1. Introduction

The Astronomy Data Center, National Astronomical Observatory of Japan (ADC / NAOJ) has renewed the multi-wavelength data analysis system (MDAS) and started its operation in March 2018. This document gives a brief introduction to the system and briefly describes how to use it. For details about the system, please see the online user’s guide.

   MDAS Web:  https://www.adc.nao.ac.jp/MDAS/

2. Login

A) How to access from the inside of NAOJ

   When you access the analysis system from the inside of the NAOJ network (KTnet), you use “ssh” command on a terminal workstation (after-mentioned) or your own computer (PC).

   Ex) In the case of accessing kaim (interactive analysis server)
       $ ssh [-X] YOURID@kaim.ana.nao.ac.jp
       (“YOURID” is your account name for the system)

       - “kaim.ana.nao.ac.jp” is the host name of the load-balancer for the middle-range servers. See the following section for the system configuration.

B) How to access from the outside of NAOJ

   When you access the system from the outside of the NAOJ network (KTnet), you need to use VPN (Virtual Private Network) service. After connecting to the VPN server, log in to an analysis server with SSH. If you need the VPN service, apply for the service after confirming the following notes.
(1) We (ADC) provide a VPN service for users who belong to an institute other than NAOJ and already have an MDAS user account.

(*) NAOJ staffs should use another VPN service provided by the network support group in NAOJ. See the following URL.
https://nethelp.mtk.nao.ac.jp/contents/en/node/4

(2) You can access only the MDAS servers but cannot log in to other computers inside the NAOJ network by using our VPN service.

(3) Please refrain from using multiple VPN access at the same time.

(4) The idle timeout is set to 3 hours.

(5) If you need the MDAS VPN service, apply for the VPN service at the MDAS web page.

3. How to change password, login shell, and E-mail address

The password you received after creating your account is an initial password. Please change the password immediately. Note that it will take some time to reissue the password if you forget your password.

The initial login shell is “bash”. The e-mail address used for notifications from the ADC is the one you provided when you created your account.

You can change them by using a dedicated command “modify_userinfo” on the MDAS servers. You can see your current information with the "userinfo" command.

Usage: modify_userinfo [-hpmsv] [argument]
This command can change login shell, registered E-mail address, and password.
Options are as follows. (-p, -m, and –s can be used simultaneously)

- h print help message and exit.
- p change password.
- m [E-mail address] change registered E-mail address.
- s [login shell] change login shell. Available shells are as follows.
  /bin/tcsh
  /bin/bash
  /bin/csh
  /bin/ksh
  /bin/sh
  /bin/zsh

ex.) to change E-mail address and login shell
$ modify_userinfo -m MAILADDRESS -s /bin/zsh
4. System configuration (Hardware)

The system configuration of the hardware is as follows.
The domain name of the system is “ana.nao.ac.jp”.

A) Interactive analysis servers

1. Host name and Specifications

• **m-series (middle-range) servers (20 sets)**
  
  Host name : kaim[01-20].ana.nao.ac.jp
  
  Access point† : kaim.ana.nao.ac.jp
  
  Specification:
  
  OS  : Red Hat Enterprise Linux 7
  
  Memory  : 192GB (DDR4 2400 RDIMM)
  
  CPU  : Intel Xeon E5-2667 v4 (3.2GHz, 16 cores)

• **h-series (high-end) servers (12 sets)**
  
  Host name : kaih[01-12].ana.nao.ac.jp
  
  Access point† : kaih.ana.nao.ac.jp
  
  Specification:
  
  OS  : Red Hat Enterprise Linux 7
  
  Memory  : 256GB (DDR4 2400 RDIMM)
  
  CPU  : Intel Xeon E5-2667 v4 (3.2GHz, 16 cores)

† Host name of the load-balancer for the m- and h-series servers, respectively. You should access these hosts usually. However, if you would like to use a local disk space attached to each server, you can also access each server directly.

Note: We may warn users who occupy many resources (CPU core, memory, disk etc.) on a server. Please be careful not to occupy them.
2. Disk Partitions (users’ area)

/home[01,02] 55TB (Total 110TB) Home area (NFS mount)
/lfs[01-16] 102TB (Total 1632TB) Large volume work area (NFS mount)
/wkm[01-20] 12TB Local work area on middle-range servers (kaim[01-20])
/wkh[01-12] 51TB Local work area on high-end servers (kaih[01-12])

/home[01,02] and /lfs[01-16] are mounted on all analysis servers.
A symbolic link for every user's home directory has been created in /home.
ex.)
   $ ls -l /home/foobar
   /home/foobar -> /home01/foobar

/wkm[01-20] and /wkh[01-12] are local work areas that can be referred from kaim[01-20] and kaih[01-10], respectively.

The following quota (usage upper limit) and data retention period have been set. Note that the files and directories that have not changed their status beyond the retention period will be targets for periodic deletion. The status change is determined by the “ctime”. When the status is changed, the elapsed time is counted from the time of the last change. For details, please see the MDAS web.

Areas not to be deleted

<table>
<thead>
<tr>
<th>Area name</th>
<th>Mount name</th>
<th>quota (Softlimit)</th>
<th>quota (Hardlimit)</th>
<th>Retention period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>/home[01, 02]</td>
<td>140GB</td>
<td>150GB</td>
<td>None</td>
</tr>
</tbody>
</table>

Target areas for deletion

<table>
<thead>
<tr>
<th>Area name (Middle-range)</th>
<th>Mount name</th>
<th>quota (Softlimit)</th>
<th>quota (Hardlimit)</th>
<th>Retention period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large volume work area</td>
<td>/lfs[01-16]</td>
<td>30TB</td>
<td>32TB</td>
<td>12 months</td>
</tr>
<tr>
<td>Local work area (Middle-range)</td>
<td>/wkm[01-20]</td>
<td>None</td>
<td>None</td>
<td>12 months</td>
</tr>
<tr>
<td>Local work area (High-end)</td>
<td>/wkh[01-12]</td>
<td>14TB</td>
<td>16TB</td>
<td>12 months</td>
</tr>
</tbody>
</table>
B) Terminal workstations

Terminal workstations (HP Z840, Red Hat Enterprise Linux 7) are available. There are 13 workstations in the Subaru open-use room and 9 workstations in the ALMA building room 101 at the Mitaka campus, NAOJ.

You can use local disk area (500GB) on each workstation. The files in the area may be deleted by the administrator without any warning. It is recommended that you move or copy necessary files to other areas after working in this area.

[Network access control] The terminal workstations are access-controlled. You cannot remotely log in to the terminal workstations. Also, you cannot access other machines inside the NAOJ network (except for some services) from the terminal workstations. For details, please see the user’s guide.

C) Batch processing servers

Batch processing servers consist of two compute servers. No application is required to use them (you can use them anytime). For more information on how to use them, please see the user’s guide.

D) Network printers and peripheral devices

Network printers, optical disc devices, and tape devices are available. For more information about them, please see the user’s guide.

5. Software

You can use over 100 various software for astronomical data analysis and scientific calculations on the system. List of the installed software can be seen on the user’s guide.

6. Change of registration information

When your registration information such as affiliation, address, or phone number changes, please notify the ADC of the changes. You can submit your changes via the account application form on the web.

Among the registration information, for the change of your E-mail address, we ask you to change it by yourself on an analysis server. To change your E-mail address registered in the system (which is included in "allusers" mailing list), you need to use the "modifyuserinfo -m" command after login to the system (see section 3).

Please keep your registered E-mail address up to date. It is very important because we use the address to inform you of essential information on the system.
7. Annual account update

All user accounts expire at the year-end of every fiscal year. An update procedure is necessary for continuous use. Information on the account update procedure will be announced by e-mail to your registered address every year.

If you do not submit the account update application by the deadline, your account will be locked and deleted.

8. Inquiries about this system

Details of this system and questions about this system are described in the user’s guide and FAQ web page. Please visit the following pages.

User’s guide: https://www.adc.nao.ac.jp/MDAS/ug/mdas-ug_e/
FAQ: https://www.adc.nao.ac.jp/cgi-bin/cfw/wiki.cgi/FAQ/FAQE

If you have any questions, please contact us.
E-mail: consult@ana.nao.ac.jp