WILLOWGLEN
Willowglen Services Pte Ltd
103 Defu Lane 10, #05-01 Singapore 539223
Tel: (65) 6280 0437 Fax: (65) 6286 2002
Company Registration No: 198602842C

Preventative Maintenance (SERVER)

Job No:	8401L0067
System Description:	ISOSS SECURITY SYSTEM
Station Name:	LV6 Woodlands LV / 192.169.19.1
Customer:	LTA
Project No:	1534

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ATTENDED BY (WILLOWGLEN)	Sasuke
WITNESSED BY (CUSTOMER)	Sakura
START DATE/TIME	03/11/2025 07:00
COMPLETION DATE/TIME	04/11/2025 08:00

Remark

Sign Off Information for LTA SITE

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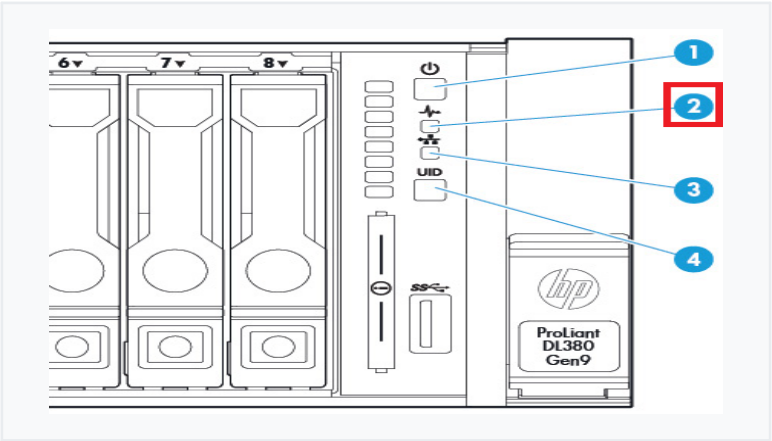
Server Health Check

Check Instructions:

Check Server Front Panel LED Number 2, as shown below. Check LED 2 in solid green, which indicates the server is healthy.



Server Name	Result Status
CR-ECID-IF-SVR00002	Fail
CR-ECID-IF-SVR00001	Pass
CR-ECID-IF-SVR00003	Pass

Remarks

Server Health Check for LTA site (KCDE and ECID sites)

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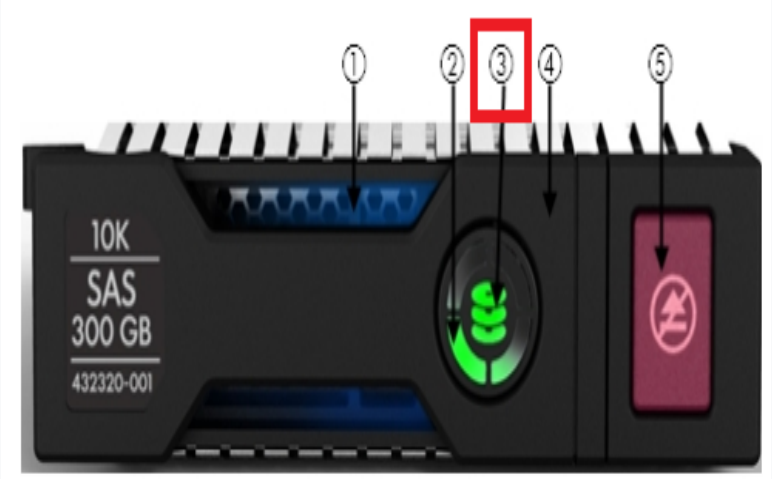
Hard Drive Health Check

Check Hard Drive Health Status LED, LED in solid/blinking green, which indicates healthy.



Check if the LED is in solid/blinking green

Server Name	Result Status
CR-ECID-IF-SVR00002	Fail
CR-ECID-IF-SVR00001	Pass
CR-ECID-IF-SVR00003	Pass

Remark

Hard Drive Health Check for LTA (KCDE and ECID sites)

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Disk Usage Check

Using Computer Management

- From Control Panel -> Administration Tools -> Computer Management.
- Click on the Storage -> Disk Management. Check the status for all the hard disks.
- Remove old Windows event logs to meet the target disk usage limit.

* Note: The HDSRS servers with SQL Server Database keep the historical data and daily/weekly/monthly backups. The disk space usage can be up to 90%, which is considered as normal.

CR-ECID-IF-SVR0002: - Disk Capacity:

Disk	Status	Capacity	Free Space	Usage %	Check
AA	Healthy	2000	500	80	Fail

CR-ECID-IF-SVR0003: - Disk Capacity:

Disk	Status	Capacity	Free Space	Usage %	Check
BB	Healthy	3000	2000	32	Pass

Remark

Server Disk Usage Check for LTA (KCDE and ECID site)

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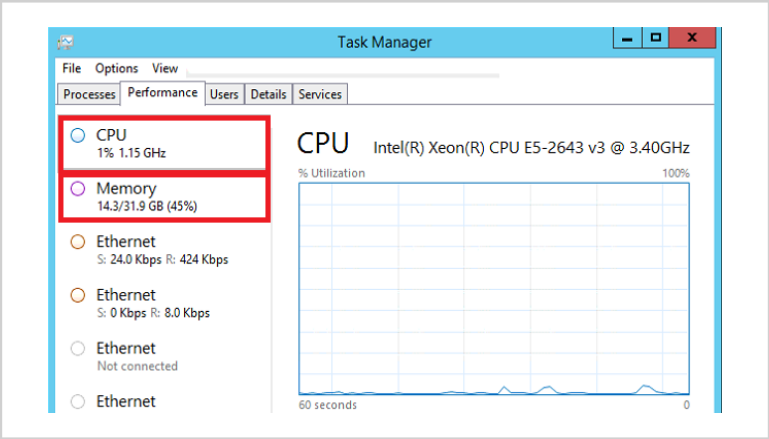
CPU and RAM Usage Check

Using Task Manager, go to Performance Tab
- Right click on the task bar and select Task Manager.



Memory Usage Check:

S/N	Machine Name	Memory Size	Memory In Use (%)	Memory In Use < 90%? Historical server < 90%?
1	CR-ECID-IF-SVR0002	64	78%	Fail
2	CR-ECID-IF-SVR0003	64	31%	Pass

CPU Usage Check:

S/N	Machine Name	CPU Usage (%)	CPU Usage < 50%?
2	CR-ECID-IF-SVR0003	32%	Pass
1	CR-ECID-IF-SVR0002	11%	Pass

Remarks

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Server CPU and RAM Usage Check for LTA (KCDE and ECID Sites)

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Network Health Check

Ring Network Check.

Date Checked: 01/11/2025 00:00

Procedure:

Observe the ring and ring master LED on the network switch.

Result:

Ring and ring master LED should be green (stable).	No

If the answer is 'No', please use topology viewer (Oring software) to check if any switch in the ring has connectivity problem.

Remarks

Network Health Check for LTA (KCDE and ECID sites)

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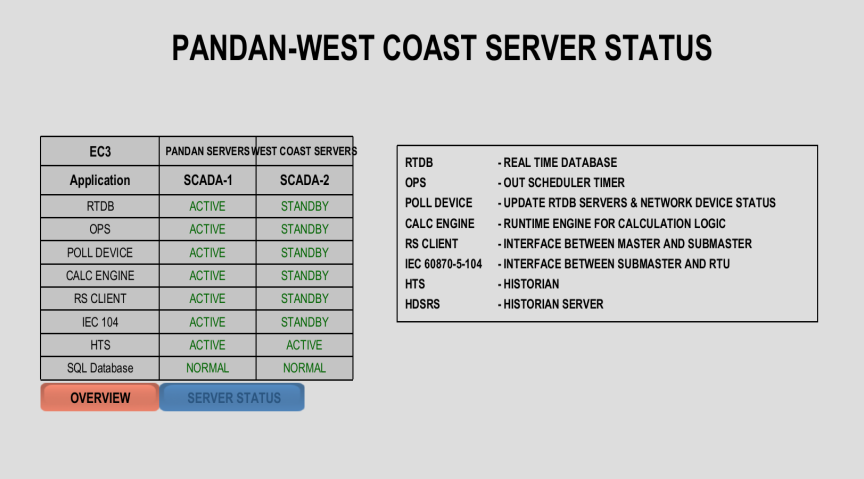
Willowlynx Process Status Check

Process Status

Login into Willowlynx and navigate to the "Server Status" page, as shown below.



Result:

All process services should be online, either ACTIVE or STANDBY.	**No**

Remarks

Willowlynx Process Status Check for LTA (KCDE and ECID sites)

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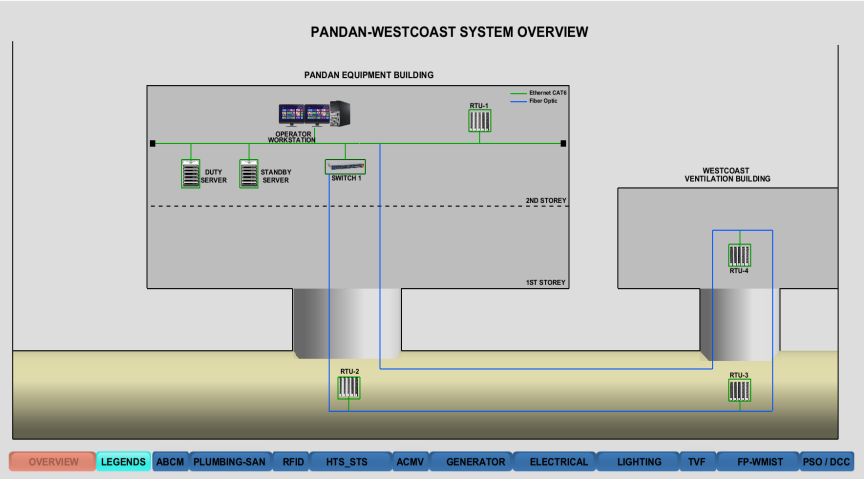
Willowlynx Network Status Check

Check the system overview page to ensure all servers, switches, and RTUs are green.



Result:

All servers, switches, and RTU are green.	No

Remarks

Willowlynx Network Status Check for LTA (KCDE and ECID sites)

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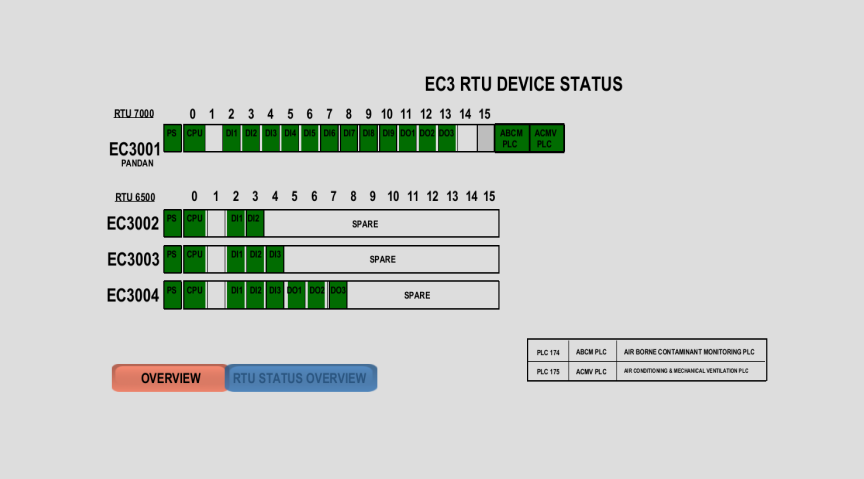
Willowlynx RTU Status Check

Instructions:

Check the RTU Device Status page. RTU status and PLC status shall be green.



Result:

RTU status and PLC status are green. **No**

Remarks

Willowlynx RTU Status Check for LTA (KCDE and ECID sites)

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Willowlynx Historical Trend Check

Instructions:
Randomly select some analog measurement points, open the trend view, and confirm the trend displays without errors.

Result:

Trends can be displayed without issues.	No

Remarks

Willowlynx Historical Trend Check for LTA (KCDE and ECID sites)

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Willowlynx Historical Report Check

Click the CTHistReport icon on an HMI, open the Historical Report module, and ensure analog, digital, and alarm reports can be displayed.

Result:

All reports can be displayed without issues.	**No**

Remarks

Willowlynx Historical Report Check for LTA (KCDE and ECID sites)

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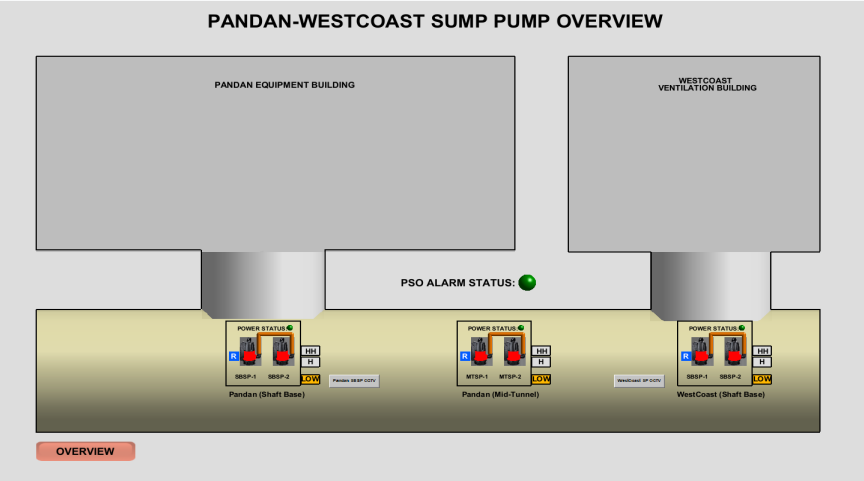
Willowlynx Sump Pit CCTV Camera Check

Click the CCTV buttons from the PLUMB-SAN page to confirm the player window for each camera can be played.



Result:

All CCTV cameras can be played without issues.	No

Remarks

Willowlynx Sump Pit CCTV Camera Check for LTA (KCDE and ECID sites)

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Monthly Database Creation Check

Willowlynx's historical database uses monthly partitions. Confirm MSSQL has the next six months created.

Monthly Database Creation

S/N	Server Name	Monthly DB are Created
1	CR-ECID-IF-SVR00004	Yes
2	CR-ECID-IF-SVR00003	Yes
3	CR-ECID-IF-SVR00005	Yes

Remarks

Monthly Database Creation for LTA (KCDE && ECID sites)

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Database Backup Check

Check D:\MSSQLSERVER-BACKUP\Monthly and ensure the database backups exist in this directory.

MSSQL Database Backup Check

S/N	Item	Monthly DB Backup are created
1	CR-KCDE-IF-SVR0002	No
2	CR-KCDE-IF-SVR0005	Yes

SCADA Database Backup Check

S/N	Item	SCADA DB Backup are created
1	CR-KCDE-IF-SVR0004	No
2	CR-KCDE-IF-SVR0006	Yes

Latest Backup File Name:	sql_ecid_kcde_AMS_31102025.sql

Remarks

Database Backup for LTA site (KCDE and ECID sites)

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SCADA & Historical Time Sync Check

Instructions:
Verify the SCADA server, historical server, and HMIs are time synchronised by running w32tm /query /status. The difference shall be within five minutes.

S/N	Machine Name	Time Sync Result
2	CR-ECID-IF-SVR0002	Pass
3	CR-ECID-IF-SVR0003	Pass
1	CR-ECID-IF-SVR0001	Fail

Remarks

SCADA & Historical Time Sync for LTA Site (KCDE and ECID)

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Hotfixes / Service Packs

Review and apply the latest hotfixes or service packs on all applicable servers.

S/N	Machine Name	Latest Hotfixes Applied	Done
1	CR-ECID-IF-SVR001	ABC123456	Pass
2	CR-ECID-IF-SVR002	DEF123456	Fail
3	CR-ECID-IF-SVR003	GHI123456	Pass

Remarks

Hotfixes / Service Packs for LTA (KCDE and ECID site)

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Auto failover of SCADA server

Auto failover of SCADA server testing procedures:
Note: Make sure both SCADA servers are online after completing the test.

Failover from SCA-SR1 to SCA-SR2

Procedure:
1. Perform a system shutdown on SCA-SR1.
2. Check the System Server status page.

Expected Result: SCA-SR2 becomes master and RTUs continue reporting data to SCADA.	Yes

Failover from SCA-SR2 to SCA-SR1

Procedure:
1. Start SCA-SR1 and wait five minutes for it to boot.
2. Perform a system shutdown on SCA-SR2.
3. Check the System Server status page.

Expected Result: SCA-SR1 becomes master and RTUs continue reporting data to SCADA.	Yes

Remarks

Auto Failover of SCADA Server for LTA (KCDE && ECID sites)

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ASA Firewall Maintenance

To check ASA firewall health and backup the running configuration:
1. Connect to the ASDM application from the SCADA server.
2. Access the ASA firewall CLI and input the commands below.

S/N	Command Input	Expected Result	Result Status
1	show cpu usage	CPU Usage <80%	Pass
2	show environment	Overall hardware health	Pass

3. Check the firewall overview to ensure everything is running properly.
4. Backup the configuration to the D drive of SCADA SVR1.

Remarks

ASA Firewall Maintenance for LTA site (KCDE and ECID sites)

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Software Patch Summary

S/N	Server Name	Previous Patch	Current Patch
5	CR-ECID-IF-SVR11113	CC12345	DD12345
6	CR-ECID-IF-SVR11114	AA13579	BB13579

Remarks

Software Patch Summary for LTA Site (KCDE && ECID)