



# **Manage iSCSI connections**

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# Manage iSCSI connections

## View iSCSI statistics packages

You can view data about the iSCSI connections to your storage array.

### About this task

System Manager shows these types of iSCSI statistics. All statistics are read-only and cannot be set.

- **Ethernet MAC statistics** — Provides statistics for the media access control (MAC). MAC also provides an addressing mechanism called the physical address or the MAC address. The MAC address is a unique address that is assigned to each network adapter. The MAC address helps deliver data packets to a destination within the subnet.
- **Ethernet TCP/IP statistics** — Provides statistics for the TCP/IP, which is the Transmission Control Protocol (TCP) and Internet Protocol (IP) for the iSCSI device. With TCP, applications on networked hosts can create connections to one another, over which they can exchange data in packets. The IP is a data-oriented protocol that communicates data across a packet-switched inter-network. The IPv4 statistics and the IPv6 statistics are shown separately.
- **Local Target/Initiator (Protocol) statistics** — Shows statistics for the iSCSI target, which provides block level access to its storage media, and shows the iSCSI statistics for the storage array when used as an initiator in asynchronous mirroring operations.
- **DCBX Operational States statistics** — Displays the operational states of the various Data Center Bridging Exchange (DCBX) features.
- **LLDP TLV statistics** — Displays the Link Layer Discovery Protocol (LLDP) Type Length Value (TLV) statistics.
- **DCBX TLV statistics** — Displays the information that identifies the storage array host ports in a Data Center Bridging (DCB) environment. This information is shared with network peers for identification and capability purposes.

You can view each of these statistics as raw statistics or as baseline statistics. Raw statistics are all of the statistics that have been gathered since the controllers were started. Baseline statistics are point-in-time statistics that have been gathered since you set the baseline time.

### Steps

1. Select **Support > Support Center > Diagnostics** tab.
2. Select **View iSCSI Statistics Packages**.
3. Click a tab to view the different sets of statistics.
4. To set the baseline, click **Set new baseline**.

Setting the baseline sets a new starting point for the collection of the statistics. The same baseline is used for all iSCSI statistics.

## View the different types of iSCSI statistics

You can review different sets of statistics as either raw or baseline statistics: Ethernet MAC statistics, Ethernet TCP/IP statistics, Target (protocol) statistics, Local initiator (protocol) statistics, DCBX operational state statistics, LLDP TLV statistics, and DCBX

TLV statistics.

## MAC transmit and MAC receive statistics

When you select Ethernet MAC statistics, these MAC transmit statistics appear. You can view each of these statistics as raw statistics or as baseline statistics.

Statistic	Definition
F	Frame count
B	Byte count
MF	Multicast frame count
BF	Broadcast frame count
PF	Pause frame count
CF	Control frame count
FDF	Frame deferral count
FED	Frame excess deferral count
FLC	Frame late collisions count
FA	Frame abort count
FSC	Frame single collision count
FMC	Frame multiple collisions count
FC	Frame collision count
FDR	Frame dropped count
JF	Jumbo frame count

When you select Ethernet MAC statistics, these MAC receive statistics appear.

Statistic	Definition
F	Frame count
B	Byte count

Statistic	Definition
MF	Multicast frame count
BF	Broadcast frame count
PF	Pause frame count
CF	Control frame count
FLE	Frame length error count
FD	Frame dropped count
FCRCE	Frame CRC error count
FEE	Frame encoding error count
LFE	Large frame error count
SFE	Small frame error count
J	Jabber count
UCC	Unknown control frame count
CSE	Carrier sense error count

## Ethernet TCP/IP statistics

When you select Ethernet TCP/IP statistics, the TCP statistics in this table appear. You can view each of these statistics as raw statistics or as baseline statistics.

Statistic	Definition
TxS	Transmitted segment count
TxB	Transmitted byte count
RTxTE	Retransmit timer expired count
TxDACK	Transmit delayed ACK count
TxACK	Transmit ACK count

Statistic	Definition
RxS	Received segment count
RxB	Received byte count
RxDACK	Received duplicate ACK count
RxACK	Received ACK count
RxSEC	Received segment error count
RxSOOC	Received segment out-of-order count
RxWP	Received window probe count
RxWU	Received window update count

When you select Ethernet TCP/IP statistics, the IP statistics in this table appear.

Statistic	Definition
TxP	Transmitted packet count
TxB	Transmitted byte count
TxF	Transmitted fragment count
RxP	Packets received count. Select <b>Show IPv4</b> to show the IPv4 packets received count. Select <b>Show IPv6</b> to show the IPv6 packets received count.
RxB	Received byte count
RxF	Received fragment count
RxPE	Received packet error count
DR	Datagram reassembly count
DRE-OLFC	Datagram reassembly error, overlapped fragment count
DRE-OOFC	Datagram reassembly error, out-of-order fragment count

Statistic	Definition
DRE-TOC	Datagram reassembly error, time-out count

## iSCSI target statistics and local initiator statistics

When you select Target (protocol) statistics or Local initiator (protocol) statistics, the following statistics are shown. You can view each of these statistics as raw statistics or as baseline statistics.

Statistic	Definition
SL	Successful iSCSI login count
UL	Unsuccessful iSCSI login count
SA	Successful iSCSI authentication count (when authentication is enabled)
UA	Unsuccessful iSCSI authentication count (when authentication is enabled)
PDU	Correct iSCSI PDUs processed count
HDE	iSCSI PDUs with header digest errors count
DDE	iSCSI PDUs with data digest errors count
PE	PDUs with iSCSI protocol errors count
UST	Unexpected iSCSI session terminations count
UCT	Unexpected iSCSI connection termination count

## DCBX operational state statistics

When you select Data Center Bridging Exchange (DCBX) Operational State Statistics, these statistics appear.

Statistic	Definition
iSCSI Host Port	Indicates the location of the detected host port in Controller #, Port # format.
Priority Group	Indicates the operational state of the Priority Group (PG) application. The state is either Enabled or Disabled.

Statistic	Definition
Priority-based Flow Control	Indicates the operational state of the Priority-based Flow Control (PFC) feature. The state is either Enabled or Disabled.
iSCSI Feature	Indicates the operational state of the Internet Small Computer System Interface (iSCSI) application. The state is either Enabled or Disabled.
FCoE Bandwidth	Indicates the state of the Fibre Channel over Ethernet (FCoE) Bandwidth. The state is either True or False.
No FCoE/FIP Map Mismatch	Indicates whether a map mismatch exists between FCoE and FCoE Initialization Protocol (FIP). The value is either True or False.

You can find additional DCBX operational state statistics in the state capture file.

## LLDP TLV statistics

When you select Link Layer Discovery Protocol (LLDP) Type Length Value (TLV) Statistics, these statistics appear. Two sets of statistics appear: one for the local device and one for the remote device. The local device refers to the controller. The remote device refers to the peer device that the controller is attached to, typically a switch.

Statistic	Definition
iSCSI Host Port	Indicates the location of the detected host port in Controller #, Port # format.
Chassis ID	Indicates the chassis ID.
Chassis ID Subtype	Indicates the chassis ID subtype.
Port ID	Indicates the port ID.
Port ID Subtype	Indicates the port ID subtype.
Time to Live	Indicates the number of seconds that the recipient LLDP agent considers the information to be valid.

You can find additional LLDP TLV statistics in the state capture file.

## DCBX TLV statistics

When you select Data Center Bridging Exchange (DCBX) Type Length Value (TLV) Statistics, these statistics appear:



- **Local statistics** — The DCBX parameters configured on the controller at the factory.
- **Operational statistics** — The DCBX parameters that result from DCBX negotiations.
- **Remote statistics** — The DCBX parameters from the peer device that the controller is connected to, typically a switch.

Statistic	Definition
iSCSI Host Port	Indicates the location of the detected host port in Controller #, Port # format.
Flow Control Mode	The Flow Control Mode of the entire port. Valid values are Disabled, Standard, Per Priority, or Indeterminate.
Protocol	The communication protocol. Valid values are FCoE, FIP, iSCSI, or UNKNOWN.
Priority	Integer value indicating the priority number of the communication.
Priority Group	Integer value representing the priority group to which the protocol has been assigned.
Priority Group % Bandwidth	Percentage value indicating the amount of bandwidth allocated to the priority group.
DCBX PFC Status	Priority-based Flow Control (PFC) status of the specific port. The value is either enabled or disabled.

You can find additional DCBX TLV statistics in the state capture file.

## View iSCSI sessions

You can view detailed information about the iSCSI connections to your storage array. iSCSI sessions can occur with hosts or remote storage arrays in an asynchronous mirror relationship.

### Steps

1. Select **Support > Support Center > Diagnostics** tab.
2. Select **View/End iSCSI Sessions**.

A list of the current iSCSI sessions appears.

3. To see additional information about a specific iSCSI session, select a session, and then click **View Details**.

## Field Details

Item	Description
Session Identifier (SSID)	A hexadecimal string that identifies a session between an iSCSI initiator and an iSCSI target. The SSID is composed of the ISID and the TPGT.
Initiator Session ID (ISID)	The initiator part of the session identifier. The initiator specifies the ISID during login.
Target Portal Group	The iSCSI target.
Target Portal Group Tag (TPGT)	The target part of the session identifier. A 16-bit numerical identifier for an iSCSI target portal group.
Initiator iSCSI name	The worldwide unique name of the initiator.
Initiator iSCSI label	The user label set in System Manager.
Initiator iSCSI alias	A name that also can be associated with an iSCSI node. The alias allows an organization to associate a user-friendly string with the iSCSI name. However, the alias is not a substitute for the iSCSI name. The initiator iSCSI alias only can be set at the host, not in System Manager
Host	A server that sends input and output to the storage array.
Connection ID (CID)	A unique name for a connection within the session between the initiator and the target. The initiator generates this ID and presents it to the target during login requests. The connection ID is also presented during logouts that close connections.
Ethernet port identifier	The controller port associated with the connection.
Initiator IP address	The IP address of the initiator.
Negotiated login parameters	The parameters that are transacted during the login of the iSCSI session.
Authentication method	The technique to authenticate users who want access to the iSCSI network. Valid values are <b>CHAP</b> and <b>None</b> .
Header digest method	The technique to show possible header values for the iSCSI session. HeaderDigest and DataDigest can be either <b>None</b> or <b>CRC32C</b> . The default value for both is <b>None</b> .
Data digest method	The technique to show possible data values for the iSCSI session. HeaderDigest and DataDigest can be either <b>None</b> or <b>CRC32C</b> . The default value for both is <b>None</b> .

Item	Description
Maximum connections	The greatest number of connections allowed for the iSCSI session. The maximum number of connections can be 1 through 4. The default value is <b>1</b> .
Target alias	The label associated with the target.
Initiator alias	The label associated with the initiator.
Target IP address	The IP address of the target for the iSCSI session. DNS names are not supported.
Initial R2T	The initial ready to transfer status. The status can be either <b>Yes</b> or <b>No</b> .
Maximum burst length	The maximum SCSI payload in bytes for this iSCSI session. The maximum burst length can be from 512 to 262,144 (256 KB). The default value is <b>262,144 (256 KB)</b> .
First burst length	The SCSI payload in bytes for unsolicited data for this iSCSI session. The first burst length can be from 512 to 131,072 (128 KB). The default value is <b>65,536 (64 KB)</b> .
Default time to wait	The minimum number of seconds to wait before you attempt to make a connection after a connection termination or a connection reset. The default time to wait value can be from 0 to 3600. The default is <b>2</b> .
Default time to retain	The maximum number of seconds that connection is still possible following a connection termination or a connection reset. The default time to retain can be from 0 to 3600. The default value is <b>20</b> .
Maximum outstanding R2T	The maximum number of "ready to transfers" outstanding for this iSCSI session. The maximum outstanding ready to transfer value can be from 1 to 16. The default is <b>1</b> .
Error recovery level	The level of error recovery for this iSCSI session. The error recovery level value is always set to <b>0</b> .
Maximum receive data segment length	The maximum amount of data that either the initiator or the target can receive in any iSCSI payload data unit (PDU).
Target name	The official name of the target (not the alias). The target name with the <i>iqn</i> format.
Initiator name	The official name of the initiator (not the alias). The initiator name that uses either the <i>iqn</i> or <i>eui</i> format.

4. To save the report to a file, click **Save**.

The file is saved in the Downloads folder for your browser with the filename `iscsi-session-connections.txt`.

## End iSCSI session

You can end an iSCSI session that is no longer needed. iSCSI sessions can occur with hosts or remote storage arrays in an asynchronous mirror relationship.

### About this task

You might want to end an iSCSI session for these reasons:

- **Unauthorized access** — If an iSCSI initiator is logged on and should not have access, you can end the iSCSI session to force the iSCSI initiator off the storage array. The iSCSI initiator could have logged on because the None authentication method was available.
- **System downtime** — If you need to take down a storage array and you see that iSCSI initiators are still logged on, you can end the iSCSI sessions to get the iSCSI initiators off the storage array.

### Steps

1. Select **Support > Support Center > Diagnostics** tab.
2. Select **View/End iSCSI Sessions**.

A list of the current iSCSI sessions appears.

3. Select the session that you want to end.
4. Click **End Session**, and confirm that you want to perform the operation.

## View iSER over InfiniBand statistics

If your storage array's controller includes an iSER over InfiniBand port, you can view data about the host connections.

### About this task

System Manager shows the following types of iSER over InfiniBand statistics. All statistics are read-only and cannot be set.

- **Local Target (Protocol) statistics** — Provides statistics for the iSER over InfiniBand target, which shows block-level access to its storage media.
- **iSER over InfiniBand Interface statistics** — Provides statistics for all iSER ports on the InfiniBand interface, which includes performance statistics and link error information associated with each switch port.

You can view each of these statistics as raw statistics or as baseline statistics. Raw statistics are all of the statistics that have been gathered since the controllers were started. Baseline statistics are point-in-time statistics that have been gathered since you set the baseline time.

### Steps

1. Select **Support > Support Center > Diagnostics** tab.

2. Select **View iSER over InfiniBand Statistics**.
3. Click a tab to view the different sets of statistics.
4. To set the baseline, click **Set new baseline**.

Setting the baseline sets a new starting point for the collection of the statistics. The same baseline is used for all iSER over InfiniBand statistics.

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