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# Storage information in the Site Status Board

This page explains the information published in the SSB [via](#) a specialized view called 'storage'.

First of all, a Data Service query [returning](#) all PhEDEx nodes is used to:

- find all nodes in a site
- the SE for each node

Second, the BDII is queried, and for all Storage Areas supporting CMS in a given PhEDEx site we sum up the following attributes:

- GlueSATotalOnlineSize
- GlueSAFreeOnlineSize
- GlueSAUsedOnlineSize
- GlueSATotalNearlineSize
- GlueSAFreeNearlineSize
- GlueSAUsedNearlineSize
- InstalledOnlineCapacity
- InstalledNearlineCapacity

The used space should measure the amount of storage capacity in use, while the free space is defined as the total capacity minus the used capacity. The total space is the same as the installed capacity only if all disk servers are up.

Third, for each site with PhEDEx nodes, we use queries like

```
https://cmsweb.cern.ch/phedex/datasvc/xml/prod/nodeusage?node=$node
```

to extract these parameters:

- cust\_node\_bytes
- cust\_dest\_bytes
- noncust\_dest\_bytes
- noncust\_node\_bytes

and define

```
incoming      = cust_dest_bytes + noncust_dest_bytes - cust_node_bytes - noncust_node_bytes
custodial     = cust_node_bytes
non_custodial = noncust_node_bytes
```

The following table summarizes all columns in the SSB and describes when a value is marked red (meaning an error condition)

Column name	Definition	Red when	Yellow when
Custodial (TB)	PhEDEx custodial data		
Non-Custodial (TB)	PhEDEx non-custodial data		
Incoming (TB)	Subscribed data not on site		
Disk pledge (TB)	Pledged disk resources from SiteDB (TB)	> 1 year old	> 1 quarter old
Installed disk (TB)	Installed Online capacity from BDII	< 10 TB or no info	$2 * \text{abs}(\text{installed} - \text{total}) / (\text{installed} + \text{total}) > 10\%$
Total disk (TB)	Total disk from BDII	< 10 TB or no info	$\text{abs}(\text{total} - \text{used} - \text{free}) > 10\%$
Used disk (TB)	Total used disk from BDII	< 1 TB or no info	

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Free disk (TB)	Total free disk from BDII	< 10 TB or no info	
Tape pledge (TB)	Pledged tape resources from SiteDB (TB)	> 1 year old	> 1 quarter old
Installed tape (TB)	Installed Nearline capacity from BDII	tier-0/1 and < 10 TB or no info	$2 * \text{abs}(\text{installed} - \text{total}) / (\text{installed} + \text{total}) > 10\%$
Total tape (TB)	Total tape from BDII	tier-0/1 and < 10 TB or no info	$\text{abs}(\text{total} - \text{used} - \text{free}) > 10\%$
Used tape (TB)	Total used tape from BDII	tier-0/1 and < 1 TB or no info	
Free tape (TB)	Total free tape from BDII	tier-0/1 and < 10 TB or no info	

-- AndreaSciaba - 04-Oct-2011

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