

# Status of Management for LOCALGROUPDISK

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# Introduction

- LOCALGROUPDISKs tend to grow big if not managed.
- In RUN-II, significant disk usage by user analysis is anticipated.
- During RUN-II, carry out more systematic management and regular cleanup of LOCALGROUPDISKs.
- In US-cloud, LOCALGROUPDISK at T1/T2 is a common shared resource for all US users.
- Today's talk : the management under development for US-cloud.
  - Policy for LOCALGROUPDISK management:
    1. Management tool by “disk usage of user”
    2. Management tool by “dataset”

# Policy ①- Management tool by “disk usage of User”

- A warning message will be sent automatically if usage >3TB per site per user.

→ Warned owners have to reduce their disk space (< 3TB).

If not possible < 3TB, fill the web form providing information (data, group, size, period) to be needed.

- Usage >3TB , keep the information about the data(lifetime). No approval from RAC needed

- Usage >20TB per user per site requires an approval from RAC.

- Usage >30TB for over all US-ATLAS also requires an approval from RAC.

→ In case of no answer to 3 warning messages (1 week interval), will be discussed in RAC.

- If the approved period is expired, confirm to the owner if the data is needed to keep further, or not.

# Policy ②- Management tool by “dataset”

- **Popularity :**

- Contact to owner with dataset not accessed at least one year.

- If the data is needed, owner is required to fill out the web form.

- **Multiple dataset :**

- If dataset has >7 replicas over the grid, contact to owner verifying if all those replicas are essential, or number of copies can be reduced.

- **Appropriate disk :**

- check if data is stored in appropriate disk (can it be moved to GROUPLDISK/DATADISK)

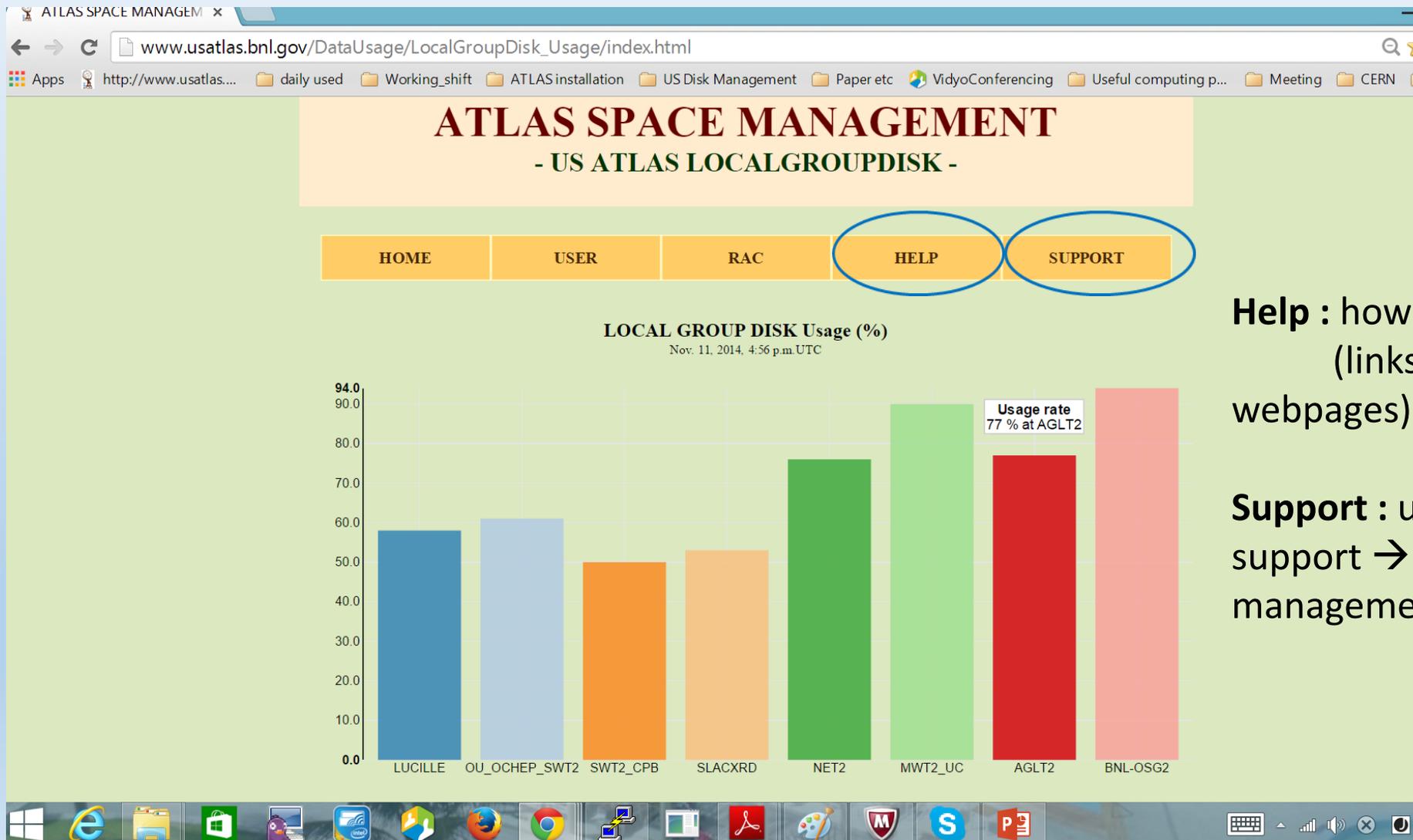
# Monitoring tool

- Monitoring tool is written in “python”.
  1. The “web monitor” are built in the web application frame work “Django”.
  2. The “web monitor” accesses the database (ddm05.usatlas.bnl.gov) which is updated with “python” files.
    - To update the database, compare dataset by dataset and file by file between central catalog from RUCIO and the database.
      - e.g. If missing dataset/file exists in the monitor (central catalog), put into (delete from) the database.
    - To update for all LOCALGROUPDISK in US, it takes ~ 2days.
    - Need to discuss with Rucio team how to improve it, once Rucio migration is completed.

# Monitor of LOCALGROUPDISKs ①

- Developing the monitor pages.

→ “HOME” page :[http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\\_Usage/index.html](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk_Usage/index.html)

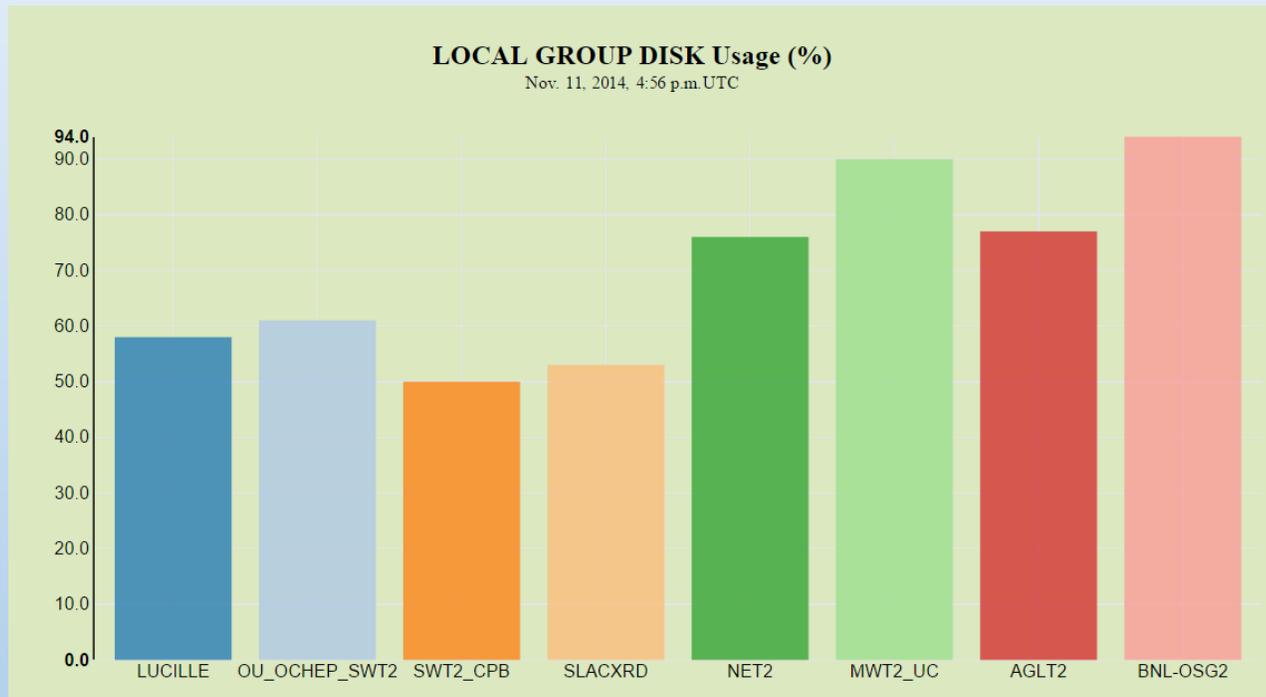


**Help** : how to use the web pages  
(links : policies, manual for the webpages)

**Support** : user can find “contact” to get a support → e-group : atlas-adc-localdisk-management@cern.ch

# Monitor of LOCALGROUPDISKs ② - HOME-

- To monitor the usage of LOCALGROUPDISKs,  
→ Total usage can be checked easily in the main page.



Usage rate per site.

- Click the site name in the table  
→ the list of users with their usage per site

Amount of usage size



LocalGroupDisk	Usage size (TB)	Disk size (TB)
<a href="#">ALL</a>	1507.9	1914.2
<a href="#">MWT2_UC</a>	511.0	568.0
<a href="#">NET2</a>	284.1	370.0
<a href="#">BNL-OSG2</a>	308.2	344.8
<a href="#">AGLT2</a>	205.8	265.0
<a href="#">SLACXRD</a>	138.7	260.0
<a href="#">SWT2_CPB</a>	20.1	40.0
<a href="#">OU_OCHEP_SWT2</a>	21.4	34.6
<a href="#">LUCILLE</a>	18.5	31.7

# Monitor of LOCALGROUPDISKs ③ -HOME-

- The list of users with their usage (e.g. MWT2\_UC : [http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk Usage/MWT2\\_UC/UsagePerPerson.html](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDiskUsage/MWT2_UC/UsagePerPerson.html))

→ User with > 3TB will receive a warning message.

Warning, RAC, expiry date :  
**Demonstration**

User name and used disk size (TB) in (Oct. 27, 2014, 9:29 a.m. UTC )

Country	Username_id	Disk Usage (TB)	Warning	RAC	expirydate
US	<a href="#">Karol Krizka 1999</a>	139.493	0	Approved	Oct. 30, 2015, midnight
US	<a href="#">John Alison 1153</a>	40.214	4	ToBeDiscussed	None
CERN	<a href="#">vcavalie</a>	36.805	4	ToBeDiscussed	None
US	<a href="#">Frederick Luehring 153</a>	30.024	4	ToBeDiscussed	None
JP	<a href="#">Yasuyuki Okumura</a>	25.882	4	ToBeDiscussed	None
US	<a href="#">Anton Kapliy 714928</a>	22.578	3	REQUESTED	Nov. 30, 2015, midnight
US	<a href="#">Jordan Scott Webster 343989</a>	20.998	2	REQUESTED	Nov. 29, 2015, midnight
US	<a href="#">Mats Joakim Robert OLSSON 1590</a>	18.192	3	No	None
US	<a href="#">Miles Anthony King-Ting Wu 1500</a>	14.067	2	No	None

- User can check a list of their data after clicking his/her name.

- To monitor a list of the data per user: e.g.  
[http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\\_Usage/MWT2\\_UC/Karol\\_Krizka\\_1999/SortedByDSname/DN\\_and\\_DS.html](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk_Usage/MWT2_UC/Karol_Krizka_1999/SortedByDSname/DN_and_DS.html))

User DN = /DC=com/DC=DigiCert-Grid/O=Open Science Grid/OU=People/CN=Karol Krizka 1999

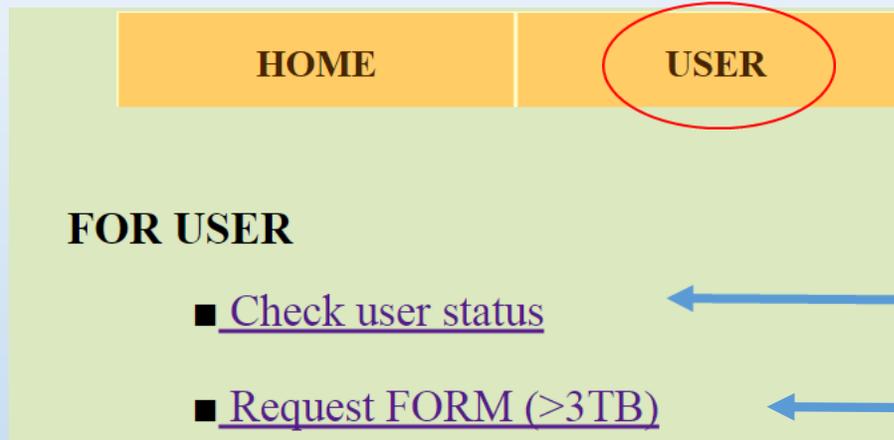
Datasets and size in MWT2\_UC

<u>Dataset name</u>	<u>Size (GB)</u>	<u>Time of arrival</u>
data12_8TeV.00201120.physics_JetTauEtmiss.merge.NTUP_COMMON.r4644_p1517_p1562_tid01319759_00	270.515	17-10-2014 18:37
data12_8TeV.00201120.physics_Muons.merge.NTUP_COMMON.r4644_p1517_p1562_tid01319760_00	560.463	18-10-2014 02:01
data12_8TeV.00201260.physics_JetTauEtmiss.merge.NTUP_COMMON.r4644_p1517_p1562_tid01319772_00	604.405	28-08-2014

- The list can be ordered by clicking “ Dataset name”, “size(GB) ” and “Time of arrival” on the list.
- In future, “click” button to delete a dataset will be prepared for only “owner”.

# Monitor of LOCALGROUPDISKs ④ - USER-

- With clicking “USER” in the main menu bar,



← User can check his/her status of disk usage

← User can request to RAC

- Check a user status per site: [http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\\_Usage/USER/FormToGetStatus/](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk_Usage/USER/FormToGetStatus/)

USER Status check

www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\_Usage/USER/FormToGetStatus/

Apps http://www.usatlas... daily used Working\_shift ATLAS installation US Disk Management

**USER status check**

Choose user name

User name : Karol Krizka 1999

Submit

RAC, expiry date :  
**Demonstration**

**User Status Result**

Username	Disk Usage (TB)	Site name	Expiry date	RAC
Karol Krizka 1999	139.493	MWT2_UC_LOCALGROUPDISK	Oct. 30, 2015, midnight	Approved

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- Request form (>3TB):

[http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\\_Usage/USER/RequestFormUsage/](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk_Usage/USER/RequestFormUsage/)

- Requirements

- choose “User name”
- choose “Disk name”
- Email
- Request extension
- Reason including the association of dataset occupying the main space. (physics/performance group and the estimated size)

- For 3TB <usage< 20TB, “RAC status” on DB is set to “Approved” automatically,
- After submitting for >20TB, “RAC status” on DB is updated as “REQUESTED” automatically.



The screenshot shows a web browser window with the URL [www.usatlas.bnl.gov/DataUsage/LocalGroupDisk\\_Usage/USER/RequestFormUsage/](http://www.usatlas.bnl.gov/DataUsage/LocalGroupDisk_Usage/USER/RequestFormUsage/). The page has a light green background and is titled "Request form for usage > 3TB". The form contains the following fields:

- User name :
- Disk name :
- Email :
- Extension until :  (dd/mm/yyyy)  
(max. 6months)
- Reason :

A "Submit" button is located at the bottom right of the form.

# Monitor of LOCALGROUPDISKs ⑤ -RAC-

- With clicking “RAC” in the main menu bar,

The screenshot shows a navigation bar with three items: HOME, USER, and RAC. The RAC item is circled in red. Below the bar, the text "FOR RAC" is displayed. Underneath, there are two menu items: "Requests Waiting for Approval" and "To Be Discussed". Blue arrows point from the text "Requests can be checked" to the first item, and from "To check users with 3 warning mails." to the second item.

- Requests Waiting for Approval : Approval can be done by “one click” after filling “expiry date”.
- RAC status on DB will change to “Approved”.

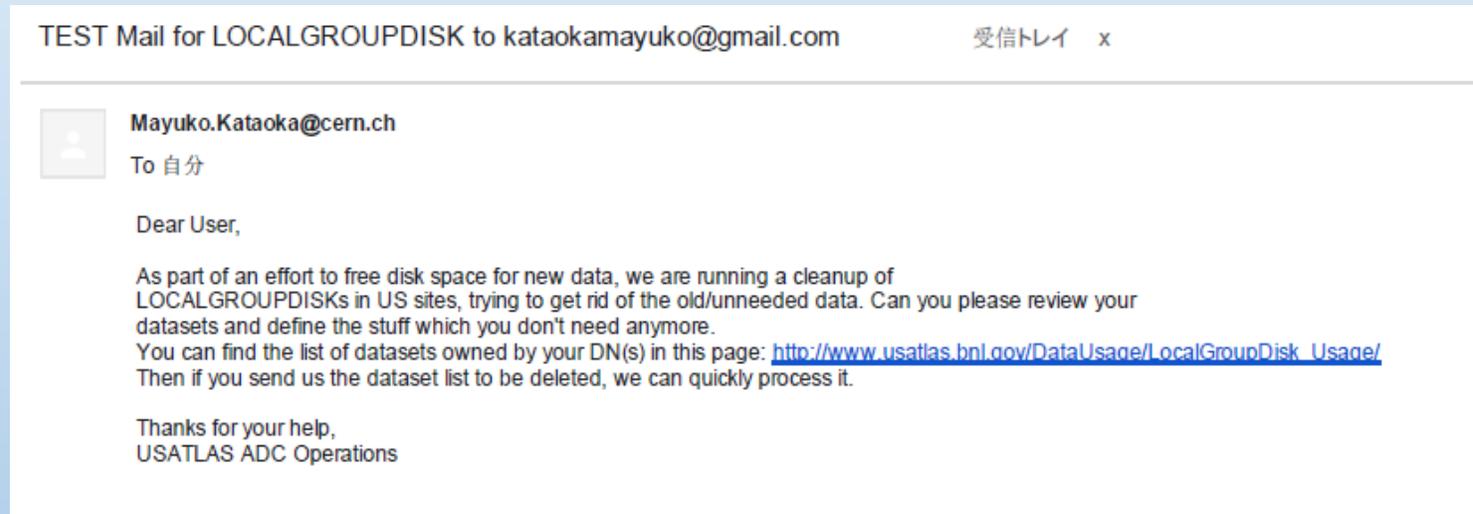
## Requests Waiting for Approval

Requests : **Demonstration**

Username_id	Disk Usage (TB)	Site name	Requested expirydate	Approved expirydate (dd/mm/yyyy)	
Anton Kapliy 714928	22.578	MWT2_UC_LOCALGROUPDISK	Nov. 30, 2015, midnight	<input type="text"/>	Approve
Jordan Scott Webster 343989	20.998	MWT2_UC_LOCALGROUPDISK	Nov. 29, 2015, midnight	<input type="text"/>	Approve

# Warning mail to users

- Tool to send a warning mail to users is almost ready.  
→ automation is required.



# Future plan

- Management tool by “disk usage of User” → almost done
  1. Protection by “grid proxy” for some pages.
  2. Automation of warning mail is needed.
- Management tool by “dataset” → in progress
  - : To check necessity of datasets by their properties (popularity, multiple datasets, disk name)
    1. In the monitoring database, need to store
      - “Last read time” to check low popularity
      - “Number of replicas and their endpoints” to check multiple datasets (>7replicas)
      - Evaluation of appropriate disk (GROUPDISK/DATADISK)
    2. The dataset list for deletion will be distributed via shared cloud folder. (e.g. drop-box)

# Summary

- Project of management of LOCALGROUPDISK for US ATLAS is developed.
- Monitoring Tools for disk usage and the web forms are almost ready.
- Future plan:
  1. Send a warning message to users automatically.
  2. Improvement of the monitoring pages are needed  
(e.g. protection by 'grid-proxy' for the management part).
  3. Make tools to check if LOCALGROUPDISKs are used effectively.  
(e.g. popularity/multiple datasets/appropriate disk)
  4. This management can be expanded to the other clouds.  
→ The tool can be adjusted to be used in the other clouds as a new system.