CMS Web Tools
An Admin Guide

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Last Updated
(5/15/13)

While the Health Monitor put in place will do all of the health-checking of Brazos for us, sometimes it is necessary to confirm/veto what the monitoring is reporting, on a case-by-case basis. This may involve logging into hurr.tamu.edu and checking files, directories, and datasets. But more often than not (low-quality load tests, misreporting of datasets between the monitor and PhEDEx), you will be required, as an administrator, to utilize the online CMS Web tools webpage to assess the state of Brazos, as well as the state of other T1's/T2's/T3's worldwide.

This guide is intended to give you a quick, but thorough, overview of the main systems you'll be utilizing within CMS Web Tools: datasets and load tests (PhEDEx), job status/overall Tier status (Dashboard), and general site administration information (SiteDB). To access all of these webpages, you'll need a valid certificate. For more info, please see here.

To access the CMS Web Tools, you will need to go here: cmsweb.cern.ch. Once there, you'll see many links, but only three that you'll really need to worry about. They are:

- PhEDEx – bulk transfer: this is where you'll go to approve/disapprove the transfer of datasets once assessing that there's enough space on Brazos (also assess the output necessary by the user, make sure it won't take too much space); verify how many datasets there currently are on Brazos, and which dataset belongs to whom; inspect the quality of load-test transfers to/from T3_US_TAMU.
- Dashboard: this is where you'll go to see the status of jobs either submitted by yourself (CATS tests) or by other users; verify the overall status of all of the Tier sites worldwide by verifying the quality of the SAM/SUM tests.
- Site information – SiteDB: this is a general database of every Tier site worldwide. You will need to have your certificate loaded into the database to become a PhEDEx manager.

PhEDEx

This website is the repository of all dataset/load test knowledge in the CMS Tier system. At
the PhEDEx website, you'll keep track of the datasets subscribed to T3_US_TAMU and by whom, as well as check on load-test transfer quality, and approve/disapprove transfer requests, among possibly many other tasks.

- **Dataset management**: once at the PhEDEx website, click on “Data” on the top-left corner of the webpage. A sort-of drop-down menu will appear; there, click on “Subscriptions”. Once at “Subscriptions”, click on the “Show options” button and select “Select data”. On “Select data”, scroll down all the nodes/Tiers and select T3_US_TAMU. Scroll down across all the options, without altering, and select “forever” for the option “Created since”; hit apply. A list of all of the datasets and/or blocks that are currently at Brazos will appear. Clicking on the request number (hyperlinks) will take you to the actual request report, which will give you information on the requester as well as the size the dataset. Keep in mind that this is in terabytes/gigabytes (TB/GB), as opposed to the way Brazos presents the information (for example, du -h), which is in tebibytes/gibibytes (TiB/GiB). The monitoring makes it explicit that the information is in TiB/GiB. The actual list will also have this node bytes information, as well as the date of creation.

- **Load-test transfer quality**: by default, the PhEDEx website is in “production” mode. This is evident if you look at the top-right portion of the website, where you can see your name, as well as a message that should say “logged in via Certificate”. Above this, it’ll say “DB Instance: Production”. Click on the right-hand arrow right next to this, and select “Debug”. “Production” is for datasets and “Debug” is for load tests (for example, the following information, if left under “Production”, would give you dataset transfer quality information). Once under “Debug”, go to the general menu and click on “Activity”. On the drop-down menu that appears after, click on “Quality plots”. On this webpage, you'll automatically see a plot that you can manipulate given the inputs above it. You probably want to always leave the “Graph” setting to “Quality Map”. The option that is always set to “Destination” by default just changes what kind of values you'll get on the y-axis (if set on “Destination”, you'll get on the y-axis all the sites that RECEIVE load tests – x-axis is always set to time). The following two “filter” options work irrespective of which setting (“Destination” or “Source”, typically) you choose. “Source” will let you filter the plot based on those sites that SEND load tests, and “destination” lets you filter based on sites that RECEIVE load tests. Finally, “Period” lets you alter the range of the x-axis – there are a variety of options, such as last 96 hours, last 12 hours, last 7 days, etc. As a quick example, If you wished to see a plot showing the quality of all transfers received by all possible US Tier3 sites from T2_US MIT ONLY during the last 24 hours, you would select the “Destination” option right next to the “Graph” option, write “T2_US_MIT” on the “destination” option, write “T3_US_**” on the “source” option (here, * is the wildcard character, just like in a Linux/UNIX terminal), and finally select “Last 24 hours” on the “Period” selection. You should get a plot with these settings.

- **Dataset Approval/Disapproval**: instructions on how to request datasets, mainly intended for users wishing to do CMS analysis, can be found here. Once requested, you will receive an email on your CERN account (this isn't an actual email so much as a pointer – when getting your CERN account, you should make sure your CERN email
points to your TAMU email, or some other that you check with frequency). Inside this, you will find a link that will take you to the main request page, where you, as an administrator, will have three options: approve, disapprove, or do nothing. You will also have a comment box, for optional comments if you so choose. To get here from the main webpage, select “Requests” from the main menu. Once at the “Overview” webpage, scroll down until you find the block for T3_US_TAMU. You'll see two rows, “delete” and “xfer”. For each, you’ll see three options: pend (pending), appr (approved), and dis (disapproved). Each is hyperlinked – clicking on each will take you to the transfer request webpage described above.

**Dashboard**

Dashboard is the go-to website when you want to see the health of a Tier site, as well as the overall performance of jobs across the grid. It also has some useful links, like for reporting Dashboard errors and the like. You'll mainly be using Dashboard to verify the above: to see how well your CATS jobs, as well as any other jobs, are doing, and to check, via SAM/SUM tests, how well T3_US_TAMU is doing (and also in comparison with other sites; this is a good indicator of if the failures are due to Brazos or Grid-related).

- **Job performance:** to verify job statuses, once on the main Dashboard webpage, click on the link that says “Task monitoring for the analysis users”. Once at the task monitoring webpage, from the top-left scroll-down menu, select your user name (or that of whomever you wish to check upon). Once you've selected your username, you'll see a table with a variety of columns. The left-most column will show you the task ID, which you get from CRAB after the submission of a task (a task is a set of jobs). You'll see other options, like “Running” and “Applied successfully”, among others. To check more on the particular task, click on its ID. On the next page, you'll see some graphics, and a more condensed table at the bottom. Here, you'll be given the exit codes (which you can also get from CRAB). To learn more about the exit codes, head here (note that that for that link, you're required to log on using you CERN account, which you should already have if you possess a CERN certificate).

- **Site status and health:** Dashboard has two ways to check on the health of Tier sites. The first way: click on the “Site usability based on the NAGIOS test (SUM)” link. This will take you to the SUM tests (SUM and SAM are equivalent; SUM is the new name [a year and a half old], we at T3_US_TAMU have stuck to calling them the SAM tests). Once you've clicked on the link, you'll be directed to the SUM website, where you'll see several scroll-down menus. Ignore the first one. The “Profile” menu should be left at CMS_CRITICAL_FULL. The important menus are the three below this. For “Sites”, you should select T3_US_TAMU. For “Service Flavours”, you should always leave it at “All service flavours”, although sometimes it's worthwhile (depending on the problem at hand) to select “All CE flavours” or “All SRM flavours” (CE = computing element and SRM are related to the SE = storage element; for more info, you should go to the monitoring website on Collider and look at the SAM tests under the “Site Availability” page. Finally, back on the SUM webpage, you should leave the “Metrics” as is (“All metrics”). Once you've made your selection, click on
“Show results”. Next, you'll get a new menu where you're shown a color-based legend, as well as a host status profile for T3_US_TAMU (or whatever site you're checking). Clicking on any of the two options on the third column, “Host status in profile” (the two options refer to CE and SRM), will take you to a webpage that will be similar to the monitoring plots for the SAM tests on collider. For example, if I were to click on the host status for the CE, you should view a page similar to this. Here, you'll be able to play around with what metrics or element you want shown, as well as the time range (24 hours, 12 hours, etc.) and granularity (daily or hourly) for the plots. Refresh by hitting “Show results”. Please note that this will not fully correspond with the plots shown on Collider. That is, not all tests are shown. This is because we do not do things as every other Tier (for example, we do not constantly update to have the newest CMSSW version installed; we do this by request only – after all, we have to abide by the rules of Brazos, the larger cluster of which we are a part of). The second way to check site health: once on the main Dashboard page, click on the “Site status board” link. This page shows all of the Tier's separated by T0 + T1, T2, and T3. For each tier, you will see a clickable icon next to their names. A legend for the icons is at the bottom. Basically, the icon lets you know if the site is ok, in warning, or in critical (critical meaning that at least one of the SUM/SAM tests is critical). Generally, ok or warning means the site is running just fine, and critical means that something's not quite ok with the site. Clicking on the icon will take you to the metrics website, where you'll see a graph the metrics for the site, very similar in nature to the one that you get after following the instructions above for the SUM webpage. This last webpage offers more general metrics, like total TB and such.

SiteDB

SiteDB is the general CMS Tier database. This will show basic personnel information of all of the Tier sites. Clicking on the “SiteDB” link on the main CMS Web webpage will take you to the main SiteDB webpage, where you should see your personal user information to your left, and to the right a listing of all of the Tier sites. On the upper-part of the website, you'll see a menu. Clicking on “People”, for example, will allow you to search for anyone associated with CMS by lieu of their certificates. Make sure to update your SiteDB information (“update certificate”, for example) by accessing “My details” on the left-hand side of the main webpage.