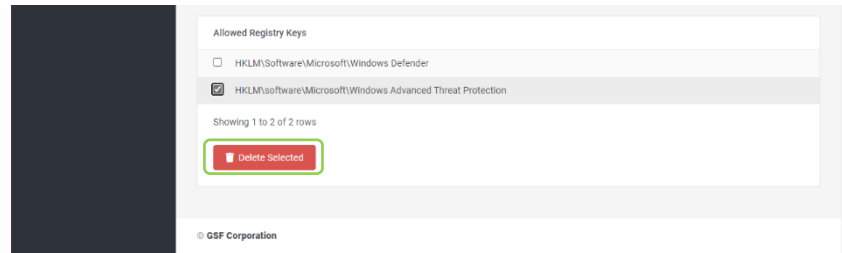


Figure 69: Delete Registry Key (1 of 2)

2. Click 'Delete Exclusion' to confirm the operation

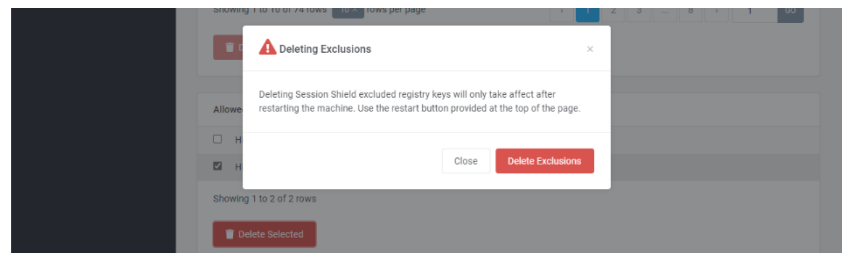


Figure 70: Delete Registry Key (2 of 2)

## 8.10.8 Status: Warning

Session shield status will turn to 'Warning' state when the used amount of space exceeds 80% of total space.

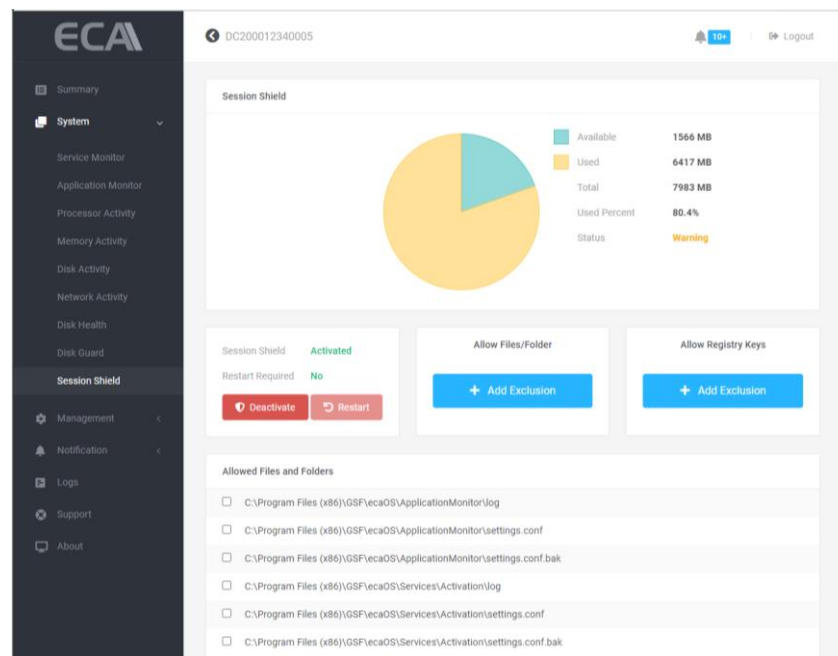


Figure 71: Warning Status

## 8.10.9 Status: Critical

Session shield status will turn to 'Critical state when the used amount of space exceeds 90% of total space. The ECA will be start the counter and restart in few minutes.

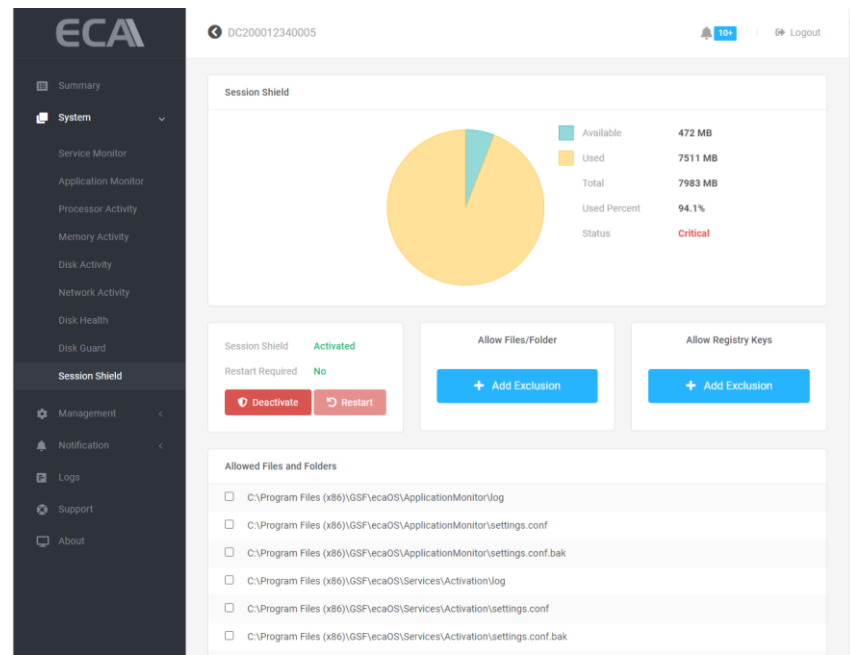


Figure 72: Critical Status

## 8.11 Device Monitor

Device Monitor is a tool to monitor the uptime percentage of a device of interest using HTTP, Keyword, Port or Ping methods.

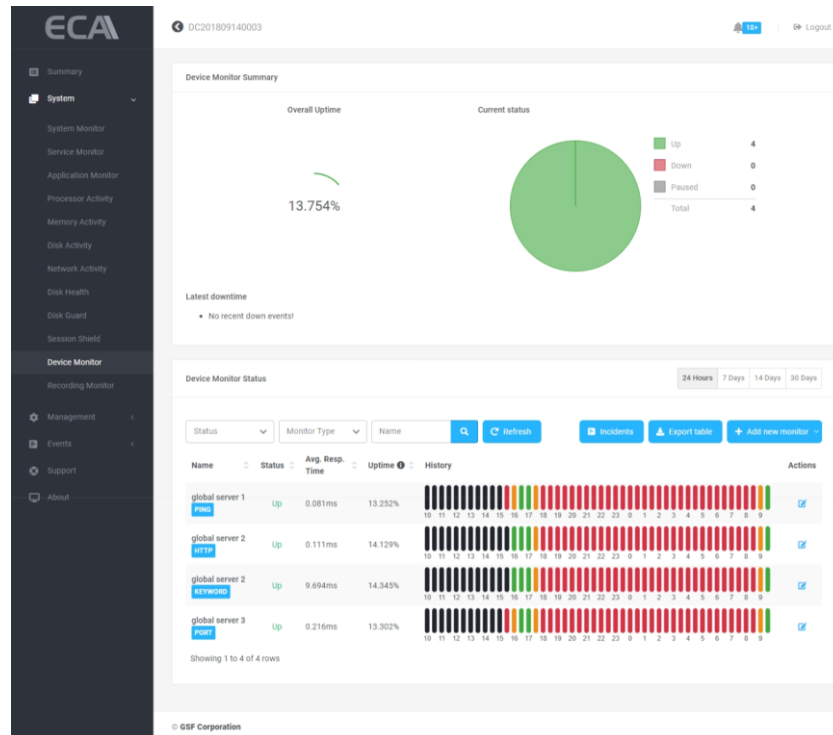


Figure 73: Device Monitor

### 8.11.1 Add New Monitor

1. Click the 'Add new monitor'.

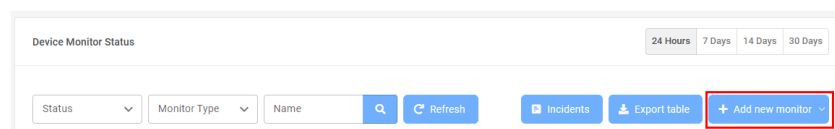


Figure 74: Add new monitor

2. Choose the desired monitor type under "Add monitor details."
3. HTTP – monitors a web server using HTTP or HTTPS. GET, POST, HEAD, and OPTIONS are supported HTTP methods.
  - a. Type in the hostname or IP and monitor name.
  - b. Pick the appropriate HTTP Method. (GET Method by default)
  - c. Set the Monitoring Interval. (by default, five minutes)
  - d. Press the Submit button.

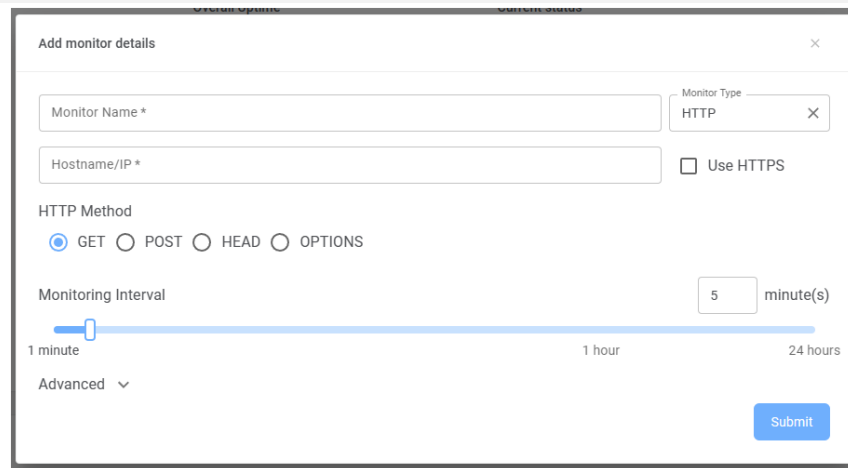


Figure 75: Monitor type - HTTP

4. Keyword – monitors a web server (HTTP or HTTPS) using keyword.
  - a. Type in the hostname or IP and monitor name.
  - b. Enter a keyword to monitor. (Case-sensitive by default)
  - c. Set the Monitor Up when keyword “Found or “Not Found” (default: Found)
  - d. Set the Monitoring Interval. (by default, five minutes)
  - e. Press the Submit button.

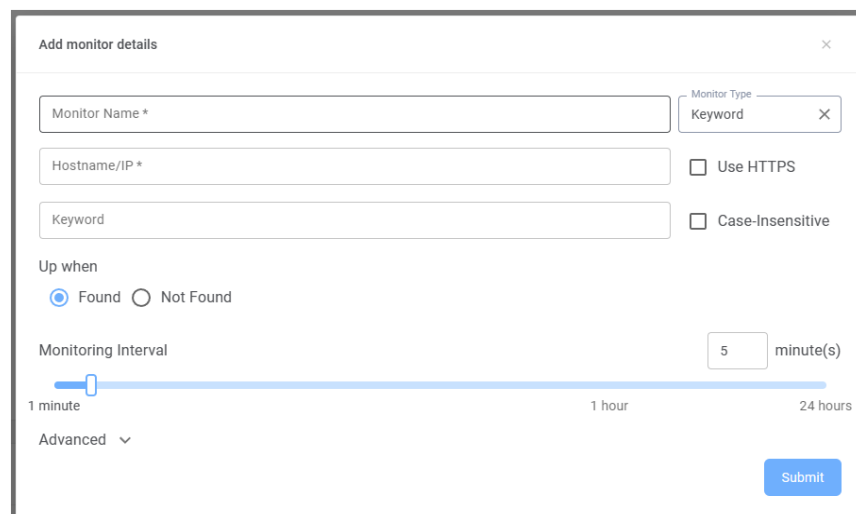
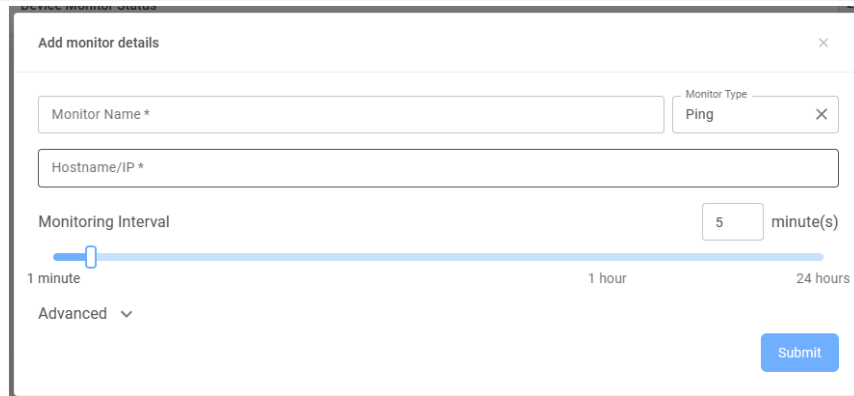


Figure 76: Monitor type - Keyword

5. Ping - sends an “ICMP” echo request (“ping”) to the device to monitor its availability.
  - a. Type in the Monitor name & Hostname/IP
  - b. Set the Monitoring Interval. (by default, five minutes)
  - c. Press the Submit button.

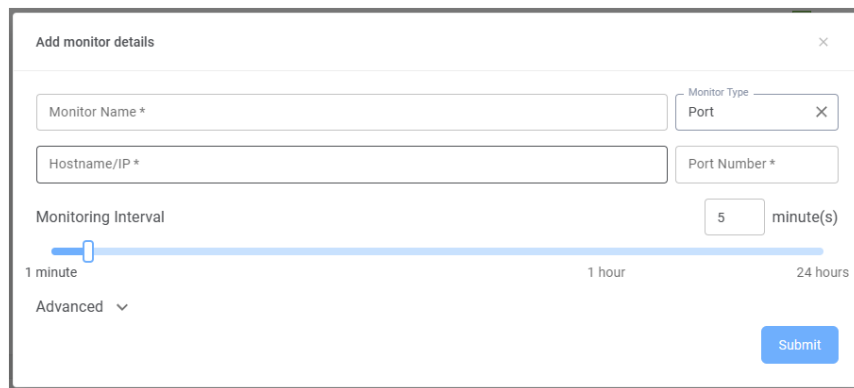


The screenshot shows the 'Add monitor details' form with the following fields and controls:

- Monitor Name \***: A text input field.
- Monitor Type**: A dropdown menu set to 'Ping'.
- Hostname/IP \***: A text input field.
- Monitoring Interval**: A slider control ranging from 1 minute to 24 hours, with a value of 5 minutes selected.
- Advanced**: A dropdown menu.
- Submit**: A blue button at the bottom right.

Figure 77: Monitor type - Ping

6. Port - monitors a network service by connecting to its port.
  - a. Type in the Monitor name, Hostname/IP & Port number.
  - b. Set the Monitoring Interval. (by default, five minutes)
  - c. Press the Submit button.



The screenshot shows the 'Add monitor details' form with the following fields and controls:

- Monitor Name \***: A text input field.
- Monitor Type**: A dropdown menu set to 'Port'.
- Hostname/IP \***: A text input field.
- Port Number \***: A text input field.
- Monitoring Interval**: A slider control ranging from 1 minute to 24 hours, with a value of 5 minutes selected.
- Advanced**: A dropdown menu.
- Submit**: A blue button at the bottom right.

Figure 78: Add Device Monitor – Port type

### 8.11.2 Delete Monitor

1. Click 'v' icon and select 'Delete monitors'.

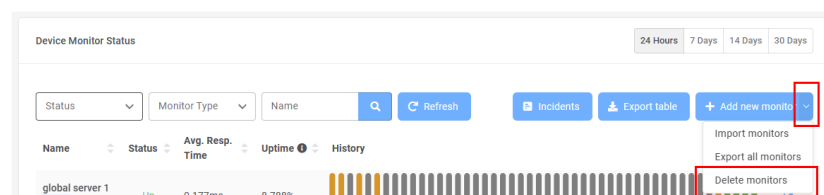


Figure 79: Delete Device Monitors (1 of 2)

2. Select the monitor to delete and type 'Delete'.
3. Press the 'Delete' button.

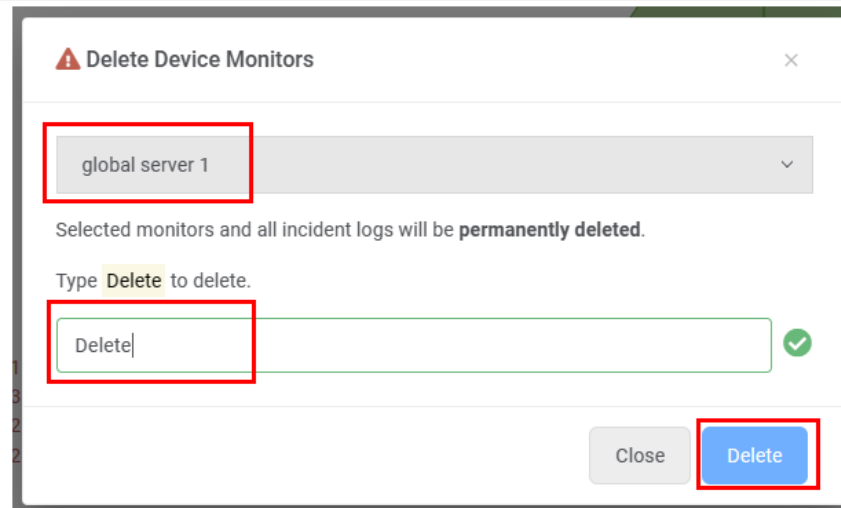


Figure 80: Delete Device Monitors (2 of 2)

## 8.12 Recording Monitor

The Recording Monitor is a tool for monitoring the channels recording status of the Macula VMS.

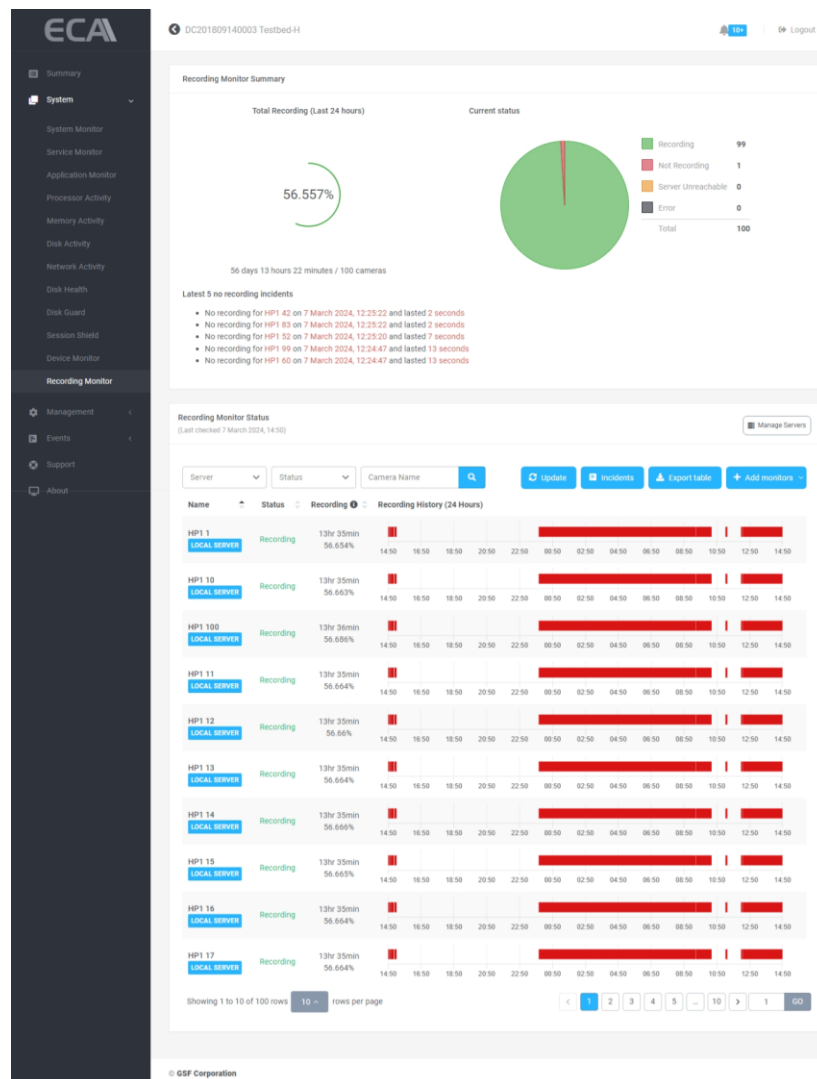


Figure 81: Device Monitor

### 8.12.1 Add New Monitor

1. Click 'Manage Servers' button.

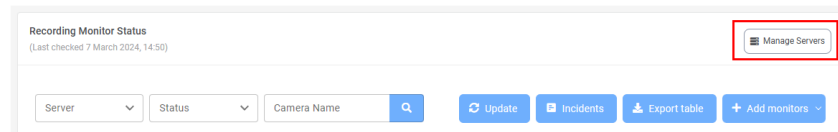


Figure 82: Add VMS server (1 of 3)

2. Click 'Add Server'.

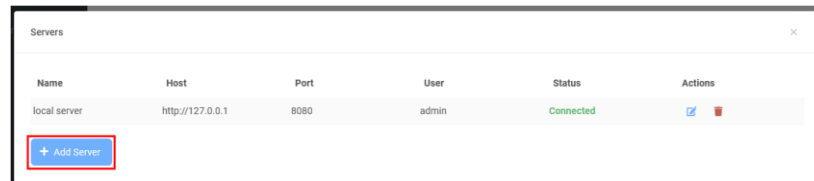


Figure 83: Add VMS server (2 of 3)

3. Enter VMS's hostname/IP, port, and login information. Please ensure that the user has the channel's 'video playback' and 'Login via HTTP' permissions.

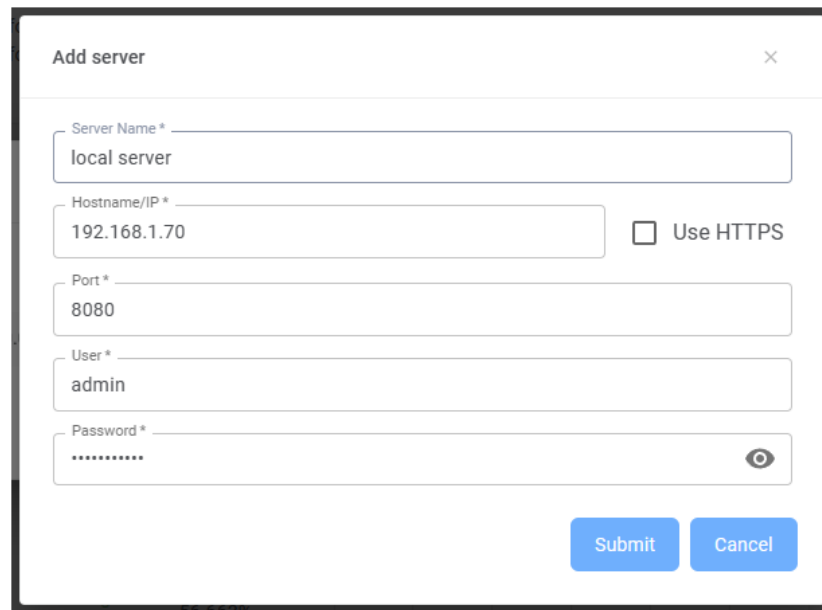


Figure 84: Add VMS server (3 of 3)

4. Click 'Add monitors'.

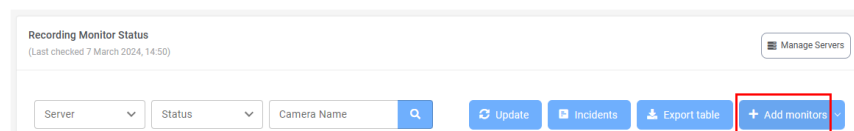


Figure 85: Add monitors (1 of 2)

5. In 'Add monitor', choose a server and channels to monitor. Then press 'Add' button.

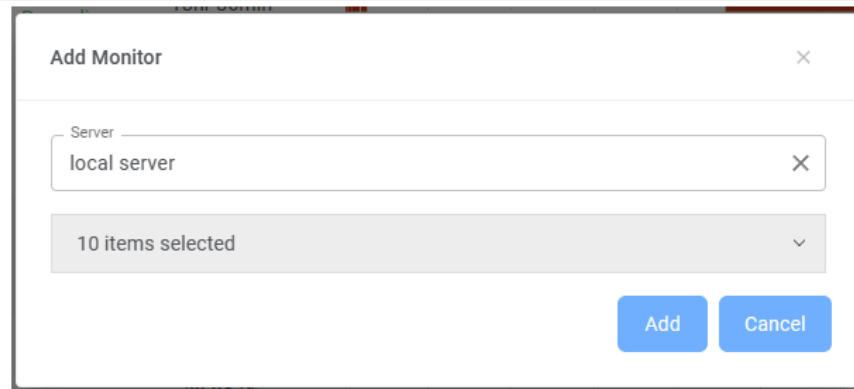


Figure 86: Add monitors (2 of 2)

## 8.12.2 Delete Monitors

1. Click 'v' icon and select 'Delete monitors'.

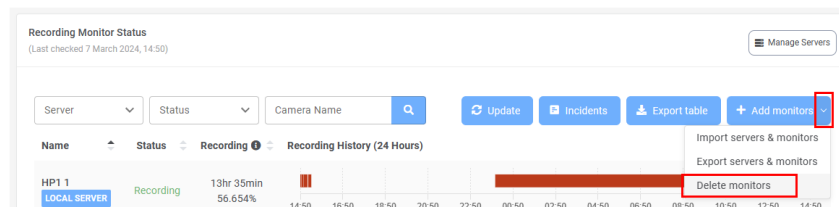


Figure 87: Delete Recording Monitors (1 of 2)

2. Select the monitor(s) to delete and type 'Delete'.
3. Press the 'Delete' button.

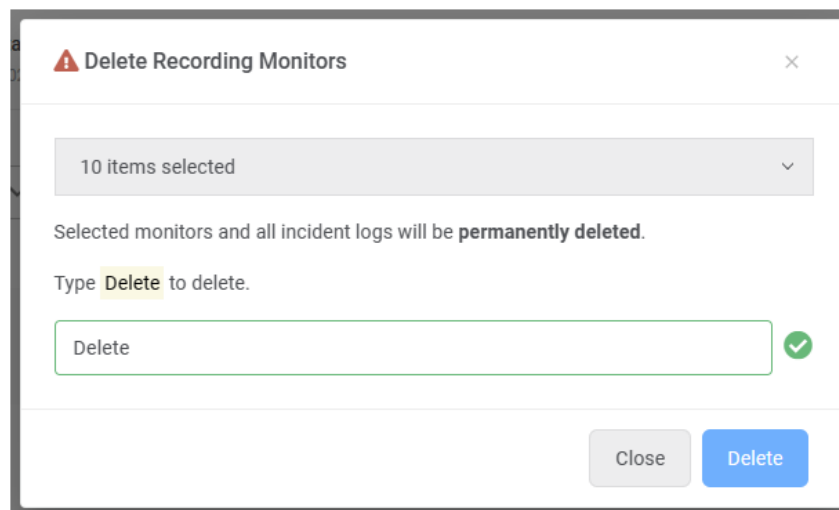


Figure 88: Delete Recording Monitors (2 of 2)

## 9 Management

### 9.1 General

Under Machine Control to Reboot or Shutdown ECA. Layer Management to save current layer as a backup layer. Backup layer can be deployed (Soft Reset & Hard Reset) in the future to restore previous setting.

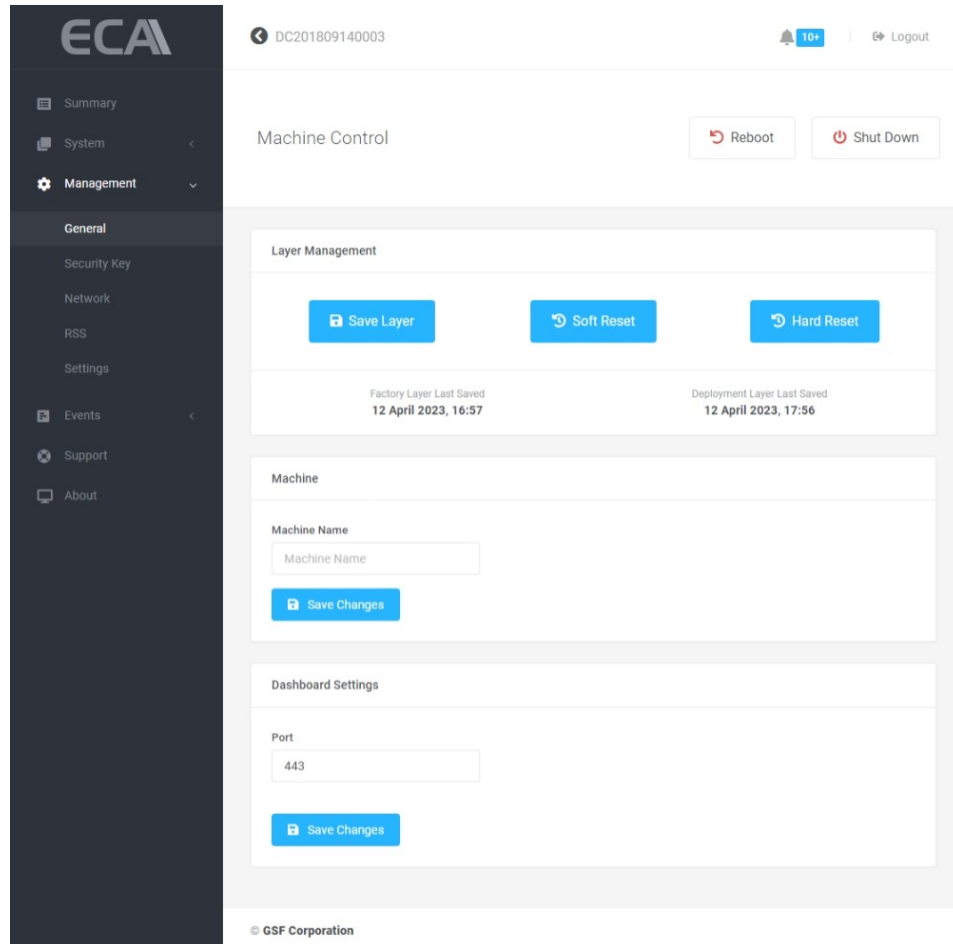


Figure 89: General

#### 9.1.1 Authorize Restart

Only restart through the Dashboard will consider as authorize restart.

1. Click on 'Restart'

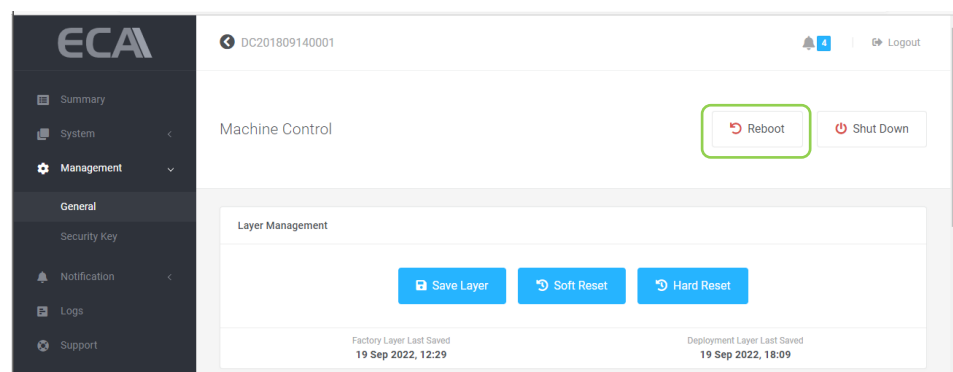


Figure 90: Authorize Restart (1 of 2)

2. Type **Restart** then click 'Restart' button

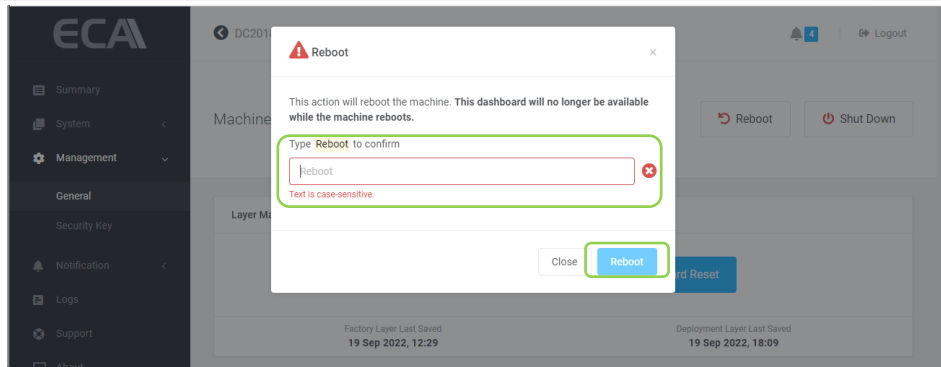


Figure 91: Authorize Restart (2 of 2)

## 9.1.2 Authorize Shutdown

To shutdown ECA, only through the Dashboard will consider as authorize restart. Shutdown ECA not via dashboard will consider as unauthorize shutdown. HB will reboot the ECA.

1. Click on 'Shut Down'

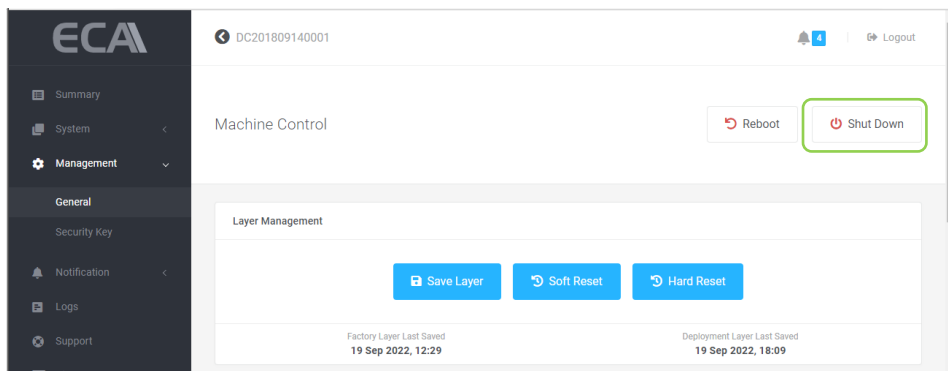


Figure 92: Authorize Shut Down (1 of 2)

2. Type **Shutdown** then click 'shutdown' button

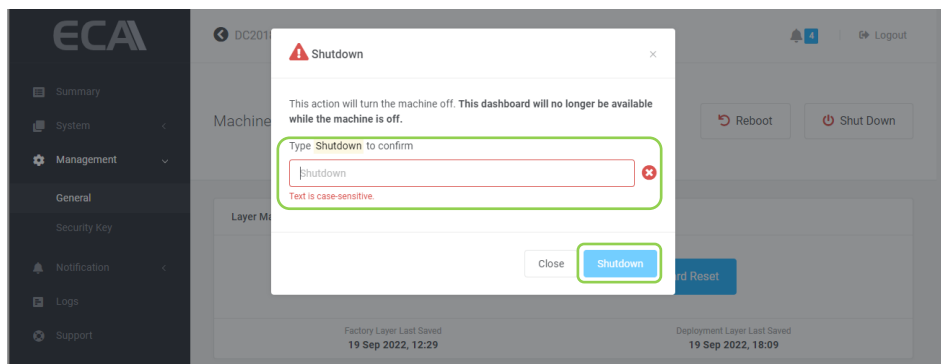


Figure 93: Authorize Shut Down (2 of 2)

### 9.1.3 Saving & Deploy Layer

It is recommended to perform 'Save Layer' for any changes under system including video management software such as added new camera.

#### 9.1.3.1 Save Layer

Save current user working layer as a deployment layer. This layer will content all current working setting. If in the future suddenly the OS corrupt, this layer can recall (Soft Reset) to deploy previous working state.

##### NOTE:

Performing Save Layer, Soft Reset & Hard Reset will cause the downtime of the ECA means there will no recording & accessing to Dashboard not available during this period until the ECA complete the layer saving and reboot back to ecaOS.

1. Click on 'Save Layer'

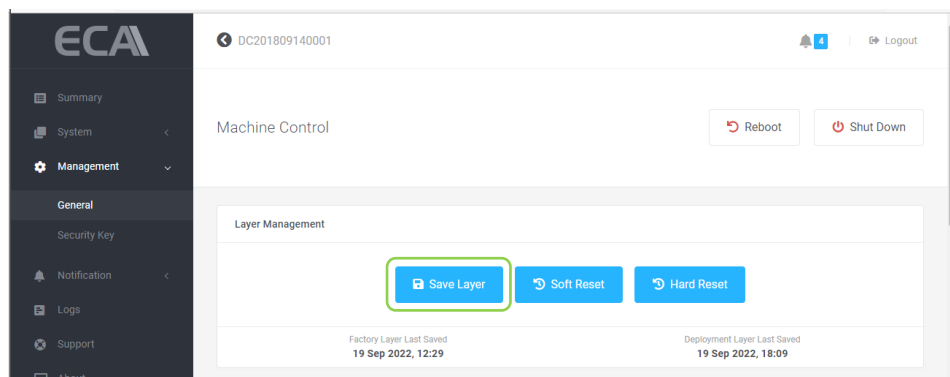


Figure 94: Save Layer (1 of 5)

2. ECA will reboot and go to Layer Manager.



Figure 95: Save Layer (2 of 5)

3. Saving layer will be start after 10 seconds countdown. To cancel the operation, click on Cancel

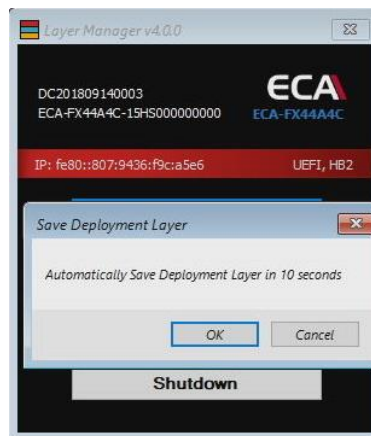


Figure 96: Save Layer (3 of 5)

4. Saving layer in progress show with percentage

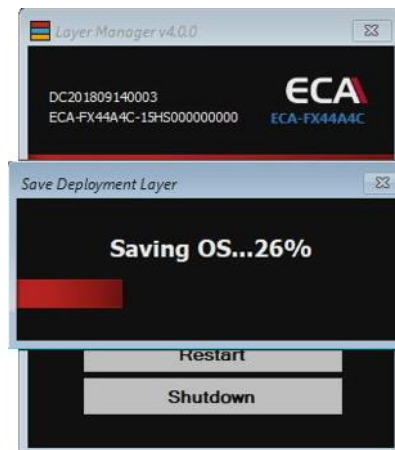


Figure 97: Save Layer (4 of 5)

5. ECA will reboot to ecaOS after complete saving layer.



Figure 98: Save Layer (5 of 5)

### 9.1.3.2 Soft Reset

Deploy deployment layer and replace current working with previous save setting.

1. Click on 'Soft Reset'

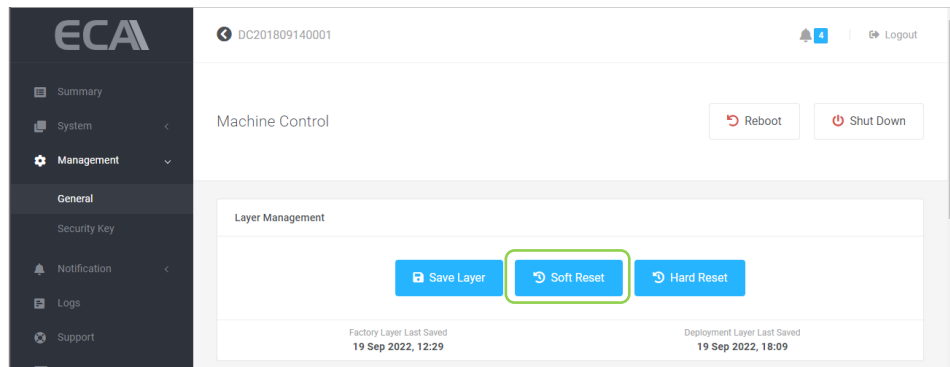


Figure 99: Soft Reset (1 of 5)

6. ECA will reboot and go to Layer Manager.



Figure 100: Save Layer (2 of 5)

7. Restoring Deployment layer will be start after 10 seconds countdown. To cancel the operation, click on Cancel

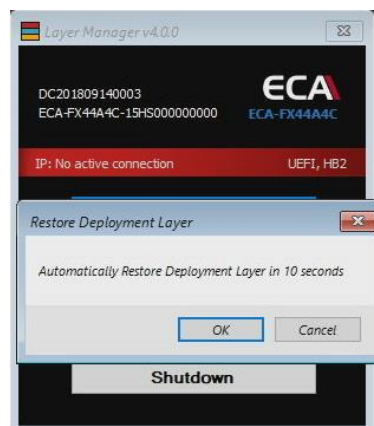


Figure 101: Save Layer (3 of 5)

8. Restoring layer in progress show with percentage

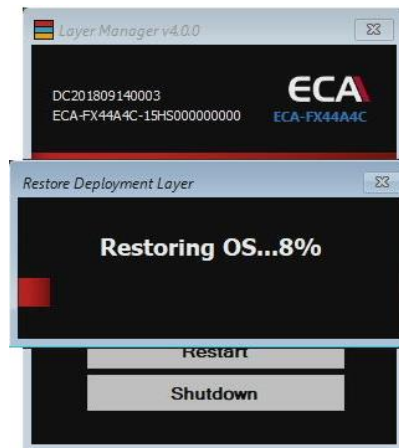


Figure 102: Save Layer (4 of 5)

9. ECA will reboot to ecaOS after complete saving layer.



Figure 103: Save Layer (5 of 5)

### 9.1.3.3 Hard Reset

Deploy default layer saved from factory.

**NOTE:** All setting previously done on site will not available after Hard Reset. Only perform Hard Reset when Soft Reset failed.

1. Click on 'Hard Reset'

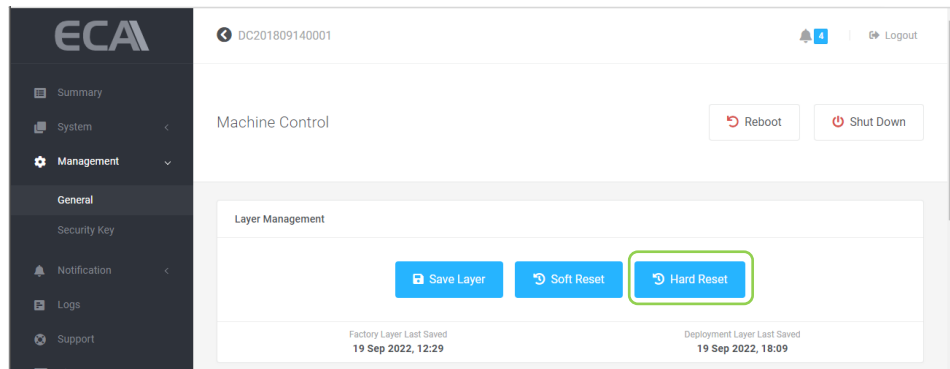


Figure 104: Soft Reset (1 of 2)

10. ECA will reboot and go to Layer Manager.



Figure 105: Save Layer (2 of 5)

11. Restoring Factory layer will be start after 10 seconds countdown. To cancel the operation, click on Cancel

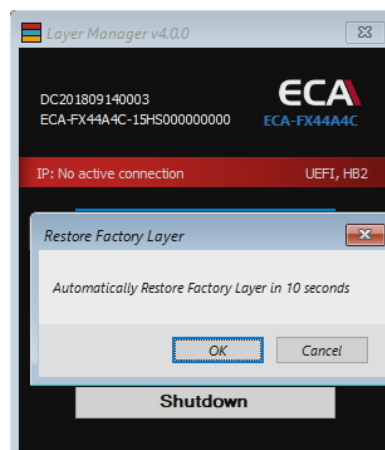


Figure 106: Save Layer (3 of 5)

12. Restoring layer in progress show with percentage

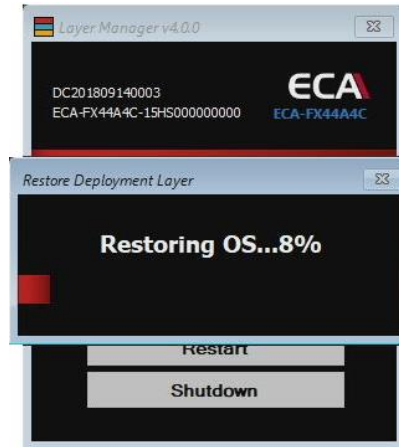


Figure 107: Save Layer (4 of 5)

13. ECA will reboot to ecaOS after complete saving layer.

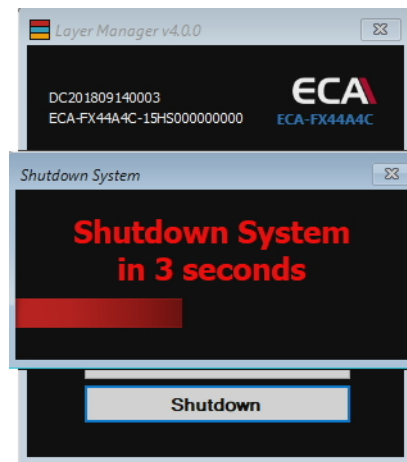


Figure 108: Save Layer (5 of 5)

### 9.1.3.4 Last Saved Layer Information

Display the last date and time of the layer last saved

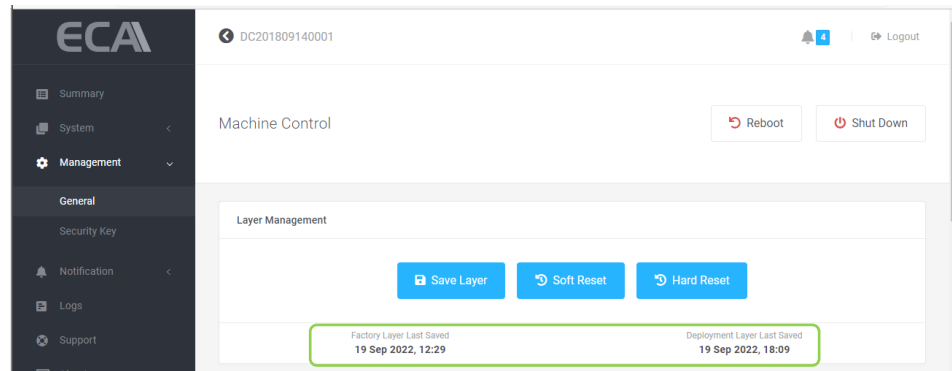


Figure 109: Information about the last saved layer

### 9.1.4 Machine Name

Assign your ECA a friendly name to make it easier to identify.

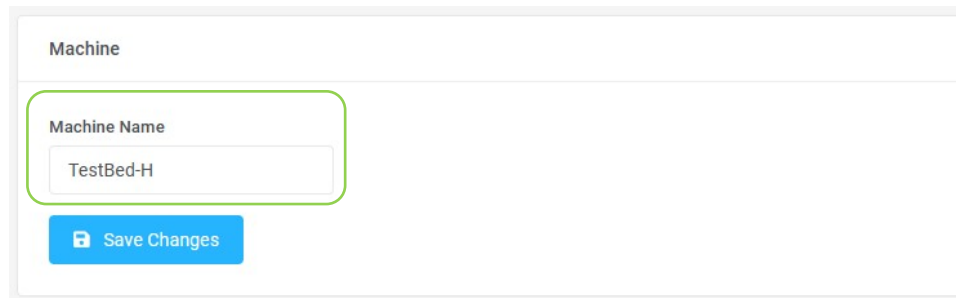


Figure 110: Machine name for ECA

### 9.1.5 Change Dashboard Port

By default, port 443 is use ECA for remotely access Dashboard from another machine via local LAN. Modify this port if the default ports already in use.

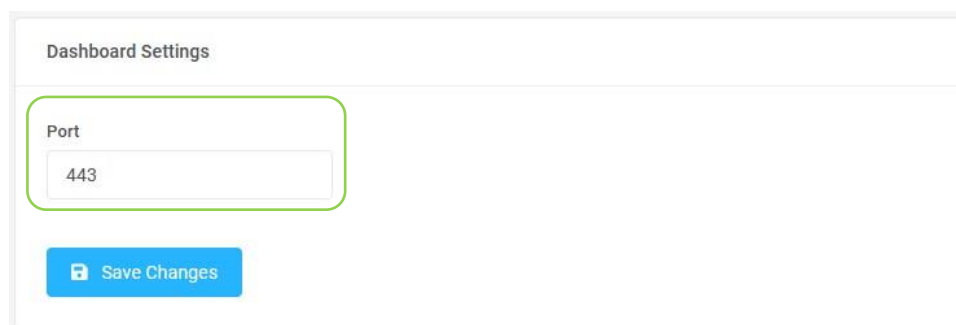


Figure 111: Port settings for Dashboard

## 9.2 Security Key

Each ECA will come with 1 unit of Security key. Any extra Security key or replacement unit require to register the Security Key to access Dashboard.

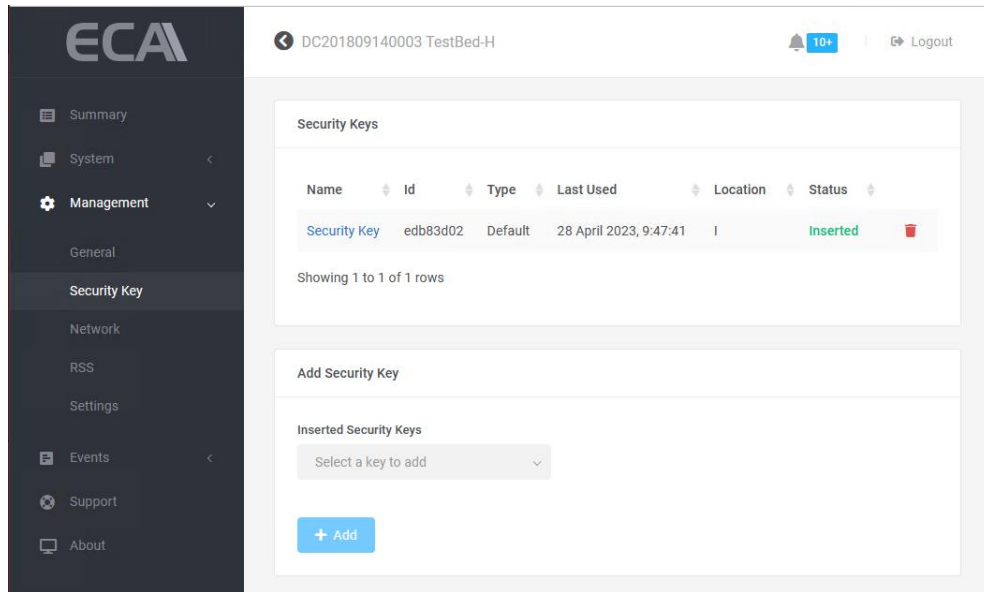


Figure 112: Security Key

### 9.2.1 Register Security Key

1. Insert valid Security Key in the USB on the ECA
2. Click on the drop-down list and select the key to register.

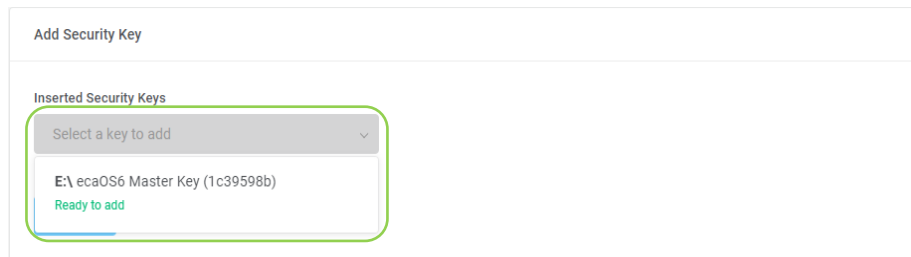


Figure 113: Register security key (1 of 3)

3. Click Add to register

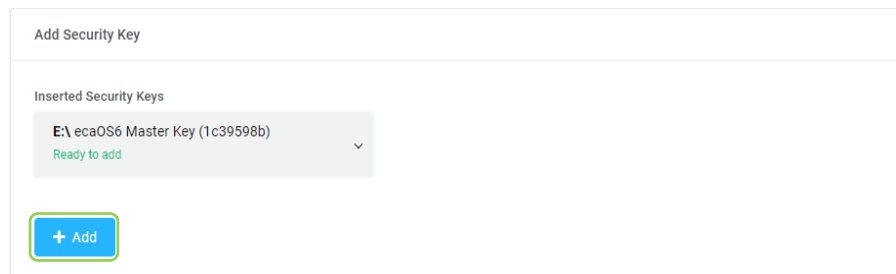


Figure 114: Register security key (2 of 3)

- Once successfully added the Security Key. The new security key will show under 'Security keys'

| Name                              | Id       | Type   | Last Used | Location | Status   |                                                                                     |
|-----------------------------------|----------|--------|-----------|----------|----------|-------------------------------------------------------------------------------------|
| <a href="#">ecaOS6 Master Key</a> | 1c39598b | Master | N/A       | E        | Inserted |  |

Showing 1 to 1 of 1 rows

Figure 115: Register security key (3 of 3)

## 9.2.2 Delete Security Key

- Click on the dustbin icon of the Security key to be delete

| Name                              | Id       | Type   | Last Used             | Location | Status   |                                                                                     |
|-----------------------------------|----------|--------|-----------------------|----------|----------|-------------------------------------------------------------------------------------|
| <a href="#">ecaOS6 Master Key</a> | 1c39598b | Master | 25 Aug 2022, 12:47:26 | E        | Inserted |  |

Showing 1 to 1 of 1 rows

Figure 116: Delete security key (1 of 2)

- Type in the field Security Key name and click 'Delete Security Key'


Delete Security Key

Security key **ecaOS6 Master Key** will not be able to access this machine after deletion.

Type **ecaOS6 Master Key** to confirm

Text is case-sensitive.

Close
Delete Security Key

Figure 117: Delete security key (1 of 2)

### 9.2.3 Add Virtual Security Key

1. Click on the 'Add' button under Virtual Security key

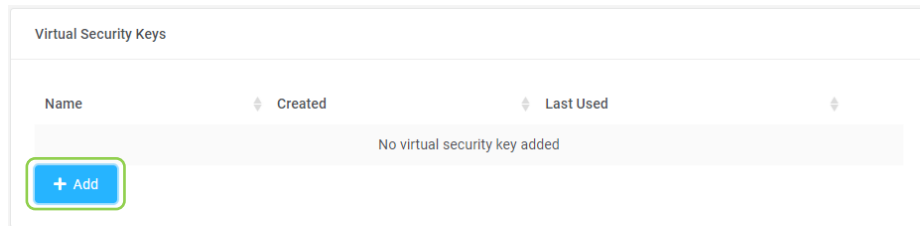


Figure 118: Add virtual security key (1 of 5)

2. Click 'Next' button

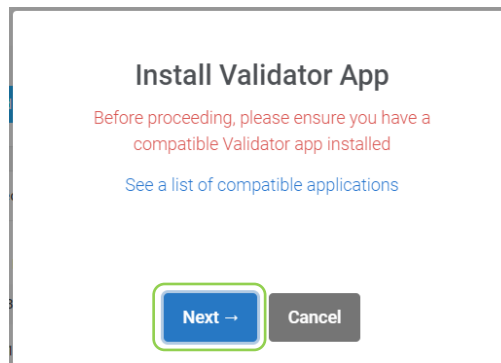


Figure 119: Add virtual security key (2 of 5)

3. Give the new virtual security key a name

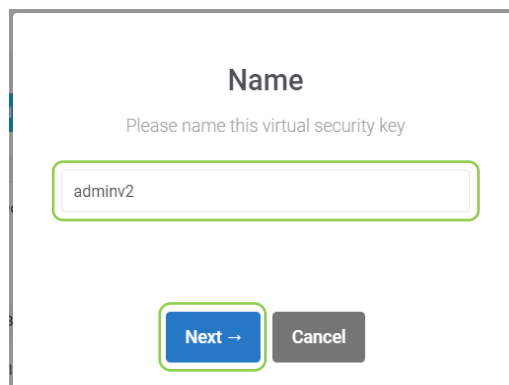
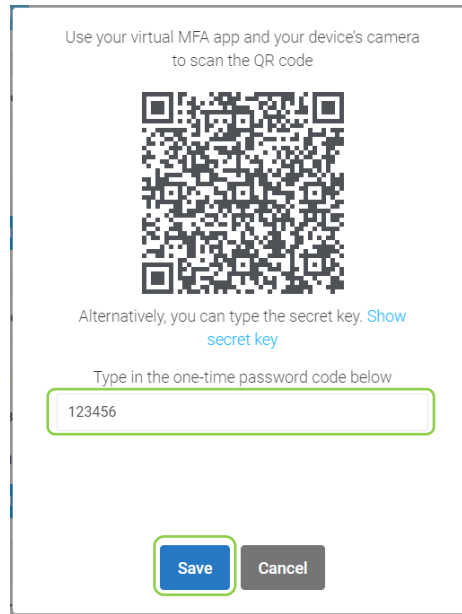


Figure 120: Add virtual security key (3 of 5)

4. Scan the QR code using authenticator application on the phone. Type the in the field and click 'Save' button one-time password for example 123456



Use your virtual MFA app and your device's camera to scan the QR code



Alternatively, you can type the secret key. [Show secret key](#)

Type in the one-time password code below

[Save](#) [Cancel](#)

Figure 121: Add virtual security key (4 of 5)

5. The new virtual security key will show under 'Virtual Security keys'

| Virtual Security Keys    |                       |           |                                                                                       |
|--------------------------|-----------------------|-----------|---------------------------------------------------------------------------------------|
| Name                     | Created               | Last Used |                                                                                       |
| adminv2                  | 25 Aug 2022, 12:56:45 | N/A       |  |
| Showing 1 to 1 of 1 rows |                       |           |                                                                                       |
| <a href="#">+ Add</a>    |                       |           |                                                                                       |

Figure 122: Add virtual security key (5 of 5)

## 9.2.4 Delete Virtual Security Key

1. Click on the dustbin icon the Virtual key to be delete

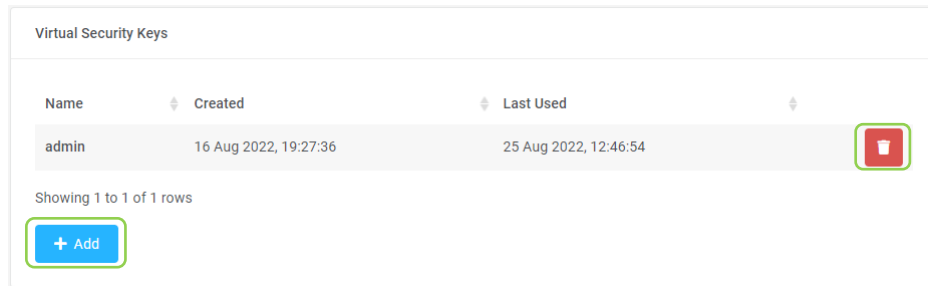


Figure 123: Delete Virtual Security Key (1 of 2)

2. Type 'admin' and click on 'Delete Virtual Security Key' button

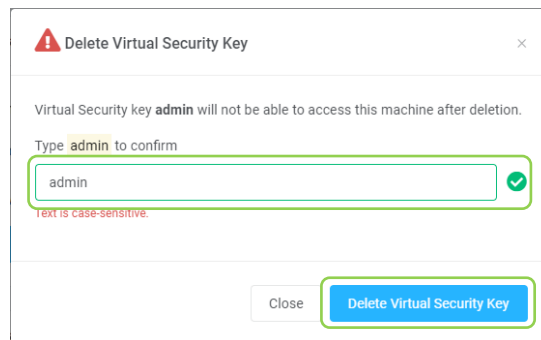


Figure 124: Delete Virtual Security Key (2 of 2)

## 9.3 Network

All ECA come with GSF DDNS. Network teaming groups multiple physical adapters together to provide better network fault tolerance.

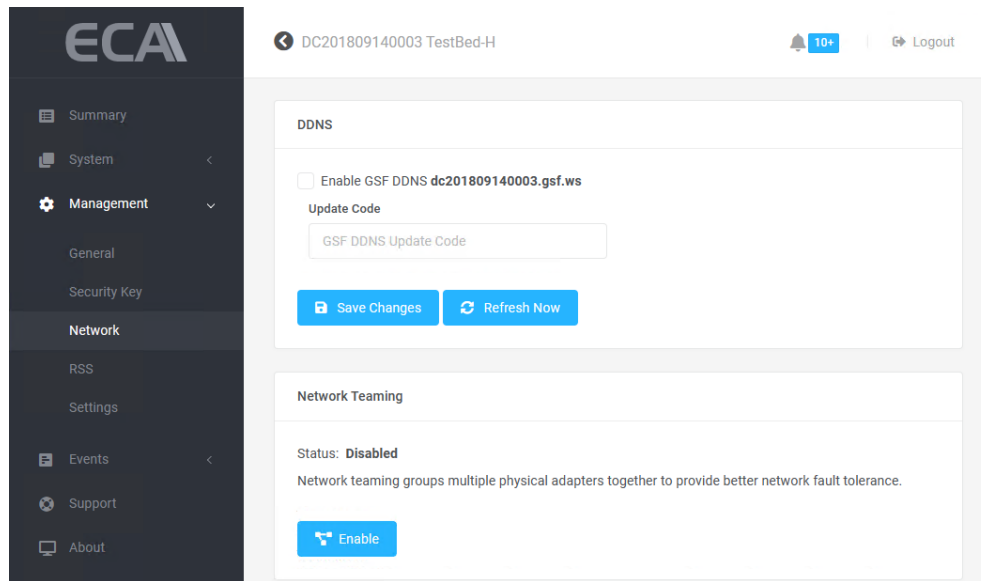


Figure 125: DDNS and Network Teaming

### 9.3.1 Enable DDNS

1. Enable GSF DDNS.
2. Enter the correct Update Code and click on 'Save Changes'. Please contact GSF to obtain your update code.

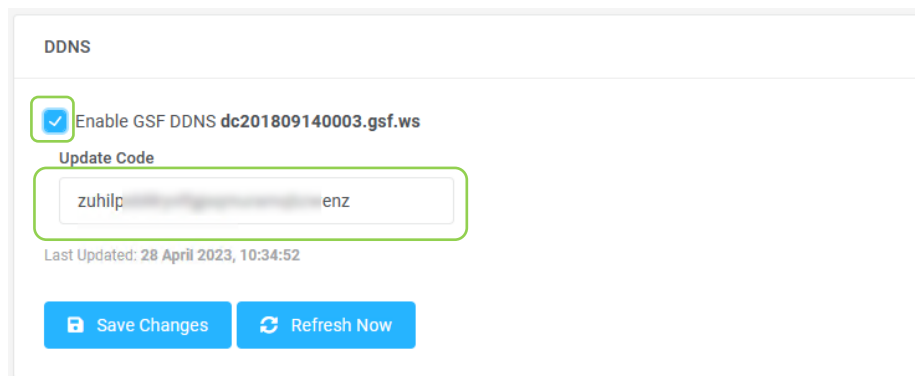


Figure 126: Enable DDNS

### 9.3.2 Enable Network Teaming

1. Click on the 'Enable' button to enable Network Teaming.

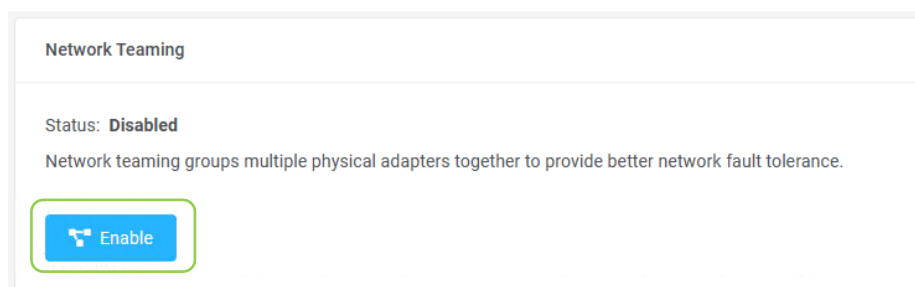
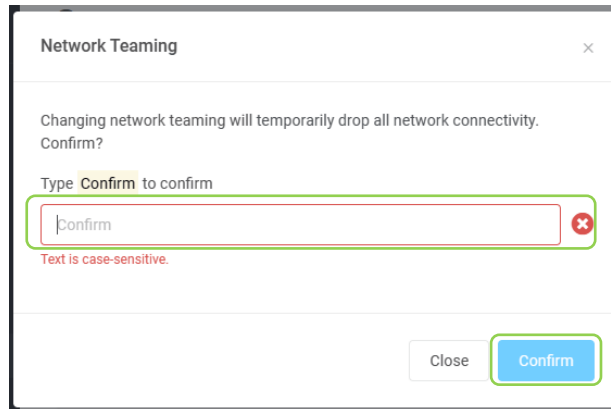


Figure 127: Enable Network Teaming

2. Type 'Confirm' and click on 'Confirm' button

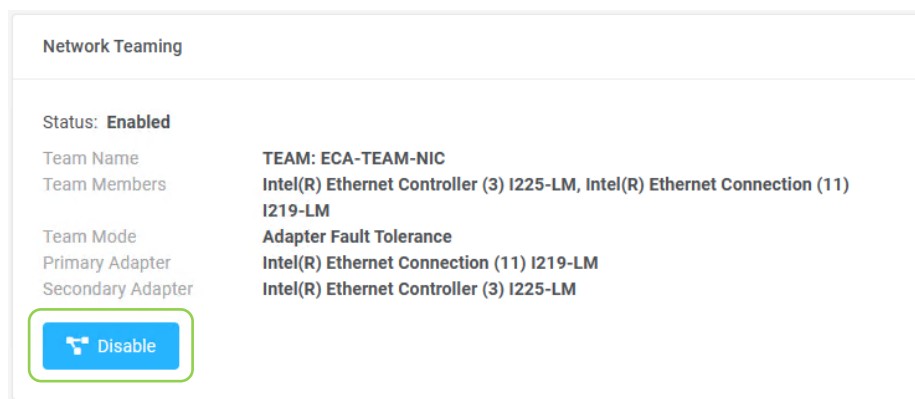


A dialog box titled "Network Teaming" with a close button (X) in the top right corner. The text inside reads: "Changing network teaming will temporarily drop all network connectivity. Confirm?". Below this, it says "Type Confirm to confirm". There is a text input field containing the word "confirm", which is highlighted with a green border. To the right of the input field is a red 'X' icon. Below the input field, it says "Text is case-sensitive." At the bottom right, there are two buttons: "Close" and "Confirm". The "Confirm" button is highlighted with a green border.

Figure 128: Confirm to enable network teaming

### 9.3.3 Disable Network Teaming

1. Click on the 'Disable' button to disable Network Teaming.



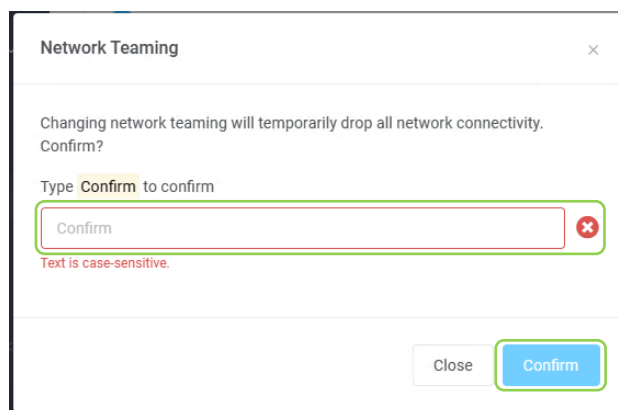
A dialog box titled "Network Teaming" showing the current status. The status is "Enabled". Below this, there is a table with the following information:

|                   |                                                                                     |
|-------------------|-------------------------------------------------------------------------------------|
| Team Name         | TEAM: ECA-TEAM-NIC                                                                  |
| Team Members      | Intel(R) Ethernet Controller (3) I225-LM, Intel(R) Ethernet Connection (11) I219-LM |
| Team Mode         | Adapter Fault Tolerance                                                             |
| Primary Adapter   | Intel(R) Ethernet Connection (11) I219-LM                                           |
| Secondary Adapter | Intel(R) Ethernet Controller (3) I225-LM                                            |

At the bottom left, there is a blue button with a network icon and the text "Disable", which is highlighted with a green border.

Figure 129: Disable Network Teaming

2. Type 'Confirm' and click on 'Confirm' button



A dialog box titled "Network Teaming" with a close button (X) in the top right corner. The text inside reads: "Changing network teaming will temporarily drop all network connectivity. Confirm?". Below this, it says "Type Confirm to confirm". There is a text input field containing the word "Confirm", which is highlighted with a green border. To the right of the input field is a red 'X' icon. Below the input field, it says "Text is case-sensitive." At the bottom right, there are two buttons: "Close" and "Confirm". The "Confirm" button is highlighted with a green border.

Figure 130: Confirm to disable network teaming

## 9.4 RSS (Redundant Storage System)

RSS can help protect your data from drive failures. It's a technology in ECA and is conceptually similar to redundant array of independent disks (RAID), implemented in software. You can use RSS to group three or more drives into a storage pool and then use capacity from that pool to create Storage Spaces. These drives typically store extra copies of your data, so if one of your drives fails, you still have an intact copy of your data.

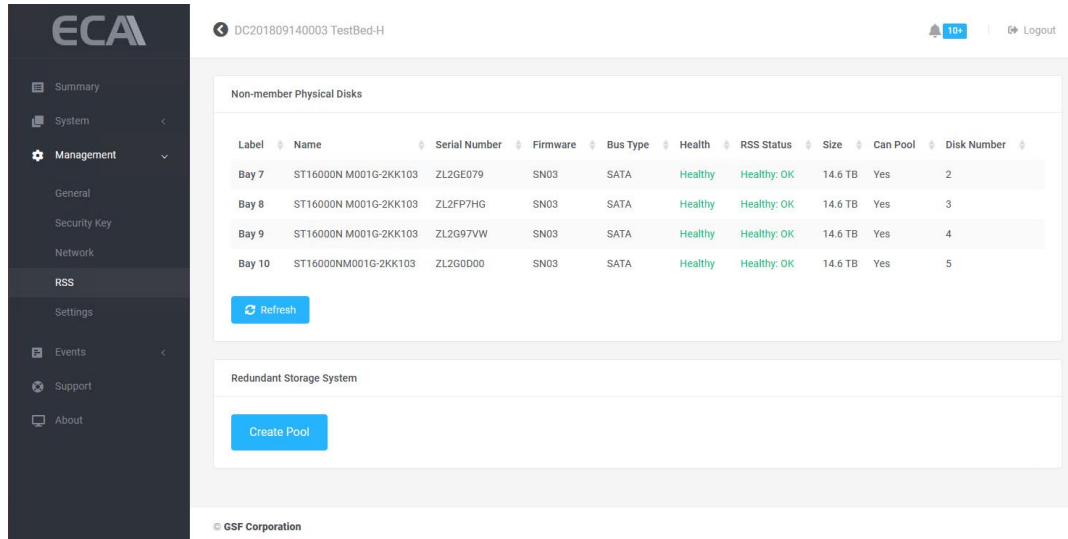


Figure 131: RSS – Redundant Storage System

### 9.4.1 Create Storage Pool

1. Click on the 'Create Pool' button to create pool.

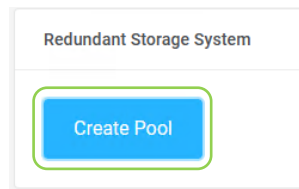


Figure 132: Create Pool

2. Name the storage pool and click on the 'Next' button.

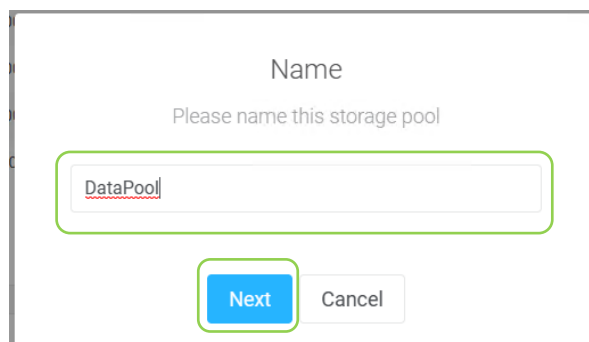


Figure 133: Name storage pool

3. Select the non-member physical disks and click on the 'Next' button to create pool.

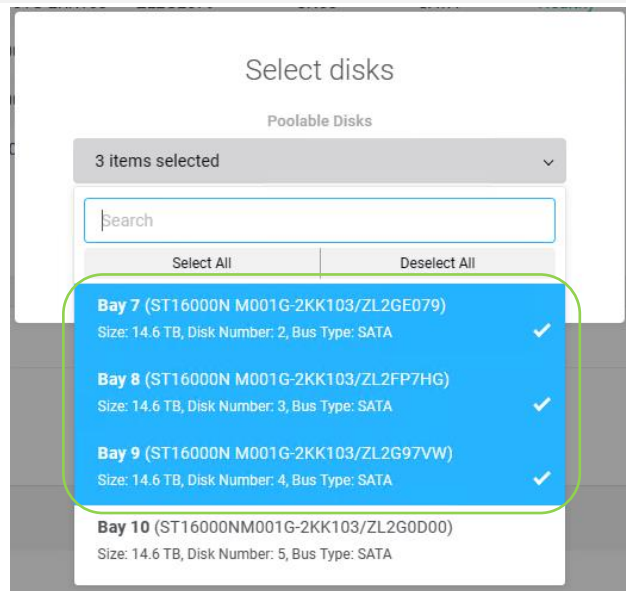


Figure 134: Select disks

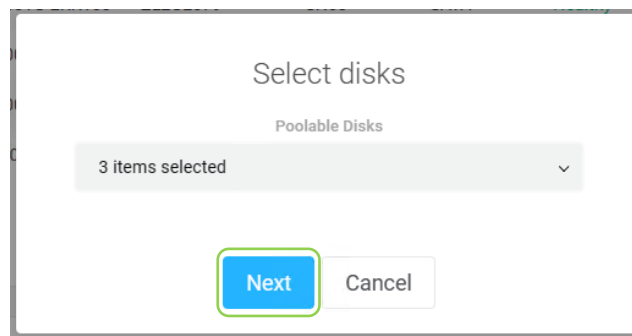
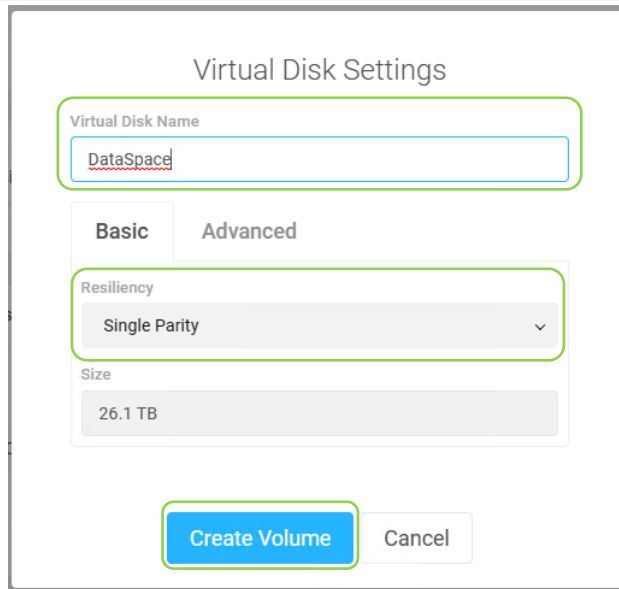


Figure 135: Select disks

4. In Virtual Disk Settings, name the virtual disk and select the Resiliency type. Click on the 'Create Volume' to create volume.

| Resiliency type  | Fault-tolerance for each storage pool | Minimum number of disks                          | Disk space efficiency                             |
|------------------|---------------------------------------|--------------------------------------------------|---------------------------------------------------|
| Simple           | 0 Disk                                | 1                                                | 100%                                              |
| Two-way Mirror   | 1 Disk                                | 2                                                | 50%                                               |
| Three-way Mirror | 2 Disks                               | 5                                                | 33%                                               |
| Single Parity    | 1 Disk                                | 3 (recommended 5disk for optimized performance)  | $\frac{\text{Disk Count} - 1}{\text{Disk Count}}$ |
| Dual Parity      | 2 Disks                               | 5 (recommended 10disk for optimized performance) | $\frac{\text{Disk Count} - 2}{\text{Disk Count}}$ |

Figure 136: Resiliency type table



Virtual Disk Settings

Virtual Disk Name  
DataSpace

Basic Advanced

Resiliency  
Single Parity

Size  
26.1 TB

Create Volume Cancel

Figure 137: Create volume

## 5. Storage pool and virtual disk health status in RSS.

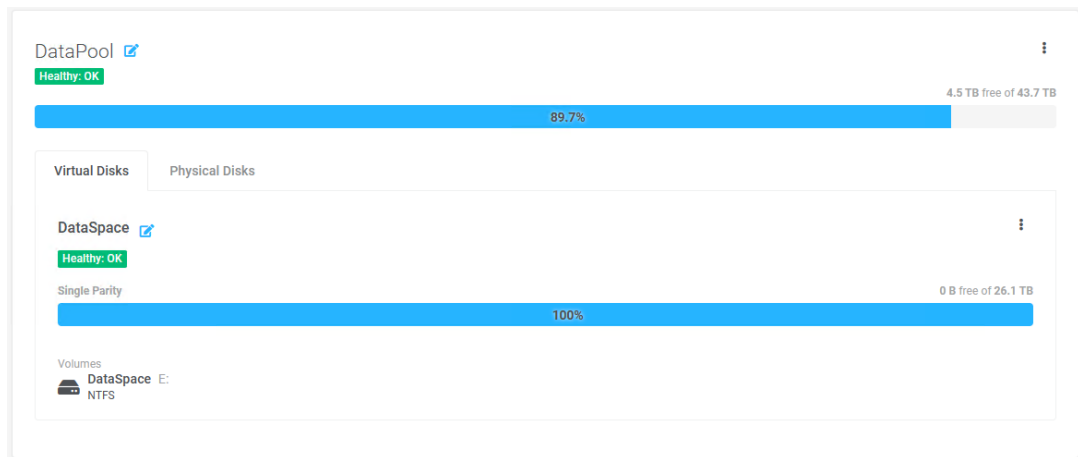


Figure 138: View storage pool, virtual disk health status

## 9.4.2 Delete Storage Pool

1. Click on the '⋮' and select 'Delete Pool' to delete the pool.

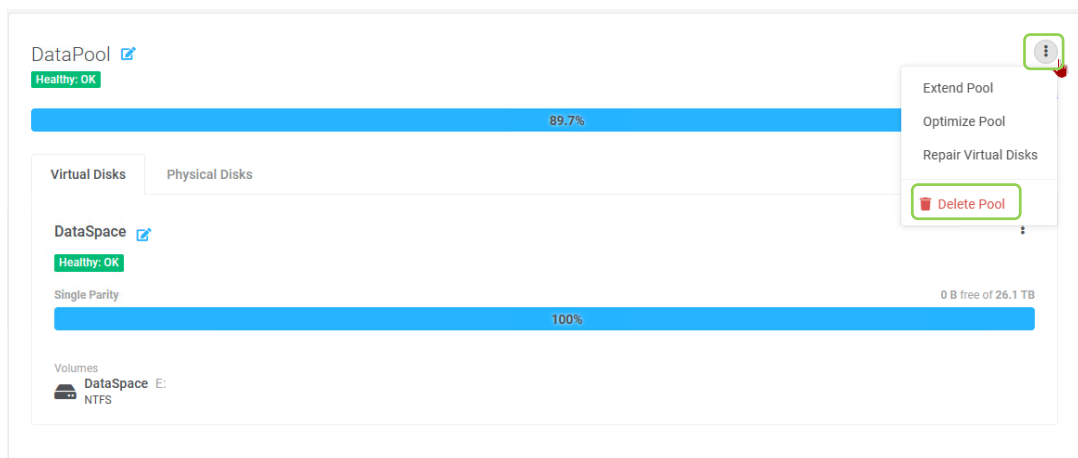


Figure 139: Delete pool

2. Enter storage pool name and click on the 'Delete Pool and Volumes' to delete the pool.

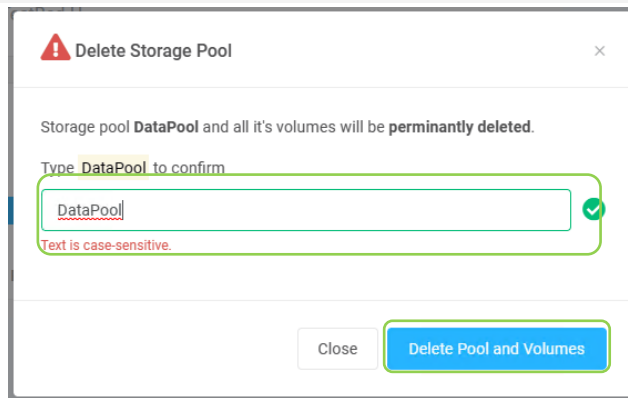


Figure 140: Confirm delete pool

### 9.4.3 Extend Storage Pool

Add a new non-member disk to extend the storage pool.

1. Insert a new clean disk into the ECA, it will appear under the Non-member Physical Disks list.

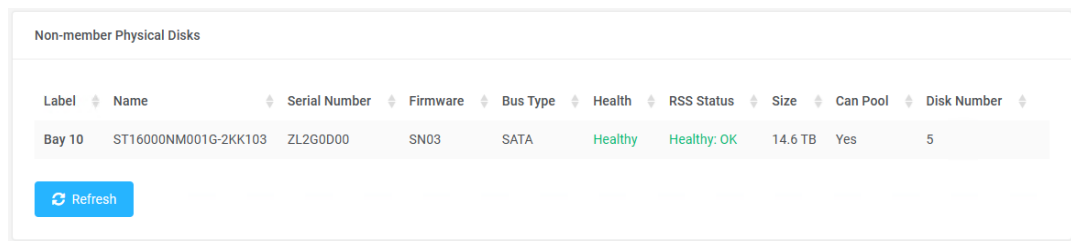


Figure 141: RSS non-member physical disks

2. Click on the '⋮' and select 'Extend Pool' to extend the pool.

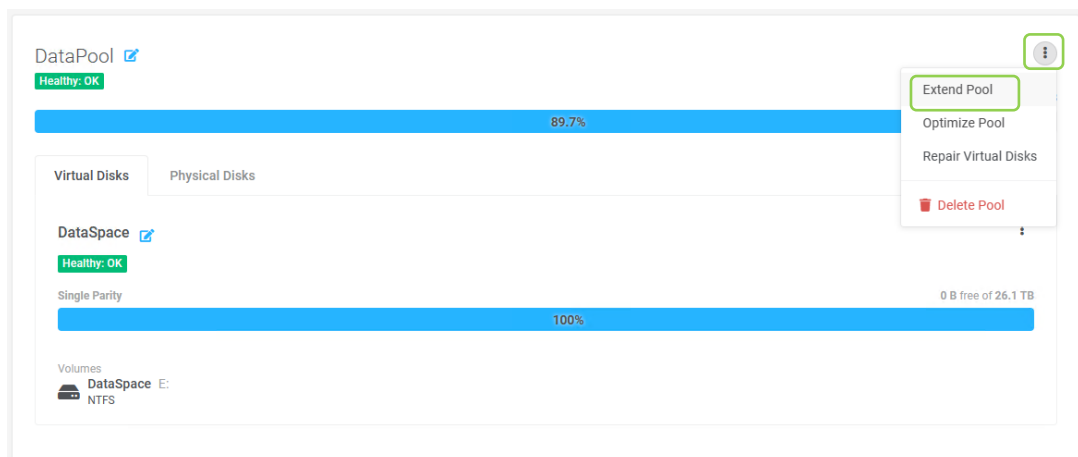


Figure 142: Extend storage pool

3. Enable Optimize storage pool and click on the 'Extend' button to extend the pool.

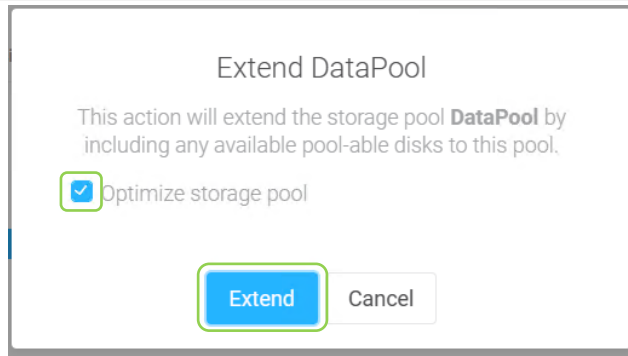


Figure 143: Optimize and extend storage pool

4. Please wait for the ECA to complete the optimization process.

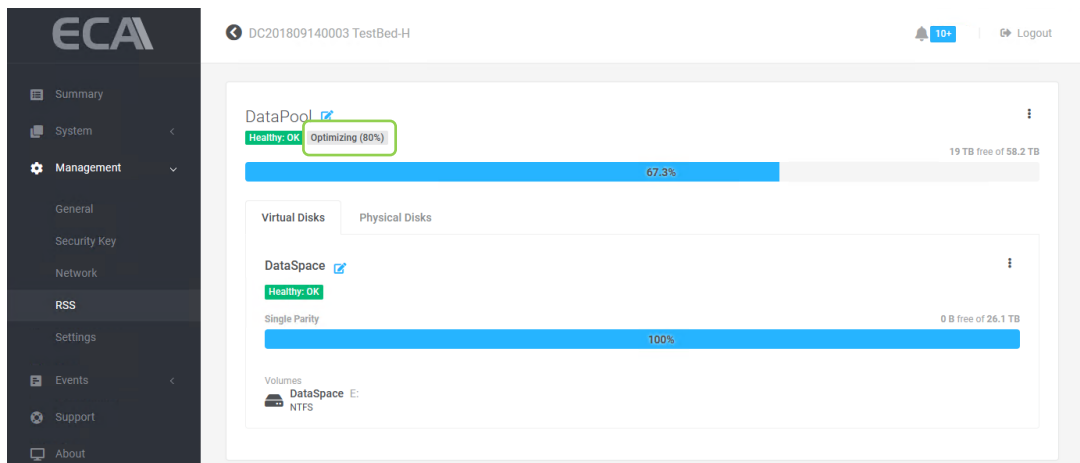


Figure 144: Optimizing storage pool

5. After the RSS optimization process is complete, go to Windows Device Manager to expand the RSS volume.

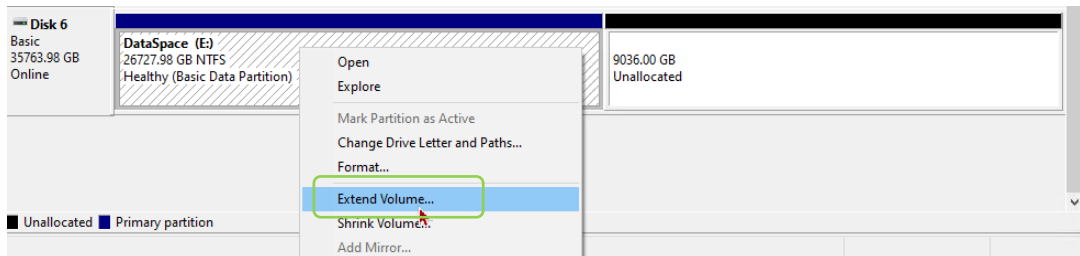


Figure 145: Extend volume in Disk Management (1 of 2)

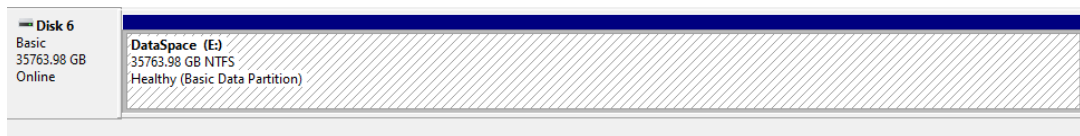


Figure 146: Extend volume in Disk Management (2 of 2)

## 9.4.4 Repair Storage Pool

If any of the RSS member disks are missing or faulty, ecaOS will notify you via email or desktop notification. To repair the storage pool, replace the missing or faulty disk with a new non-member disk.

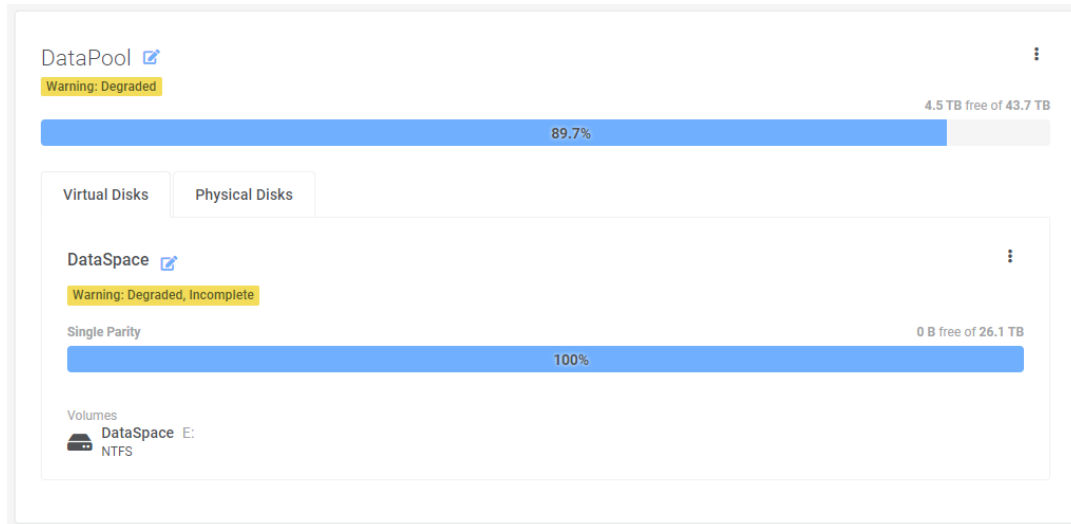


Figure 147: RSS Degraded

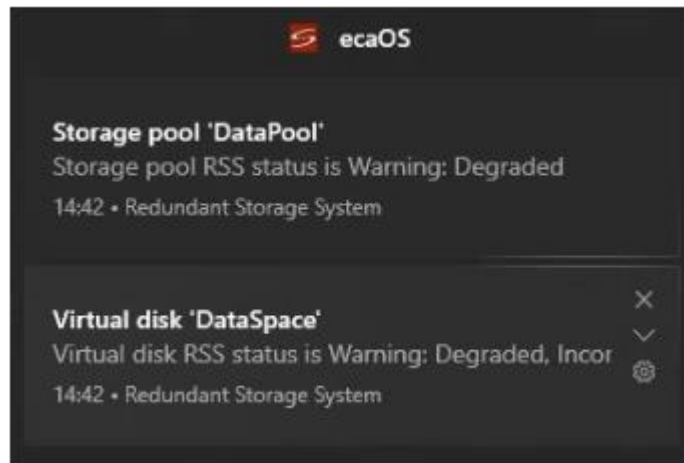


Figure 148: RSS Degraded Desktop notifications

1. To determine which member disks are 'Warning: lost communication,' go to the 'Physical Disks' tab. Then remove the faulty disk from the ECA.

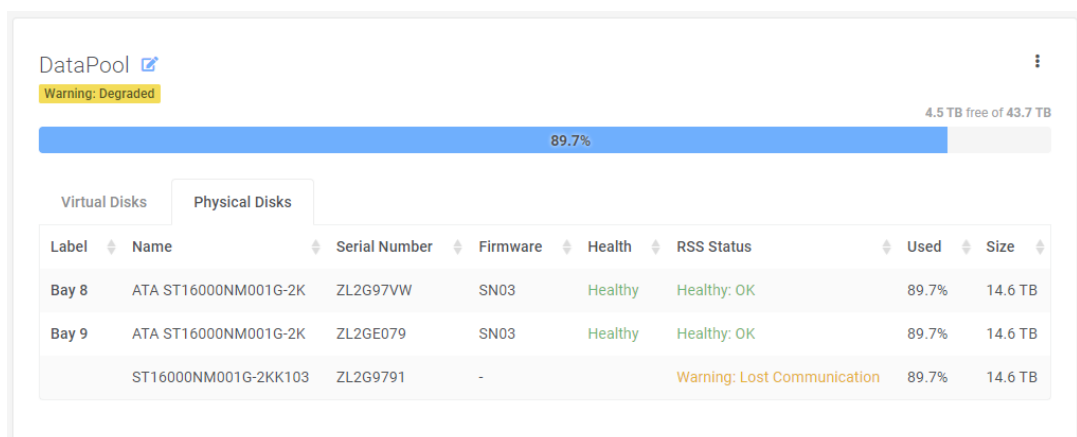


Figure 149: RSS member disk lost communication

2. Insert a new clean disk into the ECA, and then navigate to 'System > Disk Guard' to 'Acknowledge' the new replaced disk.

|        |                      |          |          |             |
|--------|----------------------|----------|----------|-------------|
| Bay 10 | ST16000NM001G-2KK103 | ZL2G0D00 | Replaced | Acknowledge |
|--------|----------------------|----------|----------|-------------|

Figure 150: Acknowledge the replacement disk

- Go to Management > RSS, the new replacement disk will be listed under Non-member Physical Disks.

| Label  | Name                 | Serial Number | Firmware | Bus Type | Health  | RSS Status  | Size    | Can Pool | Disk Number |
|--------|----------------------|---------------|----------|----------|---------|-------------|---------|----------|-------------|
| Bay 10 | ST16000NM001G-2KK103 | ZL2G0D00      | SN03     | SATA     | Healthy | Healthy: OK | 14.6 TB | Yes      | 5           |

[Refresh](#)

Figure 151: RSS non-member physical disks

- Click on the '⋮' and select 'Repair Virtual Disks' to repair the virtual disk.

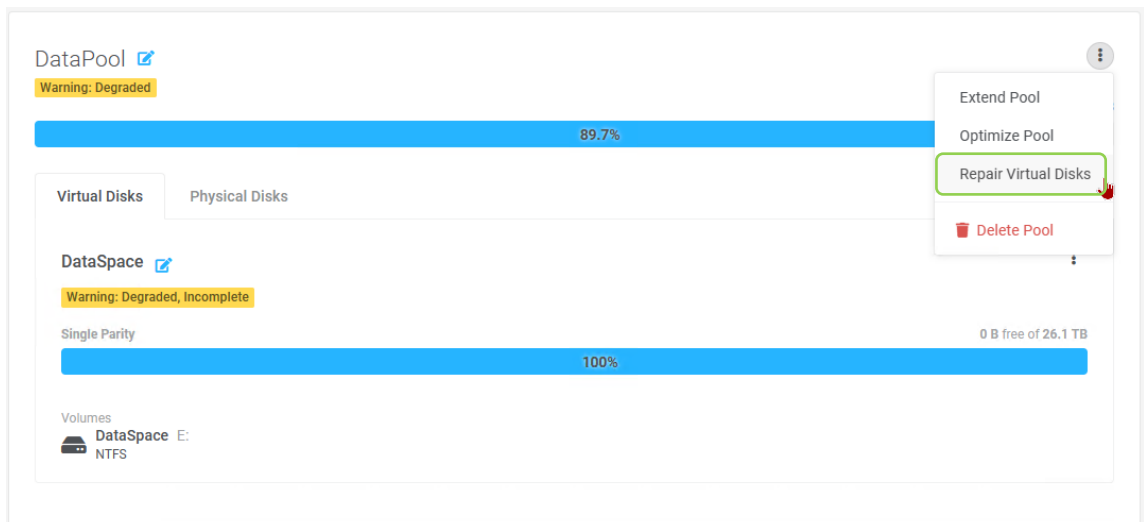


Figure 152: RSS non-member physical disks

- Enter storage pool name and click on the 'Repair' button to start repair.


**Repair Virtual Disks**

This will start the process of repairing the virtual disks belonging to storage pool **DataPool**. Unhealthy physical disks will be removed and new pool-able physical disks will be added to this pool.

Type **DataPool** to confirm



Text is case-sensitive.

Close
Repair

Figure 153: Confirm delete pool

- After the RSS repair process is complete, the health of the storage pool and virtual disk will return to normal.

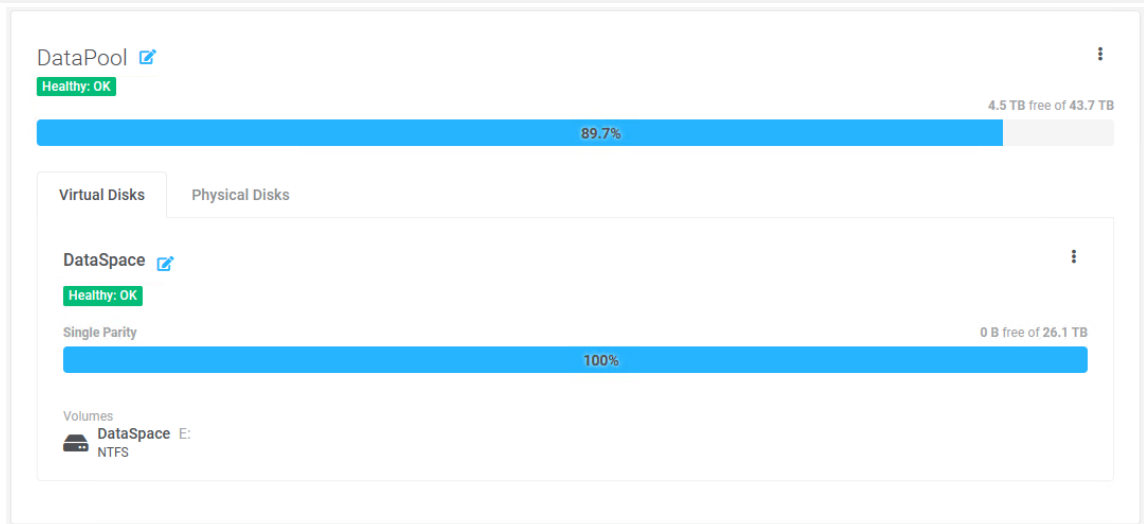


Figure 154: RSS healthy storage pool and virtual disk

## 9.5 Settings

Any event trigger can be set send email to respective personnel for any abnormal event.

### 9.5.1 Email Recipient Settings

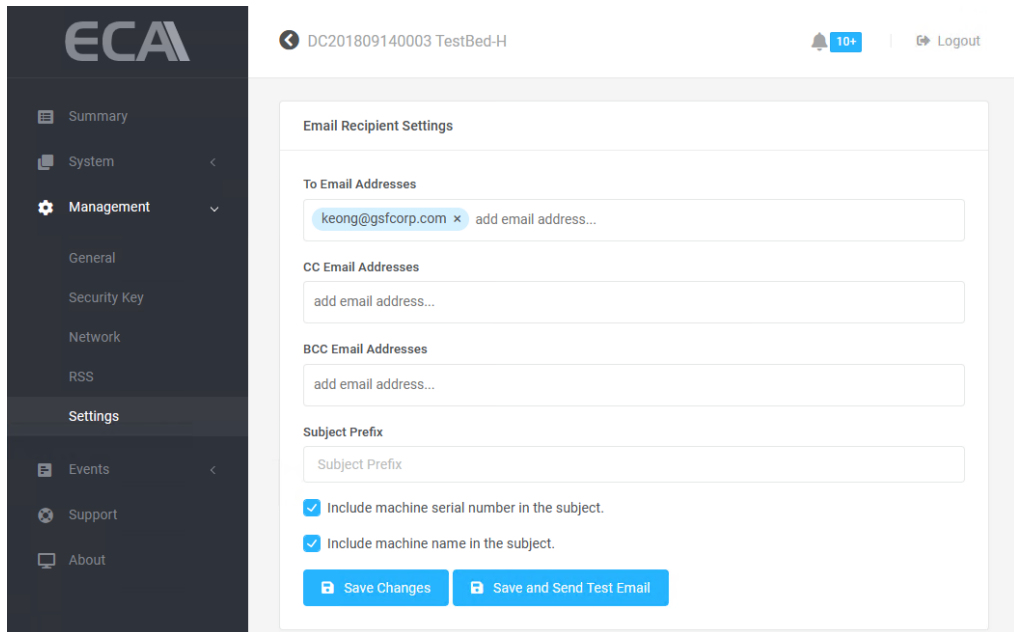


Figure 155: Email Setting (1 of 2)

### 9.5.2 Mail Servers

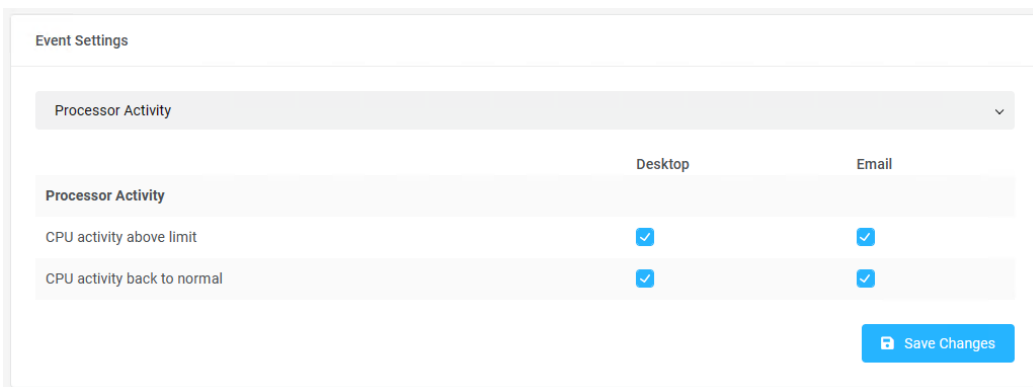
| Profile Name           | SMTP Server | Port | Sender Email         | Sender Name            | Encryption                       |
|------------------------|-------------|------|----------------------|------------------------|----------------------------------|
| ✓ ECA Notifications    | -           | -    | noreply@gsf.ms       | ECA Notifications      | -                                |
| SmartLogic Mail Server | -           | -    | wilson-sl@gsf.com.my | SmartLogic Mail Server | - <a href="#">Set as Default</a> |

[+ Add Server](#)

Figure 156: Email Setting (2 of 2)

### 9.5.3 Events

All monitoring application under System able to set notify in the desktop, send the email or both.



|                             | Desktop                             | Email                               |
|-----------------------------|-------------------------------------|-------------------------------------|
| <b>Processor Activity</b>   |                                     |                                     |
| CPU activity above limit    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| CPU activity back to normal | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 157: Events

1. Select event to be set by click drop down.

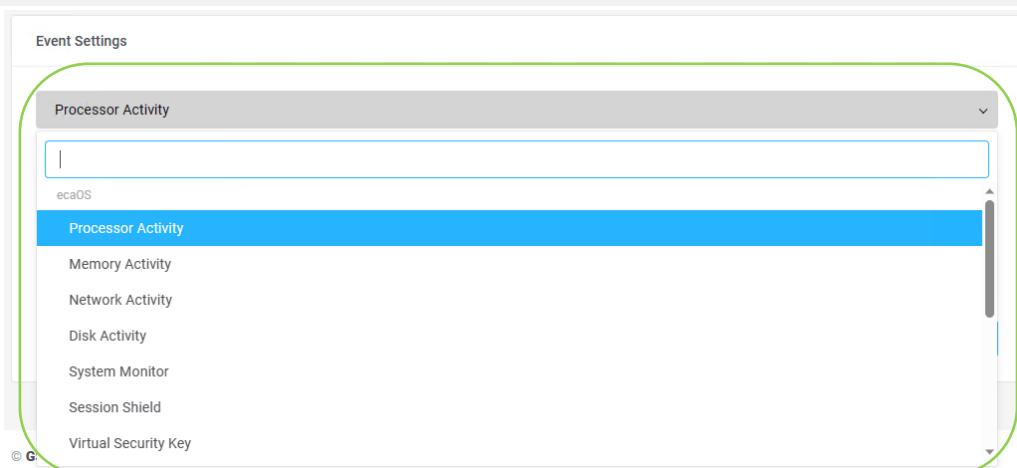


Figure 158: Select event (1 of 2)

2. Check the box to enable notification on the desktop or email and click 'Save Changes'
3. Setting below will notify user via Desktop notification and email if the memory usage above threshold limit. The user also will notify when the memory usage return to normal state

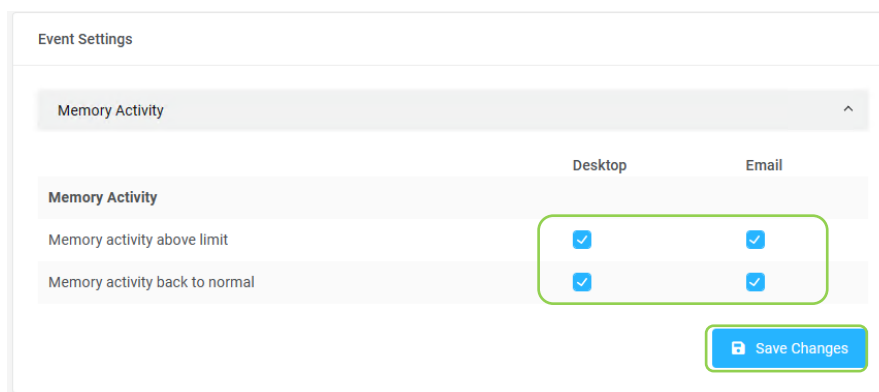


Figure 159: Select event (2 of 2)

### 9.5.3.1 Events List

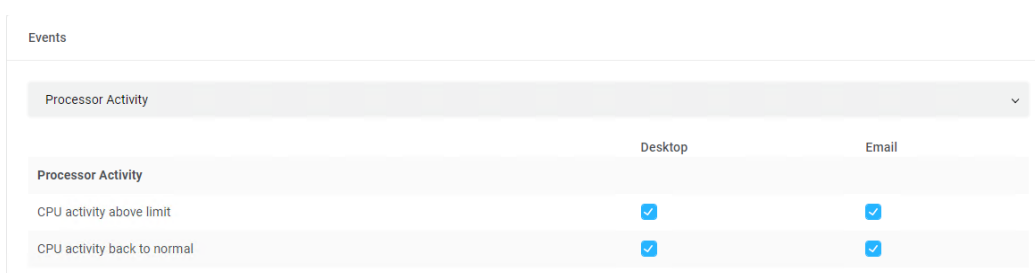


Figure 160: Processor Activity events notify setting

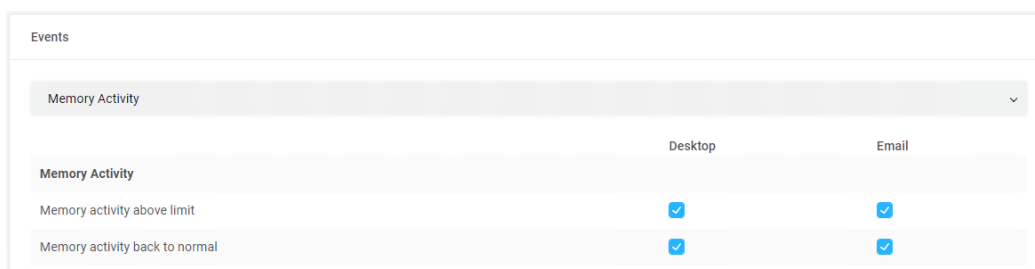


Figure 161: Memory Activity events notify setting

Event Settings

Network Activity

|                                         | Desktop                             | Email                               |
|-----------------------------------------|-------------------------------------|-------------------------------------|
| <b>Network Activity</b>                 |                                     |                                     |
| Network send activity above limit       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network send activity back to normal    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network receive activity below limit    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network receive activity back to normal | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network cable plugged                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network cable unplugged                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network available                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network unavailable                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network Teaming Enabled                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Network Teaming Disabled                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

 Save Changes

Figure 162: Network Activity events notify setting

Events

Disk Activity

|                                    | Desktop                             | Email                               |
|------------------------------------|-------------------------------------|-------------------------------------|
| <b>Disk Activity</b>               |                                     |                                     |
| Disk read activity above limit     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk read activity back to normal  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk write activity below limit    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk write activity back to normal | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 163: Disk Activity events notify setting

Event Settings

System Monitor

|                                   | Desktop                             | Email                               |
|-----------------------------------|-------------------------------------|-------------------------------------|
| <b>System Monitor</b>             |                                     |                                     |
| High CPU Temperature              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| CPU temperature back to normal    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| High System Temperature           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| System temperature back to normal | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| CPU fan speed below limit         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| CPU fan speed back to normal      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| System fan speed below limit      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| System fan speed back to normal   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3V3 System above limit            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3V3 System back to normal         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3V3 System below limit            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3V3 System back to normal         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12V System above limit            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12V System back to normal         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12V System below limit            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 12V System back to normal         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mainboard Battery Low             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Mainboard Battery back to normal  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

[Save Changes](#)

Figure 164: System Monitor events notify setting

Events

Session Shield

|                                  | Desktop                             | Email                               |
|----------------------------------|-------------------------------------|-------------------------------------|
| <b>Session Shield</b>            |                                     |                                     |
| Session Shield at warning state  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Session Shield at critical state | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Session Shield back to normal    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Session Shield rebooting system  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 165: Session Shield events notify setting

Events

Virtual Security Key

|                              | Desktop                             | Email                               |
|------------------------------|-------------------------------------|-------------------------------------|
| <b>Virtual Security Key</b>  |                                     |                                     |
| Virtual security key added   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Virtual security key deleted | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 166: Virtual Security Key events notify setting

| Events               |                                     |                                     |
|----------------------|-------------------------------------|-------------------------------------|
| Security Key         |                                     |                                     |
|                      | Desktop                             | Email                               |
| Security Key         |                                     |                                     |
| Security key added   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Security key deleted | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Security key renamed | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 167: Security Key events notify setting

| Events                          |                                     |                                     |
|---------------------------------|-------------------------------------|-------------------------------------|
| Support                         |                                     |                                     |
|                                 | Desktop                             | Email                               |
| Support                         |                                     |                                     |
| Remote support enabled          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Remote support disabled         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Remote support setup successful | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Remote support setup failed     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 168: Support events notify setting

| Events                    |                                     |                                     |
|---------------------------|-------------------------------------|-------------------------------------|
| Disk Guard                |                                     |                                     |
|                           | Desktop                             | Email                               |
| <b>Disk Guard</b>         |                                     |                                     |
| Disk Removed              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Remove Acknowledged  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Inserted             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| New Disk                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Replaced             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Replace Acknowledged | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Online               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk Offline              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disks Changed             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 169: Disk Guard events notify setting

| Events               |                                     |                                     |
|----------------------|-------------------------------------|-------------------------------------|
| Disk Health          |                                     |                                     |
|                      | Desktop                             | Email                               |
| <b>Disk Health</b>   |                                     |                                     |
| Disk health warning  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Disk health critical | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 170: Disk Health events notify setting

| Event Settings                    |                                     |                                     |
|-----------------------------------|-------------------------------------|-------------------------------------|
| Redundant Storage System          |                                     |                                     |
|                                   | Desktop                             | Email                               |
| <b>Redundant Storage System</b>   |                                     |                                     |
| Storage pool status is healthy    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Storage pool status is warning    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Storage pool status is unhealthy  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Virtual disk status is healthy    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Virtual disk status is warning    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Virtual disk status is unhealthy  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical disk status is healthy   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical disk status is warning   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical disk status is unhealthy | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <a href="#">Save Changes</a>      |                                     |                                     |

Figure 171: Redundant Storage System notify setting

| Events                  |                                     |                                     |
|-------------------------|-------------------------------------|-------------------------------------|
| Firmware                |                                     |                                     |
|                         | Desktop                             | Email                               |
| <b>Firmware</b>         |                                     |                                     |
| Firmware update success | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Firmware update failed  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 172: Heartbeat firmware events notify setting

| Events                     |                                     |                                     |
|----------------------------|-------------------------------------|-------------------------------------|
| ECA Layer                  |                                     |                                     |
|                            | Desktop                             | Email                               |
| <b>ECA Layer</b>           |                                     |                                     |
| Saving layer successful    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Saving layer failed        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Restoring layer successful | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Restoring layer failed     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Figure 173: ECA Layer events notify setting

| Event Settings              |                                     |                                     |
|-----------------------------|-------------------------------------|-------------------------------------|
| ECA Power Supply            |                                     |                                     |
|                             | Desktop                             | Email                               |
| <b>ECA Power Supply</b>     |                                     |                                     |
| Power supply fault          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Power supply back to normal | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

[Save Changes](#)

Figure 174: ECA Power Supply events notify setting (ONLY applies to ECA45 with TBSP-ECAPSU-R600 power supply unit)

## 9.5.4 SNMP Settings

Users can monitor ECA with network management software by using SNMP (Management > Settings > SNMP Settings). The following protocols are currently supported: SNMPv1, SNMPv2c, and SNMPv3.

| SNMP Settings                              |      |              |               |                  |
|--------------------------------------------|------|--------------|---------------|------------------|
| <input type="checkbox"/> Enable SNMP Agent |      |              |               |                  |
| <u>Trap Receivers</u>                      |      |              |               |                  |
| Host                                       | Port | SNMP Version | Auth Protocol | Privacy Protocol |
| No matching records found                  |      |              |               |                  |
| <a href="#">+ Add Trap Receiver</a>        |      |              |               |                  |

Figure 175: SNMP Settings

### 9.5.4.1 Enable SNMP

1. Tick Enable SNMP Agent, click the Add Trap Receiver button and follow the steps below.
  - a. Enter the host IP address.
  - b. Enter the port number of the host.
  - c. Select the SNMP version.
  - d. Enter a community name.
  - e. Click the Save button.

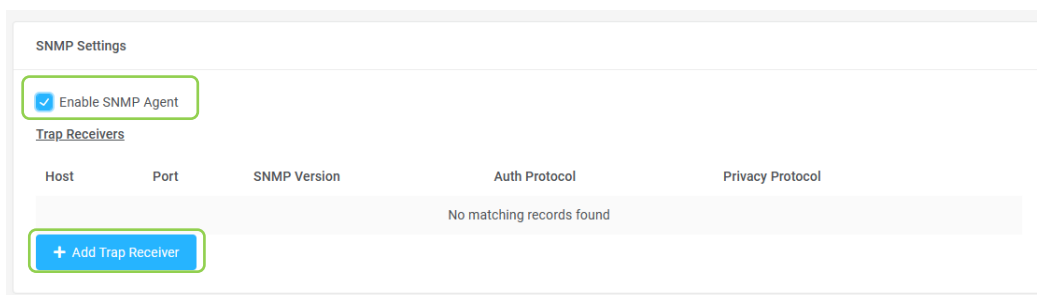


Figure 176: Enable SNMP

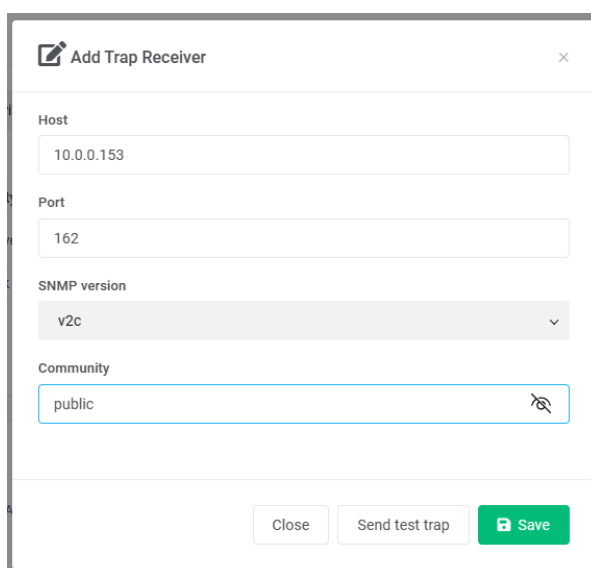


Figure 177: Add SNMP Trap Receiver

### 9.5.4.2 Download ECA MIB Files

GSF provides management information base (MIB) of ECA, which allows users to monitor ECA using network management systems, such as system, disk, and network statuses.

Please obtain the ECA MIB files from

“C:\Program Files (x86)\GSF\ecaOS\Services\MqttSnmpAgent\MiB.zip”.

### 9.5.5 Central Registration

ecaCentral is a dedicated dashboard for monitoring the health and performance of multiple ECAs using a registered email address. If any registered ECAs have anomalies, you will be notified via the ecaCentral dashboard.

Before using ecaCentral, go to the ecaOS dashboard for the ECA you want to monitor: Management > Settings > Central Registration, and enter your registered account information.

To register your ECA for this service:

- Enter your registered email address.
- Enter the central IP address or hostname.
- Click the register button.

If you have successfully connected the ecaCentral, you will see the connection status as connected.

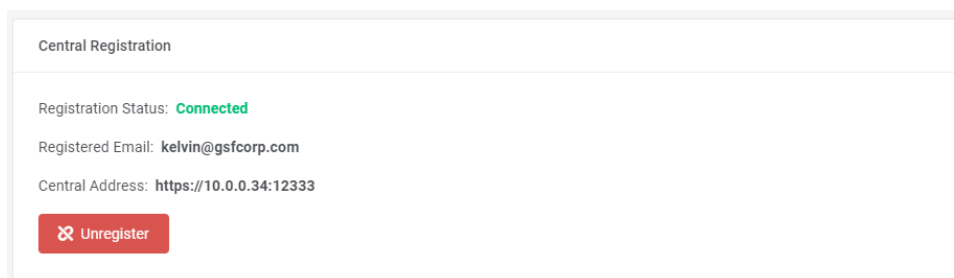
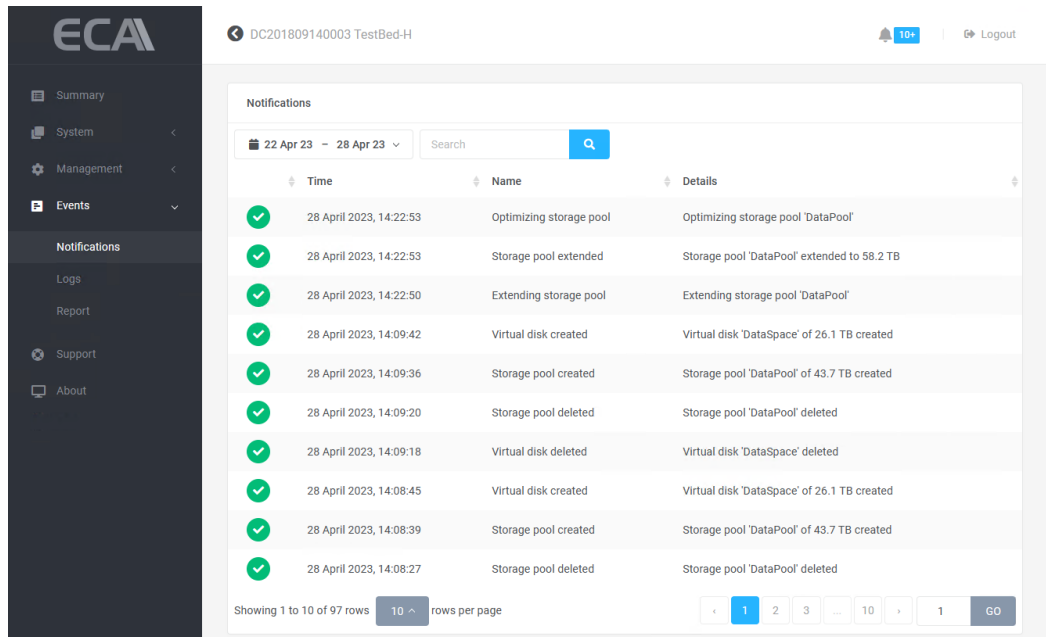


Figure 178: ecaOS Central Registration

## 10 Events

### 10.1 Notification



DC201809140003 TestBed-H

118+ Logout

#### Notifications

22 Apr 23 - 28 Apr 23 Search

|   | Time                    | Name                    | Details                                     |
|---|-------------------------|-------------------------|---------------------------------------------|
| ✓ | 28 April 2023, 14:22:53 | Optimizing storage pool | Optimizing storage pool 'DataPool'          |
| ✓ | 28 April 2023, 14:22:53 | Storage pool extended   | Storage pool 'DataPool' extended to 58.2 TB |
| ✓ | 28 April 2023, 14:22:50 | Extending storage pool  | Extending storage pool 'DataPool'           |
| ✓ | 28 April 2023, 14:09:42 | Virtual disk created    | Virtual disk 'DataSpace' of 26.1 TB created |
| ✓ | 28 April 2023, 14:09:36 | Storage pool created    | Storage pool 'DataPool' of 43.7 TB created  |
| ✓ | 28 April 2023, 14:09:20 | Storage pool deleted    | Storage pool 'DataPool' deleted             |
| ✓ | 28 April 2023, 14:09:18 | Virtual disk deleted    | Virtual disk 'DataSpace' deleted            |
| ✓ | 28 April 2023, 14:08:45 | Virtual disk created    | Virtual disk 'DataSpace' of 26.1 TB created |
| ✓ | 28 April 2023, 14:08:39 | Storage pool created    | Storage pool 'DataPool' of 43.7 TB created  |
| ✓ | 28 April 2023, 14:08:27 | Storage pool deleted    | Storage pool 'DataPool' deleted             |

Showing 1 to 10 of 97 rows 10 rows per page

1 2 3 ... 10 1 GO

Figure 179: Notification

## 10.2 Logs

An event log is a file that contains information about usage, operations and activity of the ECA system. The log can be filtered by specifying data range and/or inserting keyword(s).

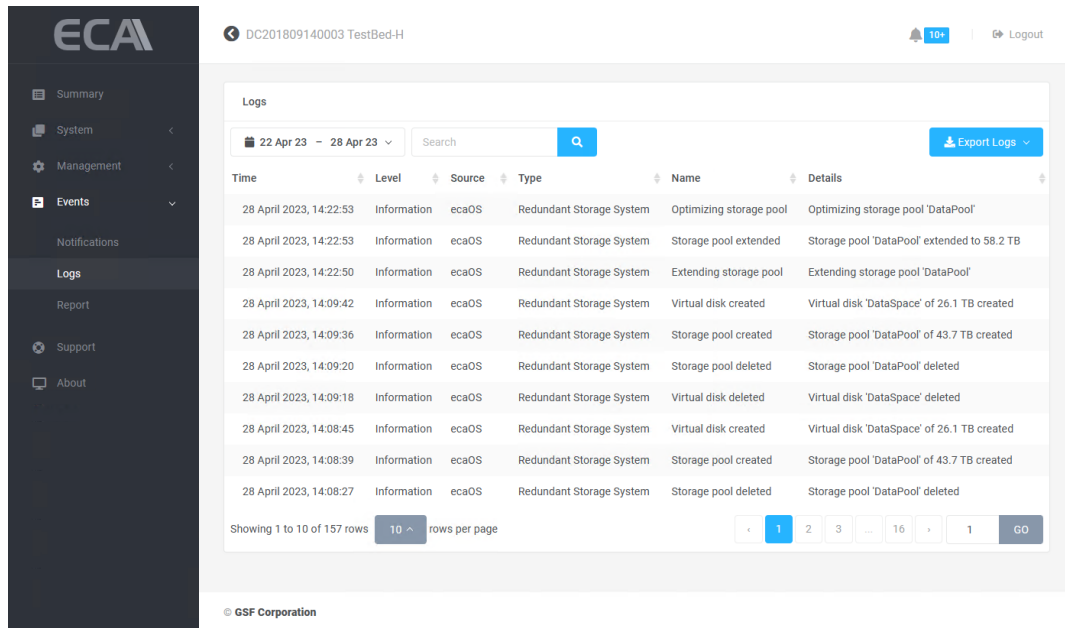


Figure 180: Log

### 10.2.1 Filtering Log

Filter by can choose by Today, Yesterday, Last 3 days, Last 7 Days, Last 30 Days or Custom data range.

Type any keyword and click on magnetify glass icon to start filtering. Click 'Apply' to filter the Logs.

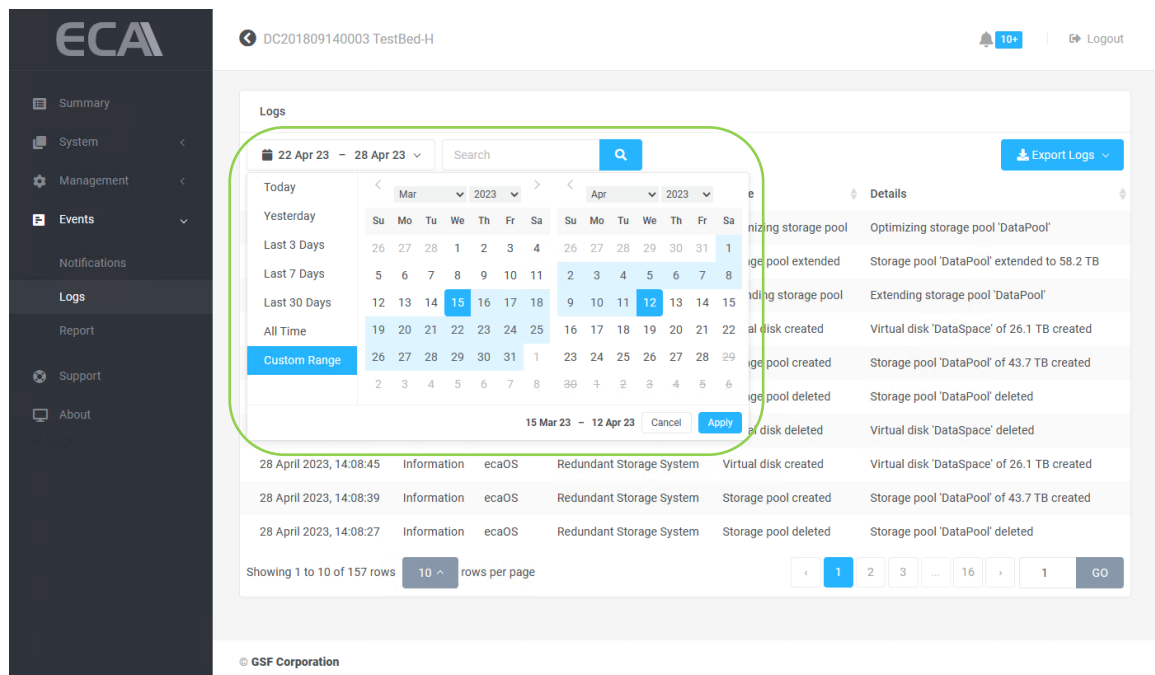


Figure 181: Filter log

## 10.2.2 Exporting Log

1. Click on the 'Export Logs' button

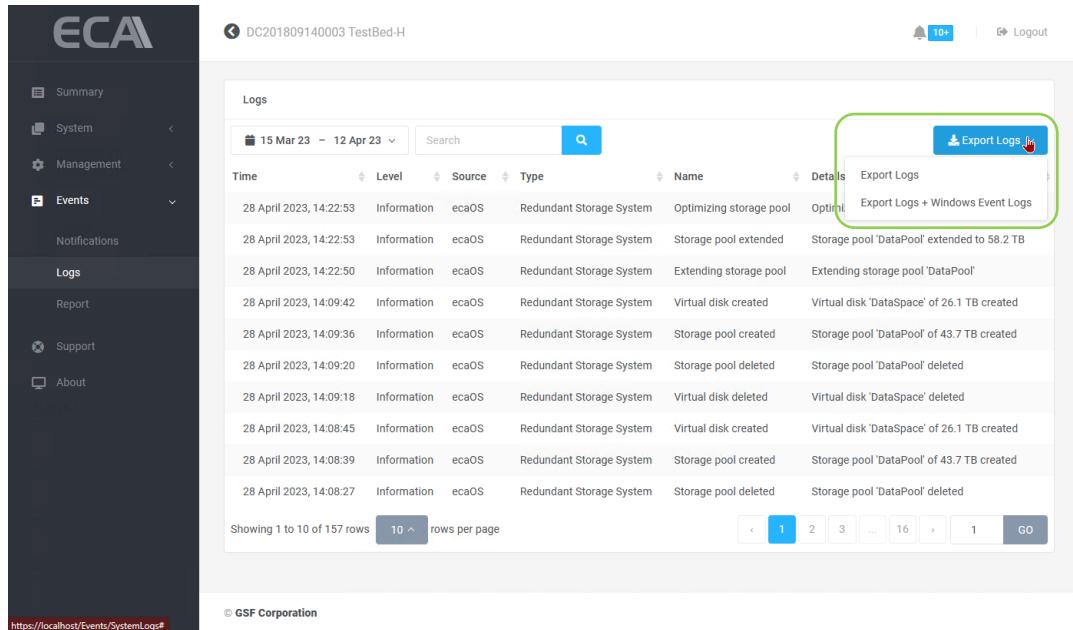


Figure 182: Export Log (1 of 8)

2. Click OK to start export the current log

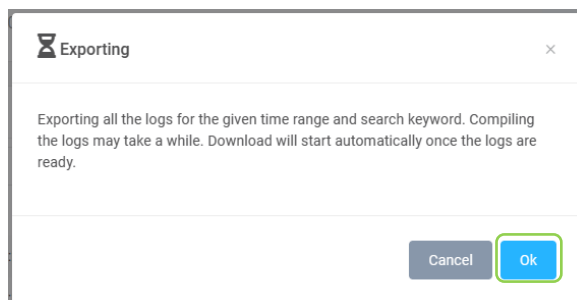


Figure 183: Export Log (2 of 8)

3. The log will export to Downloads folder in compress format

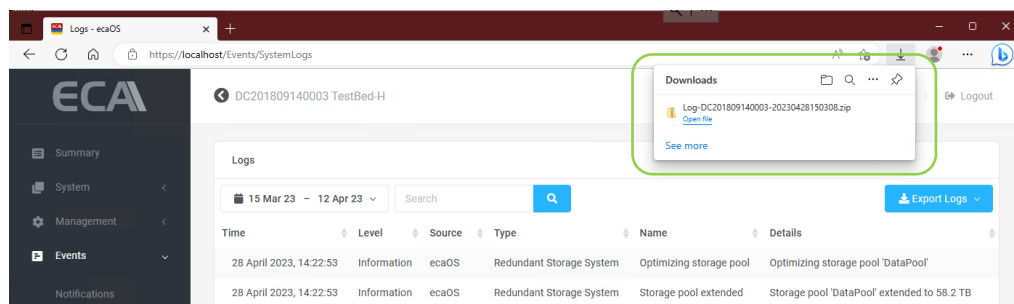


Figure 184: Export Log (3 of 8)

4. The log will be export to under Downloads. The exported log can be retrieved via Explorer.

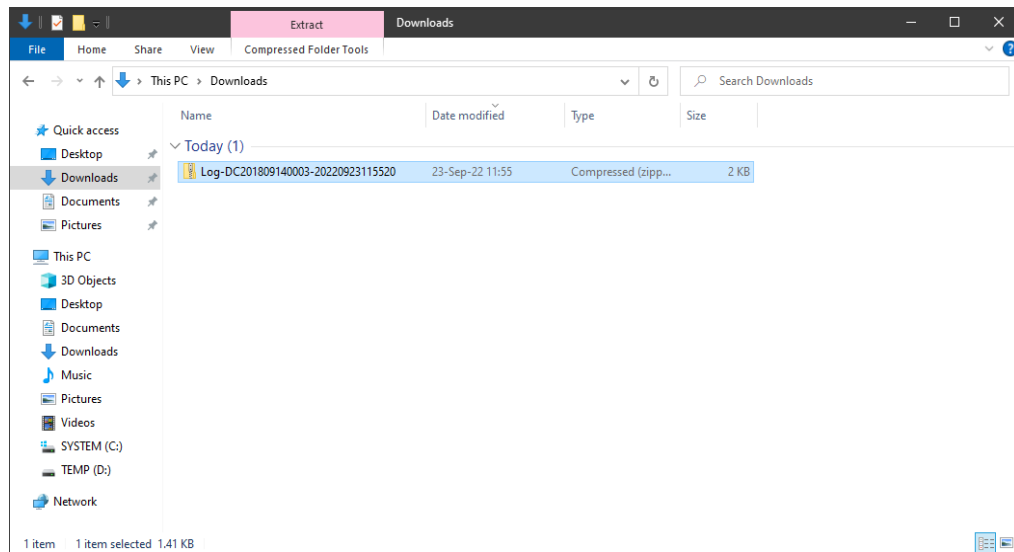


Figure 185: Exporting log (4 of 8)

5. Extract the file by right click on the file and select Extract All.

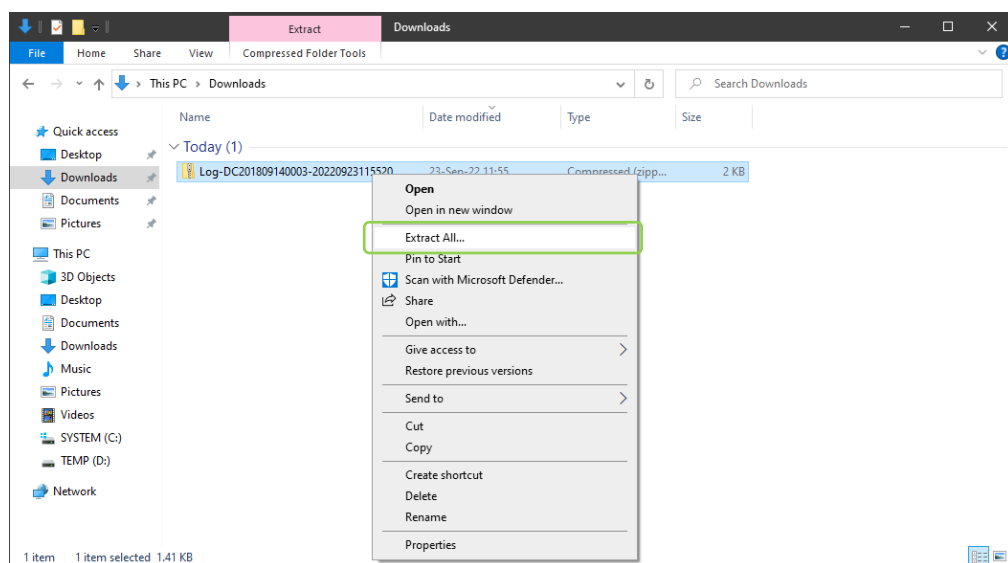


Figure 186: Exporting log (5 of 8)

6. Choose the location to extra the file and click Extract button.

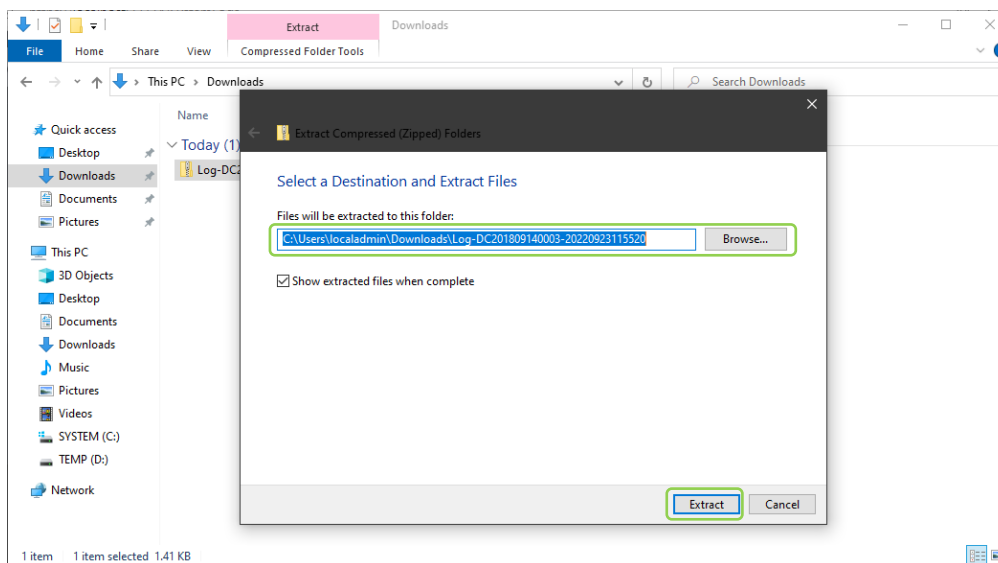


Figure 187: Exporting log (6 of 8)

7. The log file saved in comma-separated values (CSV) format.

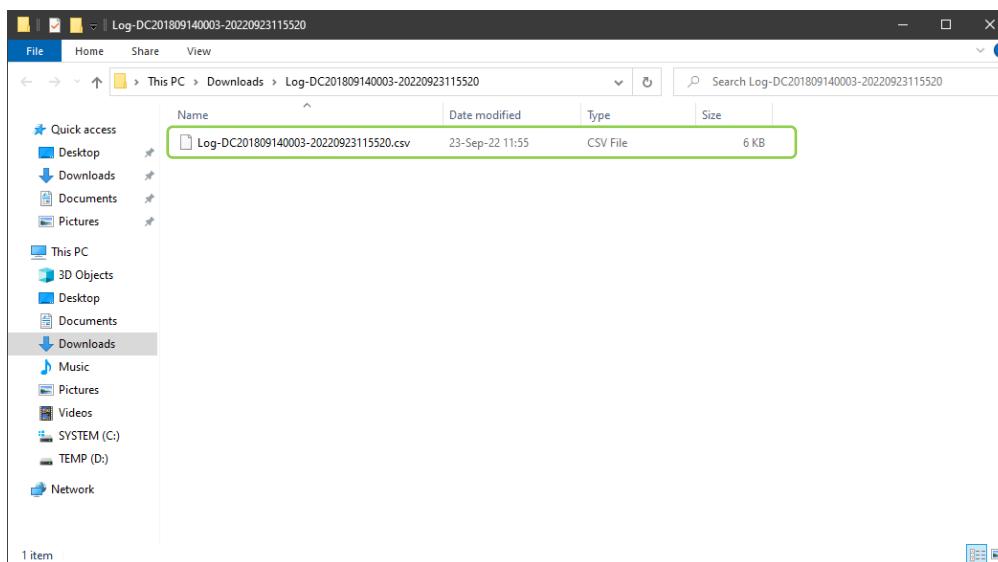
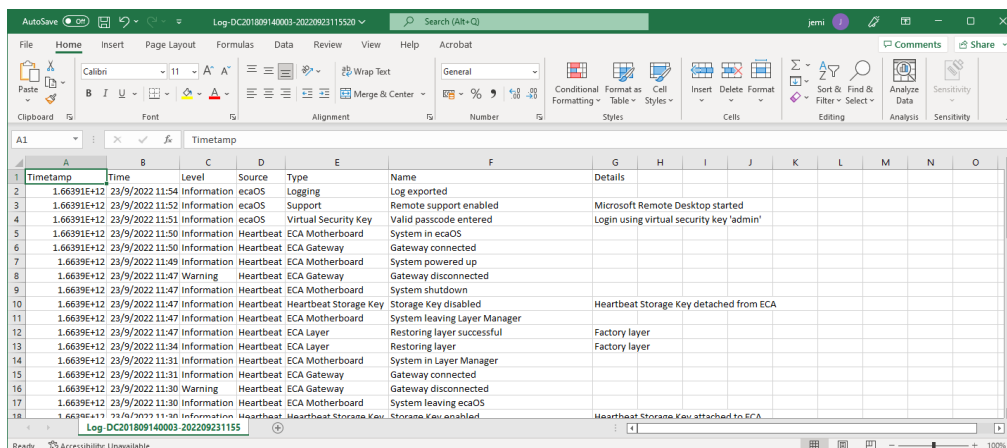


Figure 188: Exporting log (7 of 8)

8. Use Spreadsheet program to open the log file.



| Timestamp   | Time            | Level       | Source    | Type                  | Name                         | Details                                  |
|-------------|-----------------|-------------|-----------|-----------------------|------------------------------|------------------------------------------|
| 1.66391E+12 | 23/9/2022 11:54 | Information | ecaOS     | Logging               | Log exported                 |                                          |
| 1.66391E+12 | 23/9/2022 11:52 | Information | ecaOS     | Support               | Remote support enabled       | Microsoft Remote Desktop started         |
| 1.66391E+12 | 23/9/2022 11:51 | Information | ecaOS     | Virtual Security Key  | Valid passcode entered       | Login using virtual security key 'admin' |
| 1.66391E+12 | 23/9/2022 11:50 | Information | Heartbeat | ECA Motherboard       | System in ecaOS              |                                          |
| 1.66391E+12 | 23/9/2022 11:50 | Information | Heartbeat | ECA Gateway           | Gateway connected            |                                          |
| 1.66391E+12 | 23/9/2022 11:49 | Information | Heartbeat | ECA Motherboard       | System powered up            |                                          |
| 1.66391E+12 | 23/9/2022 11:47 | Warning     | Heartbeat | ECA Gateway           | Gateway disconnected         |                                          |
| 1.66391E+12 | 23/9/2022 11:47 | Information | Heartbeat | ECA Motherboard       | System shutdown              |                                          |
| 1.66391E+12 | 23/9/2022 11:47 | Information | Heartbeat | Heartbeat Storage Key | Storage Key disabled         | Heartbeat Storage Key detached from ECA  |
| 1.66391E+12 | 23/9/2022 11:47 | Information | Heartbeat | ECA Motherboard       | System leaving Layer Manager |                                          |
| 1.66391E+12 | 23/9/2022 11:47 | Information | Heartbeat | ECA Layer             | Restoring layer successful   | Factory layer                            |
| 1.66391E+12 | 23/9/2022 11:34 | Information | Heartbeat | ECA Layer             | Restoring layer              | Factory layer                            |
| 1.66391E+12 | 23/9/2022 11:31 | Information | Heartbeat | ECA Motherboard       | System in Layer Manager      |                                          |
| 1.66391E+12 | 23/9/2022 11:31 | Information | Heartbeat | ECA Gateway           | Gateway connected            |                                          |
| 1.66391E+12 | 23/9/2022 11:30 | Warning     | Heartbeat | ECA Gateway           | Gateway disconnected         |                                          |
| 1.66391E+12 | 23/9/2022 11:30 | Information | Heartbeat | ECA Motherboard       | System leaving ecaOS         |                                          |
| 1.66391E+12 | 23/9/2022 11:30 | Information | Heartbeat | Heartbeat Storage Key | Storage Key attached         | Heartbeat Storage Key attached to ECA    |

Figure 189: Exporting log (8 of 8)

## 10.3 Report

Report will be auto generated and sent to all recipients daily at: 23:55 or manually download by click on the 'Download System Report' button.

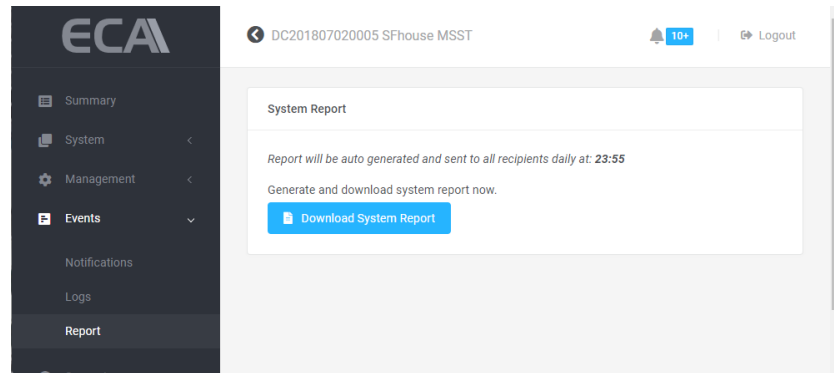


Figure 190: Manual Report Download at Events > Report section

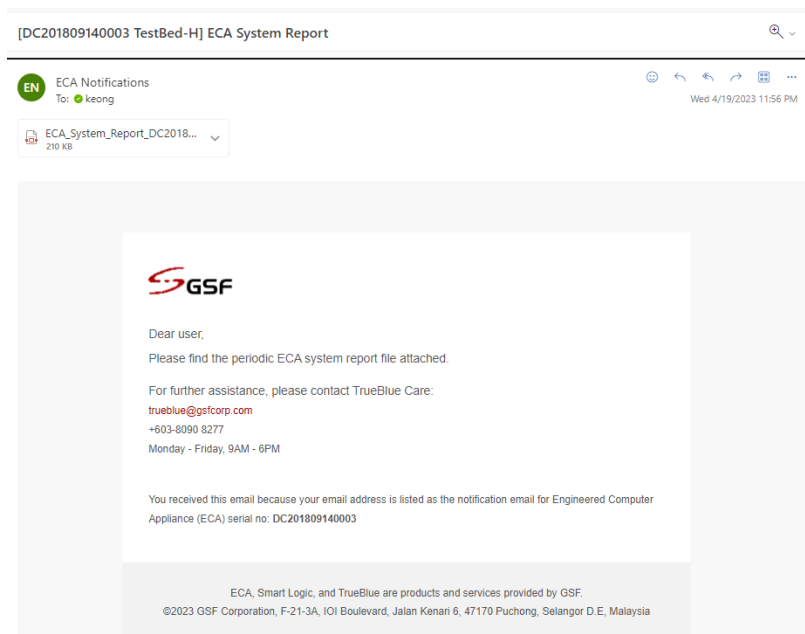


Figure160A: ECA email an ECA report

ECA System Report: DC201809140003 | TestBed-H | 18 Apr 2023, 23:55 (+08:00)

### Disks

|             | Model                  | Serial #         | Health Status             | Temperature | Disk Guard          |
|-------------|------------------------|------------------|---------------------------|-------------|---------------------|
| System Disk | KINGSTON SUV400S37120G | 50026B777C01AC30 | 94% <span>HEALTHY</span>  | 32 °C       | <span>ONLINE</span> |
| Bay 1       | ST4000VX000-1F4168     | Z302B6PJ         | 100% <span>HEALTHY</span> | 30 °C       | <span>ONLINE</span> |
| Bay 2       | ST16000NM001G-2KK103   | ZL2G64K3         | 100% <span>HEALTHY</span> | 32 °C       | <span>ONLINE</span> |
| Bay 3       | ST16000NM001G-2KK103   | ZL2E4XRK         | 100% <span>HEALTHY</span> | 31 °C       | <span>ONLINE</span> |
| Bay 4       | ST16000NM001G-2KK103   | ZL2E4XGM         | 100% <span>HEALTHY</span> | 30 °C       | <span>ONLINE</span> |
| Bay 5       | ST16000NM001G-2KK103   | ZL2GDQ7V         | 100% <span>HEALTHY</span> | 31 °C       | <span>ONLINE</span> |
| Bay 6       | ST4000VX000-1F4168     | Z302AVWB         | 100% <span>HEALTHY</span> | 30 °C       | <span>ONLINE</span> |
| Bay 7       |                        |                  | -                         | -           | NO DISK             |
| Bay 8       |                        |                  | -                         | -           | NO DISK             |
| Bay 9       |                        |                  | -                         | -           | NO DISK             |
| Bay 10      |                        |                  | -                         | -           | NO DISK             |
| Bay 11      |                        |                  | -                         | -           | NO DISK             |
| Bay 12      |                        |                  | -                         | -           | NO DISK             |
| Bay 13      |                        |                  | -                         | -           | NO DISK             |
| Bay 14      | ST31000S28ASQ          | 5VP4QVVK         | 30% <span>CRITICAL</span> | 31 °C       | <span>ONLINE</span> |
| Bay 15      |                        |                  | -                         | -           | NO DISK             |

Figure 191B: Example ECA report in PDF format

## 11 Support

### 11.1 Microsoft Remote Desktop

Microsoft Remote Desktop app to connect to a remote PC or virtual apps and desktops made available by your admin.

Click on 'Start' button under Microsoft Remote Desktop

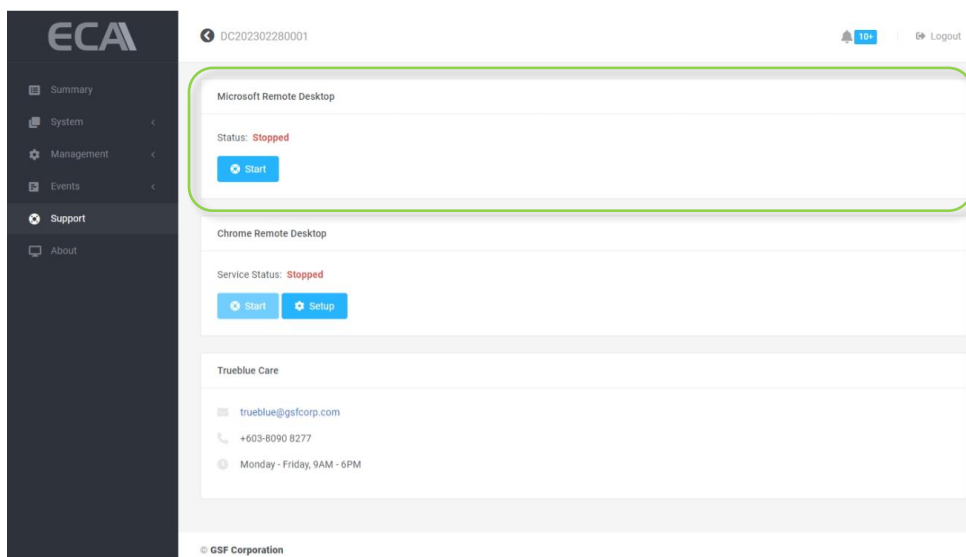


Figure 192: Microsoft Remote Support

From local PC. Enter computer name or IP address of the remote ECA.

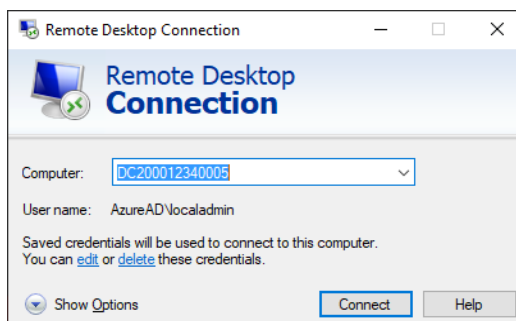


Figure 193: Trueblue Remote Support (1 of 2)

NOTE: You will require to port forward in your router to allowed Remote Desktop to be accessible via internet. Default port is 3389

## 11.2 Chrome Remote Desktop

This option allows you to access your ECA remotely from your PC/Laptop using your own Google account without require any port forwarding setting in the router. Before begin, Chrome Remote Desktop work in both Google Chrome or Microsoft Edge Browser, at the address bar type: <https://remotedesktop.google.com/access> then follow the directions to enabled Chrome Remote Desktop in your browser.

### 11.2.1 Setup ECA into your Chrome Remote Desktop

In your PC/Laptop, run Chrome/Edge and enter <https://remotedesktop.google.com/headless>

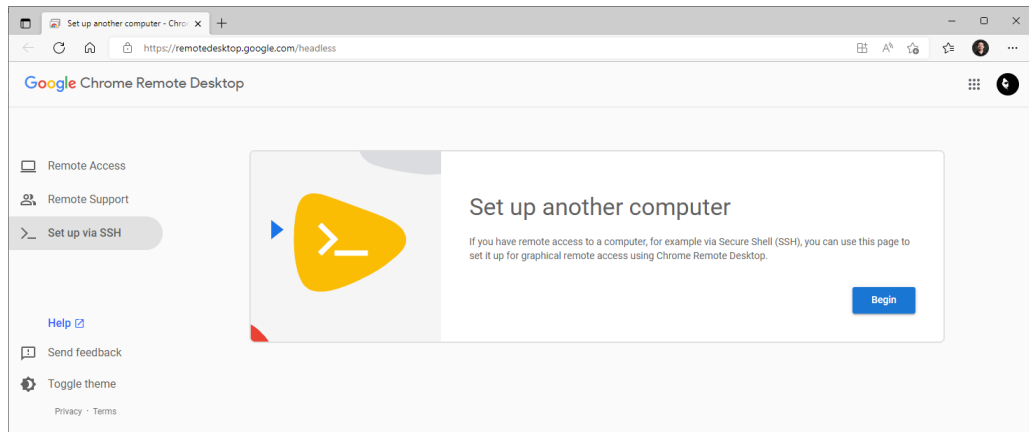


Figure 194: Chrome Remote Desktop (1 of 6)

#### 1. Click 'Begin'

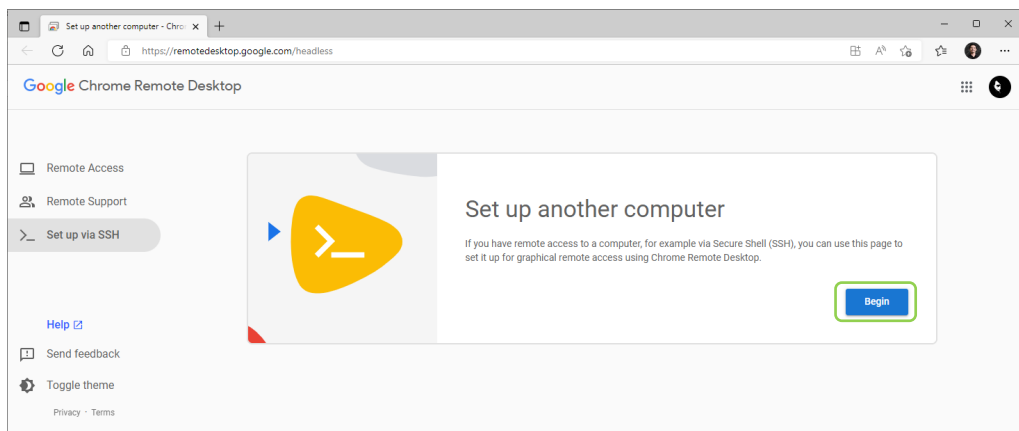


Figure 195: Chrome Remote Desktop (2 of 6)

## 2. Click 'Next'

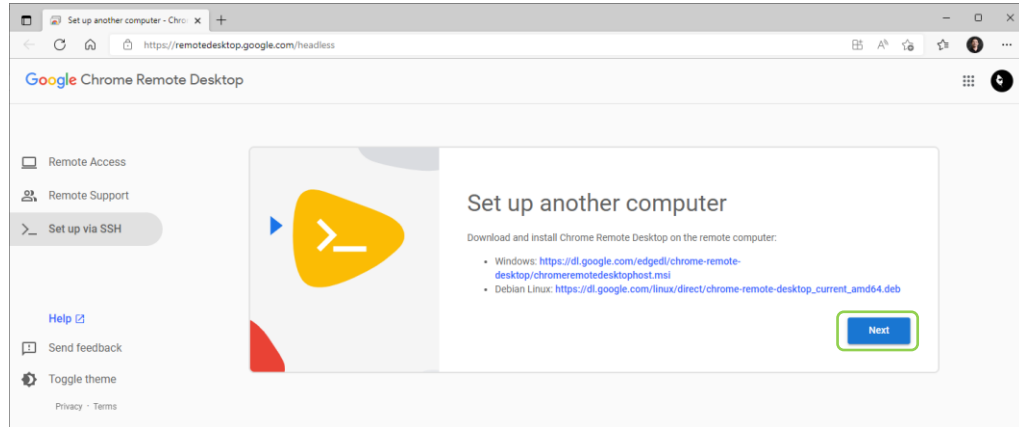


Figure 196: Chrome Remote Desktop (3 of 6)

## 3. Click 'Authorize'

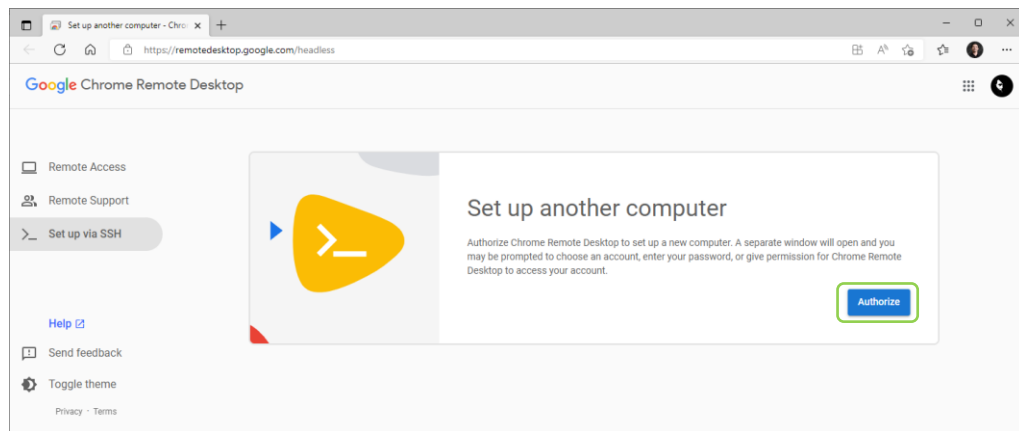


Figure 197: Chrome Remote Desktop (3 of 6)

## 4. Copy command for Windows (Cmd)

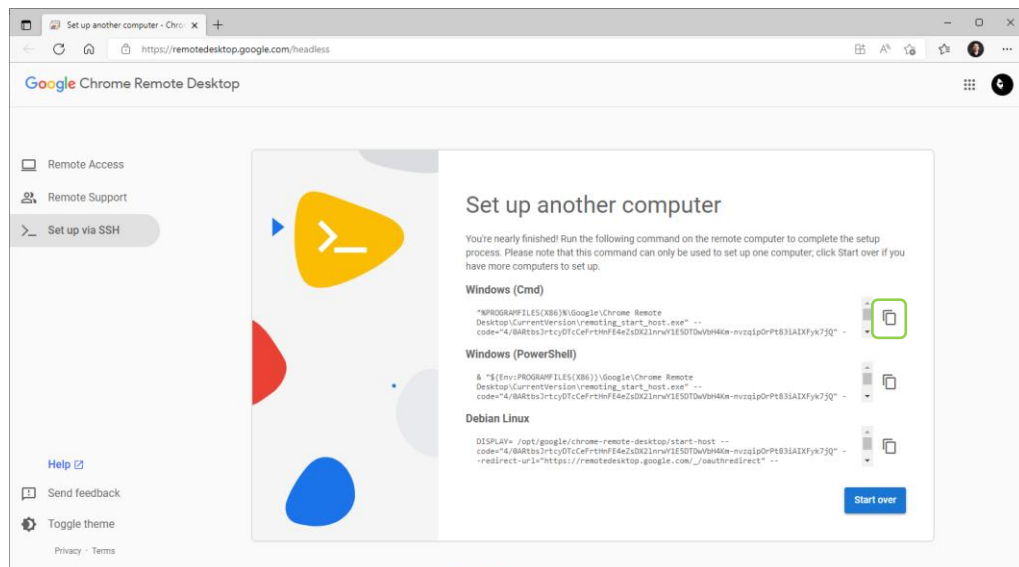


Figure 198: Chrome Remote Desktop (4 of 6)

## 5. From the ECA machine, go to Support. Under 'Chrome Remote Desktop', click setup

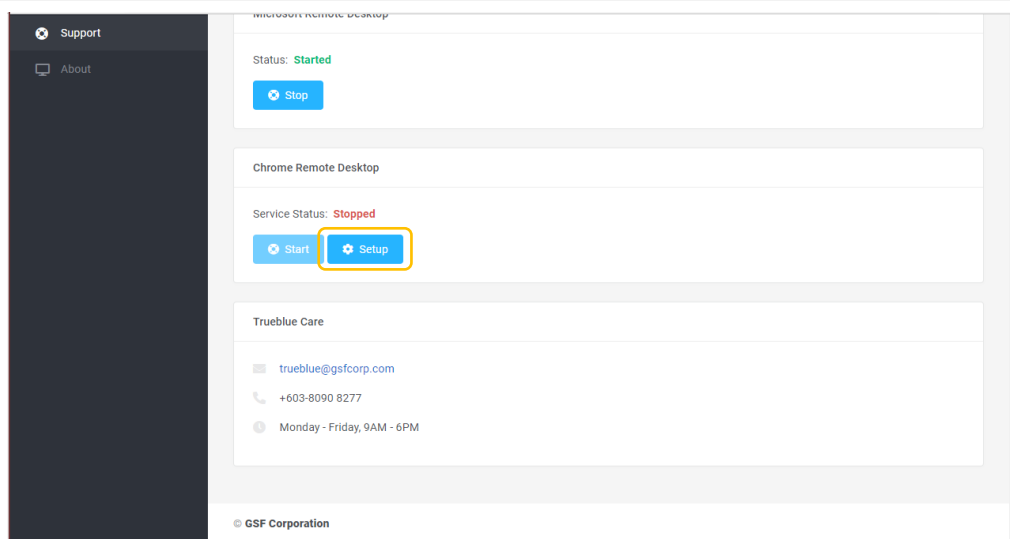


Figure 199: Chrome Remote Desktop (5 of 6)

6. Paste the command and enter 6-digit PIN number as a password.

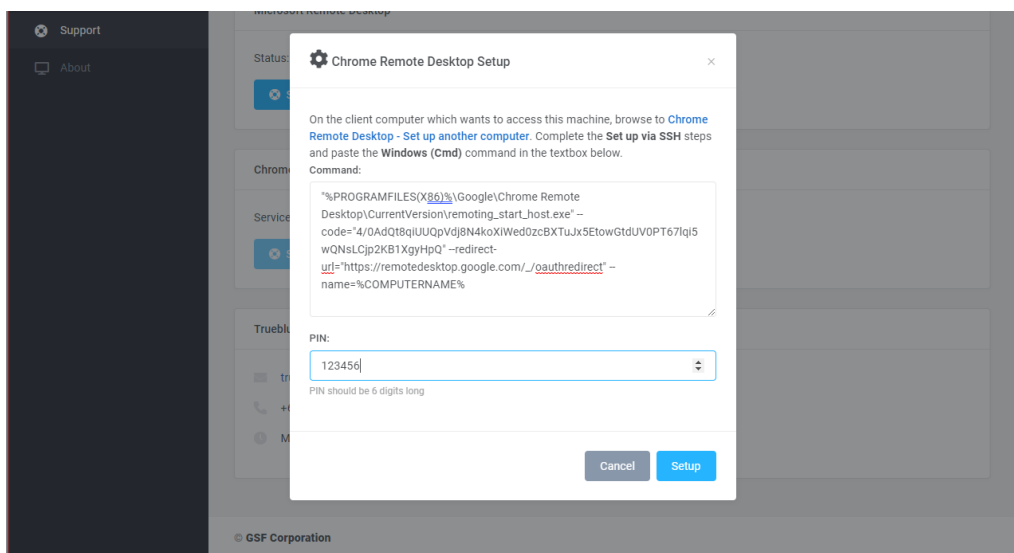


Figure 200: Chrome Remote Desktop (6 of 6)

## 11.2.2 Accessing ECA via Chrome Remote Desktop?

1. From the ECA will be remote. Make sure the service status Started

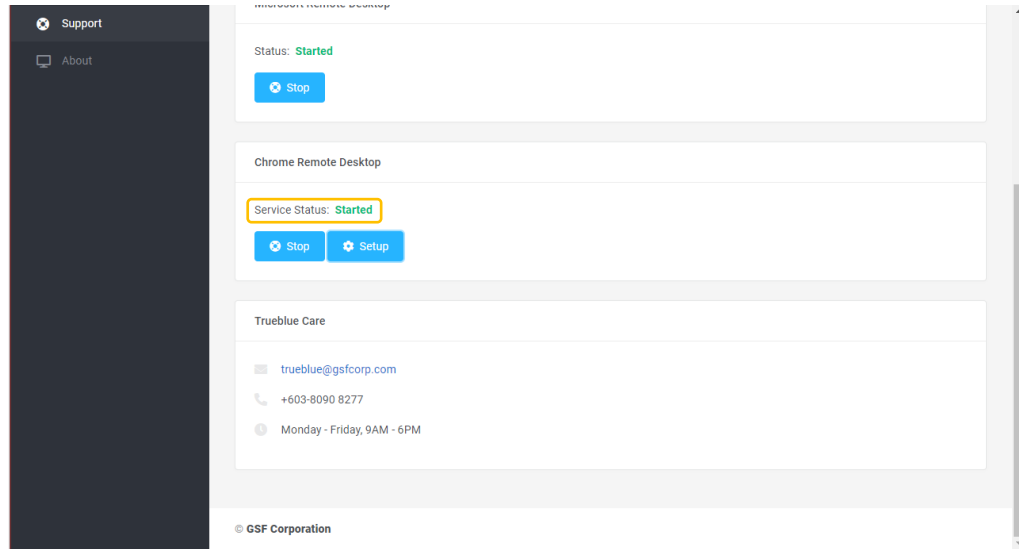


Figure 201: Accessing ECA via Chrome Remote Desktop (1 of 4)

2. From remote machine. Run web browser enter <https://remotedesktop.google.com/access/>. Click on remote devices.

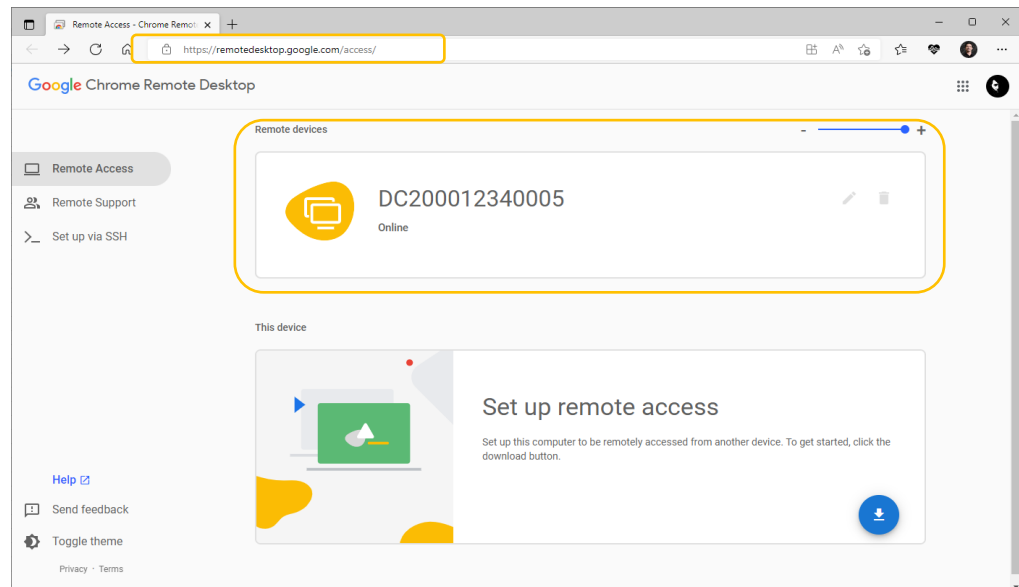


Figure 202: Accessing ECA via Chrome Remote Desktop (2 of 4)

3. Enter 6-digit PIN previously set during setup to start login

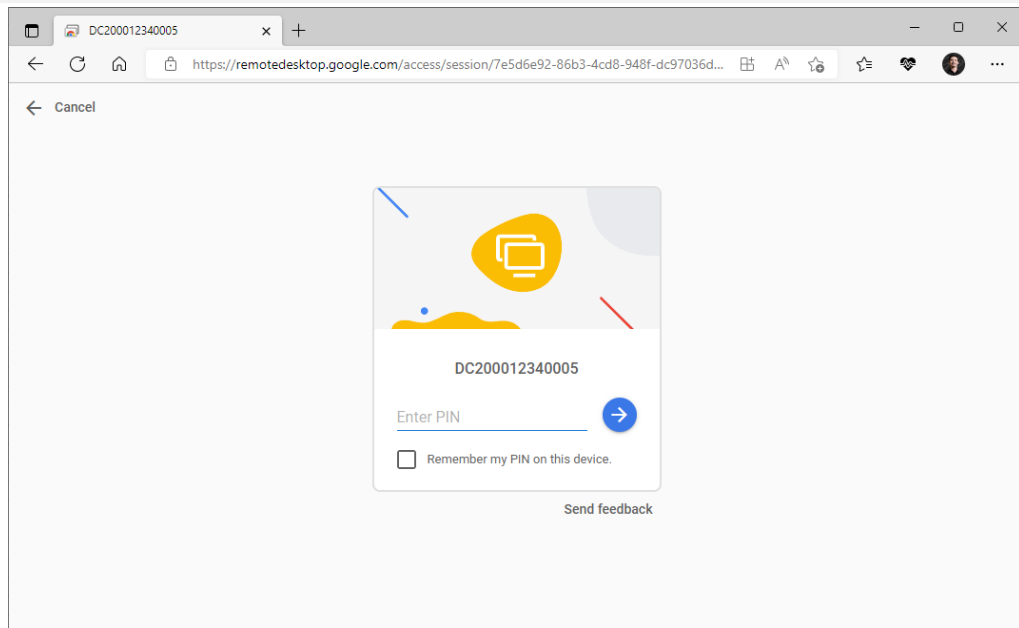


Figure 203: Accessing ECA via Chrome Remote Desktop (3 of 4)

#### 4. Access the ECA

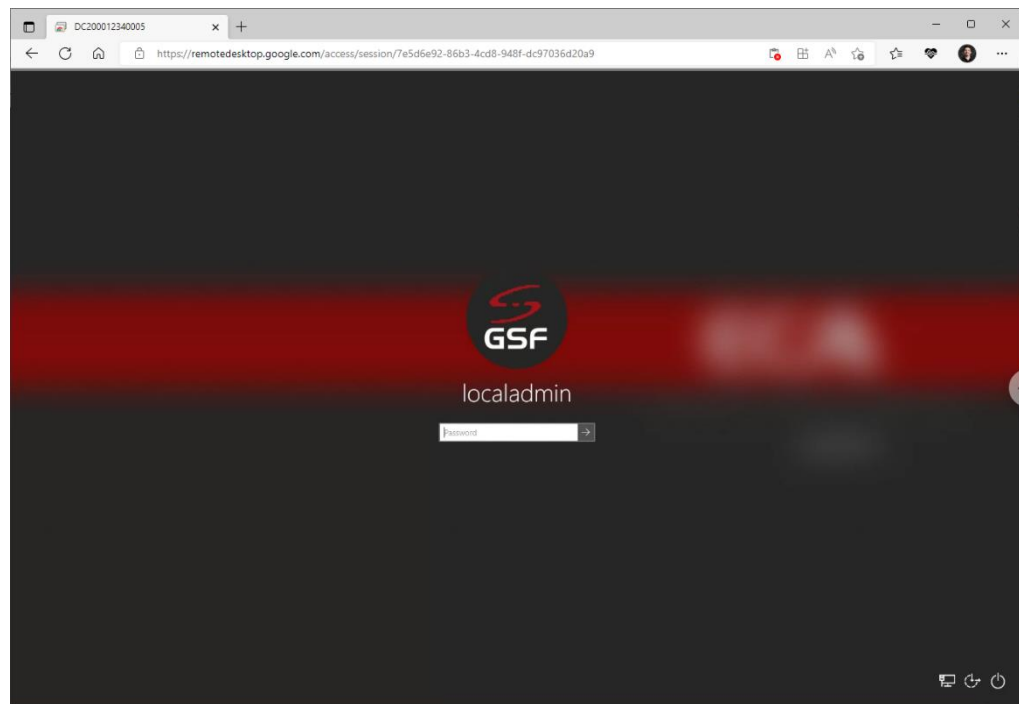


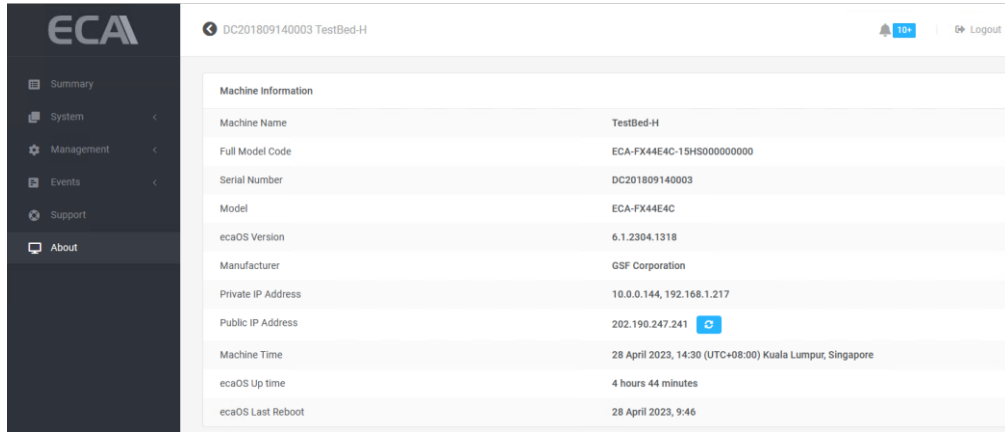
Figure 204: Accessing ECA via Chrome Remote Desktop (4 of 4)

## 12 About

### 12.1 Machine Information

The ECA information display here such as Model, Serial Number, ecaOS version, Up time, when last reboot.

The IP address will be display if the ECA connected to local LAN.



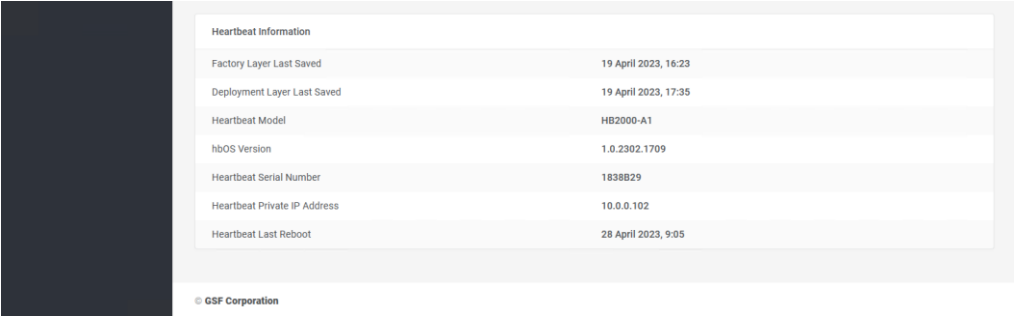
| Machine Information |                                                                                                     |
|---------------------|-----------------------------------------------------------------------------------------------------|
| Machine Name        | TestBed-H                                                                                           |
| Full Model Code     | ECA-FX44E4C-15HS000000000                                                                           |
| Serial Number       | DC201809140003                                                                                      |
| Model               | ECA-FX44E4C                                                                                         |
| ecaOS Version       | 6.1.2304.1318                                                                                       |
| Manufacturer        | GSF Corporation                                                                                     |
| Private IP Address  | 10.0.0.144, 192.168.1.217                                                                           |
| Public IP Address   | 202.190.247.241  |
| Machine Time        | 28 April 2023, 14:30 (UTC+08:00) Kuala Lumpur, Singapore                                            |
| ecaOS Up time       | 4 hours 44 minutes                                                                                  |
| ecaOS Last Reboot   | 28 April 2023, 9:46                                                                                 |

Figure 205: Machine Information

## 12.2 Heartbeat Information

The 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.

‘Factory Layer Last Saved’ (Hard Reset) & Deployment Layer Last Saved’ (Soft Reset) it shows the date of the layer saved.



| Heartbeat Information        |                      |
|------------------------------|----------------------|
| Factory Layer Last Saved     | 19 April 2023, 16:23 |
| Deployment Layer Last Saved  | 19 April 2023, 17:35 |
| Heartbeat Model              | HB2000-A1            |
| hbOS Version                 | 1.0.2302.1709        |
| Heartbeat Serial Number      | 1838B29              |
| Heartbeat Private IP Address | 10.0.0.102           |
| Heartbeat Last Reboot        | 28 April 2023, 9:05  |

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Figure 206: Heartbeat Information

## 13 APPENDIX

### 13.1 Processor Activity

#### 13.1.1 CPU activity above limit

| Dashboard             | <div><div><div><div>Processor Activity - ecaOS</div><div>https://localhost:22334/System/CpuActivity</div></div><div><div><div><div>ECA</div><div>DC201809140003</div><div>10+ Logout</div></div><div><div>Summary</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Network Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div></div><div><div><div>Processor Activity</div><div><div><div>Utilization %</div><div>Average Utilization %</div></div><div><div><div>100</div><div>90</div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div><div><div>10 Minute</div><div></div><div>0</div></div></div></div><div><div>CPU Activity Status</div><div>High</div></div><div><div>CPU Utilization</div><div>97.5%</div></div><div><div>Average CPU Utilization</div><div>94.7%</div></div><div><div>Average CPU Utilization / Minute</div><div>94.3%</div></div><div><div>Average CPU Utilization / Hour</div><div>39.8%</div></div><div><div>Average CPU Utilization / Day</div><div>24.8%</div></div></div></div></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Notification          | <div><div>CPU activity above limit</div><div>CPU activity has been above the set limit 80% for more than 10 minutes. Average CPU activity is 93%</div><div>17:10 • Processor Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>13 Oct 2022, 17:10:14</td><td>Warning</td><td>ecaOS</td><td>Processor Activity</td><td>CPU activity above limit</td><td>CPU activity has been above the set limit 80% for more than 10 minutes. Average CPU activity is 93%</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Time   | Level              | Source                   | Type                                                                                                | Name | Details | 13 Oct 2022, 17:10:14 | Warning | ecaOS | Processor Activity | CPU activity above limit | CPU activity has been above the set limit 80% for more than 10 minutes. Average CPU activity is 93% |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Source | Type               | Name                     | Details                                                                                             |      |         |                       |         |       |                    |                          |                                                                                                     |
| 13 Oct 2022, 17:10:14 | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ecaOS  | Processor Activity | CPU activity above limit | CPU activity has been above the set limit 80% for more than 10 minutes. Average CPU activity is 93% |      |         |                       |         |       |                    |                          |                                                                                                     |
| Email                 | <div><div><div><div>[DC201809140003] ecaOS 6.0.2210.0408 High CPU Usage Detected - Message (HTML)</div><div>File Message Help Acrobat</div><div><div>Share to Teams</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><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|        |                    |                          |                                                                                                     |      |         |                       |         |       |                    |                          |                                                                                                     |

### 13.1.2 CPU activity back to normal

| Dashboard             | <div><div><div>Processor Activity - ecaOS</div><div>https://localhost:22334/System/CpuActivity</div></div><div><div><div><div>ECA</div><div>DC201809140003</div><div><div>Summary</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Network Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div></div><div><div><div>Processor Activity</div><div><div><div>Utilization %</div><div>Average Utilization %</div></div><div><div></div><div></div></div></div><div><div>CPU Activity Status</div><div>Normal</div></div><div><div>CPU Utilization</div><div>16.3%</div></div><div><div>Average CPU Utilization</div><div>13.3%</div></div><div><div>Average CPU Utilization / Minute</div><div>13.4%</div></div><div><div>Average CPU Utilization / Hour</div><div>42.7%</div></div><div><div>Average CPU Utilization / Day</div><div>24.5%</div></div></div></div></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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| Notification          | <div><div>CPU activity back to normal</div><div>CPU activity has returned to normal (after 0 hours 15 minutes). Average CPU activity is 40%</div><div>17:25 • Processor Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>13 Oct 2022, 17:25:54</td><td>Information</td><td>ecaOS</td><td>Processor Activity</td><td>CPU activity back to normal</td><td>CPU activity has returned to normal (after 0 hours 15 minutes). Average CPU activity is 40%</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| 13 Oct 2022, 17:25:54 | Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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Average CPU activity is 40% |      |         |                       |             |       |                    |                             |                                                                                             |
| Email                 | <div><div><div>[DC201809140003] CPU Usage Returned to Normal - Message (HTML)</div><div>FileMessageHelpAcrobat</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><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|        |                    |                             |                                                                                             |      |         |                       |             |       |                    |                             |                                                                                             |

## 13.2 Memory Activity

### 13.2.1 Memory usage above limit

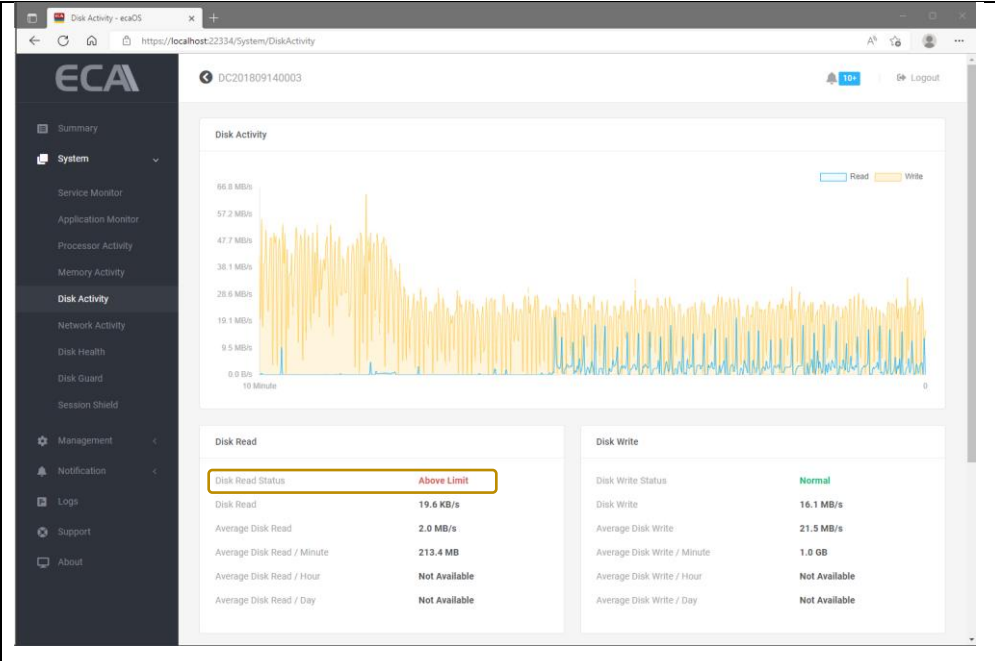
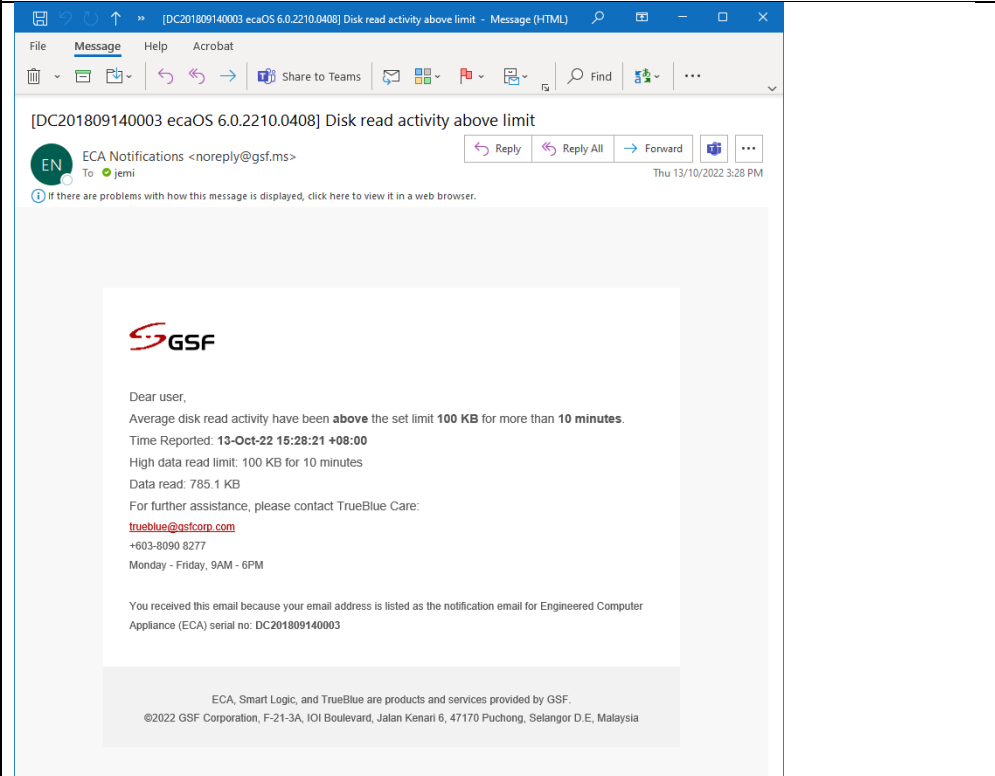
| Dashboard             | <div><div><div>ecaOS</div><div>SummarySystemService MonitorApplication MonitorProcessor ActivityMemory ActivityDisk ActivityNetwork ActivityDisk HealthDisk GuardSession ShieldManagementNotificationLogsSupportAbout</div></div><div><div>DC201809140003</div><div>Memory Activity</div><div><div>Usage %Average Usage %</div><div>10 Minute</div></div><div><div>Memory Activity Status</div><div>High</div></div><div><div>Memory Usage</div><div>56.1%</div></div><div><div>Average Memory Usage</div><div>55.5%</div></div><div><div>Average Memory Usage / Minute</div><div>55.9%</div></div><div><div>Average Memory Usage / Hour</div><div>51.4%</div></div><div><div>Average Memory Usage / Day</div><div>46%</div></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |                 |                             |                                                                                                           |      |         |                       |         |       |                 |                             |                                                                                                           |
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| Notification          | <div><div>Memory usage above limit</div><div>Memory usage has been above the set limit 50% for more than 10 minutes. Average memory usage is 55%</div><div>17:52 • Memory Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |                 |                             |                                                                                                           |      |         |                       |         |       |                 |                             |                                                                                                           |
| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>13 Oct 2022, 17:52:29</td><td>Warning</td><td>ecaOS</td><td>Memory Activity</td><td>Memory activity above limit</td><td>Memory activity has been above the set limit 50% for more than 10 minutes. Average Memory activity is 55%</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Time   | Level           | Source                      | Type                                                                                                      | Name | Details | 13 Oct 2022, 17:52:29 | Warning | ecaOS | Memory Activity | Memory activity above limit | Memory activity has been above the set limit 50% for more than 10 minutes. Average Memory activity is 55% |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Source | Type            | Name                        | Details                                                                                                   |      |         |                       |         |       |                 |                             |                                                                                                           |
| 13 Oct 2022, 17:52:29 | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ecaOS  | Memory Activity | Memory activity above limit | Memory activity has been above the set limit 50% for more than 10 minutes. Average Memory activity is 55% |      |         |                       |         |       |                 |                             |                                                                                                           |
| Email                 | <div><div>[DC201809140003] High Memory Usage Detected - Message (HTML)</div><div><div>FileMessageHelpAcrobat</div><div><div>Share to Teams</div><div>Find</div></div></div><div><div>[DC201809140003] High Memory Usage Detected</div><div><div>EN</div><div>ECA Notifications &lt;noreply@gsf.ms&gt;</div><div>To jerni</div><div>Thu 13/10/2022 5:52 PM</div></div><div><div><div>GSF</div><div>Dear user,</div><div>Average memory usage has been reported above the predefined limit of 50% for more than 10 minutes.</div><div>Average memory usage: 55%</div><div>Time Reported: 13-Oct-22 17:52:29 +08:00</div><div>For further assistance, please contact TrueBlue Care:</div><div><div>trueblue@gsfcorp.com</div><div>+603-8090 8277</div><div>Monday - Friday, 9AM - 6PM</div></div><div>You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003</div><div><div>ECA, Smart Logic, and TrueBlue are products and services provided by GSF.</div><div>©2022 GSF Corporation, F-21-3A, IOI Boulevard, Jalan Kenari 6, 47170 Puchong, Selangor D.E, Malaysia</div></div></div></div></div></div> |        |                 |                             |                                                                                                           |      |         |                       |         |       |                 |                             |                                                                                                           |

## 13.2.2 Memory activity back to normal

| Dashboard             | <div><div><div>Memory Activity - ecaOS</div><div>https://localhost:22334/System/MemoryActivity</div></div><div><div><div>ECA</div><div>Summary</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Network Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div><div><div>DC201809140003</div><div>15%</div><div>Logout</div></div><div><div>Memory Activity</div><div><div>Usage %</div><div>Average Usage %</div></div><div><div>100</div><div>90</div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div><div><div>10 Minute</div><div>0</div></div><div><div>Memory Activity Status</div><div>Normal</div></div><div><div>Memory Usage</div><div>34.9%</div></div><div><div>Average Memory Usage</div><div>34.6%</div></div><div><div>Average Memory Usage / Minute</div><div>34.9%</div></div><div><div>Average Memory Usage / Hour</div><div>42.4%</div></div><div><div>Average Memory Usage / Day</div><div>29.2%</div></div></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| Notification          | <div><div>Memory usage back to normal</div><div>Memory usage has returned to normal (after 1 hours 17 minutes). Average memory usage is 35%</div><div>19:01 • Memory Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>22 Oct 2022, 19:01:59</td><td>Information</td><td>ecaOS</td><td>Memory Activity</td><td>Memory activity back to normal</td><td>Memory activity has returned to normal (after 1 hours 17 minutes). Average Memory activity is 35%</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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Average Memory activity is 35% |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| 22 Oct 2022, 19:01:59 | Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ecaOS  | Memory Activity | Memory activity back to normal | Memory activity has returned to normal (after 1 hours 17 minutes). Average Memory activity is 35% |      |         |                       |             |       |                 |                                |                                                                                                   |
| Email                 | <div><div>[DC201809140003] Memory Usage Returned to Normal - Message (HTML)</div><div>FileMessageHelpAcrobat</div><div><div>Share to Teams</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div><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|        |                 |                                |                                                                                                   |      |         |                       |             |       |                 |                                |                                                                                                   |

## 13.3 Disk Activity

### 13.3.1 Disk read activity above limit

| <b>Dashboard</b>      |                                                                                                                                                                                                                                                                                                                                                                |        |               |                                |                                                                                                                                         |      |         |                       |         |       |               |                                |                                                                                                                                         |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|---------|-------|---------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Notification</b>   | <p><b>Disk read activity above limit</b><br/>Average disk read activity has been above the set limit 100 KB for more than 10 minutes.<br/>Current average disk read activity is 785.1 KB<br/>15:28 - Disk Activity</p>                                                                                                                                                                                                                           |        |               |                                |                                                                                                                                         |      |         |                       |         |       |               |                                |                                                                                                                                         |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr> </thead> <tbody> <tr> <td>13 Oct 2022, 15:28:21</td><td>Warning</td><td>ecaOS</td><td>Disk Activity</td><td>Disk read activity above limit</td><td>Average disk read activity has been above the set limit 100 KB for more than 10 minutes. Current average disk read activity is 785.1 KB</td></tr> </tbody> </table> | Time   | Level         | Source                         | Type                                                                                                                                    | Name | Details | 13 Oct 2022, 15:28:21 | Warning | ecaOS | Disk Activity | Disk read activity above limit | Average disk read activity has been above the set limit 100 KB for more than 10 minutes. Current average disk read activity is 785.1 KB |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                            | Source | Type          | Name                           | Details                                                                                                                                 |      |         |                       |         |       |               |                                |                                                                                                                                         |
| 13 Oct 2022, 15:28:21 | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                          | ecaOS  | Disk Activity | Disk read activity above limit | Average disk read activity has been above the set limit 100 KB for more than 10 minutes. Current average disk read activity is 785.1 KB |      |         |                       |         |       |               |                                |                                                                                                                                         |
| <b>Email</b>          |                                                                                                                                                                                                                                                                                                                                                              |        |               |                                |                                                                                                                                         |      |         |                       |         |       |               |                                |                                                                                                                                         |

### 13.3.2 Disk read activity back to normal

Dashboard

ecaOS

DC201809140003

10+ Logout

Summary

System

Service Monitor

Application Monitor

Processor Activity

Memory Activity

Disk Activity

Network Activity

Disk Health

Disk Guard

Session Shield

Management

Notification

Logs

Support

About

Disk Activity

95.8 MB/s

57.2 MB/s

47.7 MB/s

38.1 MB/s

28.6 MB/s

19.1 MB/s

9.5 MB/s

0.0 MB/s

Read

Write

Disk Read

Disk Read Status

Disk Read

Average Disk Read

Average Disk Read / Minute

Average Disk Read / Hour

Average Disk Read / Day

Normal

15.8 KB/s

81.3 KB/s

14.3 MB

6.1 GB

Not Available

Disk Write

Disk Write Status

Disk Write

Average Disk Write

Average Disk Write / Minute

Average Disk Write / Hour

Average Disk Write / Day

Below Limit

30.4 MB/s

22.1 MB/s

2.1 GB

109.4 GB

Not Available

Notification

Disk read activity back to normal

Average disk read activity has returned to normal (after 0 hours 16 minutes). Current average disk read activity is 99.9 KB

16:31 - Disk Activity

Log

| Time                  | Level       | Source | Type          | Name                              | Details                                                                                                                     |
|-----------------------|-------------|--------|---------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 13 Oct 2022, 16:31:26 | Information | ecaOS  | Disk Activity | Disk read activity back to normal | Average disk read activity has returned to normal (after 0 hours 16 minutes). Current average disk read activity is 99.9 KB |

Email

[DC201809140003] ecaOS 6.0.2210.0408 Disk Read Activity Returned to Normal - Message (HTML)

File

Message

Help

Acrobat

Share to Teams

Find

...

[DC201809140003 ecaOS 6.0.2210.0408] Disk Read Activity Returned to Normal

EN

ECA Notifications <noreply@gsf.ms>

To jemi

Reply

Reply All

Forward

...

Thu 13/10/2022 4:31 PM

If there are problems with how this message is displayed, click here to view it in a web browser.

GSF

Dear user,

Previously reported high average disk read activity have **returned to normal**. Disk read activity previously crossed the limit of 1 MB for 10 minutes.

Time Reported: 13-Oct-22 16:31:26 +08:00

High disk read limit: 1 MB for 10 minutes

Data Transmitted: 99.9 KB

Stayed above the limit for: 0 Hours and 16 minutes

For further assistance, please contact TrueBlue Care:

trueblue@gsfcorp.com

+603-8090 8277

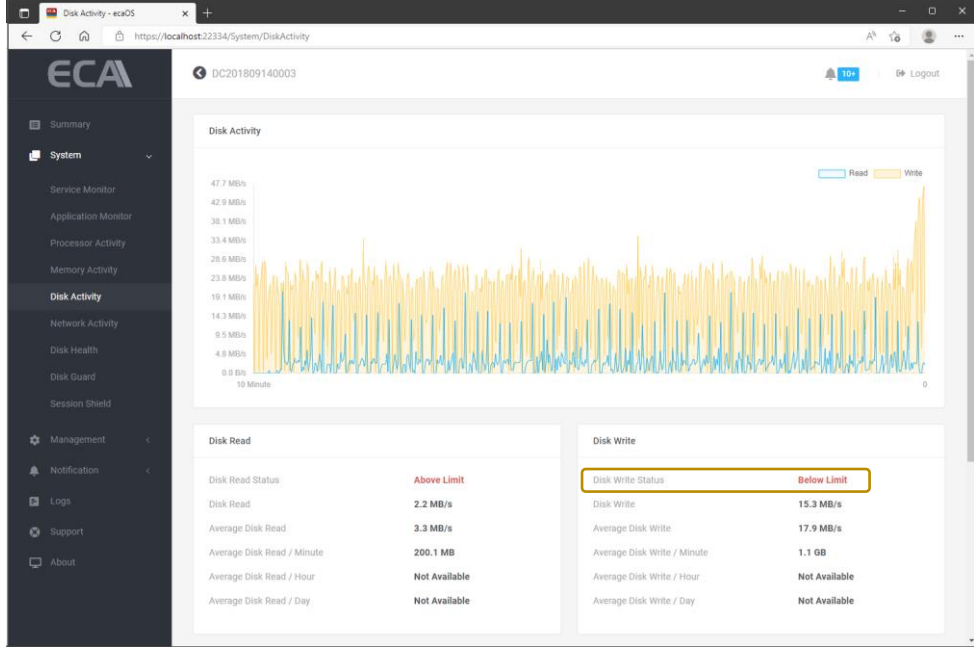
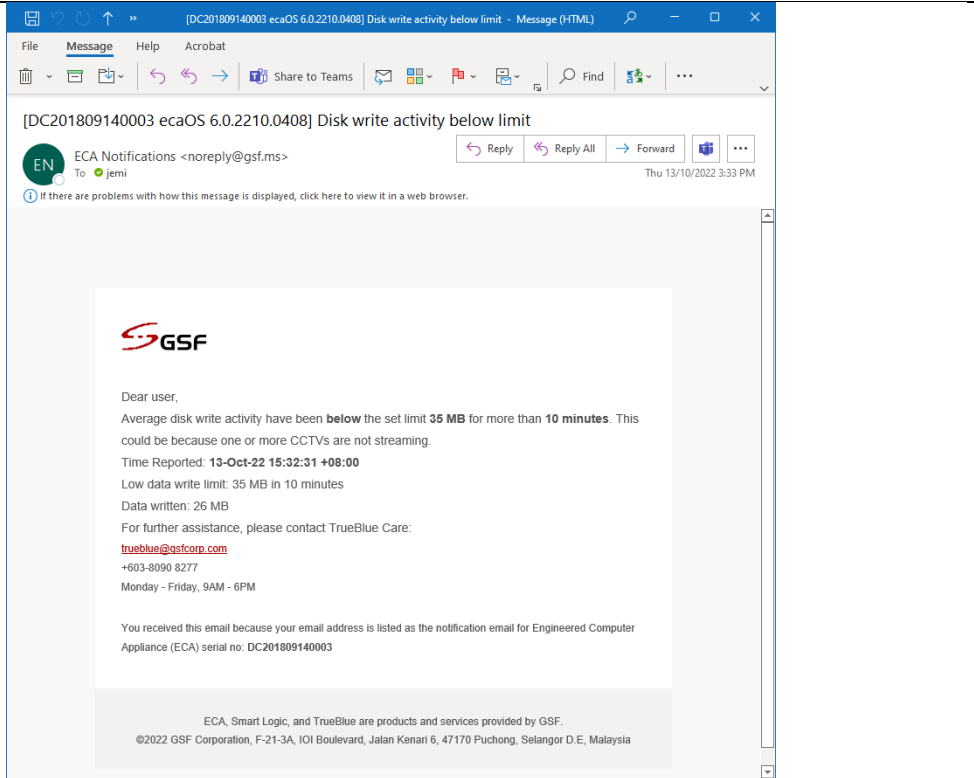
Monday - Friday, 9AM - 6PM

You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003

ECA, Smart Logic, and TrueBlue are products and services provided by GSF.

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### 13.3.3 Disk write activity below limit

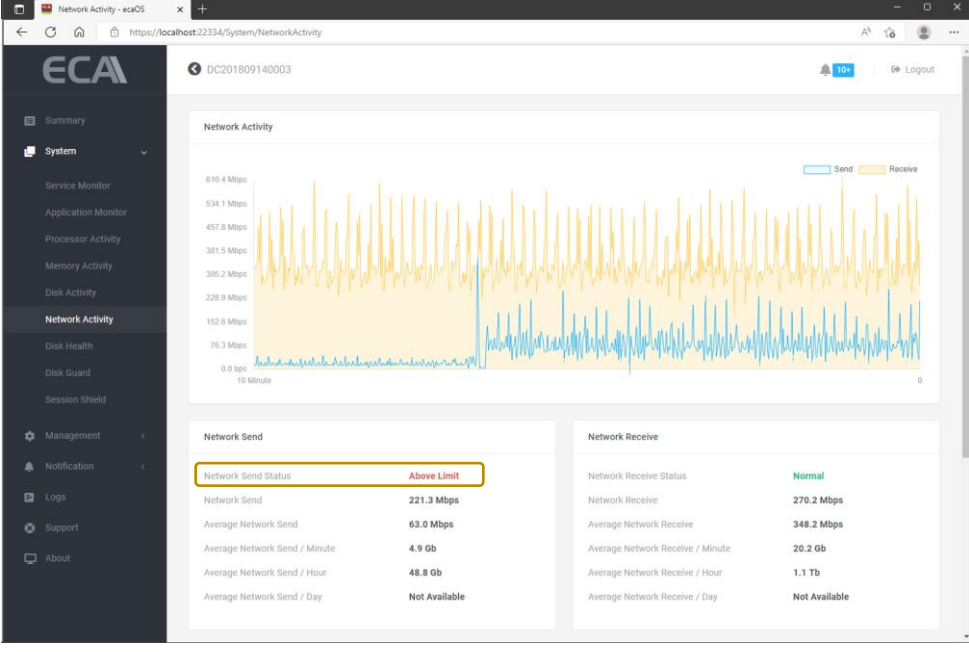
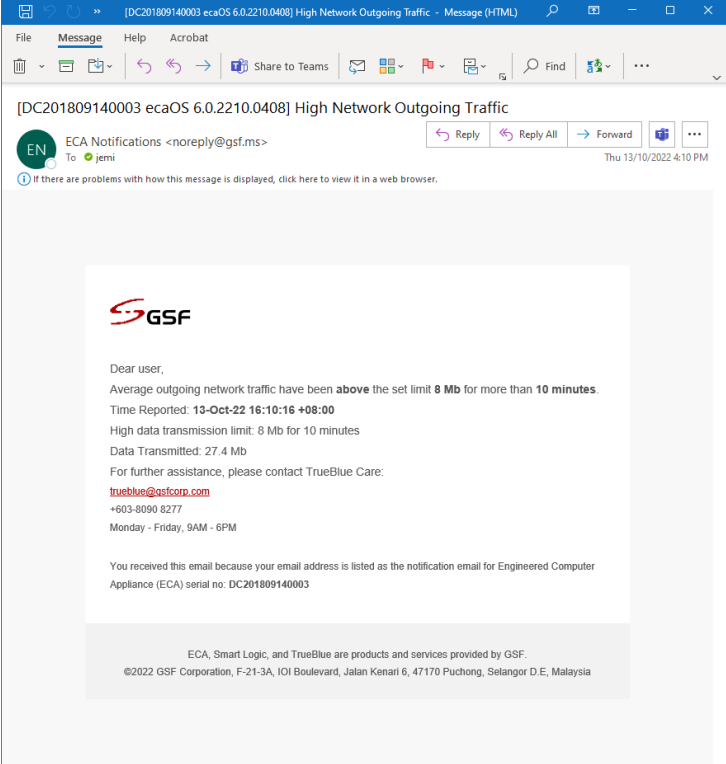
| <b>Dashboard</b>      |                                                                                                                                                                                                                                                                                                                                                               |        |               |                                 |                                                                                                                                       |      |         |                       |         |       |               |                                 |                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|---------|-------|---------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Notification</b>   | <p><b>Disk write activity below limit</b><br/>Average disk write activity has been above the set limit 35 MB for more than 10 minutes.<br/>Current average disk write activity is 26 MB<br/>15:32 - Disk Activity</p>                                                                                                                                                                                                                           |        |               |                                 |                                                                                                                                       |      |         |                       |         |       |               |                                 |                                                                                                                                       |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr> </thead> <tbody> <tr> <td>13 Oct 2022, 15:32:31</td><td>Warning</td><td>ecaOS</td><td>Disk Activity</td><td>Disk write activity below limit</td><td>Average disk write activity has been below the set limit 35 MB for more than 10 minutes. Current average disk write activity is 26 MB</td></tr> </tbody> </table> | Time   | Level         | Source                          | Type                                                                                                                                  | Name | Details | 13 Oct 2022, 15:32:31 | Warning | ecaOS | Disk Activity | Disk write activity below limit | Average disk write activity has been below the set limit 35 MB for more than 10 minutes. Current average disk write activity is 26 MB |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                           | Source | Type          | Name                            | Details                                                                                                                               |      |         |                       |         |       |               |                                 |                                                                                                                                       |
| 13 Oct 2022, 15:32:31 | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                         | ecaOS  | Disk Activity | Disk write activity below limit | Average disk write activity has been below the set limit 35 MB for more than 10 minutes. Current average disk write activity is 26 MB |      |         |                       |         |       |               |                                 |                                                                                                                                       |
| <b>Email</b>          |                                                                                                                                                                                                                                                                                                                                                             |        |               |                                 |                                                                                                                                       |      |         |                       |         |       |               |                                 |                                                                                                                                       |

### 13.3.4 Disk write activity back to normal

| Dashboard             | <div><div><div>ecaOS</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Network Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div><div><div>DC201809140003</div><div><div>Disk Activity</div><div><div></div><div></div></div><div><div>Disk Read</div><div>Disk Read Status</div><div>Disk Read</div><div>Average Disk Read</div><div>Average Disk Read / Minute</div><div>Average Disk Read / Hour</div><div>Average Disk Read / Day</div><div>Above Limit</div><div>43.7 KB/s</div><div>20.5 KB/s</div><div>4.7 MB</div><div>Not Available</div><div>Not Available</div></div><div><div>Disk Write</div><div>Disk Write Status</div><div>Disk Write</div><div>Average Disk Write</div><div>Average Disk Write / Minute</div><div>Average Disk Write / Hour</div><div>Average Disk Write / Day</div><div>Normal</div><div>47.3 MB/s</div><div>35.7 MB/s</div><div>2.1 GB</div><div>Not Available</div><div>Not Available</div></div></div></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Notification          | <div><div>Disk write activity back to normal</div><div>Average disk write activity has returned to normal (after 0 hours 21 minutes). Current average disk write activity is 35.7 MB</div><div>15:53 • Disk Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               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Current average disk write activity is 35.7 MB</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         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(HTML)</div><div><div>File</div><div>Message</div><div>Help</div><div>Acrobat</div></div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>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|        |               |                                    |                                                                                                                               |      |      |         |                       |             |       |               |                                    |                                                                                                                               |

## 13.4 Network Activity

### 13.4.1 Network send activity above limit

| <b>Dashboard</b>                 |  <p><b>Network Send</b></p> <table border="1"> <thead> <tr> <th>Network Send Status</th> <th>Above Limit</th> </tr> </thead> <tbody> <tr> <td>Network Send</td> <td>221.3 Mbps</td> </tr> <tr> <td>Average Network Send</td> <td>63.0 Mbps</td> </tr> <tr> <td>Average Network Send / Minute</td> <td>4.9 Gb</td> </tr> <tr> <td>Average Network Send / Hour</td> <td>48.8 Gb</td> </tr> <tr> <td>Average Network Send / Day</td> <td>Not Available</td> </tr> </tbody> </table> <p><b>Network Receive</b></p> <table border="1"> <thead> <tr> <th>Network Receive Status</th> <th>Normal</th> </tr> </thead> <tbody> <tr> <td>Network Receive</td> <td>270.2 Mbps</td> </tr> <tr> <td>Average Network Receive</td> <td>348.2 Mbps</td> </tr> <tr> <td>Average Network Receive / Minute</td> <td>20.2 Gb</td> </tr> <tr> <td>Average Network Receive / Hour</td> <td>1.1 Tb</td> </tr> <tr> <td>Average Network Receive / Day</td> <td>Not Available</td> </tr> </tbody> </table>                                                                                                                      | Network Send Status | Above Limit      | Network Send                      | 221.3 Mbps                                                                                                                                 | Average Network Send | 63.0 Mbps | Average Network Send / Minute | 4.9 Gb  | Average Network Send / Hour | 48.8 Gb          | Average Network Send / Day        | Not Available                                                                                                                              | Network Receive Status | Normal | Network Receive | 270.2 Mbps | Average Network Receive | 348.2 Mbps | Average Network Receive / Minute | 20.2 Gb | Average Network Receive / Hour | 1.1 Tb | Average Network Receive / Day | Not Available |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------|-------------------------------|---------|-----------------------------|------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------|-----------------|------------|-------------------------|------------|----------------------------------|---------|--------------------------------|--------|-------------------------------|---------------|
| Network Send Status              | Above Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Network Send                     | 221.3 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Send             | 63.0 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Send / Minute    | 4.9 Gb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Send / Hour      | 48.8 Gb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Send / Day       | Not Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Network Receive Status           | Normal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Network Receive                  | 270.2 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Receive          | 348.2 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Receive / Minute | 20.2 Gb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Receive / Hour   | 1.1 Tb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Average Network Receive / Day    | Not Available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| <b>Notification</b>              | <p><b>Network send activity above limit</b><br/>Average network send activity has been above the set limit 8 Mb for more than 10 minutes. Current average network sent activity is 27.4 Mb<br/>16:10 - Network Activity</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| <b>Log</b>                       | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>13 Oct 2022, 16:10:16</td> <td>Warning</td> <td>ecaOS</td> <td>Network Activity</td> <td>Network send activity above limit</td> <td>Average network send activity has been above the set limit 8 Mb for more than 10 minutes. Current average network send activity is 27.4 Mb</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Time                | Level            | Source                            | Type                                                                                                                                       | Name                 | Details   | 13 Oct 2022, 16:10:16         | Warning | ecaOS                       | Network Activity | Network send activity above limit | Average network send activity has been above the set limit 8 Mb for more than 10 minutes. Current average network send activity is 27.4 Mb |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| Time                             | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Source              | Type             | Name                              | Details                                                                                                                                    |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| 13 Oct 2022, 16:10:16            | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ecaOS               | Network Activity | Network send activity above limit | Average network send activity has been above the set limit 8 Mb for more than 10 minutes. Current average network send activity is 27.4 Mb |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |
| <b>Email</b>                     |  <p>[DC201809140003] High Network Outgoing Traffic</p> <p>ECA Notifications &lt;noreply@gsf.ms&gt;<br/>To: jemi<br/>Thu 13/10/2022 4:10 PM</p> <p>If there are problems with how this message is displayed, click here to view it in a web browser.</p> <p><b>GSF</b></p> <p>Dear user,<br/>Average outgoing network traffic have been <b>above</b> the set limit <b>8 Mb</b> for more than <b>10 minutes</b>.<br/>Time Reported: <b>13-Oct-22 16:10:16 +08:00</b><br/>High data transmission limit: 8 Mb for 10 minutes<br/>Data Transmitted: 27.4 Mb<br/>For further assistance, please contact TrueBlue Care:<br/><a href="mailto:trueblue@gsfcorp.com">trueblue@gsfcorp.com</a><br/>+603-8090 8277<br/>Monday - Friday, 9AM - 6PM</p> <p>You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003</p> <p>ECA, Smart Logic, and TrueBlue are products and services provided by GSF.<br/>©2022 GSF Corporation, F-21-3A, IOI Boulevard, Jalan Kenari 6, 47170 Puchong, Selangor D.E., Malaysia</p> |                     |                  |                                   |                                                                                                                                            |                      |           |                               |         |                             |                  |                                   |                                                                                                                                            |                        |        |                 |            |                         |            |                                  |         |                                |        |                               |               |

## 13.4.2 Network send activity back to normal

Dashboard

Network Activity - ecaOS

https://localhost:22334/System/NetworkActivity

eca

DC201809140003

10+

Logout

Summary

System

Service Monitor

Application Monitor

Processor Activity

Memory Activity

Disk Activity

Network Activity

Disk Health

Disk Guard

Session Shield

Management

Notification

Logs

Support

About

Network Activity

688.6 Mbps

510.4 Mbps

534.1 Mbps

457.8 Mbps

381.5 Mbps

305.2 Mbps

228.9 Mbps

152.6 Mbps

76.3 Mbps

0.0 bps

0

10 Minute

Send

Receive

Network Send

Network Send Status

Normal

Network Send

4.8 Mbps

Average Network Send

3.9 Mbps

Average Network Send / Minute

321.9 Mb

Average Network Send / Hour

66.6 Gb

Average Network Send / Day

Not Available

Network Receive

Network Receive Status

Below Limit

Network Receive

337.5 Mbps

Average Network Receive

250.8 Mbps

Average Network Receive / Minute

20.1 Gb

Average Network Receive / Hour

1.0 Tb

Average Network Receive / Day

Not Available

Notification

Network send activity back to normal

Average network send activity has returned to normal (after 0 hours 21 minutes). Current average network send activity is 3 Mb

16:31 • Network Activity

Log

| Time                  | Level       | Source | Type             | Name                                 | Details                                                                                                                         |
|-----------------------|-------------|--------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 13 Oct 2022, 16:31:52 | Information | ecaOS  | Network Activity | Network send activity back to normal | Average network send activity have returned to normal (after 0 hours 21 minutes). Current average network send activity is 3 Mb |

Email

### 13.4.3 Network receive activity below limit

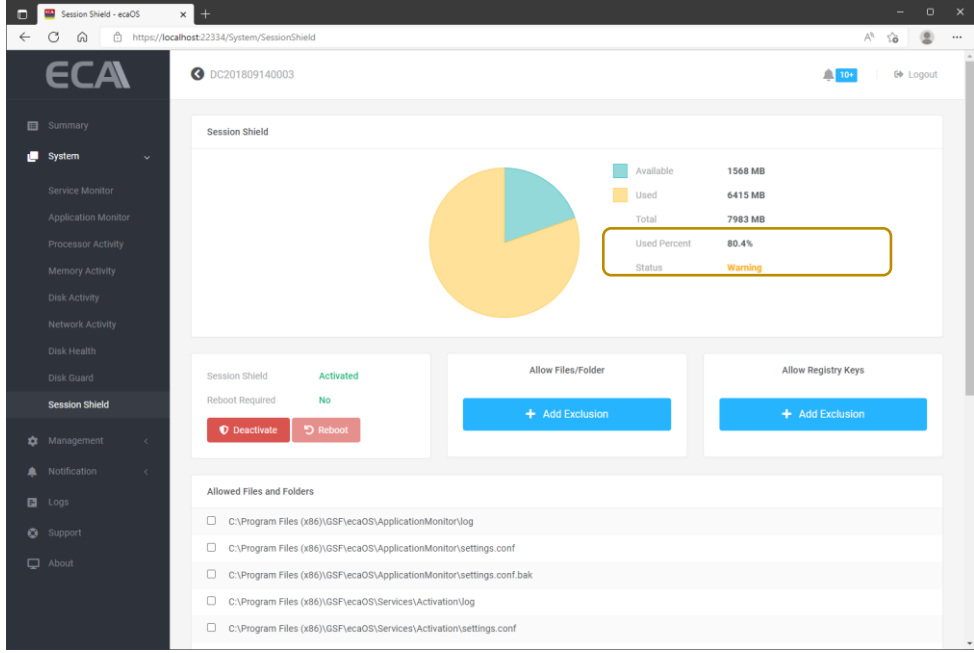
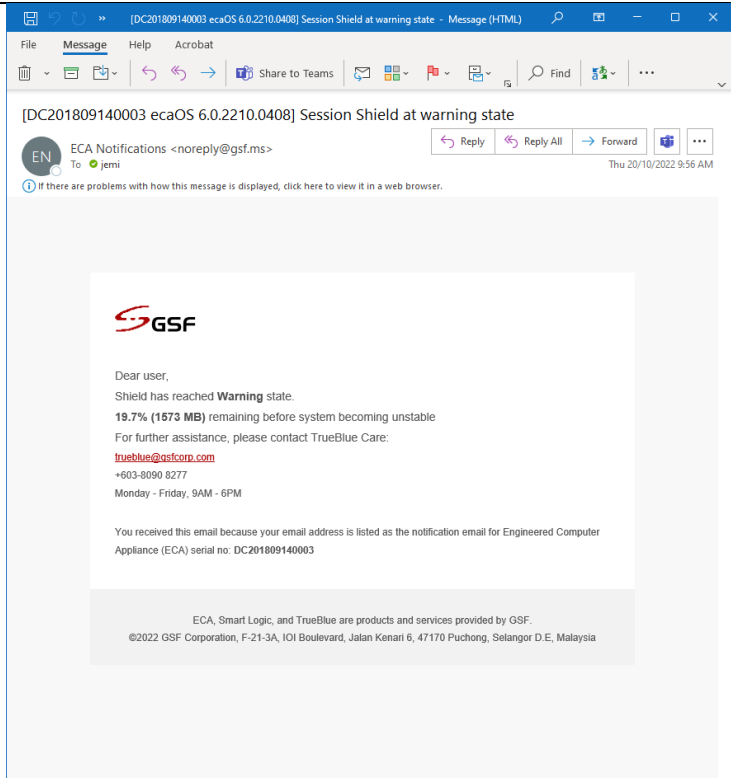
| Dashboard             | <div><div><div>Network Activity - ecaOS</div><div>https://localhost:22334/System/NetworkActivity</div></div><div><div><div>Summary</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Network Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div><div><div>DC201809140003</div><div>Network Activity</div><div><div>457.8 Mbps</div><div>381.5 Mbps</div><div>305.2 Mbps</div><div>228.9 Mbps</div><div>152.5 Mbps</div><div>76.3 Mbps</div><div>0.0 bps</div><div>10 Minute</div><div>0</div><div>Send</div><div>Receive</div></div><div><div>Network Send</div><div><div>Network Send Status</div><div>Above Limit</div><div>Network Send</div><div>2.9 Mbps</div><div>Average Network Send</div><div>2.9 Mbps</div><div>Average Network Send / Minute</div><div>182.8 Mb</div><div>Average Network Send / Hour</div><div>64.9 Gb</div><div>Average Network Send / Day</div><div>Not Available</div></div><div><div>Network Receive</div><div><div>Network Receive Status</div><div>Below Limit</div><div>Network Receive</div><div>133.8 Mbps</div><div>Average Network Receive</div><div>170.1 Mbps</div><div>Average Network Receive / Minute</div><div>9.9 Gb</div><div>Average Network Receive / Hour</div><div>1.0 Tb</div><div>Average Network Receive / Day</div><div>Not Available</div></div></div></div></div></div></div>                                                                                                               |        |                  |                                      |                                                                                                                                                   |      |         |                       |         |       |                  |                                      |                                                                                                                                                   |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|---------|-------|------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Notification          | <div><div>Network received activity below limit</div><div>Average network receive activity has been below the set limit 330 Mb for more than 10 minutes. Current average network receive activity is 242 Mb</div><div>16:24 • Network Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |        |                  |                                      |                                                                                                                                                   |      |         |                       |         |       |                  |                                      |                                                                                                                                                   |
| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>13 Oct 2022, 16:24:22</td><td>Warning</td><td>ecaOS</td><td>Network Activity</td><td>Network receive activity below limit</td><td>Average network receive activity has been below the set limit 330 Mb for more than 10 minutes. Current average network receive activity is 242 Mb</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Time   | Level            | Source                               | Type                                                                                                                                              | Name | Details | 13 Oct 2022, 16:24:22 | Warning | ecaOS | Network Activity | Network receive activity below limit | Average network receive activity has been below the set limit 330 Mb for more than 10 minutes. Current average network receive activity is 242 Mb |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Source | Type             | Name                                 | Details                                                                                                                                           |      |         |                       |         |       |                  |                                      |                                                                                                                                                   |
| 13 Oct 2022, 16:24:22 | Warning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ecaOS  | Network Activity | Network receive activity below limit | Average network receive activity has been below the set limit 330 Mb for more than 10 minutes. Current average network receive activity is 242 Mb |      |         |                       |         |       |                  |                                      |                                                                                                                                                   |
| Email                 | <div><div>[DC201809140003 ecaOS 6.0.2210.0408] One or more CCTVs might not be streaming - Message (HTML)</div><div><div>File</div><div>Message</div><div>Help</div><div>Acrobat</div></div><div><div>Share to Teams</div><div>Find</div><div>...</div></div><div><div>[DC201809140003 ecaOS 6.0.2210.0408] One or more CCTVs might not be streaming</div><div><div>EN</div><div>ECA Notifications &lt;noreply@gsf.ms&gt;</div><div>To jemi</div><div>Thurs 13/10/2022 4:24 PM</div></div><div><div>1</div><div>If there are problems with how this message is displayed, click here to view it in a web browser.</div></div><div><div><div><div><div><div></div><div>GSF</div></div></div><div><div>Dear user,</div><div>Average incoming network traffic have been <b>below</b> the set limit <b>330 Mb</b> for more than <b>10 minutes</b>. This could be because one or more CCTVs are not streaming.</div><div>Time Reported: <b>13-Oct-22 16:24:22 +08:00</b></div><div>Low data reception limit: 330 Mb in 10 minutes</div><div>Data received: 242 Mb</div><div>For further assistance, please contact TrueBlue Care:</div><div><a href="mailto:trueblue@gscorp.com">trueblue@gscorp.com</a></div><div>+603-8090 8277</div><div>Monday - Friday, 9AM - 6PM</div></div><div><div>You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no. DC201809140003</div></div><div><div>ECA, Smart Logic, and TrueBlue are products and services provided by GSF.</div><div>©2022 GSF Corporation, F-21-3A, IOI Boulevard, Jalan Kenari 6, 47170 Puchong, Selangor D.E, Malaysia</div></div></div></div></div></div></div> |        |                  |                                      |                                                                                                                                                   |      |         |                       |         |       |                  |                                      |                                                                                                                                                   |

### 13.4.4 Network receive activity back to normal

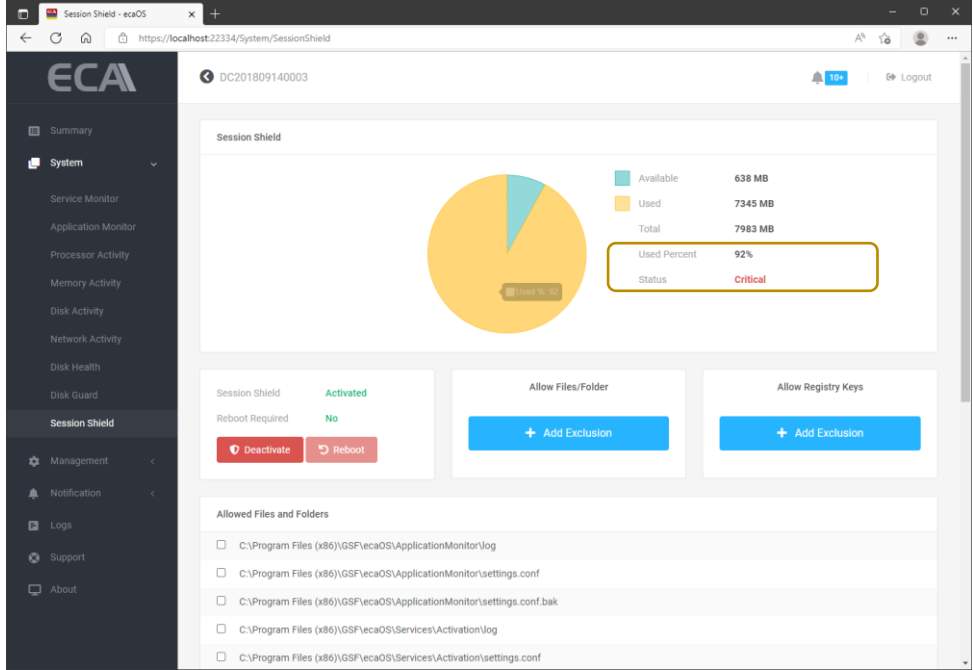
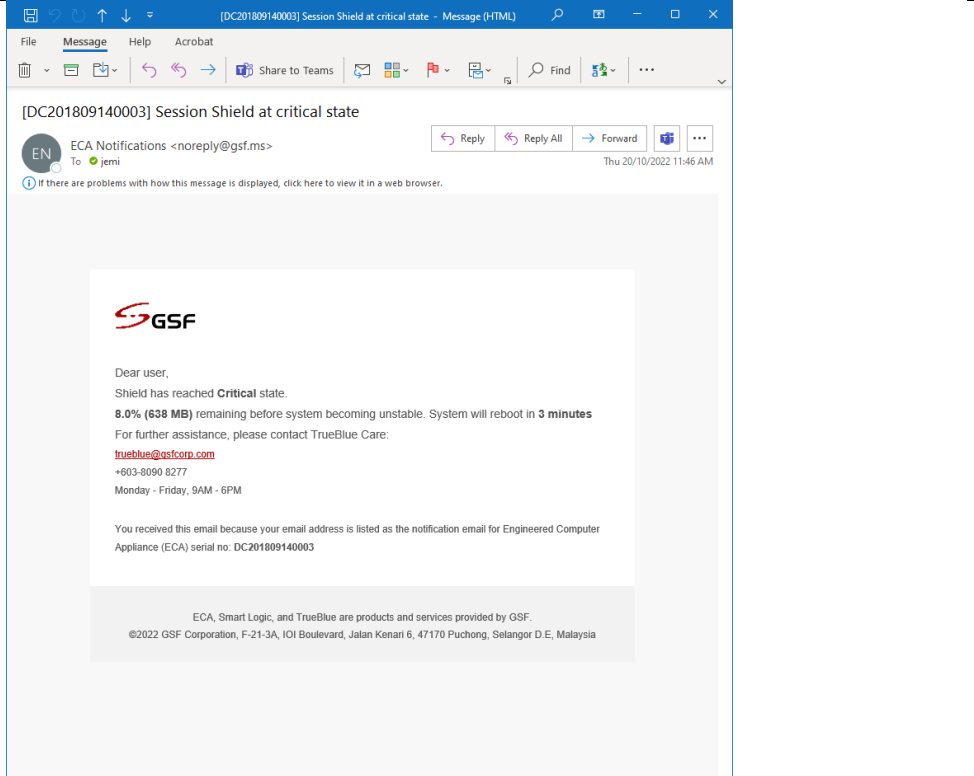
| Dashboard             | <div><div><div>Network Activity - ecaOS</div><div>https://localhost:22334/System/NetworkActivity</div></div><div><div><div>ECA</div><div>Summary</div><div>System</div><div>Service Monitor</div><div>Application Monitor</div><div>Processor Activity</div><div>Memory Activity</div><div>Disk Activity</div><div>Disk Health</div><div>Disk Guard</div><div>Session Shield</div><div>Management</div><div>Notification</div><div>Logs</div><div>Support</div><div>About</div></div><div><div>DC201809140003</div><div>Network Activity</div><div><div>610.4 Mbps</div><div>534.1 Mbps</div><div>457.9 Mbps</div><div>381.5 Mbps</div><div>305.2 Mbps</div><div>228.9 Mbps</div><div>152.5 Mbps</div><div>76.3 Mbps</div><div>0.0 bps</div><div>10 Minute</div></div><div><div>Network Send</div><div>Network Send Status</div><div>Normal</div><div>Network Send</div><div>5.2 Mbps</div><div>Average Network Send</div><div>5.3 Mbps</div><div>Average Network Send / Minute</div><div>319.7 Mb</div><div>Average Network Send / Hour</div><div>64.7 Gb</div><div>Average Network Send / Day</div><div>Not Available</div></div><div><div>Network Receive</div><div>Network Receive Status</div><div>Normal</div><div>Network Receive</div><div>506.8 Mbps</div><div>Average Network Receive</div><div>347.4 Mbps</div><div>Average Network Receive / Minute</div><div>20.2 Gb</div><div>Average Network Receive / Hour</div><div>1.0 Tb</div><div>Average Network Receive / Day</div><div>Not Available</div></div></div></div></div>                                                                                                                                                                                               |        |                  |                                         |                                                                                                                                          |      |         |                       |             |       |                  |                                         |                                                                                                                                          |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|-------------|-------|------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Notification          | <div><div>Network received activity back to normal</div><div>Average network receive activity has returned to normal (after 0 hours 24 minutes). Current average network receive activity is 346.6 Mb</div><div>16:48 • Network Activity</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |                  |                                         |                                                                                                                                          |      |         |                       |             |       |                  |                                         |                                                                                                                                          |
| Log                   | <table><tr><th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr><tr><td>13 Oct 2022, 16:48:31</td><td>Information</td><td>ecaOS</td><td>Network Activity</td><td>Network receive activity back to normal</td><td>Average network receive activity has returned to normal (after 0 hours 24 minutes). Current average network receive activity is 346.6 Mb</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Time   | Level            | Source                                  | Type                                                                                                                                     | Name | Details | 13 Oct 2022, 16:48:31 | Information | ecaOS | Network Activity | Network receive activity back to normal | Average network receive activity has returned to normal (after 0 hours 24 minutes). Current average network receive activity is 346.6 Mb |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Source | Type             | Name                                    | Details                                                                                                                                  |      |         |                       |             |       |                  |                                         |                                                                                                                                          |
| 13 Oct 2022, 16:48:31 | Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ecaOS  | Network Activity | Network receive activity back to normal | Average network receive activity has returned to normal (after 0 hours 24 minutes). Current average network receive activity is 346.6 Mb |      |         |                       |             |       |                  |                                         |                                                                                                                                          |
| Email                 | <div><div>[DC201809140003 ecaOS 6.0.2210.0408] Incoming Network Traffic Returned to Normal - Message (HTML)</div><div><div>File</div><div>Message</div><div>Help</div><div>Acrobat</div></div><div><div>Share to Teams</div><div>Find</div><div>...</div></div><div><div>[DC201809140003 ecaOS 6.0.2210.0408] Incoming Network Traffic Returned to Normal</div><div><div>EN</div><div>ECA Notifications &lt;noreply@gsf.ms&gt;</div><div>To</div><div>jerni</div></div><div><div>Reply</div><div>Reply All</div><div>Forward</div><div>...</div></div><div><div>Thu 13/10/2022 4:49 PM</div></div><div><div><div><div><div></div><div>GSF</div></div></div><div><div>Dear user,</div><div>Previously reported low average incoming network traffic have <b>returned to normal</b>. Incoming network traffic previously fell below the limit of 330 Mb for more than 10 minutes</div><div>Time Reported: <b>13-Oct-22 16:48:31 +08:00</b></div><div>Low data reception limit: 330 Mb in 10 minutes</div><div>Data received: 346.6 Mb</div><div>Stayed below the limit for: 0 Hours and 24 minutes</div><div>For further assistance, please contact TrueBlue Care:</div><div><a href="mailto:trueblue@gsfcorp.com">trueblue@gsfcorp.com</a></div><div>+603-8090 8277</div><div>Monday - Friday, 9AM - 6PM</div></div><div><div>You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003</div></div><div><div>ECA, Smart Logic, and TrueBlue are products and services provided by GSF.</div><div>©2022 GSF Corporation, F-21-3A, IOI Boulevard, Jalan Kenari 6, 47170 Puchong, Selangor D.E, Malaysia</div></div></div></div></div></div> |        |                  |                                         |                                                                                                                                          |      |         |                       |             |       |                  |                                         |                                                                                                                                          |

## 13.5 Session Shield

### 13.5.1 Warning Status

| <b>Dashboard</b>     |                                                                                                                                                                                                                                                                                                                                 |        |                |                                 |                                                                                             |      |         |                      |         |       |                |                                 |                                                                                             |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------|---------------------------------|---------------------------------------------------------------------------------------------|------|---------|----------------------|---------|-------|----------------|---------------------------------|---------------------------------------------------------------------------------------------|
| <b>Notification</b>  | <p><b>Session Shield at warning state</b><br/>Shield has reached Warning state. 19.7% (1573 MB) remaining before system becoming unstable<br/>09:56 • Session Shield</p>                                                                                                                                                                                                                                          |        |                |                                 |                                                                                             |      |         |                      |         |       |                |                                 |                                                                                             |
| <b>Log</b>           | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>20 Oct 2022, 9:56:07</td> <td>Warning</td> <td>ecaOS</td> <td>Session Shield</td> <td>Session Shield at warning state</td> <td>Shield has reached Warning state. 19.7% (1573 MB) remaining before system becoming unstable</td> </tr> </tbody> </table> | Time   | Level          | Source                          | Type                                                                                        | Name | Details | 20 Oct 2022, 9:56:07 | Warning | ecaOS | Session Shield | Session Shield at warning state | Shield has reached Warning state. 19.7% (1573 MB) remaining before system becoming unstable |
| Time                 | Level                                                                                                                                                                                                                                                                                                                                                                                                             | Source | Type           | Name                            | Details                                                                                     |      |         |                      |         |       |                |                                 |                                                                                             |
| 20 Oct 2022, 9:56:07 | Warning                                                                                                                                                                                                                                                                                                                                                                                                           | ecaOS  | Session Shield | Session Shield at warning state | Shield has reached Warning state. 19.7% (1573 MB) remaining before system becoming unstable |      |         |                      |         |       |                |                                 |                                                                                             |
| <b>Email</b>         |                                                                                                                                                                                                                                                                                                                               |        |                |                                 |                                                                                             |      |         |                      |         |       |                |                                 |                                                                                             |

## 13.5.2 Critical Status

| <b>Dashboard</b>      |                                                                                                                                                                                                                                                                                                                                                      |        |                |                                  |                                                                                                                           |      |         |                       |          |       |                |                                  |                                                                                                                           |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------|------|---------|-----------------------|----------|-------|----------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Notification</b>   | <p><b>Session Shield at critical state</b><br/>Shield has reached Critical state. 8.0% (638 MB) remaining before system becoming unstable. System will reboot in 3 minutes<br/>11:45 • Session Shield</p>                                                                                                                                                                                                                              |        |                |                                  |                                                                                                                           |      |         |                       |          |       |                |                                  |                                                                                                                           |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr> </thead> <tbody> <tr> <td>20 Oct 2022, 11:45:30</td><td>Critical</td><td>ecaOS</td><td>Session Shield</td><td>Session Shield at critical state</td><td>Shield has reached Critical state. 8% (638 MB) remaining before system becoming unstable. System will reboot in 3 minutes</td></tr> </tbody> </table> | Time   | Level          | Source                           | Type                                                                                                                      | Name | Details | 20 Oct 2022, 11:45:30 | Critical | ecaOS | Session Shield | Session Shield at critical state | Shield has reached Critical state. 8% (638 MB) remaining before system becoming unstable. System will reboot in 3 minutes |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                  | Source | Type           | Name                             | Details                                                                                                                   |      |         |                       |          |       |                |                                  |                                                                                                                           |
| 20 Oct 2022, 11:45:30 | Critical                                                                                                                                                                                                                                                                                                                                                                                                                               | ecaOS  | Session Shield | Session Shield at critical state | Shield has reached Critical state. 8% (638 MB) remaining before system becoming unstable. System will reboot in 3 minutes |      |         |                       |          |       |                |                                  |                                                                                                                           |
| <b>Email</b>          |                                                                                                                                                                                                                                                                                                                                                    |        |                |                                  |                                                                                                                           |      |         |                       |          |       |                |                                  |                                                                                                                           |

### 13.5.3 Status back to normal

Dashboard

Session Shield - ecaOS

https://localhost:22334/System/SessionShield

ECA

Summary

System

Service Monitor

Application Monitor

Processor Activity

Memory Activity

Disk Activity

Network Activity

Disk Health

Disk Guard

Session Shield

Management

Notification

Logs

Support

About

DC201809140003

Logout

Session Shield

Available

7315 MB

Used

668 MB

Total

7983 MB

Used Percent

8.4%

Status

Normal

Session Shield

Activated

Reboot Required

No

Deactivate

Reboot

Allow Files/Folder

+ Add Exclusion

Allow Registry Keys

+ Add Exclusion

Allowed Files and Folders

☐

C:\Program Files (x86)\GSF\ecaOS\ApplicationMonitor\log

☐

C:\Program Files (x86)\GSF\ecaOS\ApplicationMonitor\settings.conf

☐

C:\Program Files (x86)\GSF\ecaOS\ApplicationMonitor\settings.conf.bak

☐

C:\Program Files (x86)\GSF\ecaOS\Services\Activation\log

☐

C:\Program Files (x86)\GSF\ecaOS\Services\Activation\settings.conf

Notification

Session Shield back to normal

Shield returned to Normal state. 91.6% (7316 MB) remaining

11:48 • Session Shield

Log

| Time                  | Level       | Source | Type           | Name                          | Details                                                    |
|-----------------------|-------------|--------|----------------|-------------------------------|------------------------------------------------------------|
| 20 Oct 2022, 11:48:52 | Information | ecaOS  | Session Shield | Session Shield back to normal | Shield returned to Normal state. 91.6% (7316 MB) remaining |

Email

[DC201809140003] Session Shield back to normal - Message (HTML)

File

Message

Help

Acrobat

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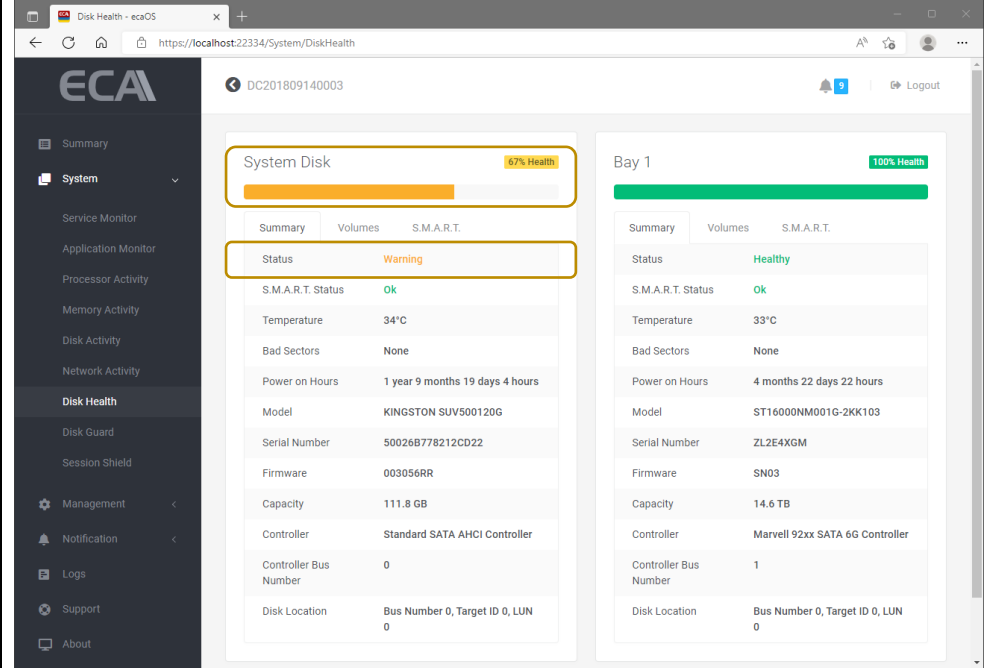
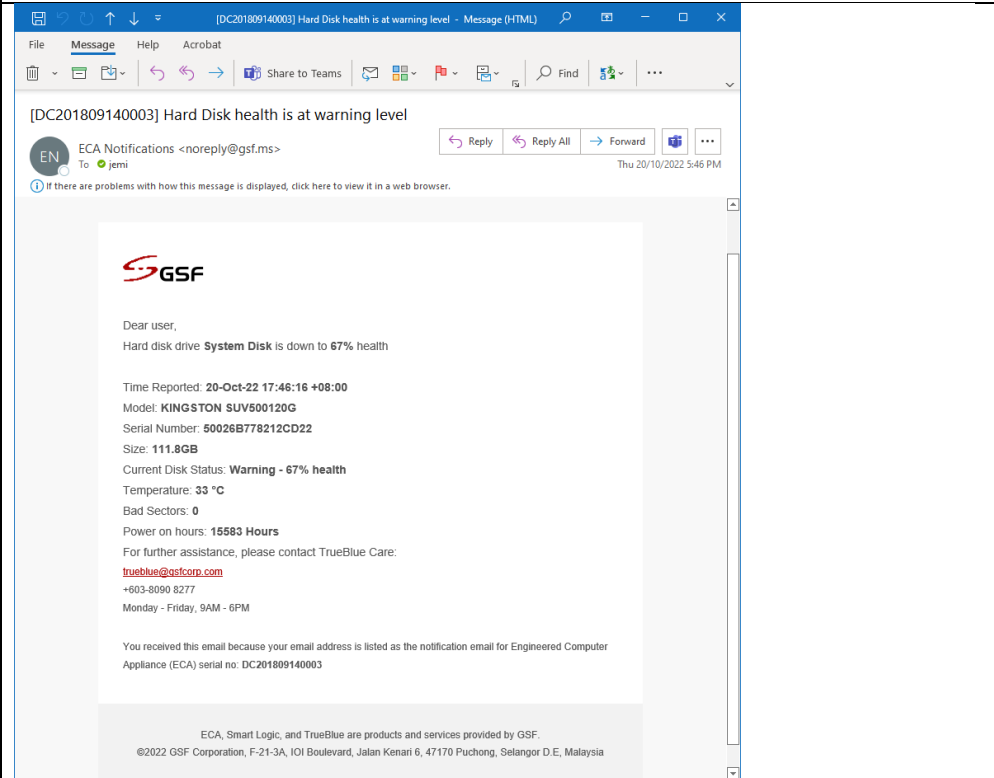
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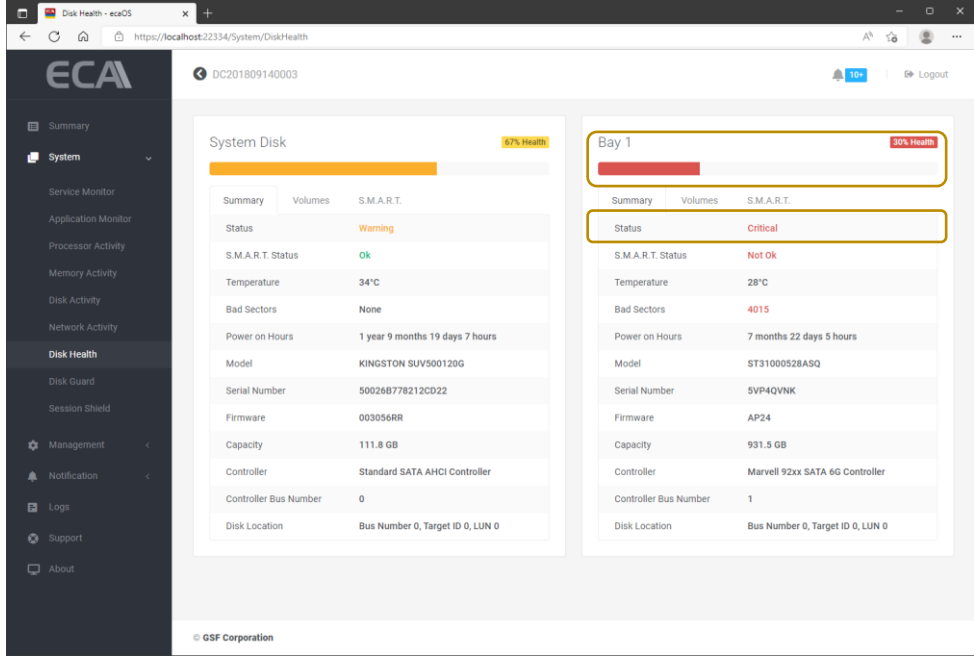
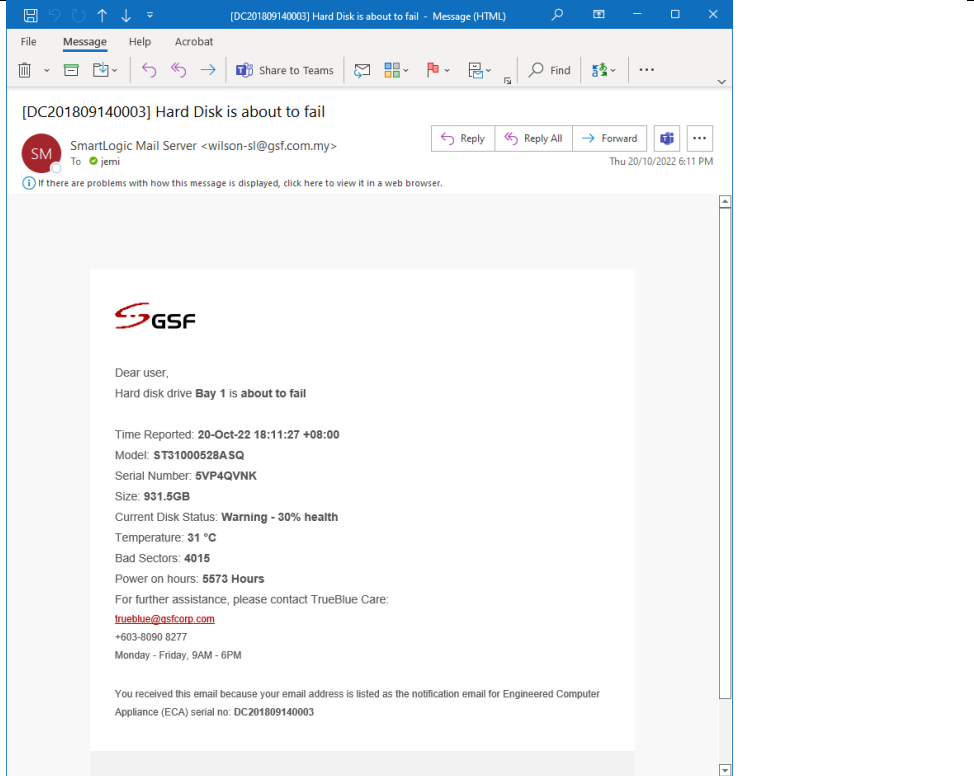
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## 13.6 Disk Health

### 13.6.1 Warning Status Disk

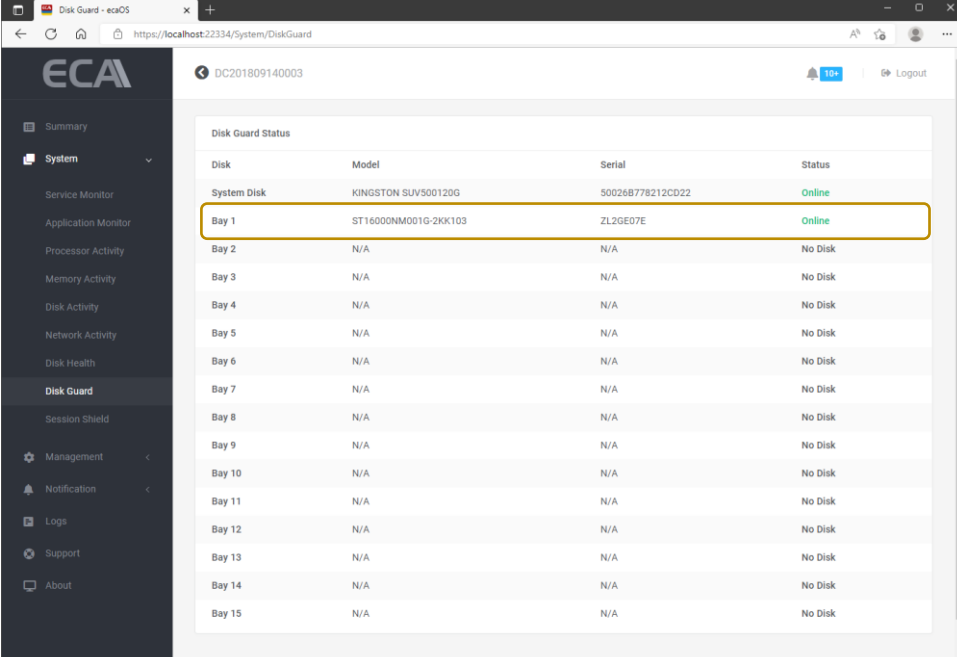
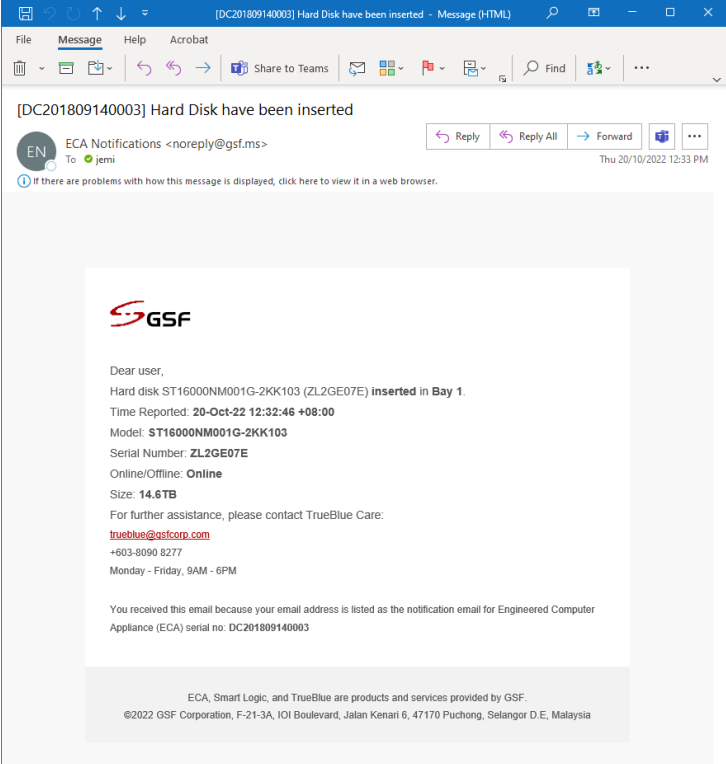
| <b>Dashboard</b>      |                                                                                                                                                                                                                                                              |        |             |                     |                                        |      |         |                       |         |       |             |                     |                                        |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|---------------------|----------------------------------------|------|---------|-----------------------|---------|-------|-------------|---------------------|----------------------------------------|
| <b>Notification</b>   | <div style="background-color: #333; color: white; padding: 10px; border: 1px solid #333;"> <b>Disk health warning</b><br/>         Disk System Disk is down to 67% health<br/>         17:46 • Disk Health       </div>                                                                                                                        |        |             |                     |                                        |      |         |                       |         |       |             |                     |                                        |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>20 Oct 2022, 17:46:16</td> <td>Warning</td> <td>ecaOS</td> <td>Disk Health</td> <td>Disk health warning</td> <td>Disk System Disk is down to 67% health</td> </tr> </tbody> </table> | Time   | Level       | Source              | Type                                   | Name | Details | 20 Oct 2022, 17:46:16 | Warning | ecaOS | Disk Health | Disk health warning | Disk System Disk is down to 67% health |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                          | Source | Type        | Name                | Details                                |      |         |                       |         |       |             |                     |                                        |
| 20 Oct 2022, 17:46:16 | Warning                                                                                                                                                                                                                                                                                                                                        | ecaOS  | Disk Health | Disk health warning | Disk System Disk is down to 67% health |      |         |                       |         |       |             |                     |                                        |
| <b>Email</b>          |                                                                                                                                                                                                                                                            |        |             |                     |                                        |      |         |                       |         |       |             |                     |                                        |

## 13.6.2 Critical Status Disk

| <b>Dashboard</b>      |                                                                                                                                                                                                                                                         |        |             |                      |                                  |      |         |                       |         |       |             |                      |                                  |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|----------------------|----------------------------------|------|---------|-----------------------|---------|-------|-------------|----------------------|----------------------------------|
| <b>Notification</b>   | <div style="background-color: #333; color: white; padding: 10px;"> <b>Disk health critical</b><br/>         Disk Bay 1 is down to 30% health<br/>         17:55 • Disk Health       </div>                                                                                                                                                |        |             |                      |                                  |      |         |                       |         |       |             |                      |                                  |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>20 Oct 2022, 17:55:57</td> <td>Warning</td> <td>ecaOS</td> <td>Disk Health</td> <td>Disk health critical</td> <td>Disk Bay 1 is down to 30% health</td> </tr> </tbody> </table> | Time   | Level       | Source               | Type                             | Name | Details | 20 Oct 2022, 17:55:57 | Warning | ecaOS | Disk Health | Disk health critical | Disk Bay 1 is down to 30% health |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                     | Source | Type        | Name                 | Details                          |      |         |                       |         |       |             |                      |                                  |
| 20 Oct 2022, 17:55:57 | Warning                                                                                                                                                                                                                                                                                                                                   | ecaOS  | Disk Health | Disk health critical | Disk Bay 1 is down to 30% health |      |         |                       |         |       |             |                      |                                  |
| <b>Email</b>          |                                                                                                                                                                                                                                                       |        |             |                      |                                  |      |         |                       |         |       |             |                      |                                  |

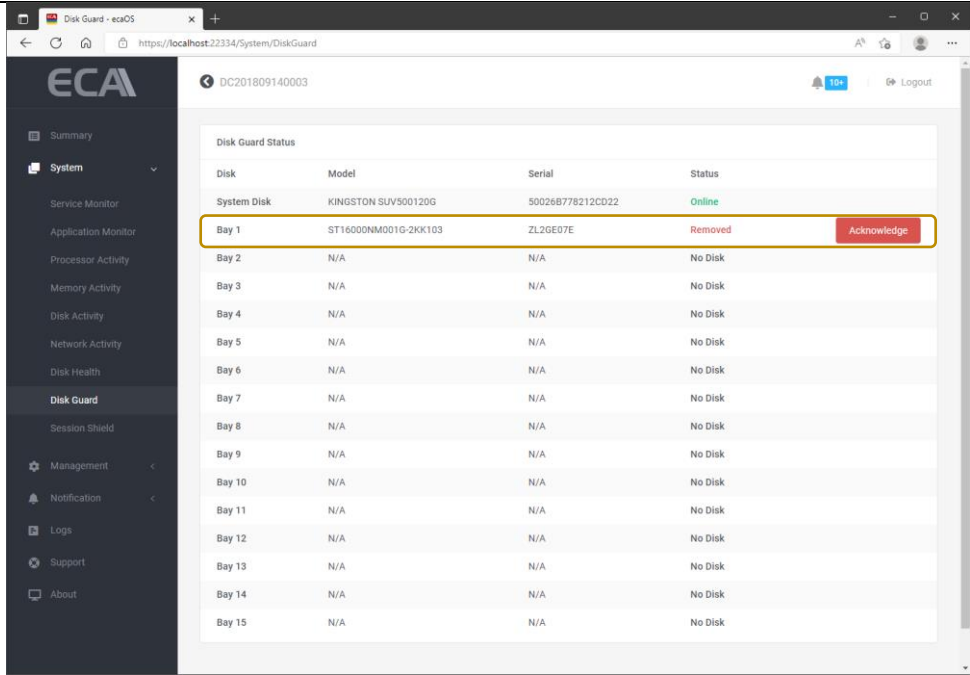
## 13.7 Disk Guard

### 13.7.1 New disk / Disk Inserted

| <b>Dashboard</b>      |                                                                                                                                                                                                                                                                         |        |            |               |                                                      |      |         |                       |             |       |            |               |                                                      |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|---------------|------------------------------------------------------|------|---------|-----------------------|-------------|-------|------------|---------------|------------------------------------------------------|
| <b>Notification</b>   | <p><b>Disk Inserted</b><br/>Disk ST16000NM001G-2KK103 (ZL2GE07E) placed in Bay 1<br/>12:32 • Disk Guard</p>                                                                                                                                                                                                                                               |        |            |               |                                                      |      |         |                       |             |       |            |               |                                                      |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>20 Oct 2022, 12:32:46</td> <td>Information</td> <td>ecaOS</td> <td>Disk Guard</td> <td>Disk Inserted</td> <td>Disk ST16000NM001G-2KK103 (ZL2GE07E) placed in Bay 1</td> </tr> </tbody> </table> | Time   | Level      | Source        | Type                                                 | Name | Details | 20 Oct 2022, 12:32:46 | Information | ecaOS | Disk Guard | Disk Inserted | Disk ST16000NM001G-2KK103 (ZL2GE07E) placed in Bay 1 |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                     | Source | Type       | Name          | Details                                              |      |         |                       |             |       |            |               |                                                      |
| 20 Oct 2022, 12:32:46 | Information                                                                                                                                                                                                                                                                                                                                               | ecaOS  | Disk Guard | Disk Inserted | Disk ST16000NM001G-2KK103 (ZL2GE07E) placed in Bay 1 |      |         |                       |             |       |            |               |                                                      |
| <b>Email</b>          |                                                                                                                                                                                                                                                                       |        |            |               |                                                      |      |         |                       |             |       |            |               |                                                      |

## 13.7.2 Disk Removed

Dashboard



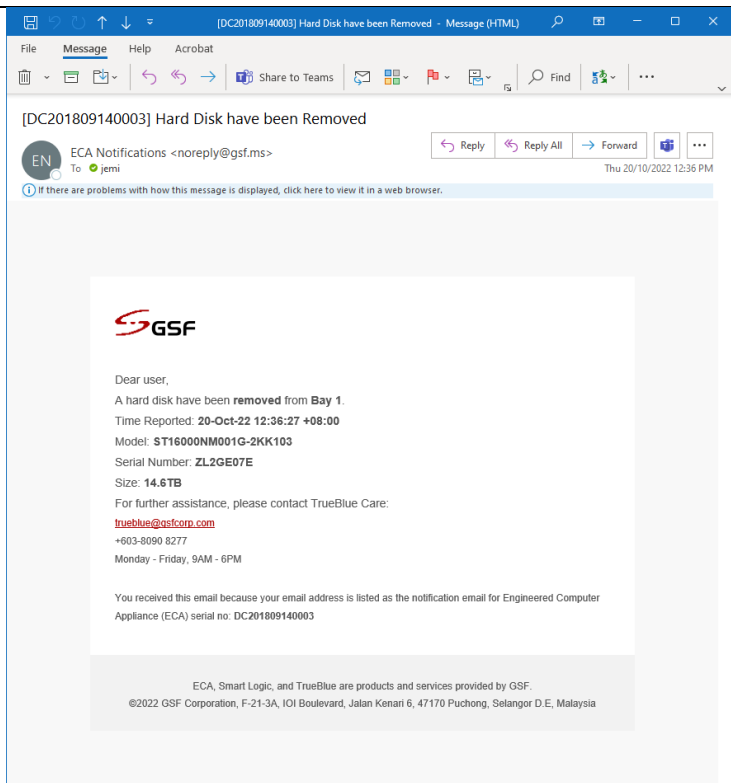
Notification

**Disk Removed**  
Disk ST16000NM001G-2KK103 (ZL2GE07E)  
removed from Bay 1  
12:36 • Disk Guard

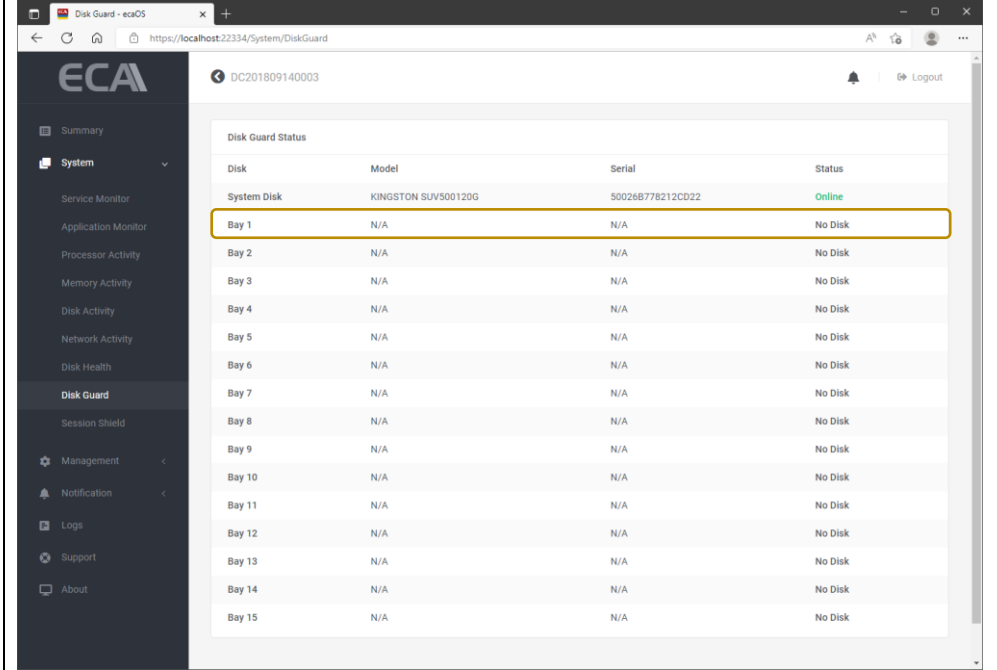
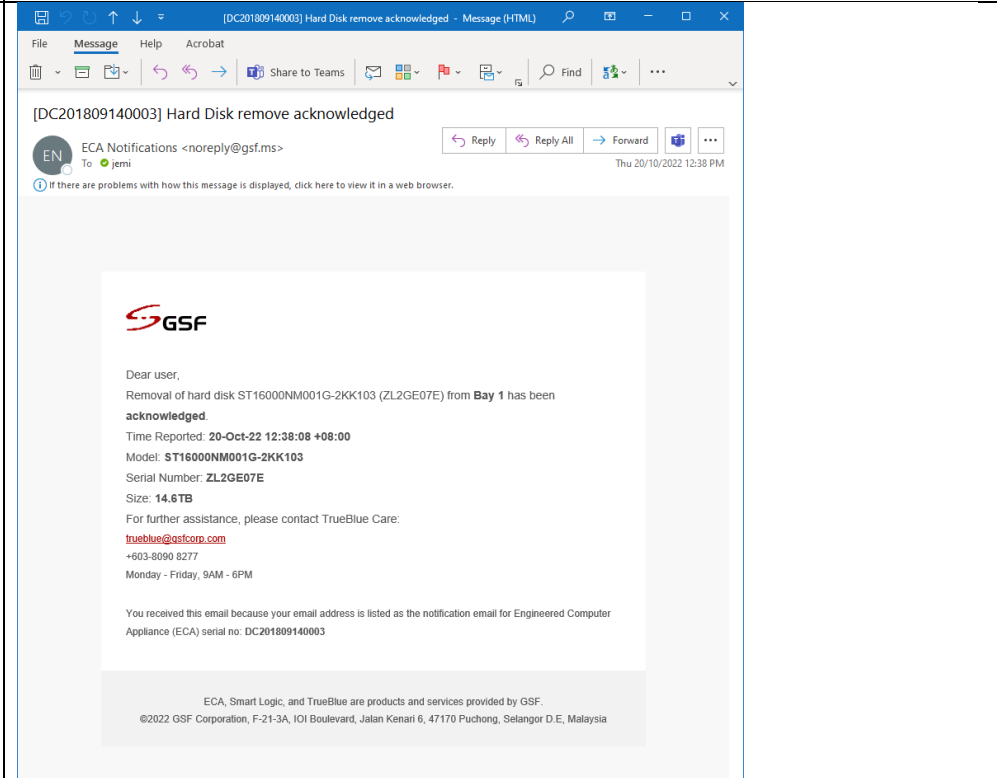
Log

| Time                  | Level   | Source | Type       | Name         | Details                                                 |
|-----------------------|---------|--------|------------|--------------|---------------------------------------------------------|
| 20 Oct 2022, 12:36:27 | Warning | ecaOS  | Disk Guard | Disk Removed | Disk ST16000NM001G-2KK103 (ZL2GE07E) removed from Bay 1 |

Email

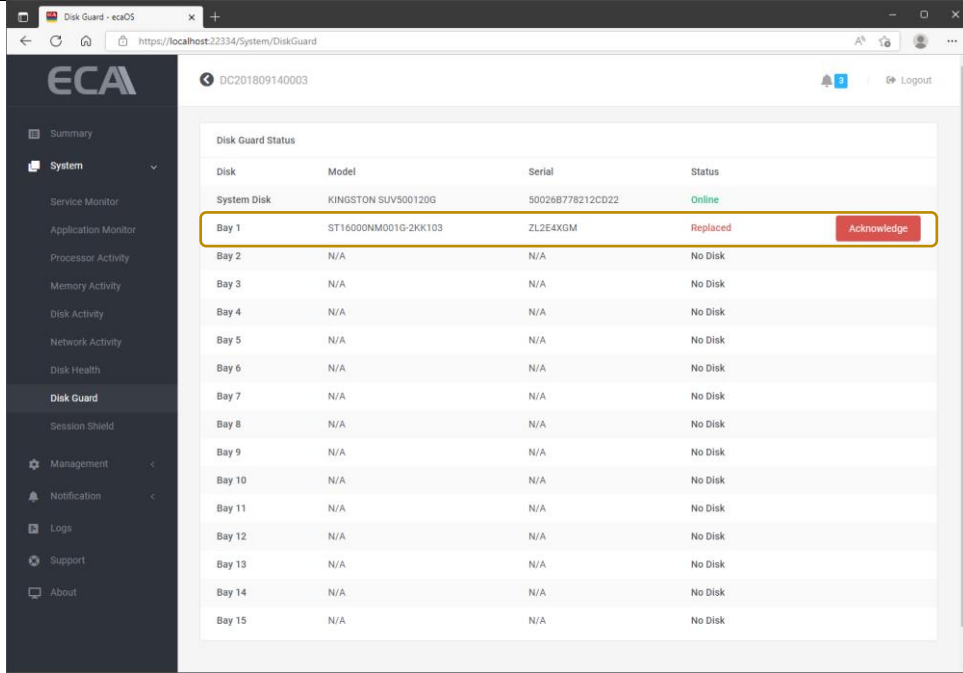


### 13.7.3 Disk Removed Acknowledge

| <b>Dashboard</b>      |                                                                                                                                                                                                                                                                                        |        |            |                          |                                                                      |      |         |                       |             |       |            |                          |                                                                      |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------------|--------------------------|----------------------------------------------------------------------|------|---------|-----------------------|-------------|-------|------------|--------------------------|----------------------------------------------------------------------|
| <b>Notification</b>   | <div style="background-color: #333; color: white; padding: 10px;"> <b>Disk Remove Acknowledged</b><br/>             Disk ST16000NM001G-2KK103 (ZL2GE07E)<br/>             removal from Bay 1 acknowledged<br/>             12:38 • Disk Guard           </div>                                                                                                           |        |            |                          |                                                                      |      |         |                       |             |       |            |                          |                                                                      |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th><th>Level</th><th>Source</th><th>Type</th><th>Name</th><th>Details</th></tr> </thead> <tbody> <tr> <td>20 Oct 2022, 12:38:08</td><td>Information</td><td>ecaOS</td><td>Disk Guard</td><td>Disk Remove Acknowledged</td><td>Disk ST16000NM001G-2KK103 (ZL2GE07E) removal from Bay 1 acknowledged</td></tr> </tbody> </table> | Time   | Level      | Source                   | Type                                                                 | Name | Details | 20 Oct 2022, 12:38:08 | Information | ecaOS | Disk Guard | Disk Remove Acknowledged | Disk ST16000NM001G-2KK103 (ZL2GE07E) removal from Bay 1 acknowledged |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                    | Source | Type       | Name                     | Details                                                              |      |         |                       |             |       |            |                          |                                                                      |
| 20 Oct 2022, 12:38:08 | Information                                                                                                                                                                                                                                                                                                                                                              | ecaOS  | Disk Guard | Disk Remove Acknowledged | Disk ST16000NM001G-2KK103 (ZL2GE07E) removal from Bay 1 acknowledged |      |         |                       |             |       |            |                          |                                                                      |
| <b>Email</b>          |                                                                                                                                                                                                                                                                                      |        |            |                          |                                                                      |      |         |                       |             |       |            |                          |                                                                      |

## 13.7.4 Disk Replaced

Dashboard



| Disk        | Model                | Serial           | Status   |
|-------------|----------------------|------------------|----------|
| System Disk | KINGSTON SUV500120G  | 50026B778212CD22 | Online   |
| Bay 1       | ST16000NM001G-2KK103 | ZL2E4XGM         | Replaced |
| Bay 2       | N/A                  | N/A              | No Disk  |
| Bay 3       | N/A                  | N/A              | No Disk  |
| Bay 4       | N/A                  | N/A              | No Disk  |
| Bay 5       | N/A                  | N/A              | No Disk  |
| Bay 6       | N/A                  | N/A              | No Disk  |
| Bay 7       | N/A                  | N/A              | No Disk  |
| Bay 8       | N/A                  | N/A              | No Disk  |
| Bay 9       | N/A                  | N/A              | No Disk  |
| Bay 10      | N/A                  | N/A              | No Disk  |
| Bay 11      | N/A                  | N/A              | No Disk  |
| Bay 12      | N/A                  | N/A              | No Disk  |
| Bay 13      | N/A                  | N/A              | No Disk  |
| Bay 14      | N/A                  | N/A              | No Disk  |
| Bay 15      | N/A                  | N/A              | No Disk  |

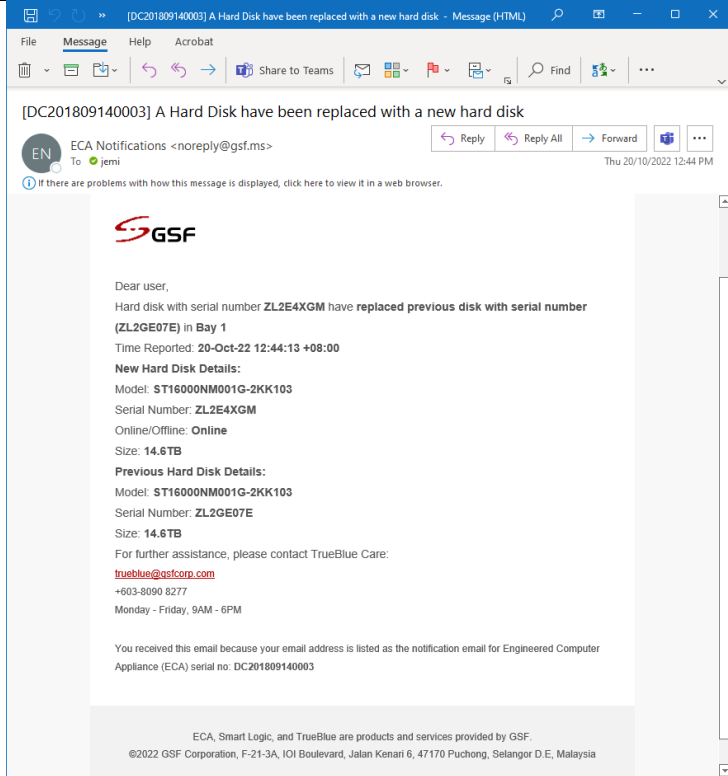
Notification

**Disk Replaced**  
Disk (ZL2E4XGM) have replaced previous disk (ZL2GE07E) in Bay 1  
12:44 • Disk Guard

Log

| Time                  | Level   | Source | Type       | Name          | Details                                                         |
|-----------------------|---------|--------|------------|---------------|-----------------------------------------------------------------|
| 20 Oct 2022, 12:44:13 | Warning | ecaOS  | Disk Guard | Disk Replaced | Disk (ZL2E4XGM) have replaced previous disk (ZL2GE07E) in Bay 1 |

Email



[DC201809140003] A Hard Disk have been replaced with a new hard disk

ECA Notifications <noreply@gsf.ms>  
To: jemi  
Thu 20/10/2022 12:44 PM

If there are problems with how this message is displayed, click here to view it in a web browser.

**GSF**

Dear user,

Hard disk with serial number **ZL2E4XGM** have replaced previous disk with serial number **(ZL2GE07E)** in Bay 1

Time Reported: 20-Oct-22 12:44:13 +08:00

**New Hard Disk Details:**  
Model: ST16000NM001G-2KK103  
Serial Number: ZL2E4XGM  
Online/Offline: Online  
Size: 14.6TB

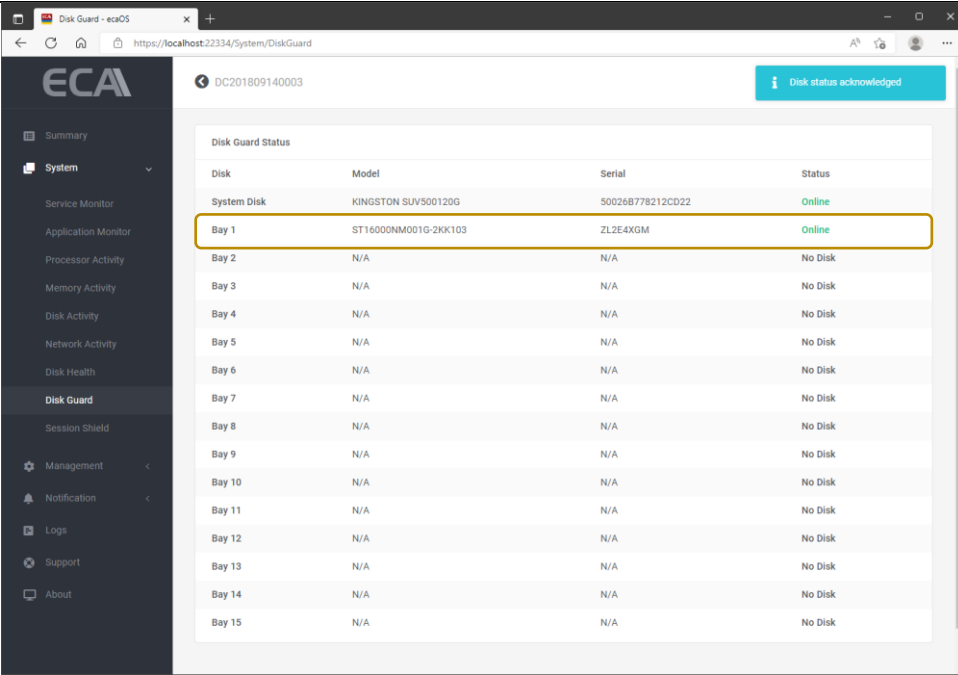
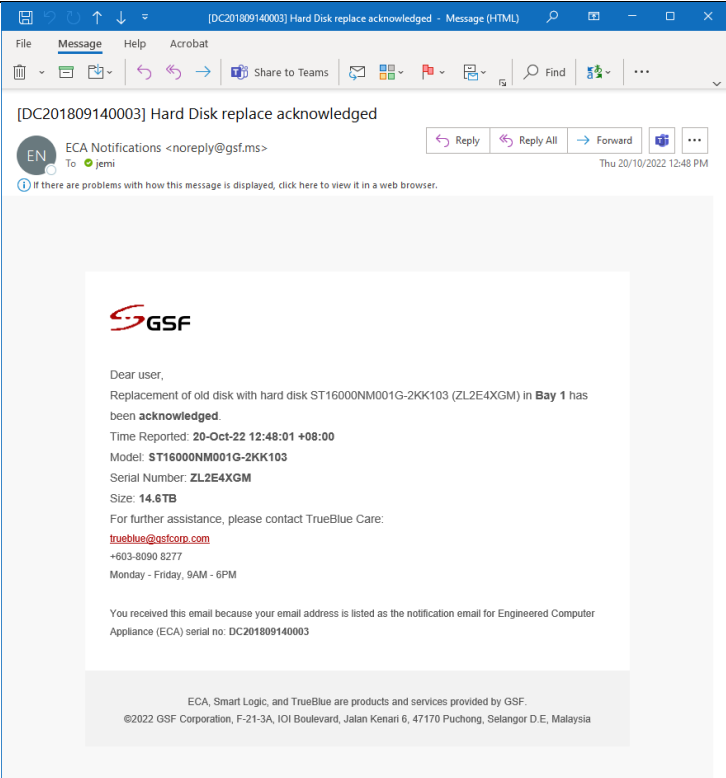
**Previous Hard Disk Details:**  
Model: ST16000NM001G-2KK103  
Serial Number: ZL2GE07E  
Size: 14.6TB

For further assistance, please contact TrueBlue Care:  
[trueblue@gsfcorp.com](mailto:trueblue@gsfcorp.com)  
+603-8090 8277  
Monday - Friday, 9AM - 6PM

You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003

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## 13.7.5 Disk Replaced Acknowledge

| <b>Dashboard</b>      |  <p><b>Disk Guard Status</b></p> <table border="1"> <thead> <tr> <th>Disk</th> <th>Model</th> <th>Serial</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>System Disk</td> <td>KINGSTON SUV500120G</td> <td>500268778212CD22</td> <td>Online</td> </tr> <tr style="background-color: #FFD700;"> <td>Bay 1</td> <td>ST16000NM001G-2KK103</td> <td>ZL2E4XGM</td> <td>Online</td> </tr> <tr><td>Bay 2</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 3</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 4</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 5</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 6</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 7</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 8</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 9</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 10</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 11</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 12</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 13</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 14</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> <tr><td>Bay 15</td><td>N/A</td><td>N/A</td><td>No Disk</td></tr> </tbody> </table> | Disk             | Model      | Serial                    | Status                                                         | System Disk | KINGSTON SUV500120G | 500268778212CD22      | Online      | Bay 1 | ST16000NM001G-2KK103 | ZL2E4XGM                  | Online                                                         | Bay 2 | N/A | N/A | No Disk | Bay 3 | N/A | N/A | No Disk | Bay 4 | N/A | N/A | No Disk | Bay 5 | N/A | N/A | No Disk | Bay 6 | N/A | N/A | No Disk | Bay 7 | N/A | N/A | No Disk | Bay 8 | N/A | N/A | No Disk | Bay 9 | N/A | N/A | No Disk | Bay 10 | N/A | N/A | No Disk | Bay 11 | N/A | N/A | No Disk | Bay 12 | N/A | N/A | No Disk | Bay 13 | N/A | N/A | No Disk | Bay 14 | N/A | N/A | No Disk | Bay 15 | N/A | N/A | No Disk |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------|---------------------------|----------------------------------------------------------------|-------------|---------------------|-----------------------|-------------|-------|----------------------|---------------------------|----------------------------------------------------------------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|-------|-----|-----|---------|--------|-----|-----|---------|--------|-----|-----|---------|--------|-----|-----|---------|--------|-----|-----|---------|--------|-----|-----|---------|--------|-----|-----|---------|
| Disk                  | Model                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Serial           | Status     |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| System Disk           | KINGSTON SUV500120G                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 500268778212CD22 | Online     |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 1                 | ST16000NM001G-2KK103                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ZL2E4XGM         | Online     |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 2                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 3                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 4                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 5                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 6                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 7                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 8                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 9                 | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 10                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 11                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 12                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 13                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 14                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Bay 15                | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | N/A              | No Disk    |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| <b>Notification</b>   | <p><b>Disk Replace Acknowledged</b><br/>         Disk ST16000NM001G-2KK103 (ZL2E4XGM)<br/>         now default disk in Bay 1<br/>         12:48 • Disk Guard</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |            |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| <b>Log</b>            | <table border="1"> <thead> <tr> <th>Time</th> <th>Level</th> <th>Source</th> <th>Type</th> <th>Name</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>20 Oct 2022, 12:48:01</td> <td>Information</td> <td>ecaOS</td> <td>Disk Guard</td> <td>Disk Replace Acknowledged</td> <td>Disk ST16000NM001G-2KK103 (ZL2E4XGM) now default disk in Bay 1</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Time             | Level      | Source                    | Type                                                           | Name        | Details             | 20 Oct 2022, 12:48:01 | Information | ecaOS | Disk Guard           | Disk Replace Acknowledged | Disk ST16000NM001G-2KK103 (ZL2E4XGM) now default disk in Bay 1 |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| Time                  | Level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Source           | Type       | Name                      | Details                                                        |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| 20 Oct 2022, 12:48:01 | Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ecaOS            | Disk Guard | Disk Replace Acknowledged | Disk ST16000NM001G-2KK103 (ZL2E4XGM) now default disk in Bay 1 |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |
| <b>Email</b>          |  <p><b>[DC201809140003] Hard Disk replace acknowledged</b></p> <p>ECA Notifications &lt;noreply@gsf.ms&gt;<br/>         To: jemi<br/>         Thu 20/10/2022 12:48 PM</p> <p>If there are problems with how this message is displayed, click here to view it in a web browser.</p> <p><b>GSF</b></p> <p>Dear user,<br/>         Replacement of old disk with hard disk ST16000NM001G-2KK103 (ZL2E4XGM) in <b>Bay 1</b> has been <b>acknowledged</b>.<br/>         Time Reported: 20-Oct-22 12:48:01 +08:00<br/>         Model: ST16000NM001G-2KK103<br/>         Serial Number: ZL2E4XGM<br/>         Size: 14.6TB<br/>         For further assistance, please contact TrueBlue Care:<br/> <a href="mailto:trueblue@gsfcorp.com">trueblue@gsfcorp.com</a><br/>         +603-8090 8277<br/>         Monday - Friday, 9AM - 6PM</p> <p>You received this email because your email address is listed as the notification email for Engineered Computer Appliance (ECA) serial no: DC201809140003</p> <p>ECA, Smart Logic, and TrueBlue are products and services provided by GSF.<br/>         ©2022 GSF Corporation, F-21-3A, IOI Boulevard, Jalan Kenari 6, 47170 Puchong, Selangor D.E, Malaysia</p>                                                                                                                                           |                  |            |                           |                                                                |             |                     |                       |             |       |                      |                           |                                                                |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |       |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |        |     |     |         |

## 13.8 Log

### 13.8.1 ECA reboot more than 3 times

Figure 207 Show chronological events in log when ECA reboot more than 3 times within 1 hour

| Time                  | Level       | Source    | Type           | Name                               | Details |
|-----------------------|-------------|-----------|----------------|------------------------------------|---------|
| 21 Oct 2022, 17:15:16 | Information | Heartbeat | I/O            | D00 output set to high             |         |
| 21 Oct 2022, 17:15:15 | Warning     | Heartbeat | ECA Controller | Unauthorized system reboot         |         |
| 21 Oct 2022, 17:15:14 | Warning     | Heartbeat | ECA Controller | Alert on: System repetitive reboot |         |

Figure 207

### 13.8.2 AC Power loss

Figure 208 Show chronological events in log when AC power loss.

| Time                  | Level       | Source    | Type            | Name                                    | Details |
|-----------------------|-------------|-----------|-----------------|-----------------------------------------|---------|
| 21 Oct 2022, 17:10:44 | Information | Heartbeat | ECA Motherboard | System in ecaOS                         |         |
| 21 Oct 2022, 17:10:43 | Information | Heartbeat | ECA Gateway     | Gateway connected                       |         |
| 21 Oct 2022, 17:10:24 | Information | Heartbeat | I/O             | D00 output set to low                   |         |
| 21 Oct 2022, 17:10:23 | Information | Heartbeat | ECA Controller  | Alert off: Unexpected system power loss |         |
| 21 Oct 2022, 17:10:23 | Information | Heartbeat | ECA Motherboard | System powered up                       |         |
| 21 Oct 2022, 17:10:21 | Information | Heartbeat | Battery         | Battery charging                        |         |
| 21 Oct 2022, 17:10:18 | Information | Heartbeat | Battery         | Charger power resumed                   |         |
| 21 Oct 2022, 17:10:18 | Information | Heartbeat | ECA Motherboard | AC power resumed                        |         |
| 21 Oct 2022, 17:10:17 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected                    |         |
| 21 Oct 2022, 17:10:16 | Warning     | Heartbeat | Battery         | Charger power loss                      |         |
| 21 Oct 2022, 17:10:15 | Information | Heartbeat | Battery         | Battery discharging                     |         |
| 21 Oct 2022, 17:10:10 | Information | Heartbeat | I/O             | D00 output set to high                  |         |
| 21 Oct 2022, 17:10:09 | Warning     | Heartbeat | ECA Controller  | Alert on: Unexpected system power loss  |         |
| 21 Oct 2022, 17:10:09 | Warning     | Heartbeat | ECA Motherboard | AC power loss                           |         |
| 21 Oct 2022, 17:05:32 | Warning     | Heartbeat | ECA Controller  | Unauthorized system reboot              |         |

Figure 208

### 13.8.3 Unauthorize ECA Reboot

Figure 209 Show chronological events in log when ECA reboot does not through Dashboard.

| Time                  | Level       | Source    | Type            | Name                       | Details |
|-----------------------|-------------|-----------|-----------------|----------------------------|---------|
| 21 Oct 2022, 17:05:32 | Warning     | Heartbeat | ECA Controller  | Unauthorized system reboot |         |
| 21 Oct 2022, 17:05:27 | Information | Heartbeat | ECA Motherboard | System in ecaOS            |         |
| 21 Oct 2022, 17:05:25 | Information | Heartbeat | ECA Gateway     | Gateway connected          |         |
| 21 Oct 2022, 17:05:11 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected       |         |
| 21 Oct 2022, 17:04:59 | Information | Heartbeat | ECA Motherboard | System leaving ecaOS       |         |

Figure 209

### 13.8.4 Unauthorized ECA Shutdown

Figure 210 Show chronological events in log when ECA shutdown does not through Dashboard.

| Time                  | Level       | Source    | Type            | Name                           | Details |
|-----------------------|-------------|-----------|-----------------|--------------------------------|---------|
| 21 Oct 2022, 17:00:06 | Information | Heartbeat | ECA Motherboard | System in ecaOS                |         |
| 21 Oct 2022, 17:00:03 | Information | Heartbeat | ECA Gateway     | Gateway connected              |         |
| 21 Oct 2022, 16:59:49 | Information | Heartbeat | ECA Motherboard | System powered up by Heartbeat |         |
| 21 Oct 2022, 16:59:43 | Warning     | Heartbeat | ECA Controller  | Unauthorized system shutdown   |         |
| 21 Oct 2022, 16:59:43 | Information | Heartbeat | ECA Motherboard | System shutdown                |         |
| 21 Oct 2022, 16:59:42 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected           |         |
| 21 Oct 2022, 16:59:32 | Information | Heartbeat | ECA Motherboard | System leaving ecaOS           |         |

Figure 210

### 13.8.5 Authorize ECA Shutdown

Figure 211 Show chronological events in log when ECA shutdown through Dashboard.

| Time                  | Level       | Source    | Type            | Name                 | Details |
|-----------------------|-------------|-----------|-----------------|----------------------|---------|
| 21 Oct 2022, 16:53:08 | Information | Heartbeat | ECA Motherboard | System shutdown      |         |
| 21 Oct 2022, 16:53:07 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected |         |
| 21 Oct 2022, 16:52:56 | Information | Heartbeat | ECA Motherboard | System leaving ecaOS |         |
| 21 Oct 2022, 16:52:50 | Information | ecaOS     | System          | Shutdown system      |         |

Figure 211

### 13.8.6 Authorize ECA Reboot

Figure 212 Show chronological events in log when ECA reboot through Dashboard.

| Time                  | Level       | Source    | Type            | Name                 | Details |
|-----------------------|-------------|-----------|-----------------|----------------------|---------|
| 21 Oct 2022, 16:58:11 | Information | Heartbeat | ECA Motherboard | System in ecaOS      |         |
| 21 Oct 2022, 16:58:09 | Information | Heartbeat | ECA Gateway     | Gateway connected    |         |
| 21 Oct 2022, 16:57:54 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected |         |
| 21 Oct 2022, 16:57:42 | Information | Heartbeat | ECA Motherboard | System leaving ecaOS |         |
| 21 Oct 2022, 16:57:39 | Information | ecaOS     | System          | Reboot system        |         |

Figure 212

### 13.8.7 Power up ECA by pressing power button

Figure 213 Show chronological events in log when ECA power up by pressing power button

| Time                  | Level       | Source    | Type            | Name                         | Details |
|-----------------------|-------------|-----------|-----------------|------------------------------|---------|
| 21 Oct 2022, 16:53:41 | Information | Heartbeat | ECA Motherboard | System in ecaOS              |         |
| 21 Oct 2022, 16:53:39 | Information | Heartbeat | ECA Gateway     | Gateway connected            |         |
| 21 Oct 2022, 16:53:25 | Information | Heartbeat | ECA Motherboard | System power button released |         |
| 21 Oct 2022, 16:53:24 | Information | Heartbeat | ECA Motherboard | System powered up            |         |
| 21 Oct 2022, 16:53:19 | Information | Heartbeat | ECA Motherboard | System power button pressed  |         |

Figure 213

### 13.8.8 Force shutdown by pressing power (heartbeat) button

Figure 214 Show chronological events in log when force shutdown by long pressed power button

| Time                  | Level       | Source    | Type            | Name                           | Details |
|-----------------------|-------------|-----------|-----------------|--------------------------------|---------|
| 21 Oct 2022, 16:51:40 | Information | Heartbeat | ECA Motherboard | System in ecaOS                |         |
| 21 Oct 2022, 16:51:37 | Information | Heartbeat | ECA Gateway     | Gateway connected              |         |
| 21 Oct 2022, 16:51:22 | Information | Heartbeat | ECA Motherboard | System powered up by Heartbeat |         |
| 21 Oct 2022, 16:51:19 | Warning     | Heartbeat | ECA Gateway     | Gateway disconnected           |         |
| 21 Oct 2022, 16:51:12 | Warning     | Heartbeat | ECA Controller  | Unauthorized system shutdown   |         |
| 21 Oct 2022, 16:51:12 | Information | Heartbeat | ECA Motherboard | System power button released   |         |
| 21 Oct 2022, 16:51:12 | Information | Heartbeat | ECA Motherboard | System forced shutdown         |         |

Figure 214

### 13.8.9 Accessing Dashboard using Security Key

Figure 215 Show chronological events in log when accessing dashboard using security key

| Time                  | Level       | Source | Type         | Name                         | Details                                                    |
|-----------------------|-------------|--------|--------------|------------------------------|------------------------------------------------------------|
| 21 Oct 2022, 16:46:02 | Information | ecaOS  | Security Key | Paired security key inserted | Paired security key 'Security Key' (56a30456) was inserted |
| 21 Oct 2022, 16:46:02 | Information | ecaOS  | Security Key | Security key inserted        | Security key 'Security Key' (56a30456) was inserted        |

Figure 215

### 13.8.10 Accessing Dashboard using Virtual Security Key

Figure 216 Show chronological events in log when accessing dashboard using Virtual security key

| Time                  | Level       | Source | Type                 | Name                   | Details                                  |
|-----------------------|-------------|--------|----------------------|------------------------|------------------------------------------|
| 21 Oct 2022, 16:29:32 | Information | ecaOS  | Virtual Security Key | Valid passcode entered | Login using virtual security key 'admin' |

Figure 216

### 13.8.11 Add new Security Key

Figure 217 Show chronological events in log when add new security key.

| Time                  | Level       | Source | Type         | Name               | Details                                              |
|-----------------------|-------------|--------|--------------|--------------------|------------------------------------------------------|
| 21 Oct 2022, 15:47:38 | Information | ecaOS  | Security Key | Security key added | New security key 'Security Key' (56a30456) was added |

Figure 217

### 13.8.12 Delete paired Security Key

Figure 218 Show chronological events in log when paired Security Key deleted.

| Time                  | Level       | Source | Type         | Name                 | Details                                            |
|-----------------------|-------------|--------|--------------|----------------------|----------------------------------------------------|
| 21 Oct 2022, 15:47:29 | Information | ecaOS  | Security Key | Security key deleted | Security key 'Security Key' (56a30456) was deleted |

Figure 218

### 13.8.13 Delete Virtual Security Key

Figure 218 Show chronological events in log when existing Virtual Security Key deleted.

| Time                  | Level       | Source | Type                 | Name                         | Details                                  |
|-----------------------|-------------|--------|----------------------|------------------------------|------------------------------------------|
| 21 Oct 2022, 15:53:02 | Information | ecaOS  | Virtual Security Key | Virtual security key deleted | Virtual security key 'admin' was deleted |

Figure 219

### 13.8.14 Add Virtual Security Key

Figure 218 Show chronological events in log when new Virtual Security Key added.

| Time                  | Level       | Source | Type                 | Name                       | Details                                      |
|-----------------------|-------------|--------|----------------------|----------------------------|----------------------------------------------|
| 25 Aug 2022, 12:56:45 | Information | ecaOS  | Virtual Security Key | Virtual security key added | New virtual security key 'adminv2' was added |

Figure 220

### 13.8.15 Open ECA cover chassis

Figure 217 Show chronological events in log when ECA top cover open.

| Time                  | Level       | Source    | Type            | Name | Details                               |
|-----------------------|-------------|-----------|-----------------|------|---------------------------------------|
| 21 Oct 2022, 15:57:58 | Information | Heartbeat | I/O             |      | DO0 output set to high                |
| 21 Oct 2022, 15:57:58 | Warning     | Heartbeat | ECA Controller  |      | Alert on: Unauthorized chassis opened |
| 21 Oct 2022, 15:57:58 | Warning     | Heartbeat | ECA Motherboard |      | System chassis opened                 |

Figure 221

### 13.8.16 Close ECA cover chassis

Figure 217 Show chronological events in log when ECA top cover close.

| Time                  | Level       | Source    | Type            | Name | Details                                |
|-----------------------|-------------|-----------|-----------------|------|----------------------------------------|
| 21 Oct 2022, 16:38:20 | Information | Heartbeat | I/O             |      | DO0 output set to low                  |
| 21 Oct 2022, 16:38:15 | Information | Heartbeat | ECA Controller  |      | Alert off: Unauthorized chassis opened |
| 21 Oct 2022, 16:38:15 | Information | Heartbeat | ECA Motherboard |      | System chassis closed                  |

Figure 222

13.8.17 PSU Status

Figure 217 Show chronological events in the log when a power supply fault is detected and the power supply is restored to normal.

| Time                  | Level       | Source    | Type             | Name                        | Details              |
|-----------------------|-------------|-----------|------------------|-----------------------------|----------------------|
| 22 Jan 2024, 12:11:02 | Warning     | Heartbeat | ECA Power Supply | Power supply fault          | PSU 2 fault detected |
| 22 Jan 2024, 12:10:02 | Information | Heartbeat | ECA Power Supply | Power supply back to normal |                      |
| 22 Jan 2024, 12:09:02 | Warning     | Heartbeat | ECA Power Supply | Power supply fault          | PSU 1 fault detected |
| 22 Jan 2024, 12:08:02 | Information | Heartbeat | ECA Power Supply | Power supply back to normal |                      |

Figure 223



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