

GFS Crane DCIM - Asset Management

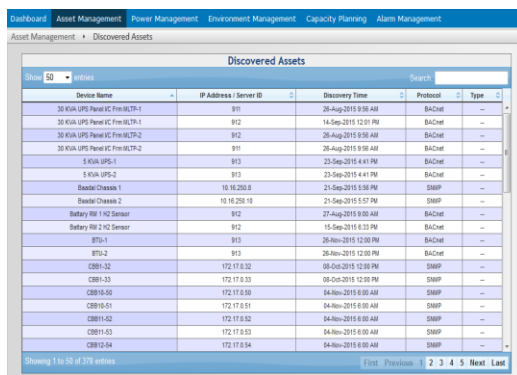
An integral feature of GFS Crane DCIM is comprehensive Asset Lifecycle Management that covers both Facilities & IT infrastructure of the Data Center:

1. Discovery of SNMP-enabled & BMS-connected assets
2. Creating Asset Inventory using built-in GFS Manufacturer Repository (OEM Library)
3. Asset Location & Tracking with RFID Tags
4. Asset Relationship mapping
5. Visualization with 2D & 3D Layouts
6. Preventive Maintenance Schedules
7. Critical Device Uptime & SLA Reports
8. Workflow-based Move-Add-Change operations
9. Asset-related widgets on Dashboard

1. Discovery for IT and Facility Assets:

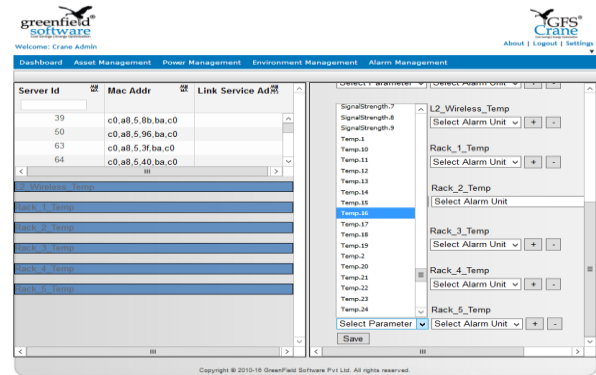
IT Assets: DCIM supports Asset discovery over SNMP. A range of IP addresses of IT assets are provided and DCIM discovers all IT assets within this IP range. The user friendly Interface is easy to use and enables users to quickly add new assets within the data center environment.

Discovery of Facility Assets over various protocols (BACnet, Modbus, SNMP):



Device Name	IP Address / Server ID	Discovery Time	Protocol	Type
30 KVA UPS Power FC Fin/ULP1-1	911	28-Aug-2015 9:36 AM	BACnet	--
30 KVA UPS Power FC Fin/ULP1-1	912	14-Sep-2015 12:31 PM	BACnet	--
30 KVA UPS Power FC Fin/ULP2-2	912	26-Aug-2015 9:56 AM	BACnet	--
30 KVA UPS Power FC Fin/ULP2-2	911	26-Aug-2015 9:56 AM	BACnet	--
8 KVA UPS-1	913	23-Sep-2015 4:41 PM	BACnet	--
8 KVA UPS-2	913	23-Sep-2015 4:41 PM	BACnet	--
Batter/Chassis 1	10.16.208.8	21-Sep-2015 9:58 PM	SNMP	--
Batter/Chassis 2	10.16.208.10	21-Sep-2015 5:57 PM	SNMP	--
Battery RR 1 H2 Sensor	912	27-Aug-2015 9:00 AM	BACnet	--
Battery RR 2 H2 Sensor	912	15-Sep-2015 4:33 PM	BACnet	--
BFD-1	913	26-Nov-2015 12:30 PM	BACnet	--
BFD-2	913	26-Nov-2015 12:30 PM	BACnet	--
CB81-02	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-13	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-50	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-51	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-52	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-53	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--
CB81-54	172.17.1.33	16-Nov-2015 12:00 PM	SNMP	--

GFS Crane DCIM BACnet Configuration Cockpit UI allows users to Add and track Facility devices monitored by existing BMS Systems or other Plant Manager tools.

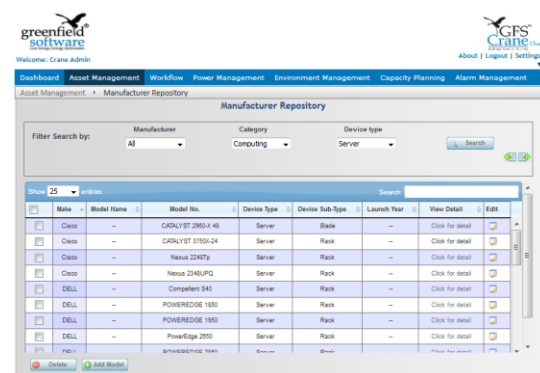


2. Creating Asset Inventory using built-in GFS Manufacturer Repository (OEM Library):

The Asset management module is integrated with an OEM Library that includes a list of Static Parameters of facility and IT assets of different makes and models. Post asset discovery, the OEM Library enables quick automated way of building a centralized asset inventory as it includes

- device data like max & idle power, weight, U-space, single/dual power supply, number of network ports
- front & rear device image

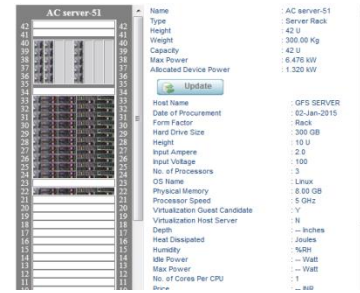
We refer to this OEM Library as GFS Manufacturer Repository.



Make	Model Name	Model No.	Device Type	Device Sub-Type	Launch Year	View Detail	Edit
Cisco		CATALYST 2953-X 48	Server	Blade	--	Click for detail	
Cisco		CATALYST 3750-24	Server	Rack	--	Click for detail	
Cisco		Nexus 2248T3	Server	Rack	--	Click for detail	
Cisco		Nexus 2248LPQ	Server	Rack	--	Click for detail	
DELL		Compaq 540	Server	Rack	--	Click for detail	
DELL		POWEREDGE 1800	Server	Rack	--	Click for detail	
DELL		POWEREDGE 1800	Server	Rack	--	Click for detail	
DELL		PowerEdge 2000	Server	Rack	--	Click for detail	

Key Benefits of Manufacturer Repository (MR):

1. Populating Asset database from MR minimizes manual entry
2. Enables quick addition of device (with image) on rack and floor
3. Enables simulation for capacity forecasting
4. MR data Helps to identify best-fit rack



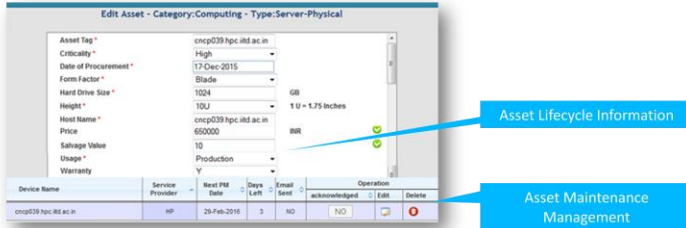
AC server-51	Name	AC server-51
Type	Server Rack	
Height	42 U	
Weight	350.00 Kg	
Capacity	300 GB	
Max Power	6.476 kW	
Allocated Device Power	1.320 kW	
Host Name		
Host Name	GFS SERVER	
Date of Procurement	02-Jan-2015	
Form Factor	Rack	
Hard Drive Size	10 U	
Height	2.0	
Input Ampere	1000	
Input Voltage	3	
No. of Processors	3	
OS Name	Linux	
Physical Memory	6.00 GB	
Processor Speed	5 GHz	
Virtualization Guest Candidate	Y	
Virtualization Host Server	N	
Depth	...	
Heat Dissipated	...	
Humidity	...	
Site Power	...	
Max Power	...	
No. of Cores Per CPU	...	
Rev	...	

Asset Management tool offers a clear visibility into DC Asset inventory, physical location, age and lifecycle. DCIM further maintains updated information on count, physical location and health of all physical assets. Provides asset lifecycle management by capturing procurement information, age and preventive maintenance schedules

3. Asset Location & Tracking with RFID Tags



Asset Lifecycle Management



Asset Lifecycle Information

Asset Maintenance Management

Depreciation Policy

Device Type	Depreciation Type	Depreciation Line Rate (%)	Salvage Value (%)	Replacement Period (Year)
Server	STRAIGHT LINE	30.0	10.0	3.0

When used in conjunction with bar-code labels or RFID tags and respective scanners, GFS Crane DCIM can also include Semi-automated/ Fully automated Asset tracking for IT and facility devices within the DC environment.

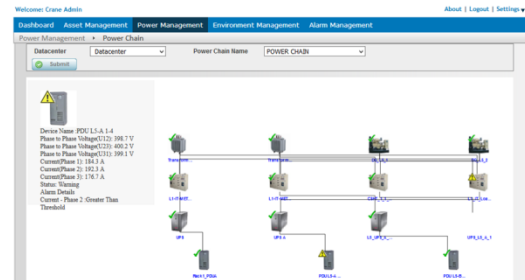
4. Asset relationship mapping

With a view of upstream and downstream connected devices, the power chain provides clear visualization for impact analysis.

Rack & Floor Elevation with Space Management:



A rack elevation visualizing u-space occupancy, with list of devices populating the rack. The Manufacturer Repository provides OEM specs for integrated list of devices

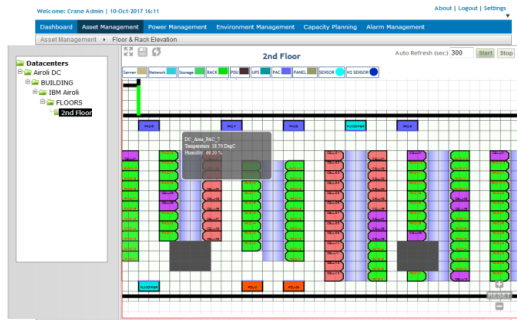


The Power Chain coupled with preventive maintenance schedules module helps DC managers make backup plans for planned downtime of devices for upcoming maintenance without affecting DC uptime.

5. Visualization with 2D & 3D Layouts

The Floor space virtualization helps the user with remotely identifying assets within the Datacenter space. 'Asset Search' function guides the user to the particular Row, Rack and U-space to quickly locate the required asset. Work Flow based 'Move-Add-Change' operations for Assets, enables Asset tracking within the DC space.

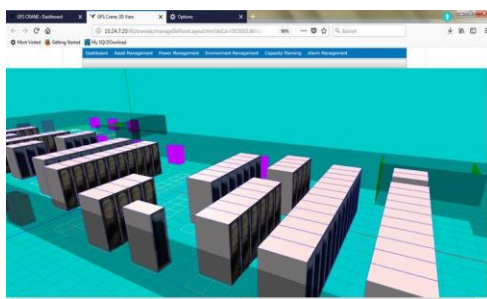
2D Visualization:



2D layout supports visual Row/Rack Number based identification of Racks and provides also provides a Building/Floor/customer-wise representation of the entire DC area. PAC units, UPS units and other facility devices can be visualized, along with the Racks. Assets are color coded for quick identification along with

3D Visualization:

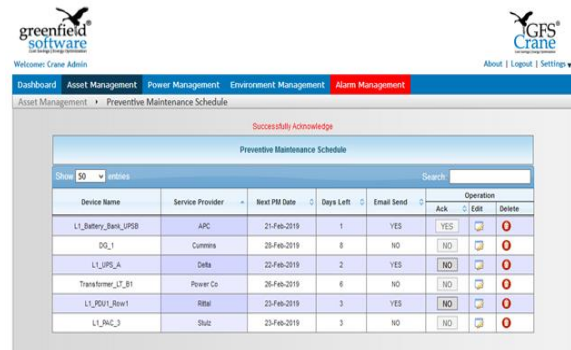
The 3D layout also supports Row/Rack-wise identification of Assets and provides a visual representation of the DC. PAC units, UPS units and other facility devices can be visualized, along with the Racks.



This feature becomes especially handy while performing 'Asset Search' functions or for identifying stranded capacities within the existing inventory.

6. Preventive Maintenance Schedules

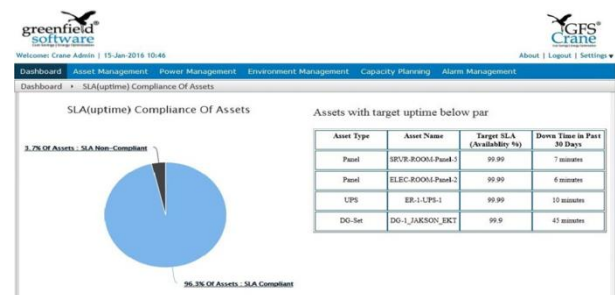
Preventive maintenance scheduling for Facility and IT Infra Assets can be easily configured through GFS Crane DCIM.



Preventive maintenance schedules are organized with configured Calendar schedules. Auto email generation with reminders to respective service providers can be configured.

7. Uptime & SLA Reports:

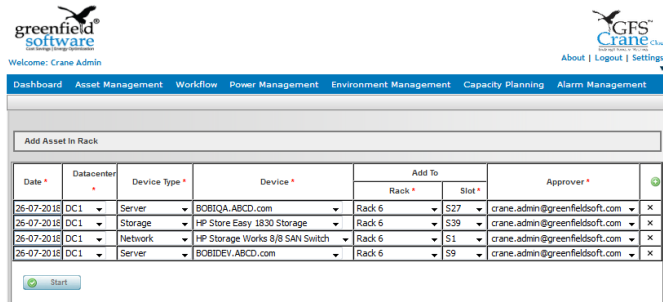
Specific critical facility devices can also be monitored for uptime calculations.



Time-wise breach reports can be viewed/emailed for determining SLA compliance

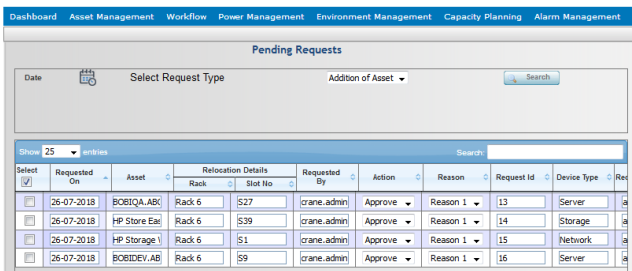
8. Workflow-based Move-Add-Change operations

Policy driven GFS Crane Asset management tools help enforce IT standards and practices for reliable data center Management. Workflow based change management



Date *	Datacenter *	Device Type *	Device *	Add To		Approver *
				Rack *	Slot *	
26-07-2018	DC1	Server	BOBIQA.ABCD.com	Rack 6	S27	crane_admin@greenfieldsoft.com
26-07-2018	DC1	Storage	HP Store Easy 1830 Storage	Rack 6	S39	crane_admin@greenfieldsoft.com
26-07-2018	DC1	Network	HP Storage Works 8/8 SAN Switch	Rack 6	S1	crane_admin@greenfieldsoft.com
26-07-2018	DC1	Server	BOBIDEV.ABCD.com	Rack 6	S9	crane_admin@greenfieldsoft.com

The pending requests are submitted to the designated senior IT management for Approval.



Select	Requested On	Asset	Relocation Details		Requested By	Action	Reason	Request Id	Device Type
			Rack	Slot No					
<input checked="" type="checkbox"/>	26-07-2018	BOBIQA.ABC	Rack 6	S27	crane_admin	Approve	Reason 1	13	Server
<input checked="" type="checkbox"/>	26-07-2018	HP Store Easy	Rack 6	S39	crane_admin	Approve	Reason 1	14	Storage
<input checked="" type="checkbox"/>	26-07-2018	HP Storage\1	Rack 6	S1	crane_admin	Approve	Reason 1	15	Network
<input checked="" type="checkbox"/>	26-07-2018	BOBIDEV.AB	Rack 6	S9	crane_admin	Approve	Reason 1	16	Server

Work orders can be created for Approved requests and emailed to the assignee for execution on the DC floor.

Logs are recorded for each change carried out and records maintained for each IT asset during its entire life cycle until decommissioned. Similar workflows for 'Move Asset' or 'Decommission Asset' can be carried out based on day-to-day change management occurring within the data center

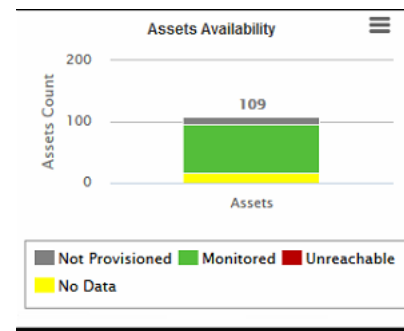
9. Asset-Related Dashboard Widgets:

GFS Crane DCIM offers a customizable widget-based dashboard where at a glance key KPIs can be viewed.

Asset Management KPIs would include: Rack Space Utilization, Floor Space Utilization, Asset Count and Aging Analysis.



Asset Availability:



Asset Count:

Category/Sub-category	Count
Storage	30
Panel	21
PDU	30
Server-Virtual	134
Sensor	16
Network	74
Other	19
Chassis	2
Cooling	4
UPS	3
Server	123

Finally, GFS Crane Asset Management provides the foundation for other DCIM functions – Device Monitoring, Capacity Planning and Impact Analysis.