

Introduction to Huawei Storage Planning and Design Tool (LLDesigner)

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 This course describes how to use LLDesigner, a Huawei storage planning and design tool, to plan and design enterprise storage, mass data storage, and edge data storage^[Note 1].

Note 1: LLDesigner supports the following storage products: OceanStor Dorado series, OceanStor converged storage series, OceanStor Pacific series, OceanStor 100D series, FusionStorage series, and FusionCube series.





- Upon completion of this course, you will be able to understand:
 - Enterprise storage planning and design
 - Mass data storage planning and design
 - Edge data storage planning and design





1. LLDesigner Overview

- 2. Enterprise Storage Planning and Design
- 3. Mass Data Storage Planning and Design
- 4. Edge Data Storage Planning and Design
- 5. Related Resources



LLDesigner Overview

LLDesigner provides functions such as hardware configuration, device networking, and resource provisioning to quickly complete product planning and design.





Wizard-based

Provides guidance for the entire process from networking to service planning.



Standardized

Provides a unified LLD file, simplifies project parameter configuration, and shortens the project planning and design duration by **90%**.

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Visualized



Provides Web-based hardware configuration,

device networking, and resource provisioning.

Automated

Quickly generates LLD files and offline configuration files. Basic service configuration is completed within **10 minutes**.



LLDesigner Overview

1 Three domains

- Enterprise storage
- Mass data storage
- Edge data storage

② Four creation modes

- Custom device
- > Adding disk enclosures
- BOQ import
- > Template

③ Use permission

- Huawei engineers
 (application not required)
- Partner engineers
- > Device users
- Partner users

		Cre	ate LLD Wit	hout a Tem	plate				
Enterprise Storage (OceanStor V3/V5	5 series, Dorado V3/DoradoV6 series)				 cl	oud Storage	e (OceanStor Pacific	:)	Hyper-converged Infrastruct
Customize Devices to Create LLD ielect hosts, switches, and storage devices to create the LLD. Video Guides Heip Documentation	Add Dick Enclosure Import the configuration informatio the storage device. Video Guides Help Documentatio	n of M	Import BOQ Import BOQ autor Video Guides	to Create LLD o create the LLD hatically. lelp Documentation	Fill i pro	Customize Dev n the template ject planning au Help Do	vices to Create LLD data and complete the nd design by one click. scumentation		Customize Devices to Create LLD Fill in the template data and complete project planning and design by one of Heip Documentation
		Cr	eate LLD Us	ing a Temp	late				
	Storage Product Active-Act	tive Data Center	Local HA	eo-Redundant	Active-Passive DR	Backup	OceanProtect		Template Li
Custom Multi-controller Scenario Combine devices and versions flexibly to generate networking video Guides	5500 V3 FC OceanSter 5500 V3(2'8Gb FC) D 853	5500 V5 FC OceanStor 5500) V5(2*8Gb FC)	18500 OceanS	V5 FC tor 18500 V5(4*8Gb FC	Hot	2200 V3 FC OceanStor 2200 V3(2*5 126	Smart IO)	
Custom Multi-controller Scenario Combine devices and versions flexibly to generate networking Video Guides Video Guides Dorado5000 V3 IP OceanStor Dorado5000 V3(IVMe/Co0/C01(2*10GE D 120	5500 V3 FC OceanStor 5500 V3(2*8Gb FC) ⊡ 653 2600 V3 FC OceanStor 2600 V3(2*8Gb FC) ⊡ 95	5500 V5 FC OceanStor 550(289 6800 V3 FC OceanStor 680(FC+4*120b SA D 92) V5(2*8Gb FC)) V3(4*GE+4*8Gb S)	Kt 18500 OceanS ⊡ 175 5300 V OceanS □ 77	V5 FC tor 18500 V5(4*8Gb FC 3 FC tor 5300 V3(2*8Gb FC))	2200 V3 FC OceanStor 2200 V3(2*5 126 More Storage Product	Smart IO)	
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1. LLDesigner Overview

2. Enterprise Storage Planning and Design

- 3. Mass Data Storage Planning and Design
- 4. Edge Data Storage Planning and Design
- 5. Related Resources





Enterprise Storage Planning and Design

For enterprise storage, LLDesigner covers four scenarios: directly creating LLD, creating LLD by importing a BOQ, creating active-active LLD, and creating multi-controller LLD.





Enterprise Storage Planning and Design > Directly Creating LLD

Users can flexibly select devices, such as hosts, switches, and storage devices, to create LLD.

Procedure



Туре	Supported Models
Storage	OceanStor Dorado: V3 and V6 series OceanStor converged storage: V3 and V5 series OceanProtect: A and X series
Switch	FC, IP, and PCIe
Host	Linux, Windows, Solaris, HP-UX, AIX, XenServer, Mac OS, VMware ESX, and Windows Server 2012

Key functions:

- 1. Hardware configuration: networking planning, cabinet planning, host configuration, and VLAN planning
- 2. Resource provisioning: creating storage pools and resource pools
- 3. Mapping view: creating mapping views

LLDesigner / Directly Cr	eate								
Hardware Configuration	Resource	Provisio	ning N	Mapping V	ïew				
	<mark>៧០</mark> Netwo	rk Planning	g > ⊟ C	abinet Planni	ing > 🗄	Host Cor	figuratio	n > 🔛 Vl	AN Planning
	J E	lit The Mul	ti-Controlle	er Cascading	Template	+	• Edit Th	e Site	+
Resource Type You can drag the following icons to the						0 (Custom Li	nux Host	
anvas on the right to plan the network.	+	+	+	+	+		+	+	+
itorage									
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+SSD- +SSD- +SSD-							\square		
Dorado Dorado OceanProtect V3 V6	+	+	+	+		+//	+ Protect A	+ 8000-1	+
witch									





Enterprise Storage Planning and Design > Creating LLD by Importing a BOQ

A BOQ is imported to automatically create LLD.

Procedure





HUAWE

Enterprise Storage Planning and Design > Creating Active-Active LLD Using a Template

Users can flexibly specify device and network parameters and networking diagrams are automatically generated.

Procedure



- host configuration, and VLAN planning2. Resource provisioning: creating storage pools and resource pools
- 3. Mapping view: creating mapping views
- 4. Advanced configuration: HyperMetro domain configuration



Enterprise Storage Planning and Design > Creating Multi-Controller LLD Using a Template

Users can flexibly select devices and versions and networking diagrams are automatically generated.

Procedure Multi-controller Project LLD Cabinet Host Resource Mapping \Rightarrow \Rightarrow cascading template configuration creation provisioning planning view export selection eService **Key functions:** Multi-Controller Cascading LLDesigner 1. Hardware configuration: networking Mapping View Hardware Configuration Resource Provisioning planning, cabinet planning, and host 📲 Network Planning > 🗄 Cabinet Planning > 🗟 Host Configuration configuration Edit The Multi-Controller Cascading Template Edit The Site Resource Type 2. Resource provisioning: creating storage the following icons to the anvas on the right to plan the network pools and resource pools Storage001 IP_Switch000 Storage000 3. Mapping view: creating mapping views







- 1. LLDesigner Overview
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- 3. Mass Data Storage Planning and Design
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After setting template parameters, you can quickly complete project planning and design. You do not need to manually add devices, insert cards, or connect cables.

Mass data storage product versions and functions supported by LLDesigner

Function	Product Version	FusionStorage 8.0.0	OceanStor 100D 8.0.3	OceanStor Pacific Series 8.1.0	OceanStor Pacific Series 8.1.1
	Network planning	\checkmark	\checkmark	\checkmark	\checkmark
	Cabinet planning	\checkmark	\checkmark	\checkmark	\checkmark
Hardware configuration	Host configuration	\checkmark	\checkmark		
eeg	Storage configuration			\checkmark	\checkmark
	Domain name planning		\checkmark		
	Port bonding/VLAN planning			\checkmark	\checkmark
Network	Control cluster creation			\checkmark	\checkmark
configuration	Routing policy planning			\checkmark	\checkmark
	Data cluster creation			\checkmark	
Resource	Storage pool creation				\checkmark
provisioning	Disk pool creation			\checkmark	\checkmark



OceanStor Pacific series 8.1.1 is used as an example to describe how to use LLDesigner.

Procedure



Supported scenarios:

- File service (DPC scenario)
- File/Object/HDFS service (standard protocol scenario)
- DPC and standard protocol hybrid scenario

eService			
Designer / OceanSt	or Pacific 8.1.1 (File/	Object/HDFS Service)	
Sub-scenario Sile Service (DPC Sci	enario)	 File/Object/HDFS Services (Standard Proto Scenario) 	col OPC and Standard Protocol Hybrid Scenario
Network Configuratio	n		
Cluster Information			
* Cluster name:		* Floating IP address of DeviceManager: (?)	
* Whether the management and external networks are	internal 🦳 yes 🧿 no isolated:		





OceanStor Pacific 8.1.1 series: DPC scenario



Networking diagram

Storage/Management node:

- 1. Front-end storage network: Two ports are used. If the IB protocol is used and the ports are bonded, configure one front-end storage network IP address.
- 2. Back-end storage network: Two ports are used. Configure two back-end storage network IP addresses.

Data cluster module (only for OceanStor Pacific 9950):

3. Each OceanStor Pacific 9950 device has two data cluster modules. Each data cluster module provides one management network port to connect to the BMC network.

Designer Oceansto	r Pacific 811 (File/Object							
	Pacific 8.1.1 (File/Object	(HDFS Service)						
Sub-scenario File Service (DPC Scen	ario)	 File/Object/HDFS HCSO Scenario) 	Services (Stand	lard Protocol	or OPC and Standard P	rotocol Hybrid Scenario		
Network Configuration								
Cluster Information								
Cluster name:		* Floating IP address of DeviceManager: (7)						
Whether the management int and external networks are iso	ternal i yes 🔵 no olated:							
Subnet Information ③	Add Subnet							
Subnet 1								
Example								
* Whether the managemer are independent switcher	nt and BMC 💿 yes 🔵 no s:							
* Node Type: ⑦	OceanStor Parific 9550	* Number of Nodes(2-	4					
		24): 🕐						
* Main Storage Type: 🕜	6TB 7.2K RPM SATA (🔻	* Number of main storage devices(36-	36		* Cache Type: 🕥	800GB SSD NVMe 🔻	* Cache quantity: 🕜 4	
Add Node Type		60): (7)						
* Network planes support IPv	4 (172.16.8.1 for example) and IPv6	(fc00:1234 for example) addr	esses. A network	plane must be	configured with the same type of IP addr	esses. If you specify Mask, IPv4 addresses	must be configured. If you specify Prefix, IPv6 addresses mus	it be
Network Plane	VLAN ID			Gateway		Mask/Prefix	Start IP Address	
BMC Plane						255,255.0.0		
Management Plane						255.255.0.0		
Management Plane Storage Front-End Plane						255.255.0.0		
Management Plane Storage Front-End Plane						255255.0.0 255255.0.0 255255.0.0		
Management Plane Storage Front-End Plane Back-end storage plane						255.255.0.0 255.255.0.0 255.255.0.0		
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Management Plane Storage Front-End Plane Back-end storage plane Networking information Whether the front-end and acak-and planes of storage reseparated: Wull-to backend:) yes () no	* Back-and Network Type: [25GE 100Gb IB		Transmission protocol for the back-en- plane of storage: "Transmission protocol for the front-en- plane of storage:	255.255.00 255.255.00 d RDMA over Converge * d Infinitand *	* Back-end switch model: CE6865-4858CQ- * Front-end switch model: SE7800	Ð
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Previous



OceanStor Pacific 8.1.1 series: standard protocol scenario



Storage/Management node:

- 1. Storage network: Two ports are used. Configure two storage network IP addresses.
- Control network: Configure one floating IP address for storage ports for the control network. The control network and the storage network cannot belong to the same subnet.
 Data cluster module (only for OceanStor Pacific 9950):
- 3. Each OceanStor Pacific 9950 device has two data cluster modules. Each data cluster module provides one management network port to connect to the BMC network.

eService						8 s300104
Designer / OceanStor Pacific 8.1.1 (File/Object/	HDFS Service)					
ub-scenario File Service (DPC Scenario)	 File/Object/HDFS Services (Sta HCSO Scenario) 	andard Protocol or	DPC and Standard Protocol	Hybrid Scenario		
letwork Configuration						
luster Information						
Cluster name:	* Floating IP address of DeviceManager: ⑦					
Whether the management internal yes O no and external networks are isolated:						
ubnet Information ⑦ Add Subnet						
ubnet 1						
Example * Whether the management and BMC are independent switches:						
* Node Type: 1 OceanStor Pacific 9550 💌	* Number of Nodes(2- 24); ②					
* Main Storage Type: ⑦ 6TB 7.2K RPM SATA (🔻	* Number of main storage devices(36-	* 0	lache Type: 🕜 80	0GB SSD NVMe 👻 * Cache qui	antity: ⑦ 4	
Add Node Type * Network planes support IPv4 (172:16.8.1 for example) and IPv6 (configured.	ic00:1234 for example) addresses. A netwo	ork plane must be configured with t	he same type of IP addresses. If	you specify Mask, IPv4 addresses must be con	figured. If you specify Prefix, IPv6 addresse	s must be
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DL40 DL					Jusic IP Address	
BMC Mane			255.2	255.0.0		
Management Plane			255.2	155.0.0		
BINL Plane Management Plane Storage Plane			255.2	155.00 155.00		
Management Plane			255.2 255.2 255.2 255.2 255.2	5500 5500 5500		
Management Plane			255.2 255.2 255.2 255.2	55.00 55.00 55.00 55.00		
Amagement Plane	* Storage Networking Model 25GE	· · · · · · · · · · · · · · · · · · ·	255.1 255.2 255.2 255.2 255.2 255.2 * Storage Transfer Protocot.	55.0.0 55.0.0 55.0.0 RDMA over Converge •	Storage Switch Model CE6865-485	8CQ-EI V
Management Plane	* Storage Networking Model 25GE * Storage Networking Type: 10GE	· · · · · · · · · · · · · · · · · · ·	255.1 255.2 255.2 255.2 ' Storage Transfer Protocol: Service Transmission Protocol:	55.0.0 555.0.0 555.0.0 555.0.0 RDMA over Converge * TCP	Storage Switch Model CE6665-485 Service Switch Model CE6665-485	8CQ-EI ¥
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OceanStor Pacific 8.1.1 series: DPC and standard protocol hybrid scenario



Networking diagram

Storage/Management node:

- 1. Front-end storage network: Two ports are used. Configure one front-end storage network IP address when the ports are bonded.
- 2. Back-end storage network: Two ports are used. Configure two back-end storage network IP addresses.

Data cluster module (only for OceanStor Pacific 9950):

3. Each OceanStor Pacific 9950 device has two data cluster modules. Each data cluster module provides one management network port to connect to the BMC network.

esigner / OceanStor Pacific 811 (File/Object/	HDES Service)						<u>(8</u>) s30
b-scenario) File Service (DPC Scenario)	 File/Object/HDFS S HCSO Scenario) 	ervices (Stand	dard Protocol	or OPC and Standard	Protocol Hybrid Scenario		
etwork Configuration							
uster Information							
uster name:	* Floating IP address of DeviceManager: ⑦						
hether the management internal yes O no nd external networks are isolated:							
bnet Information ③ Add Subnet							
bnet 1							
Example							
Whether the management and BMC are independent switches:							
* Node Type: ⑦ OceanStor Pacific 9550 🔻	* Number of Nodes(2- 24): (9)	4					
* Main Storage Type: 🕜 6TB 7.2K RPM SATA (🔻	* Number of main storage devices(36-	36		* Cache Type: 🕐	800GB SSD NVMe 👻	Cache quantity: 🕐 👍	
Add Node Type	60): 🕐						
Network planes support IPv4 (172.16.8.1 for example) and IPv6 (anfigured.	fc00::1234 for example) addre:	sses. A network	plane must be	configured with the same type of IP add	Iresses. If you specify Mask, IPv4 addresses mu	st be configured. If you specify Prefix, IPv6 addresses	must be
Network planes support IPv4 (172.16.8.1 for example) and IPv6 (onfigured. Network Plane VLAN ID	fc00::1234 for example) addre:	sses. A network	plane must be Gateway	configured with the same type of IP add	dresses. If you specify Mask, IPv4 addresses mu Mask/Prefix	st be configured. If you specify Prefix, IPv6 addresses Start IP Address	must be
Network Planes support IPv4 (172.16.8.1 for example) and IPv6 (onfigured). Network Plane VLAN ID BMC Plane	fc00::1234 for example) addre.	isses. A network	glane must be Gateway	configured with the same type of IP add	Iresses. If you specify Mask, IPv4 addresses mu Mask/Prefix 255.255.0.0	st be configured. If you specify Prefix, IPv6 addresses Start IP Address	must be
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- 1. LLDesigner Overview
- 2. Enterprise Storage Planning and Design
- 3. Mass Data Storage Planning and Design

4. Edge Data Storage Planning and Design

5. Related Resources



Edge Data Storage Planning and Design

Users can fill in template data to complete project planning and design in one-click mode.

Edge data storage product versions and functions supported by LLDesigner

Function	Product Version	FusionCube 1000 (Hypervisor/Data V6.0)	FusionCube 1000 (Cabinet V6.0)	FusionCube 1000 (Cabinet V8.0)
	Network planning	\checkmark	\checkmark	\checkmark
Hardware configuration/ Engineering design	Cabinet planning	\checkmark	\checkmark	\checkmark
	Host configuration	\checkmark		
	Naming rules		\checkmark	\checkmark
Central site configuration	Central site configuration		\checkmark	\checkmark
	IP/VLAN resource provisioning		\checkmark	\checkmark
Network resource	Stack design		\checkmark	\checkmark
configuration	Static route		\checkmark	\checkmark
	IPsec configuration		\checkmark	\checkmark
	Checklist		\checkmark	\checkmark
	Storage resource planning		1	\checkmark
Storage resource configuration	Mapping view planning		1	√
, , , , , , , , , , , , , , , , , , ,	Datastore configuration		1	λ

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Edge Data Storage Planning and Design

FusionCube 1000 (Hypervisor/Data V6.0) is used as an example to describe how to use LLDesigner.

Procedure



Node description:

- 1. MCNA: provides management functions. One or two MCNAs can be deployed.
- 2. SNA: provides storage functions. Three or more SNAs can be deployed.
- 3. DBN: provides database functions. One or more DBNs can be deployed.

Node Type	Server Type		Quantity
Management Computing Node Agent	1288H V5	•	Num
Storage Node Agent	2288H V5	•	Num
Database Node	1288H V5	-	Num







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Related Resources

• LLDesigner URL:

http://eservice-IId.huawei.com/#/IId/overview

• LLDesigner online help:

http://eservice-Ild.huawei.com/help/en/index.html

• LLDesigner permission application email:

eservice@huawei.com

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