

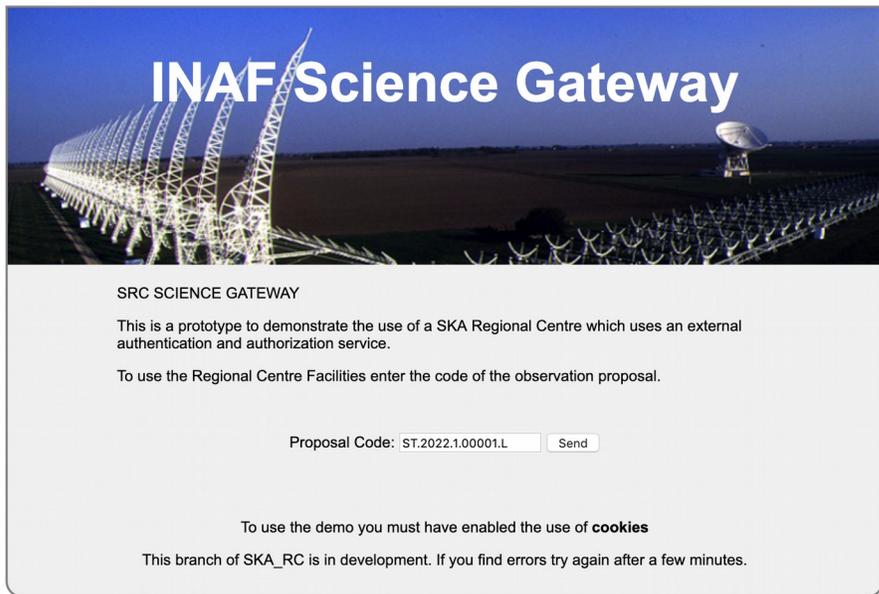
Data exchange and computation between data centers using common A&A

F. Tinarelli, **S. Bertocco**, G. Taffoni, C. Knapic

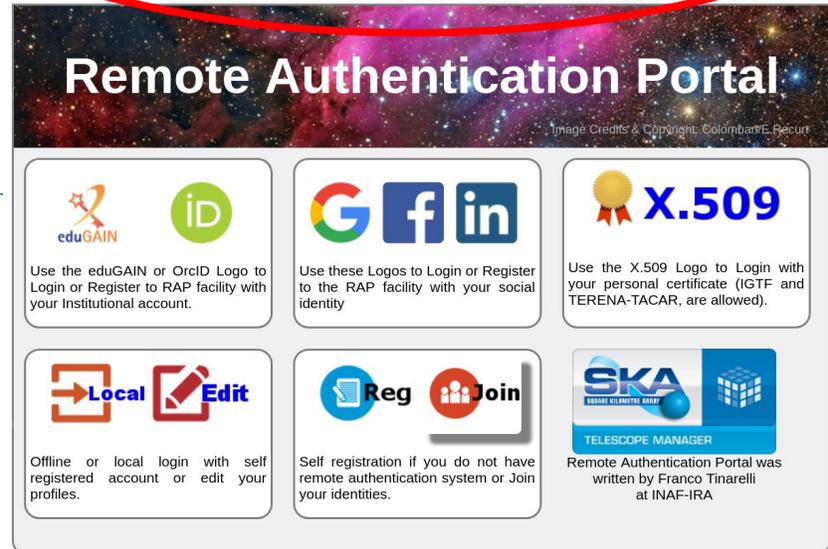


Use Case SKA Regional Centre (Aeneas WP6)

WP6 will concentrate on processes, protocols, tools, and services required to ensure interoperability between existing SKA-relevant e-Infrastructures. By **addressing topics such as a seamless Authentication and Authorization Infrastructure (AAI) across the underlying network of service providers**, WP6 is relevant to all of the preceding technical WPs 3-5 and essential to lower the barriers for potential users of the final SKA ESDC. By **enabling SKA users to access federated services** and resources offered by different e-infrastructure providers in Europe and around the world, WP6 is also crucial to **connecting AENEAS with other similar efforts worldwide**.



Science Gateway Catalog
 IN: proposalID
 OUT: IVO-ID, Data_Center, files,
 ivo://authority.org/path?groupID



Authentication

User unique Identifier

Data Center (Archive+Computation)
 Token exchange
 Data access and computation

Grouper/GMS
 IN: groupID, user_unique_ID
 OUT: authorization



IVOA Inside

The catalog contains information encoded using IVOA notation.

Group identifiers follow the GMS (current draft) specification, that embeds

- authority: managing the grouping service
- service identification: to resolve the service URL to call for authN and authZ purposes
- group ID the proposal dataset pertains to

`ivo://authority.org/path?groupID`



Service Entry point

INAF Science Gateway

SRC SCIENCE GATEWAY

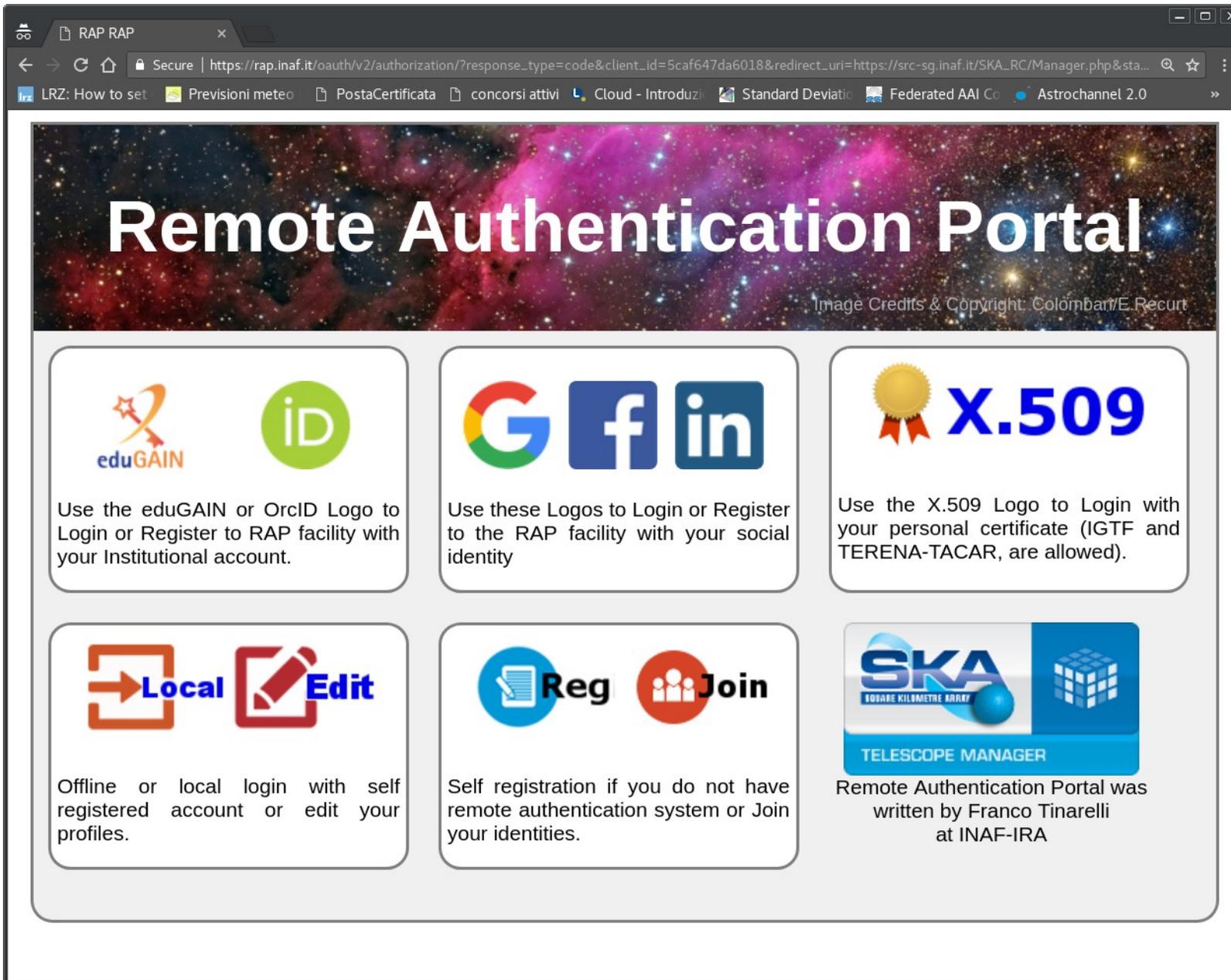
SKA Regional Centre usage demonstration.
Authentication (RAP) and Authorization based on an external service.

Enter an observation code to receive credentials to access the Regional Centre Facility

Proposal Code:

Enable **cookies** to use this interface.

Authentication services access



Remote Authentication Portal

Image Credits & Copyright: Colombari/E.Recurr



Use the eduGAIN or OrcID Logo to Login or Register to RAP facility with your Institutional account.



Use these Logos to Login or Register to the RAP facility with your social identity



Use the X.509 Logo to Login with your personal certificate (IGTF and TERENA-TACAR, are allowed).



Offline or local login with self registered account or edit your profiles.

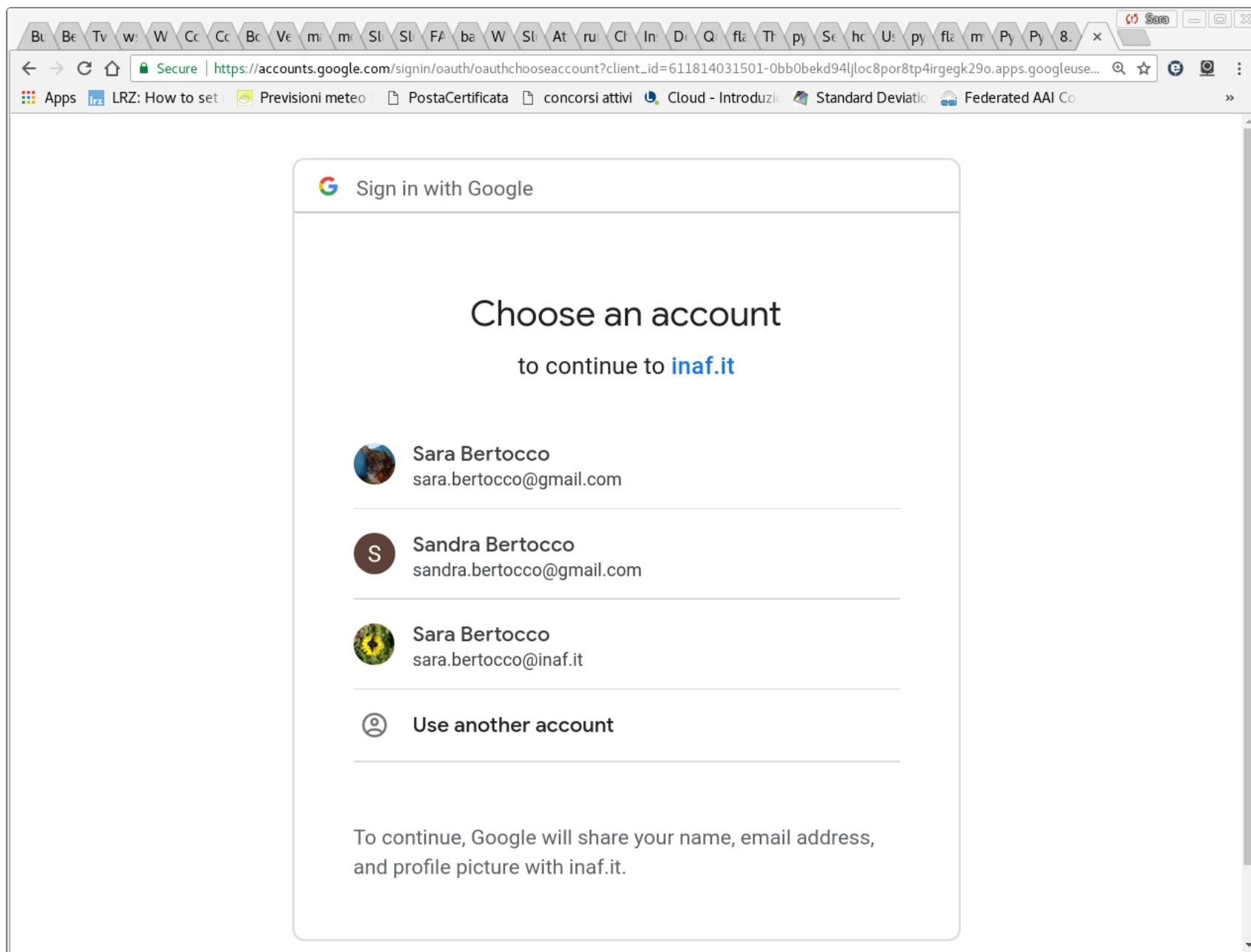


Self registration if you do not have remote authentication system or Join your identities.



Remote Authentication Portal was written by Franco Tinarelli at INAF-IRA

Select an Account to log-in



Receive Access Information



INAF Science Gateway User Data

LOGIN WITH **Google** (sara.bertocco@gmail.com)

JOINED IDENTITIES:

eduGAIN (sara.bertocco@inaf.it);

PROPOSAL ST.2022.1.00003.L (Ownership: Full)

ACTIONS:

- Download Experiment Files
- Receive Account to Analyse Experiment files
- Send ssh Public Key to receive Username to Analyse Experiment files

- Move Experiment Files to another SRC

Download Experiment Files

Bl Be Tv w: W Cc Cc Bc Ve m: m: Sl Sl F/ ba W Sl At ru Cl In D: Q fl: T/ py S€ hc U: py fl: m Py Py 8. x

Secure | [https://ska01.ira.inaf.it/ska_rc/Actions.php?prop=\({\"state\": \"5ccc83edc50e9\", \"id\": \"ST.2022.1.00003.L\", \"email\": \"sara.bertocco@gmail.com\", \"gid\": \"1...\"}\)](https://ska01.ira.inaf.it/ska_rc/Actions.php?prop=({\)

Apps LRZ: How to set Previsioni meteo PostaCertificata concorsi attivi Cloud - Introduzi Standard Deviatio Federated AAI Co

IT SKA Regional Centre

PROPOSAL: **ST.2022.1.00003.L**

ACTION: **Download Experiment Files**

ska_rc_demo_05.fits, Size: 17412480 byte

ska_rc_demo_06.fits, Size: 17196480 byte

Receive Account to Analyse Experiment Data

Browser address bar: https://src-sg.inaf.it/SKA_RC/Manager.php

INAF Science Gateway User Data

LOGIN WITH **Google** (sara.bertocco@gmail.com)

JOINED IDENTITIES:

eduGAIN (sara.bertocco@inaf.it);

PROPOSAL ST.2022.1.00003.L (Ownership: Full)

ACTIONS:

- Download Experiment Files
- Receive Account to Analyse Experiment files
- Send ssh Public Key to receive Username to Analyse Experiment files

Move Experiment Files to another SRC

File list: ska_rc_demo_....fits ^

SKA RC IT: Access Information Inbox x

skarc.bo@ira.inaf.it

 to me ▾

[Mail automatically generated, do not reply]

Welcome to the SKA RC IT.

We send you your credentials for the use of data processing programs made available by the Regional Center.

You can use them to access the ska01.ira.inaf.it workstation, using an ssh login.

Username: skarc001

Password: z!\$dXup8uT

You can access your data following the link in your home directory.

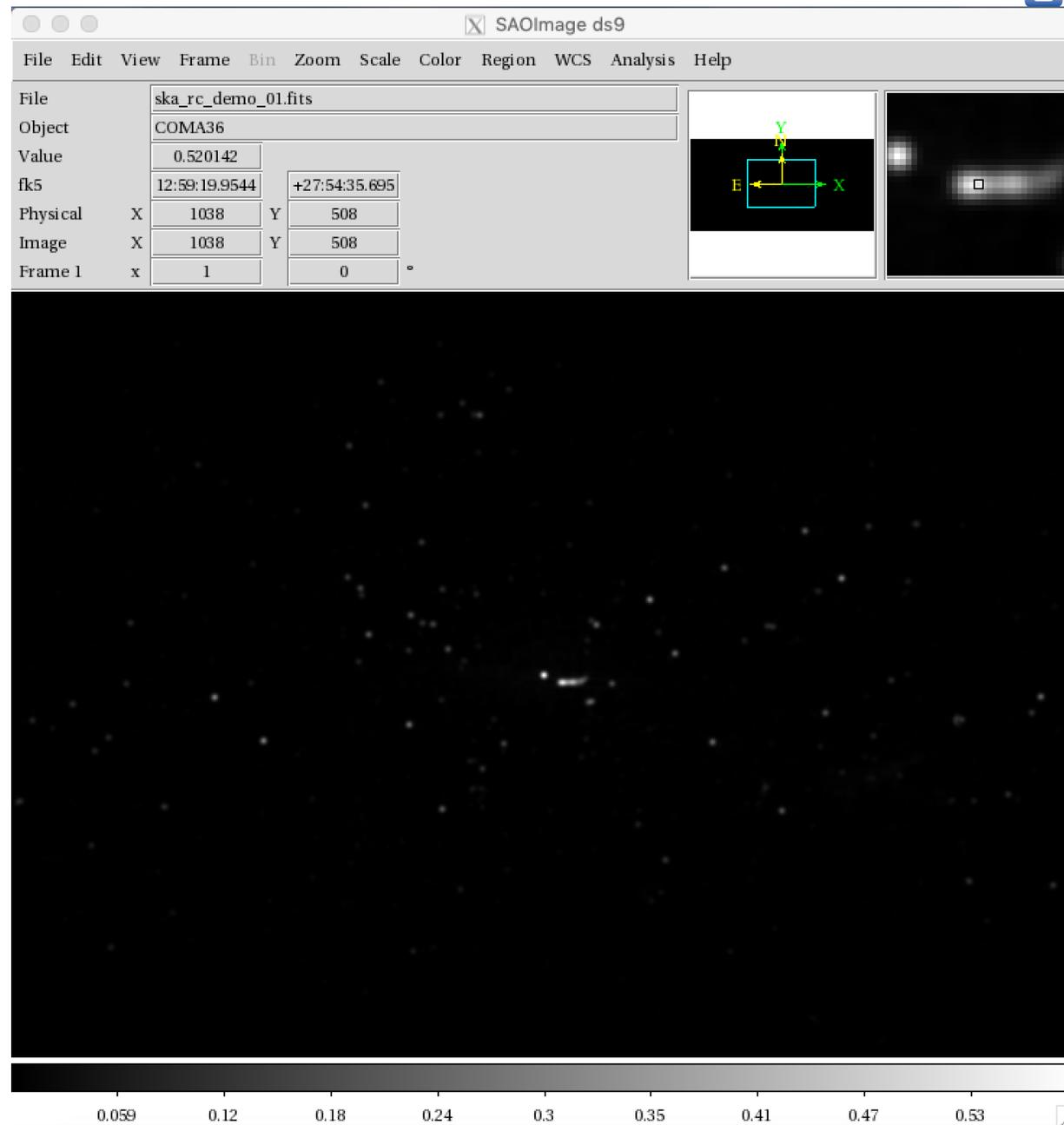
Best regards

The SKA RC IT Staff

Received Access Information

```

bertocco — skarc001@ska01:~/data — ssh -XY skarc001@ska01.ira.inaf.it — 80x24
Last login: Mon May  6 12:35:58 on console
rumba:~ bertocco$ ssh -XY skarc001@ska01.ira.inaf.it
The authenticity of host 'ska01.ira.inaf.it (90.147.132.60)' can't be established.
ECDSA key fingerprint is SHA256:fUr/Gn3oGAvTZfGo3fUO9+HV+02VD7aDnn/slm1ABRA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ska01.ira.inaf.it,90.147.132.60' (ECDSA) to the list
of known hosts.
[skarc001@ska01.ira.inaf.it's password:
Warning: No xauth data; using fake authentication data for X11 forwarding.
Last login: Thu May  2 20:00:27 2019 from mambo.ira.inaf.it
-bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file
or directory
[skarc001@ska01 ~]$ ls
data
[skarc001@ska01 ~]$ cd data
[skarc001@ska01 data]$ ls
ska_rc_demo_01.fits  ska_rc_demo_02.fits
[skarc001@ska01 data]$ ds9 ska_rc_demo_02.fits
Fontconfig warning: ignoring UTF-8: not a valid region tag
  
```





INAF Science Gateway User Data

LOGIN WITH **Google** (sara.bertocco@gmail.com)

JOINED IDENTITIES:

eduGAIN (sara.bertocco@inaf.it);

PROPOSAL ST.2022.1.00003.L (Ownership: Full)

ACTIONS:

- Download Experiment Files
- Receive Account to Analyse Experiment files
- Send ssh Public Key to receive Username to Analyse Experiment files

```
fSUQ6XR/pl4fqwx3RhbeHbvU9cHTwPQQ+vjq2FrqEfCSYzmRpPuDvhovM0XHftlGd8aCbaxuwiT3M  
8fiHz5eZBobE/TBTvz91Ko7ErhiE2Gy/EdF0ooBB58kl//C9I7L50WuxVto0jFdWnHybU1ckjgLo5  
vgyeFYv0LLTC+xUfgYYbo+bvLEfThlydb+8+dW5LNRdy3ZdeIMJq1z72gPnv67FJ  
bertocco@elmo.oats.inaf.it
```

- Move Experiment Files to another SRC

Send

ssh-key
Access
Choose

IT SKA Regional Centre

Received
Result
(Information)

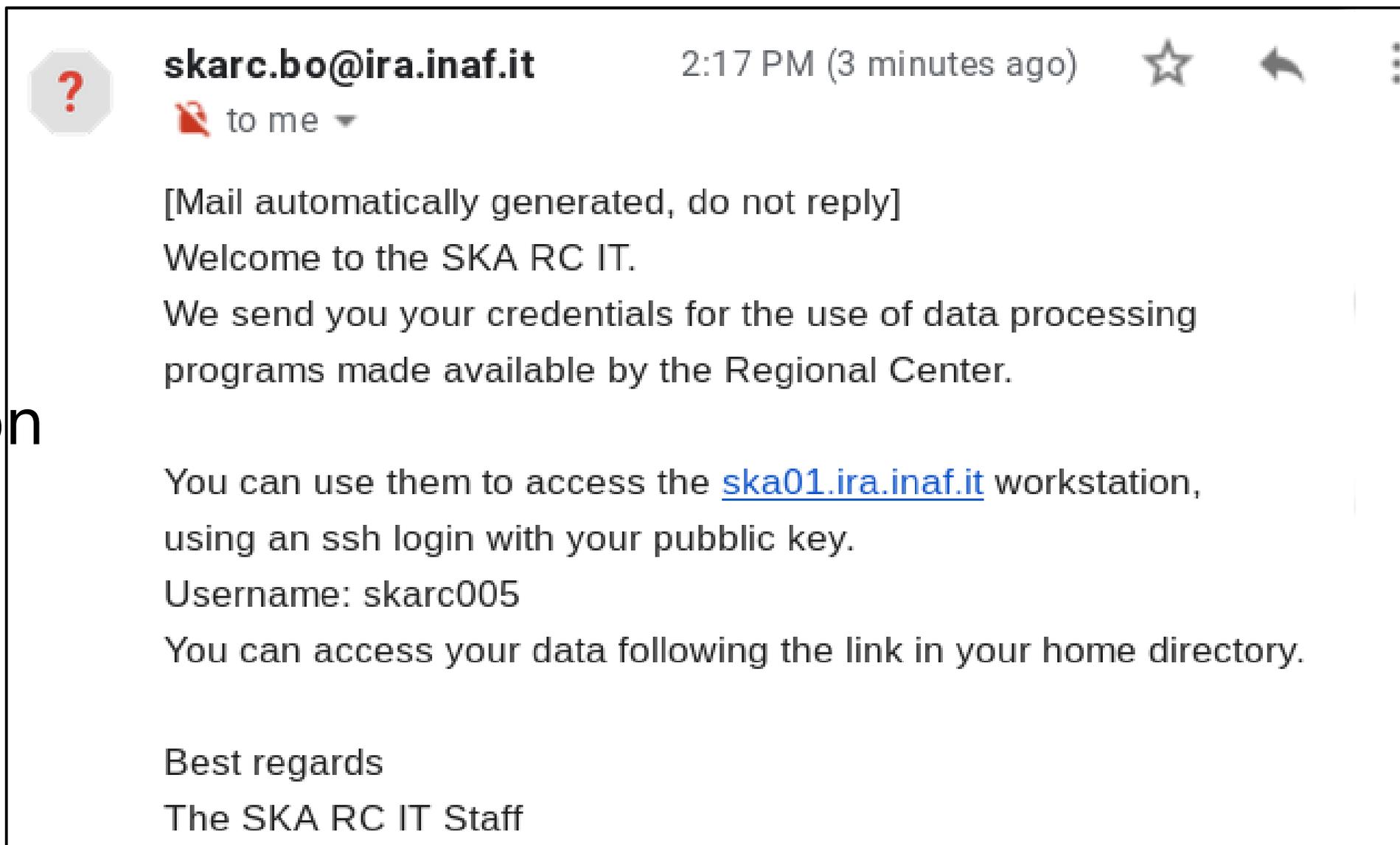
PROPOSAL: **ST.2022.1.00003.L**

ACTION: **Analyse Experiment Files**

The credentials and instructions for accessing your data have been sent to your email address.

Best regards
The IT_SKA_RC Staff

Received Access Information



 **skarc.bo@ira.inaf.it** 2:17 PM (3 minutes ago)   

 to me ▾

[Mail automatically generated, do not reply]
Welcome to the SKA RC IT.
We send you your credentials for the use of data processing programs made available by the Regional Center.

You can use them to access the ska01.ira.inaf.it workstation, using an ssh login with your public key.
Username: skarc005
You can access your data following the link in your home directory.

Best regards
The SKA RC IT Staff

Received Access Use

```
skarc005@ska01:~  
File Edit View Search Terminal Tabs Help  
bertocco@firiell ~ x skarc005@ska01:~ x  
[bertocco@firiell ~]$ ssh skarc005@ska01.ira.inaf.it  
Last login: Mon May 13 14:49:43 2019 from nacl-p.obspm.fr  
[skarc005@ska01 ~]$ ls data  
ska_rc_demo_05.fits  ska_rc_demo_06.fits  ST_2022_1_00001_L  
[skarc005@ska01 ~]$
```

Proxy between applications and identity providers or local registration

Remote Authentication Portal

Image Credits & Copyright: Colombari/E.Recurr



Use the eduGAIN or OrcID Logo to Login or Register to RAP facility with your Institutional account.



Use these Logos to Login or Register to the RAP facility with your social identity



X.509

Use the X.509 Logo to Login with your personal certificate (IGTF and TERENA-TACAR, are allowed).



Local



Edit

Offline or local login with self registered account or edit your profiles.



Reg



Join

Self registration if you do not have remote authentication system or Join your identities.



Remote Authentication Portal was written by Franco Tinarelli at INAF-IRA

Full RAP GUI

RAP can be customized



Customize RAP

Each application that uses RAP can decide which functions to use among the available ones. The table below shows which options are enabled, you can change them to see what happens in RAP. Be careful that if you do not use LDAP and MariaDB, Join and Edit functions will be ignored.

Authentication Methods

eduGAIN: True False
X.509: True False
Local: True False
Google: True False
Facebook: True False
LinkedIn: True False

Registration Methods

LDAP: True False
MariaDB: True False
Join: True False
Edit: True False

I ♥ RAP

RAP customization result



Remote Authentication Portal

Image Credits & Copyright: Colombari/E.Recurt



Use the eduGAIN Logo to Login or Register to the RAP facility if you belong to an eduGAIN Idp.



Use these Logos to Login or Register to the RAP facility with your social identity

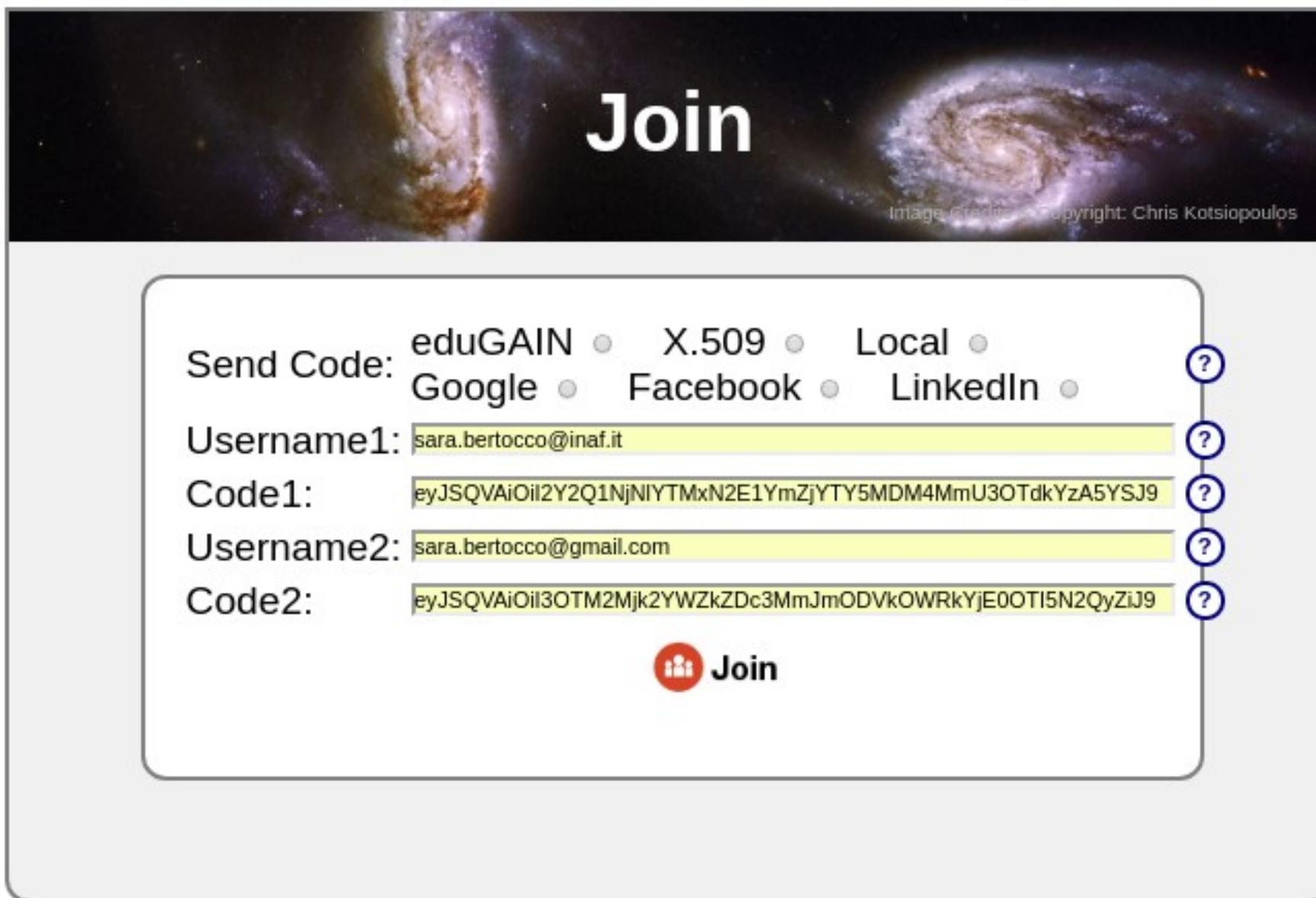


Use the X.509 Logo to Login with your personal certificate (IGTF and TERENA-TACAR, are allowed).



Remote Authentication Portal was written by Franco Tinarelli at INAF-IRA

RAP supports account linking



The image shows a 'Join' screen for account linking. The background features two galaxies. The word 'Join' is prominently displayed in the center. Below it, there are several input fields and a 'Join' button. The input fields are for 'Send Code', 'Username1', 'Code1', 'Username2', and 'Code2'. Each field contains a sample value and is followed by a question mark icon. The 'Send Code' field has radio buttons for 'eduGAIN', 'X.509', 'Local', 'Google', 'Facebook', and 'LinkedIn'. The 'Join' button is a red circle with a white person icon and the word 'Join' next to it.

Join

Send Code: eduGAIN ● X.509 ● Local ●
Google ● Facebook ● LinkedIn ●

Username1: sara.bertocco@inaf.it

Code1: eyJSQVAiOil2Y2Q1NjNIYTMxN2E1YmZjYTY5MDM4MmU3OTdkYzA5YSJ9

Username2: sara.bertocco@gmail.com

Code2: eyJSQVAiOil3OTM2Mjk2YWZkZDc3MmJmODVka0WRkYjE0OTI5N2QyZiJ9

Join

RAP supports account linking

rap@rap.inaf.it
2:52 PM (2 minutes ago)
to me

[Mail automatically generated, do not reply]
Dear Sara Bertocco welcome to the RAP.
I am sending you the username and code that you can
merge your different identities.

Identity: eduGAIN
Username: sara.bertocco@inaf.it
Code: eyJDFVAiOiI3DmY3ODg5NGM3NmM3ZjMgZWEwZWM4MvIzMmEwYWU3MSJ9

Best regards
The RAP Staff

RAP and Grouper at INAF IA2 archives

Remote Authentication Portal

Image Credits & Copyright: Colombari/E.Recurt

Login to Grouper



Use the eduGAIN Logo to Login or Register to the RAP facility if you belong to an eduGAIN IdP.



Use these Logos to Login or Register to the RAP facility with your social identity



Use the X.509 Logo to Login with your personal certificate (IGTF and TERENA-TACAR, are allowed).



Use the IA2 Logo to Login if you have an account provided by IA2 or self registered

 **Need help?** Please read our [User guide](#) and [FAQ](#).

[Privacy policy](#)

RAP, using two modified grouper connectors (Sonia Zorba IA2 staff), is able to authenticate PI as grouper administrator to manage group memberships

RAP Grouper and account linking

INTERNET²

Search

Logged in as [Franco Tinarelli \(eduGAIN+Google+X.509\)](#) · [Log out](#)

+ Create new group

Quick links

- My groups
- My folders
- My favorites
- My services
- My activity
- Miscellaneous
- Admin UI
- Lite UI

Browse folders

- Root
- etc

Home

Grouper

Institute of Higher Education

This website allows you to manage groups associated with your organization and the members of those groups. For a list of answers to frequently asked questions, refer to the [support documentation](#).

Recent activity

Added attribute Unknown to a membership for member Franco Tinarelli (eduGAIN+Google+X.509) .	2019/02/21 17:07 PM
Added Franco Tinarelli (eduGAIN+Google+X.509) as a member of the Unknown group.	2019/02/21 17:07 PM

My favorites [View all favorites](#)

Groups I manage [View all groups](#)

My services [View all services](#)

- Using the two modified connectors, grouper receives the joined identities (account linking) from RAP.

Future work

- Provide the ability to move data to a different Data Centre
- Provide Virtual Machines Access via Web Remote Desktop

INAF Science Gateway
User Data

LOGIN WITH **Google** (sara.bertocco@gmail.com)

JOINED IDENTITIES:

eduGAIN (sara.bertocco@inaf.it);

PROPOSAL ST.2022.1.00003.L (Ownership: Full)

ACTIONS:

- Download Experiment Files
- Receive Account to Analyse Experiment files
- Send ssh Public Key to receive Username to Analyse Experiment files
- Move Experiment Files to another SRC

Send

Acknowledgements

- EOSCPilot.eu (The European Open Science Cloud for Research Pilot Project) has received funding from the European Commission's Horizon 2020 research and innovation programme under the Grant Agreement no 739563.
- AENEAS (Advanced European Network of E-infrastructures for Astronomy with the SKA) has received funding from the European Commission's Horizon 2020 research and innovation programme under the Grant Agreement no 731016.

Thanks!

Questions?