



IDIA Science Gateway For Radio Astronomy ACP 2023

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Professor UCT Computer Science

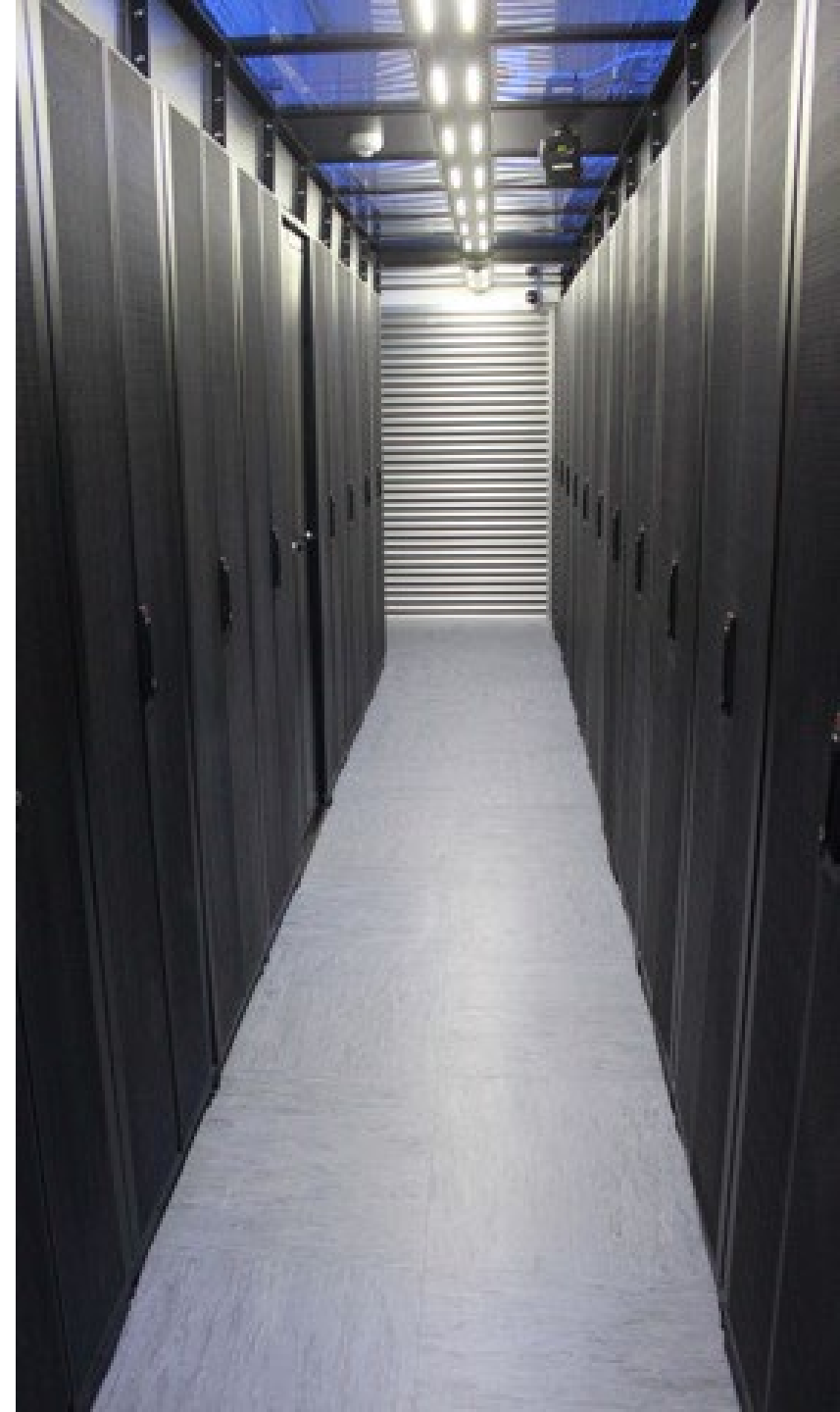
Acting Director IDIA

CTO ilifu



Talk Overview

- Science Gateways in general
- MeerKAT and the SKA
- Federation
- The IDIA Science Gateway
- African shared computing initiatives

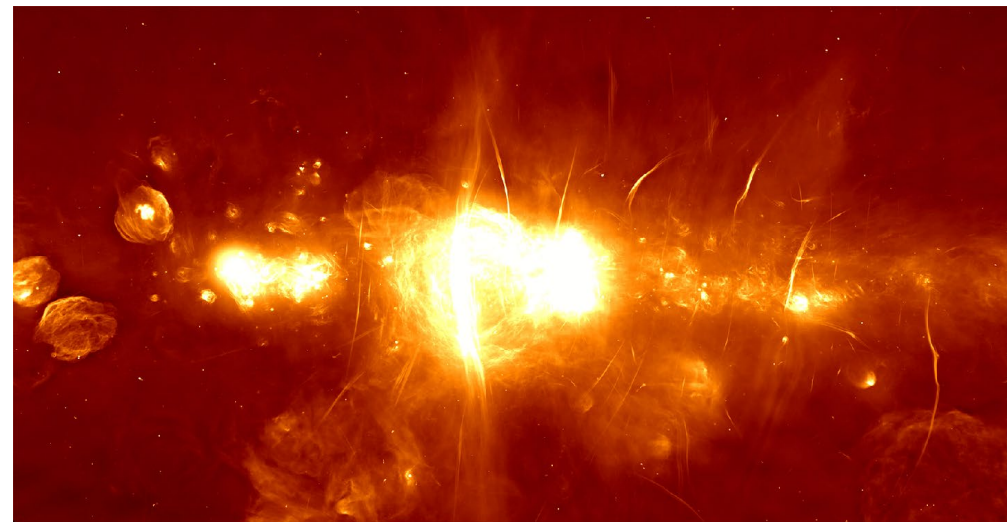
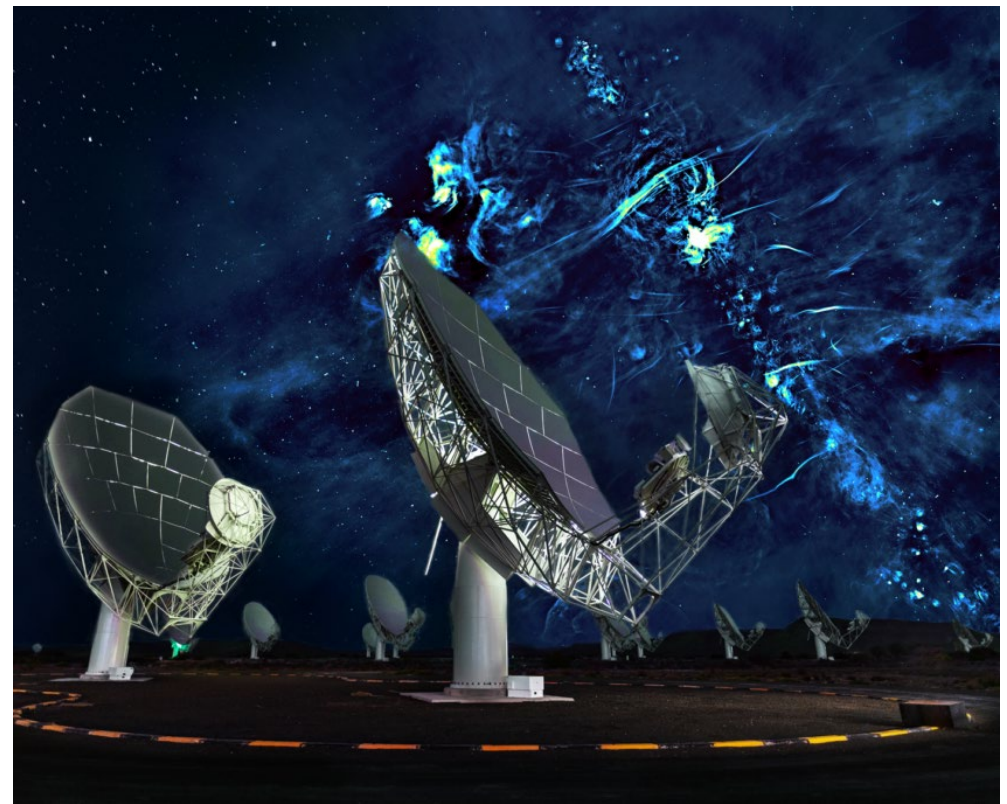




- Partnership of three South African Universities
 - University of Cape Town
 - University of the Western Cape
 - University of Pretoria
- Aims to build the capacity and expertise of the South African university community in data intensive research to support:
 - MeerKAT large survey science projects
 - Large projects on other SKA pathfinder telescopes
- Runs hackathons and provides resources to other organisations running hackathons
- Working on the path to the SKA telescope

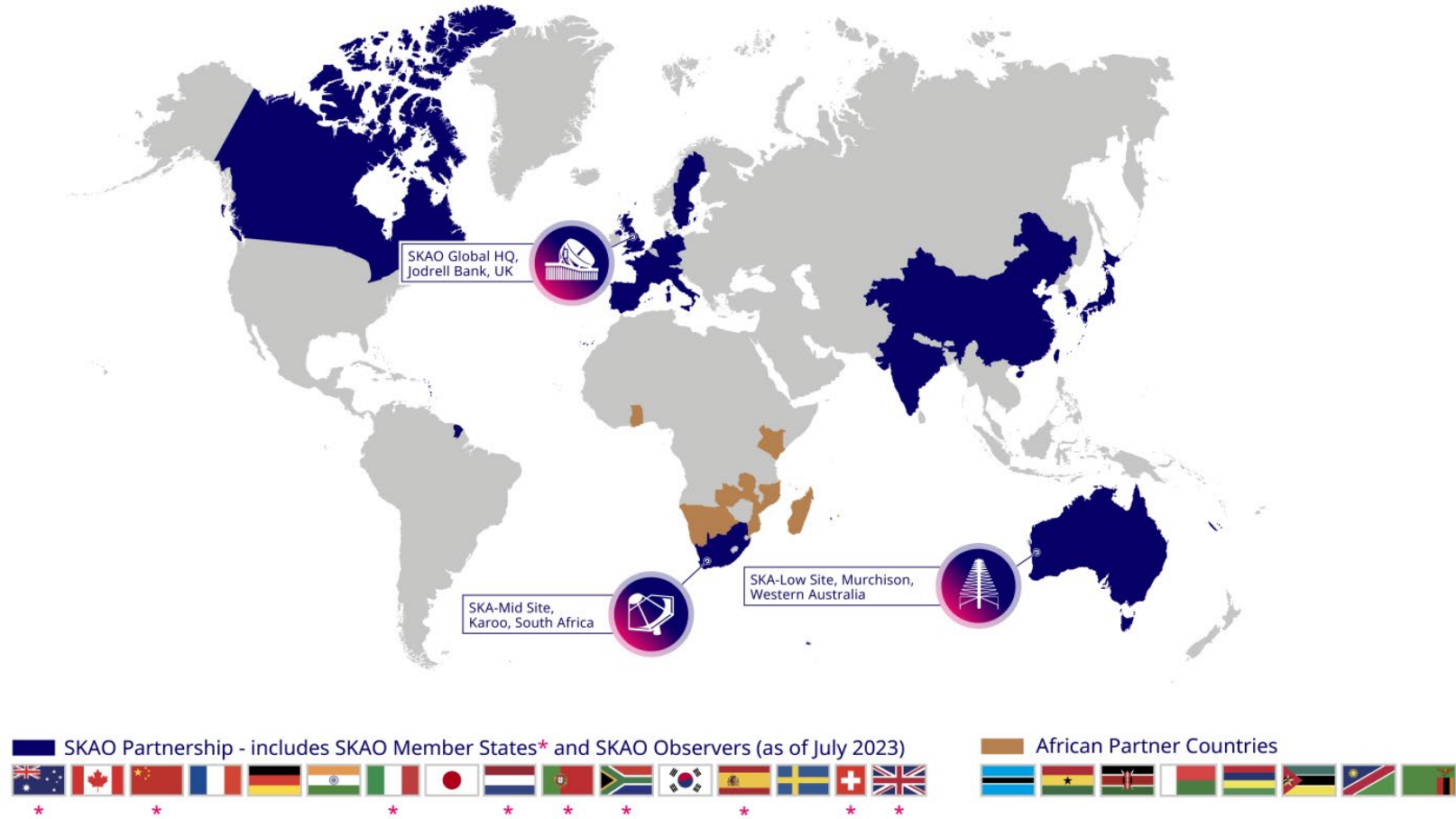
IDIA MeerKAT

- MeerKAT
 - South Africa's SKA precursor
 - Will form the core of the SKA-mid telescope
- Completed (on schedule and within budget) in Mid-2018
- Delivering Transformational Science from Day One
- Owned and operated by South Africa until SKA is built
 - See <http://sarao.ac.za>





Square Kilometre Array (SKA)

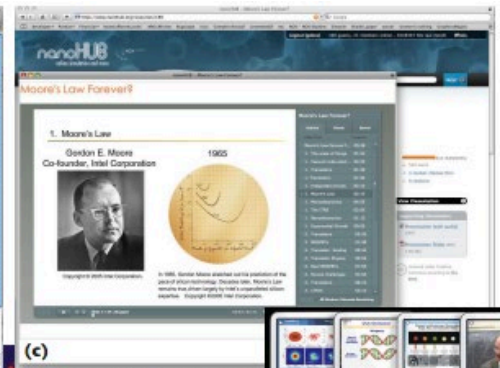
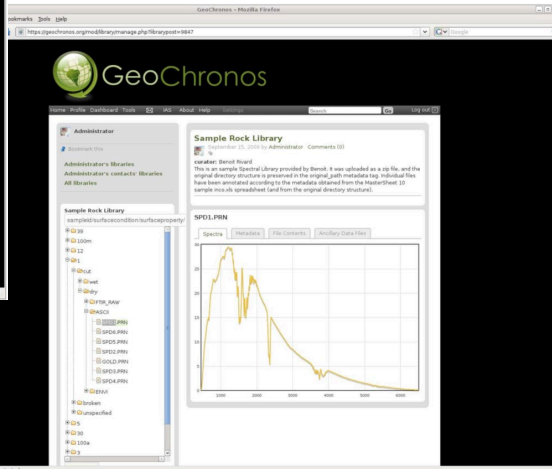


• See <http://skao.int>



Science Gateways

- SGs bring together a set of web-based tools that are useful to some community
- Communities are generally domain based, with tools added to support their work and collaborations



(d)

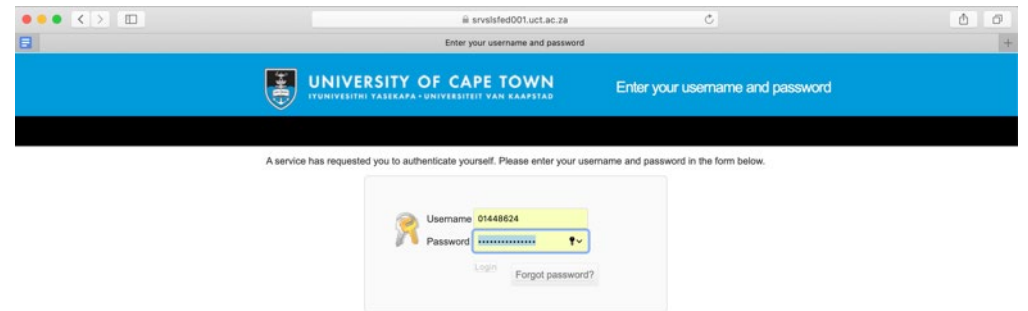
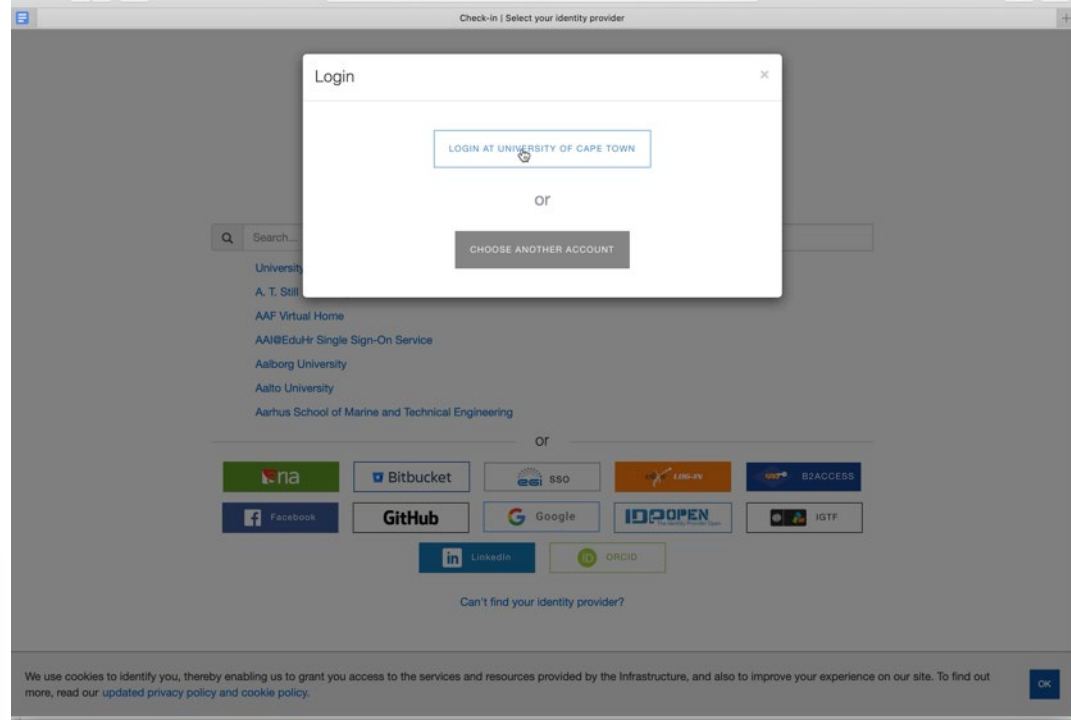
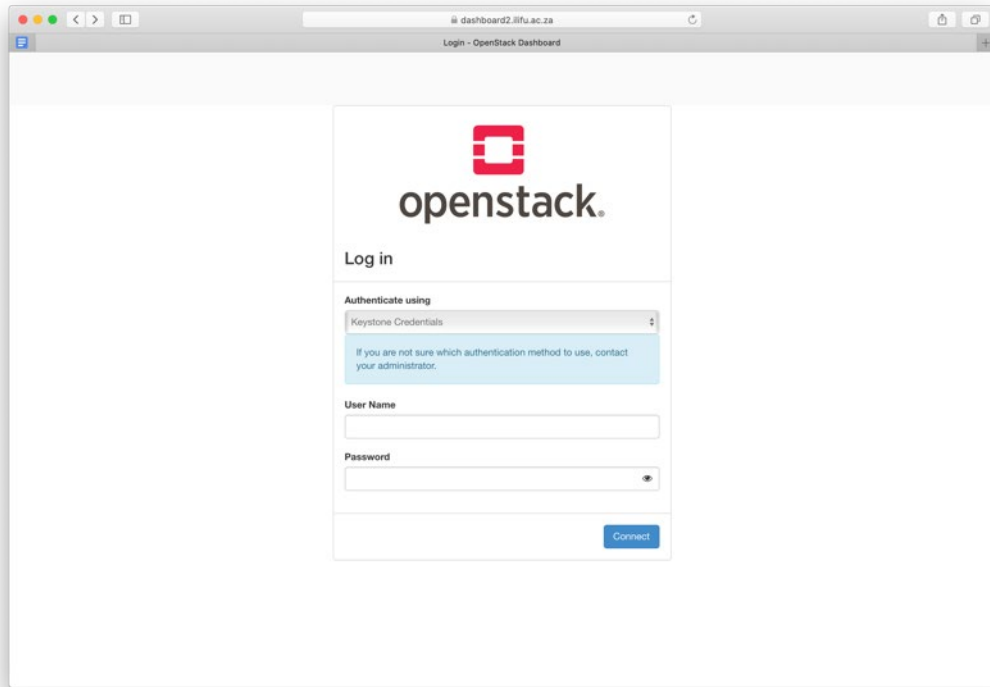


- There are many forms of federation
- Now, most often refers to using common Authentication tools
- More advanced systems also use common Authorization tools
- Grid systems provided these, plus common APIs to many services, but were not user friendly
 - Most grid frameworks designed to sit out of sight of users, controlled by automation systems, or by Science Gateways
- Improvement in web-based federation tools is making them user friendly
- Authentication provided by IdPs which could be from an institution or a company (e.g., Google)



Working with EGI

- IDIA's ilifu cluster accessible via EGI Checkin for about 4 years
- Became part of the production EGI Cloud Federation in 2022
- Most (all?) EOSC systems accessed via EGI Cloud Federation
- EGI Checkin provides access to many Identity Providers (IdPs)
 - These include Edugain / SAFIRE as well as commercial IdPs (e.g., Google)
- The EGI CoManage instance hosts groups that can be managed by individual research teams
- Groups can be linked OpenStack tenants on ilifu so members of those groups can access the tenants from the ilifu dashboard





dashboard2.ilifu.ac.za

Instance Overview - OpenStack Dashboard

openstack. egi

Project / Compute / Overview

Overview

Limit Summary

Category	Used	Limit
Instances	Used 0 of 10	10
VCPUs	Used 0 of 20	20
RAM	Used 0Bytes of 50GB	50GB
Floating IPs	Allocated 1 of 50	50
Security Groups	Used 1 of 10	10
Volumes	Used 0 of 10	10
Volume Storage	Used 0Bytes of 1000GB	1000GB
Shares	False 0 of 50	50
Share Storage	False 0 of 1,000	1,000
Share Snapshots	False 0 of 50	50
Share Snapshots Storage	False 0 of 1,000	1,000
Share Networks	False 0 of 10	10

Usage Summary

Select a period of time to query its usage:
The date should be in YYYY-MM-DD format.

2019-12-02 to 2019-12-03 [Submit](#)

Active Instances: 0
Active RAM: 0Bytes
This Period's VCPU-Hours: 0.00
This Period's GB-Hours: 0.00
This Period's RAM-Hours: 0.00

Usage

Instance Name	VCPUs	Disk	RAM	Time since created
No items to display.				

[Download CSV Summary](#)

dashboard2.ilifu.ac.za

Instance Overview - OpenStack Dashboard

openstack. egi

Project / Compute / Overview

Overview

Limit Summary

Category	Used	Limit
Instances	Used 0 of 10	10
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Volume Storage	Used 0Bytes of 1000GB	1000GB
Shares	False 0 of 50	50
Share Storage	False 0 of 1,000	1,000
Share Snapshots	False 0 of 50	50
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Usage Summary

Select a period of time to query its usage:
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2019-12-02 to 2019-12-03 [Submit](#)

Active Instances: 0
Active RAM: 0Bytes
This Period's VCPU-Hours: 0.00
This Period's GB-Hours: 0.00
This Period's RAM-Hours: 0.00

Usage

Instance Name	VCPUs	Disk	RAM	Time since created
No items to display.				

[Download CSV Summary](#)



COmanage Registry: CoGroups

Name	Description	Open	Active	Member	Owner
egi-datahub-admins	EGI DataHub admins	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
egi-datahub-members	EGI DataHub users having access to EGI Foundation space - Closed group.	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
egi-datahub-sentinel	EGI DataHub users allowed to access Sentinel Data. Open access.	Open	Active	<input type="checkbox"/>	<input type="checkbox"/>
eosc-xgus-supporters	Supporters in the EOSC xGUS	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
ggus-supporters	Users that should be GGUS supporters.	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
IDIA-outreach	Group for testing of user setup for federated resources	Open	Active	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
MeerKAT-Mightee	The MeerKAT International GHz Tiered Extragalactic Exploration (MIGHTEE) is a MeerKAT Large Survey Project to create deep images of the extragalactic sky to explore the cosmic evolution of galaxies. (https://idia.ac.za/mightee/)	Closed	Active	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OnlyforTest	creation test	Open	Active	<input type="checkbox"/>	<input type="checkbox"/>
PRIMAGE_Project	Group of users from the PRIMAGE EU Project	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
UKLSST	LSST:UK Collaboration	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
UKLSST:dev	LSST:UK Development	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>
vo.notebooks.egi.eu	VO for notebooks.egi.eu	Closed	Active	<input type="checkbox"/>	<input type="checkbox"/>

COmanage Registry: EGI User Community

EGI User Community

Welcome to EGI User Community. Please select an action from the menus.

grnet | Terms | Privacy

Copyright © 2016-2018 | Check-in is an EGI service provided by GRNET, receiving funding from the EGI Foundation (EGI.eu) and the EOSC-hub project (Horizon 2020) under Grant number 777536 | Powered by RCIAM

COmanage Registry: Edit IDIA-outreach

Edit IDIA-outreach

Name: IDIA-outreach

Description: Group for testing of user setup for federated resources

Open: Open

Status: Active

SAVE

Email Lists

Name	Status	Type	Actions

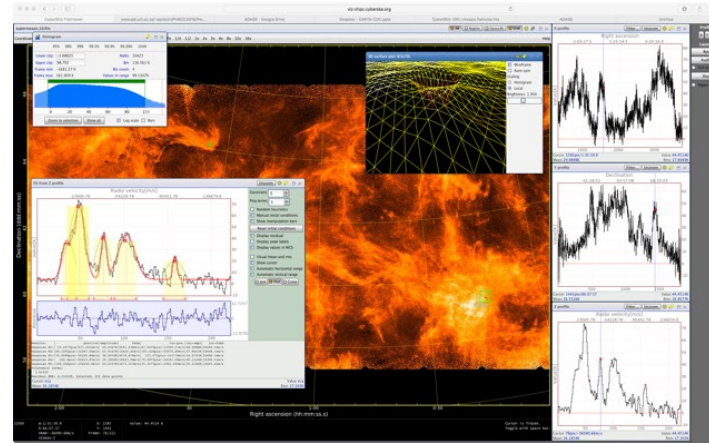
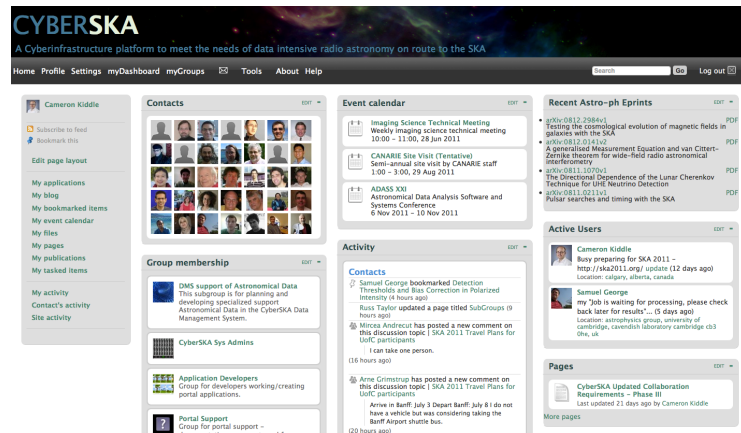
Group Members

Name	Status	Roles	Actions
Robert Simmonds	Active	Group Member and Owner	Edit Delete



IDIA Gateway Planning

- Directors of IDIA have experience with implementing and running SGs
 - CyberSKA Science Gateway ~15 years ago

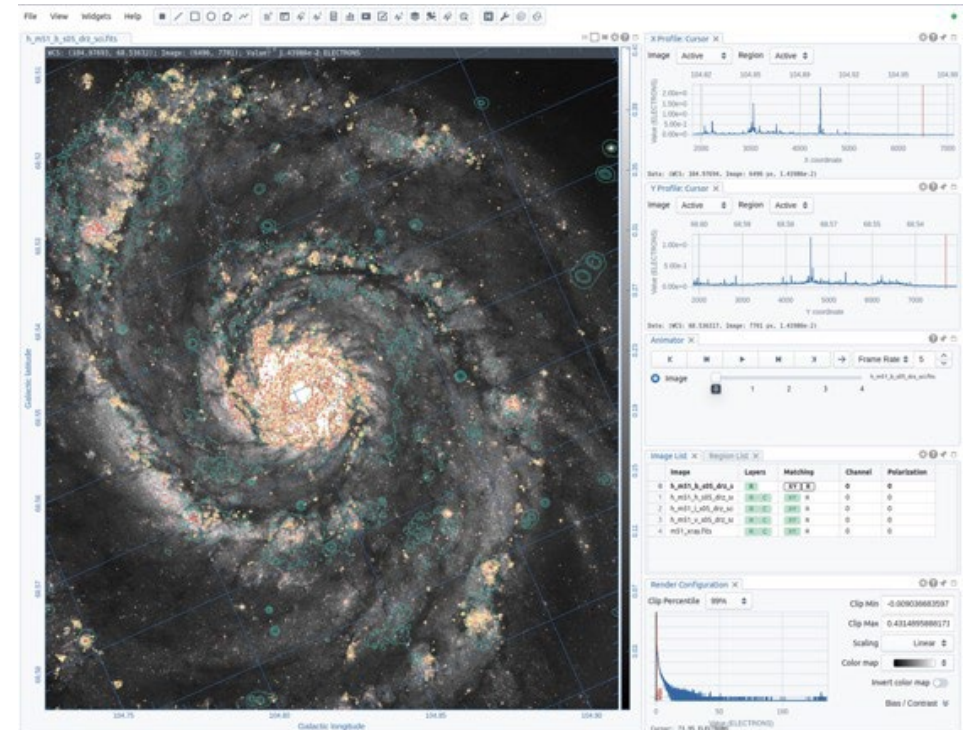


- Simmonds involved in other SGs for a range of Science and Engineering domains over last 20 years



IDIA Gateway Planning : Users

- IDIA Astronomers
- Hackathon / data-science workshop participants
- Accessors of Public Data Releases



- Also need to keep supporting non-Astronomy users of the ilfu resources so want it to be easy to customize views to different communities

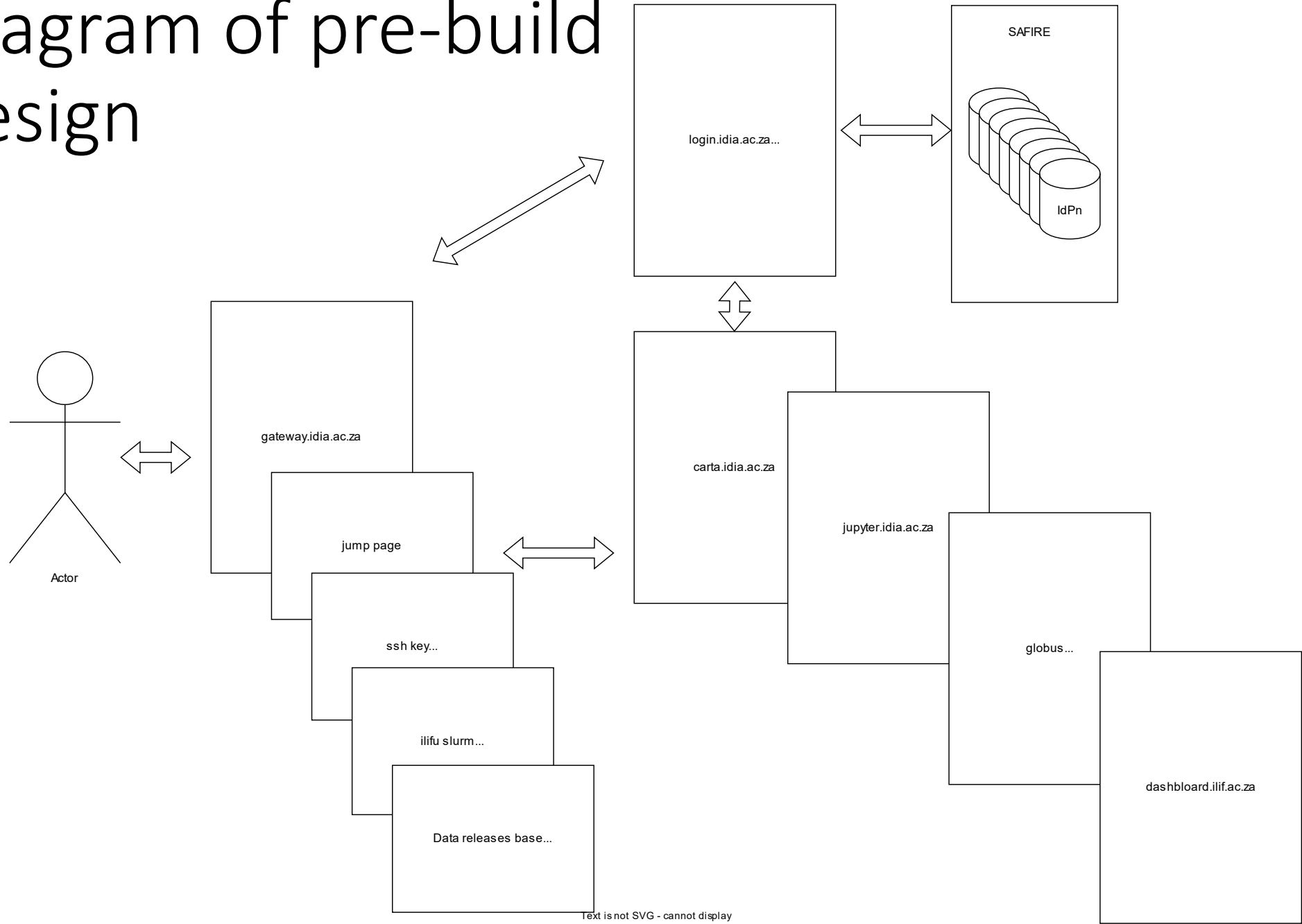


IDIA Gateway High Level Requirements

- System level
 - Limit that amount of code IDIA needs to write and maintain
 - Minimize the amount of effort required to maintain user accounts
 - Facilitate federation with other resources
- Platform level
 - Provide SSO access to best-in-class user applications
- Application level
 - Notebooks, Data Visualization, File Access, WAN Data Transfer, Data Delivery, Account Management



Diagram of pre-build design





Technologies adopted

- Main Portal
 - Django
 - FrontPage
 - Public Data (using Wagtail CMS)
 - SSH Public Key management
 - Usage information
 - Initial container listing (management still done at CLI level for now)
 - Open OnDemand
 - Launch site for authenticated tools
- Other tools
 - Keycloak – AAI : Provides access to SAFIRE / EduGain
 - Jupyter – Notebooks
 - CARTA – Remote Visualization
 - Globus – WAN file transfer
 - OpenStack Dashboard – IaaS compute and Storage control



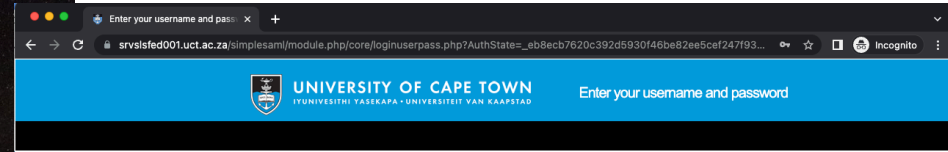
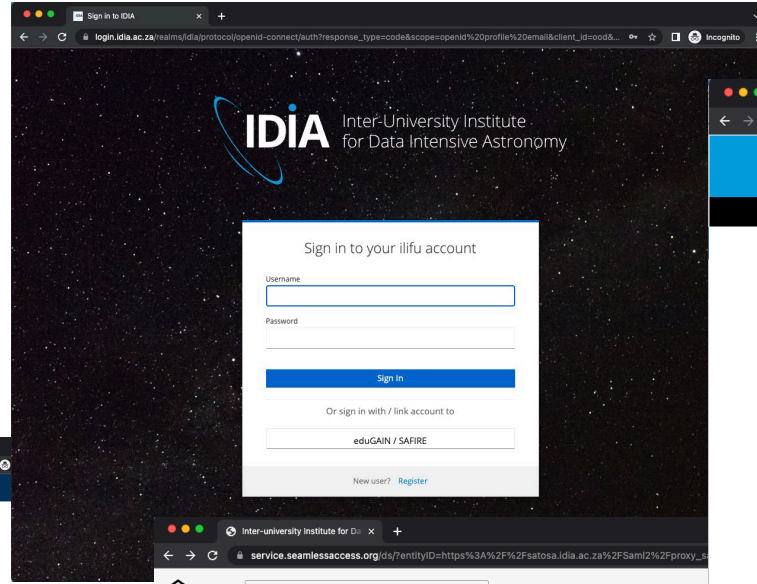
Front
page

The screenshot shows a web browser window with the following elements:

- Browser Tab:** IDIA Science Gateway
- Address Bar:** Not Secure | gateway.idia.ac.za
- Navigation Bar:** IDIA Science Gateway | Application Dashboard | Public Data
- Header:** IDIA Inter-University Institute for Data Intensive Astronomy
- Welcome Message:** Welcome to the IDIA Science Gateway. This provides access to IDIA resources. For information about IDIA see www.idia.ac.za.
- Application Dashboard:** A blue button labeled "Application Dashboard". Description: Access secure IDIA / ilifu resources. An ilifu account is required for this. This will give you access to various resources including Jupyter Notebooks, CARTA, SSH Key Management, Globus and OpenStack. This also allows you to link your institution account to your ilifu account using eduGAIN / SAFIRE.
- Request Account:** A blue button labeled "Request Account". Description: Request an ilifu account for access to the IDIA / ilifu systems.
- Public Data:** A blue button labeled "Public Data". Description: IDIA provides access to public data sets that can be accessed without an IDIA account.
- Footer:** Web: <http://idia.ac.za> | Computing support: support@ilifu.ac.za | Information: info@idia.ac.za
IDIA is a partnership between the University of Cape Town, the University of the Western Cape, and the University of Pretoria.



Login

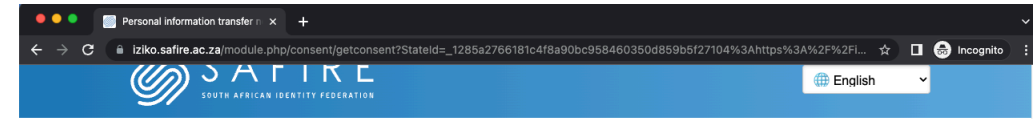
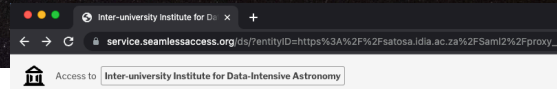


Welcome to the IDIA Science Gateway. This provides access to IDIA resources. For information about IDIA see www.idia.ac.za.

Access secure IDIA / ilifu resources. An ilifu account is required for this. This will give you access to various resources including Jupyter Notebooks, CARTA, SSH Key Management, Globus and OpenStack. This also allows you to link your institution account to your ilifu account using eduGAIN / SAFIRE.

Request an ilifu account for access to the IDIA / ilifu systems. [Request Account](#)

IDIA provides access to public data sets that can be accessed without an IDIA account. [Public Data](#)



Personal information transfer notice

You are about to log into Inter-university Institute for Data-Intensive Astronomy. This service is operated by Inter-university Institute for Data-Intensive Astronomy.

This service describes itself as: *Gateway to IDIA and Ilifu facilities*

Some of your personal information (see below) will be transferred from University of Cape Town to Inter-university Institute for Data-Intensive Astronomy.

[Privacy policy for the service Inter-university Institute for Data-Intensive Astronomy](#)

[Continue to Service](#) (12)

Information that will be sent to Inter-university Institute for Data-Intensive Astronomy

Surname	Simmonds
Given name	Robert
Display name	Robert Simmonds
Mail	robert.simmonds@uct.ac.za
Person's principal name at home organization	01448624@uct.ac.za
Affiliation at home organization	<ul style="list-style-type: none"> staff@uct.ac.za staff@sci.uct.ac.za staff@10000518.uct.ac.za member@uct.ac.za



Launch Page

A screenshot of a web browser displaying the IDIA Dashboard. The browser's address bar shows the URL <https://openondemand.idia.ac.za/pun/sys/dashboard>. The page has a blue header with the text "IDIA Dashboard" and navigation menus for "Apps", "Files", and "Jobs". The main content area features the IDIA logo and the text "Inter-University Institute for Data Intensive Astronomy". Below this is a paragraph: "This page provides access to the IDIA / ilifu web based services. This include ones that enable users to access their group usage information and to manage SSH public keys." A grid of 12 service tiles is displayed, each with an icon and a label: Jupyter, CARTA, CARTA (Latest Beta), Usage Data, SSH Key Management, Globus Transfers, OpenStack, ilifu Status, Home Directory, Containers (Beta), Job Composer, and Active Jobs. The bottom of the browser window shows a partial URL: <https://openondemand.idia.ac.za/pun/sys/dashboard/apps/show/activej...>



Jupyter

The screenshot shows the JupyterLab interface in a web browser. The top navigation bar includes 'File', 'Edit', 'View', 'Run', 'Kernel', 'Git', 'Tabs', 'Settings', and 'Help'. The left sidebar contains 'OPEN TABS' (partition.py, fn1.ipynb, fn01.ipynb, Terminal 1, Launcher), 'KERNELS' (fn1.ipynb, robfin004.ipynb, fn01.ipynb), and 'TERMINALS' (terminals/1, terminals/2). The main area displays a 'Notebook' grid with various kernels: Python 3 (ipykernel), ASTRO-GPU (PyTorch), ASTRO-GPU (TensorFlow), ASTRO-R, CASA-5.5, CASA-6, HI_LIM PY, katca_py3 (public), KERN-2, KERN-5, PY2, R 4.0.3, SF-PY2, SF-PY3, and SIMBA. A 'Console' section is visible at the bottom. A terminal window on the right shows a Python script for image partitioning:

```
1 #!/usr/bin/env python
2 # Runs partition on the input MS
3 #!python
4 #!python
5 #!python
6 #!python
7 #!python
8 #!python
9 #!python
10 #!python
11 #!python
12 #!python
13 #!python
14 #!python
15 #!python
16 #!python
17 #!python
18 #!python
19 #!python
20 #!python
21 #!python
22 #!python
23 #!python
24 #!python
25 #!python
26 #!python
27 #!python
28 #!python
29 #!python
30 #!python
31 #!python
32 #!python
33 #!python
34 #!python
35 #!python
36 #!python
37 #!python
```

The screenshot shows the IDIA Dashboard website. It features a header with the IDIA logo and the text 'Inter-University Institute for Data Intensive Astronomy'. Below the header, there is a section titled 'Launch Jupyter Lab' with a 'Start' button. To the right of this section, there is a 'Server Options' table:

Job Profile	Available Jobs
Minimum (1 core)	240
Small (2 core)	119
Medium (4 core)	58
Large (8 core)	27
High Max (16 core)	11
Max (32 core)	4



CARTA Visualization

Dashboard - IDIA Dashboard

openondemand.idia.ac.za

IDIA Dashboard Apps Files Jobs

IDIA Inter-University Institute for Data Intensive Astronomy

This page provides access to the IDIA / iflu web based services. This include ones that enable users to access their group usage information and to manage SSH public keys.

- Jupyter
- CARTA
- CARTA (Latest Beta)
- Usage Data
- SSH Key Management
- Globus Transfers
- OpenStack
- iflu Status
- Home Directory
- Containers (Beta)
- slurm
- Job Composer

Dashboard - IDIA Dashboard

CARTA

WELCOME TO THE CARTA 3.0.0-beta.3 USER ANALYSIS AND RENDERING TOOLKIT

- HELP CARTA MANUAL
- RENDER CARTA DATA
- SHOW LOGS
- LOGOUT

CARTA server running

If you have any problems, comments or suggestions, please contact us.

Dashboard - IDIA Dashboard

CARTA

carta-idp.idia.ac.za

File View Widgets Help

supermosaic.10.fits

WCS: (126.647, -0.766); Image: (1733, 559); Value: 1.71609e+1 K; VELO-LSR (): 5132.3416; Polarization: Stokes I

Galactic latitude

Galactic longitude

X Profile: Cursor

Image Active Region Active

Value (K)

X coordinate

Data: (WCS: 126.644, Image: 1733 px, 1.71609e+1)

Y Profile: Cursor

Image Active Region Active

Value (K)

Y coordinate

Data: (WCS: -0.766, Image: 559 px, 1.71609e+1)

Image List Animator Region List

Channel

0 27 55 110 165 221 VELO-5132.3416 undefined

0 221

Render Configuration

90% 95% 99% 99.5% 99.9% 99.95% 99.99% 100% Custom

Histogram Per-Channel

Clip Min -20.67735774811

Clip Max 56.774803202345

Scaling Linear

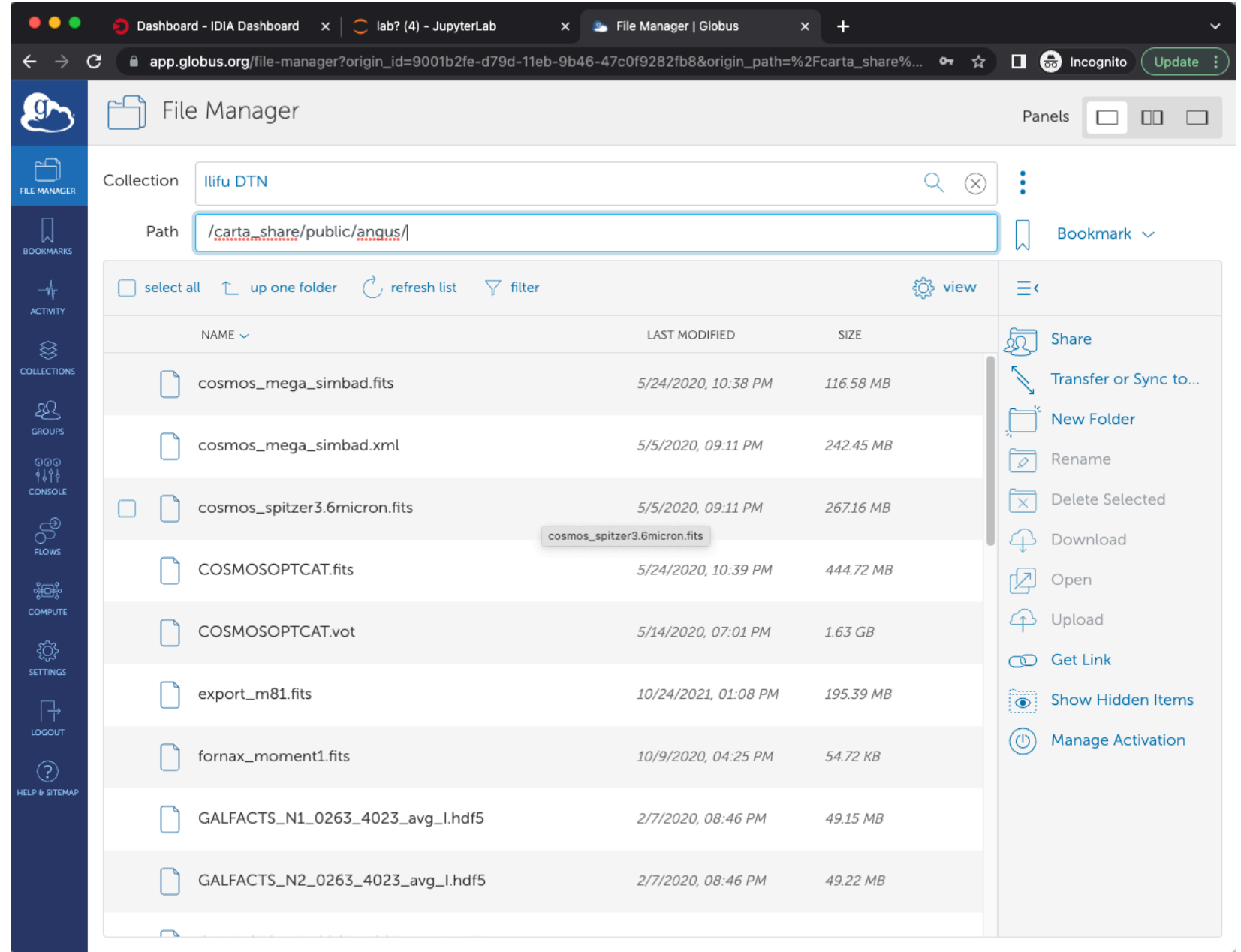
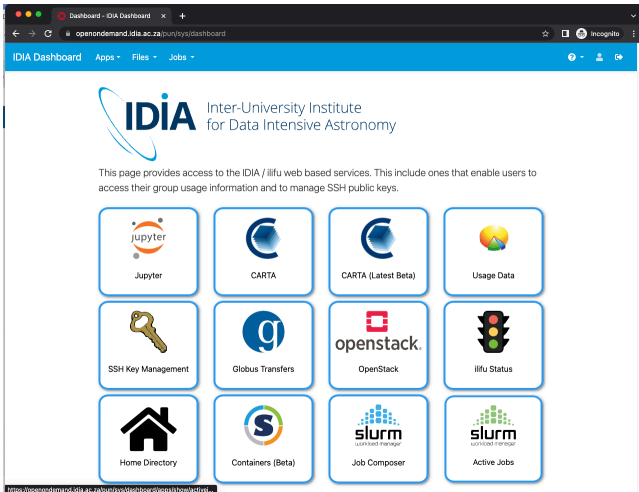
Color map

Invert color map

Value (K)



Globus File Transfer





Key Management and Usage Data

powered by **OpenDemand**
<https://opendemand2.ilifu.ac.za/reports/dashboard/apps/sshkey/>

openstack. ilifu-slurm | dashboard.ilifu.ac.za | robert.simmonds@uct.ac.za

Project / Compute / Overview

Overview

Limit Summary

Resource	Used	Limit
Instances	Used 133 of 999	
VCPUs	Used 3,272 of 8,192	
RAM	Used 24.3TB of 488.3TB	
Floating IPs	Allocated 42 of 50	
Security Groups	Used 17 of 100	
Volumes	Used 342 of 999	
Volume Storage	Used 12.8TB of 400TB	
Shares	False 7 of 50	
Share Storage	False 1,310,480 of 2,000,000	
Share Snapshots	False 0 of 50	
Share Snapshots Storage	False 0 of 1,000	
Share Networks	False 0 of 10	

Usage Summary

Select a period of time to query its usage:
The date should be in YYYY-MM-DD format.

2019-06-16 to 2019-06-17

Active Instances:	130
Active RAM:	24.3TB
This Period's VCPU-Hours:	150231.78
This Period's GB-Hours:	128111.76
This Period's RAM-Hours:	1175062469.62

openstack. ilifu-slurm | dashboard.ilifu.ac.za | robert.simmonds@uct.ac.za

Project / Compute / Instances

Instances

Instance Name = Filter More Actions

Displaying 5 items

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
<input type="checkbox"/> carta9	carta-productio n-june2019a	mtu_8800 10.102.28.174 192.168.100.113 Floating IPs: 154.114.37.104	ilifu-E	cambridge1	Active	nova	None	Running	1 week, 5 days	Create Snapshot
<input type="checkbox"/> carta-mount er	idia-ubuntu-18- 04-Ninja	mtu_8800 192.168.100.102 Floating IPs: 154.114.37.167	ilifu-D	cambridge1	Active	nova	None	Running	2 weeks, 6 days	Create Snapshot
	BeeGFS-net	10.102.26.113								
	Ceph-net	10.102.28.118								

openstack. ilifu-slurm | dashboard.ilifu.ac.za | robert.simmonds@uct.ac.za

Project / Network / Network Topology

Network Topology

Topology

openstack. ilifu-slurm | dashboard.ilifu.ac.za | robert.simmonds@uct.ac.za

Project / Share / Shares

Shares

Filter

Displaying 7 items

Name	Description	Metadata	Size	Status	Protocol	Visibility	Share Network	Share Group	Actions
<input type="checkbox"/> cartviz	FS used to hold image cubes for the C...		10000GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> idia	Production IDIA Share		409600GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> biobackup	In production use. Backup data from C...		204800GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> meerlicht	In production use		51200GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> sanbi	In production use		20480GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> idia-pipelin es	In production use		102400GiB	Available	CEPHFS	private	-	-	Edit Share
<input type="checkbox"/> CBIO-data 1	In production use - Main CBio data v0...		512000GiB	Available	CEPHFS	private	-	-	Edit Share

Displaying 7 items



Data Presentation

- IDIA has never intended to be a data archive
 - IDIA systems are not architected with this use case in mind
 - Also need to be careful of trying to take on activities that require additional support worker skills and effort
- Recently there have been requests to host some data releases
 - IDIA can do this, but would be good to work with partners such as NICIS to provide increased data resilience
- Will be creating focus group withing IDIA on what forms of Data Presentation and Access are most helpful



Data Views : Data Release (SARAO)

A screenshot of a web browser displaying the SARAO data release page. The browser's address bar shows the URL: https://archive-gw-1.kat.ac.za/public/repository/10.48479/7epd-w356/index.html. The page header includes the logos for NRF (National Research Foundation) and SARAO (South African Radio Astronomy Observatory). The main heading is "MeerKAT Galaxy Cluster Legacy Survey Data Release 1 (MGCLS DR1)" with a DOI link: https://doi.org/10.48479/7epd-w356. The text describes the data release, including uncalibrated visibilities, continuum imaging products, and source catalogues. It also provides a citation for the data and a list of DR1 products: Visibilities, Basic imaging products, and Enhanced imaging products. At the bottom, there is a Creative Commons Attribution-NonCommercial 4.0 International License logo and text.

MeerKAT Galaxy Cluster Legacy Survey Data Release 1 (MGCLS DR1)

<https://doi.org/10.48479/7epd-w356>

The first data release of the [MeerKAT Galaxy Cluster Legacy Survey](#) (MGCLS) consists of the uncalibrated visibilities, a set of continuum imaging products, and several source catalogues. All clusters have Stokes-I products, and approximately 40% have Stokes-Q and U products as well. For full details, including caveats for usage, see [the survey overview and DR1 paper \(Knowles et al., 2021\)](#).

When using any of the below products, please cite Knowles et al. (2021) and include the following Observatory acknowledgement: "MGCLS data products were provided by the South African Radio Astronomy Observatory and the MGCLS team and were derived from observations with the MeerKAT radio telescope. The MeerKAT telescope is operated by the South African Radio Astronomy Observatory, which is a facility of the National Research Foundation, an agency of the Department of Science and Innovation."

The DR1 products:

- **Visibilities:** These can be accessed through the [MeerKAT archive](#), under proposal ID SSV-20180624-FC-01.
- **Basic imaging products:** Full field of view, with no primary beam correction, available at full resolution only (~7-8"). Consists of a single 16-plane cube with integrated intensity, spectral index, and 14 frequency planes. Useful for full-field searches and source finding.
Access: [Basic products](#)
- **Enhanced imaging products:** Primary beam-corrected, showing the inner 1.2° x 1.2° of the field. Available at both full- (~7-8") and convolved 15"-resolutions. There are two types of enhanced products: *five-plane cubes* consisting of intensity and spectral index, associated uncertainties, and the χ^2 of the combined to fit; and, *frequency cubes* consisting of 12 frequency planes with centre frequencies of 908, 952, 996, 1044, 1093, 1145, 1318, 1382, 1448, 1482, 1594, and 1656 MHz.
Access: [Enhanced products](#)

There are several source catalogues made available with the DR1 products, with excerpts provided in Tables in the DR1 paper.

- **Compact source catalogue (Table 2):** [Download](#)



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Data Views : Searchable index (CADDC)

Advanced Search interface showing search filters and constraints.

Search Results ADQL

Search Reset

Click on ? for explanations

Observation Constraints

- Observation ID
- P.I. Name
- Proposal ID
- Proposal Title
- Proposal Keywords
- Data Release Date

Spatial Constraints

- Target
- Pixel Scale
- Do Spatial Cutout

Temporal Constraints

- Observation Date
- Integration Time
- Time Span

Spectral Constraints

- Spectral Coverage
- Spectral Sampling
- Resolving Power
- Bandpass Width
- Rest-frame Energy
- Do Spectral Cutout

Additional Constraints

Band	Collection	Instrument	Filter	Cal. Lev.	Data Type	Obs. Type
All (13)	All (37)	All (249)	All (4528)	All (7)	All (9)	All (98)
Infrared	CFHT	ACS	-1.800	(4) Analysis Product	cube	ACQUIRE
Infrared Optical	CFHTMEGAPIPE	ACS/SBC	-1.900	(3) Product	eventlist	ACQUISITION
Infrared Optical U	CFHTTERAPIX	ACS/WFC	-35.000	(2) Calibrated	catalog	ALIGN
Infrared Optical U	CFHTWIRWOLF	ALAIHI-AC SIS	0	(1) Raw Standard	image	ARC
Millimeter	HST	AWEOWEO-AC SIS	0.35MB	(0) Raw Instrument	measurements	ASTAR
Millimeter Infrared	HSTHLA	AWEOWEO-AC SIS	0.35MB	Unknown (-1)	Other	BIAS
Optical	JWST	COS/FUV	0.45MB	Unknown	spectrum	BPM
Optical UV	GEMINI	COS/NUV	0.45MB	Unknown	timeseries	CAL
Radio	GEMINICADC	CPAPIR	0.75sum	Unknown	visibility	CALIB
UV	JCMT	Cassegrain Spectro	0.85sum	Unknown		COMP
UV EUV	JCMTLS	Cassegrain Spectro	0.6530	Unknown		COMPARISON

Advanced Search Results table showing search results for a query.

Canada.ca > National Research Council Canada > Canadian Astronomy Data Centre

Telescope data > Advanced data products > Services > Advanced search > Help > Sign in

Advanced Search

Search Results ADQL

Download complete query results: [VOTable](#) [CSV](#) [TSV](#) [Bookmark URL](#)

Mark	Preview	Collection	Obs. ID	Product ID	RA (J2000.0)	Dec. (J2000.0)	Start Date	Instrument	Int. Time	Target Na...	Filter
<input type="checkbox"/>	Preview	CGPS	MEL2_DRAO-ST	1420MHz	19:17:38.16	+18:58:40.8		DRAO-ST		MEL2	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEL2_DRAO-ST	Hi-line	19:17:38.16	+18:58:40.8		DRAO-ST		MEL2	21 cm
<input type="checkbox"/>	Preview	CGPS	MEL1_DRAO-ST	1420MHz	19:32:27.26	+17:04:57.2		DRAO-ST		MEL1	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEL1_DRAO-ST	Hi-line	19:32:27.26	+17:04:57.2		DRAO-ST		MEL1	21 cm
<input type="checkbox"/>	Preview	CGPS	MEK2_DRAO-ST	1420MHz	19:25:38.58	+22:30:25.1		DRAO-ST		MEK2	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEK2_DRAO-ST	Hi-line	19:25:38.58	+22:30:25.1		DRAO-ST		MEK2	21 cm
<input type="checkbox"/>	Preview	CGPS	MEK1_DRAO-ST	1420MHz	19:40:42.18	+20:34:24.9		DRAO-ST		MEK1	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEK1_DRAO-ST	Hi-line	19:40:42.18	+20:34:24.9		DRAO-ST		MEK1	21 cm
<input type="checkbox"/>	Preview	CGPS	MEJ2_DRAO-ST	1420MHz	19:34:00.68	+26:01:01.1		DRAO-ST		MEJ2	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEJ2_DRAO-ST	Hi-line	19:34:00.68	+26:01:01.1		DRAO-ST		MEJ2	21 cm
<input type="checkbox"/>	Preview	CGPS	MEJ1_DRAO-ST	1420MHz	19:49:21.30	+24:02:11.7		DRAO-ST		MEJ1	1420 MHz
<input type="checkbox"/>	Preview	CGPS	MEJ1_DRAO-ST	Hi-line	19:49:21.30	+24:02:11.7		DRAO-ST		MEJ1	21 cm
<input type="checkbox"/>	Preview	CGPS	ME5_DRAO-ST	Hi-line	22:31:47.40	+75:30:12.4		DRAO-ST		ME5	21 cm
<input type="checkbox"/>	Preview	CGPS	ME5_DRAO-ST	1420MHz-QU	22:31:47.40	+75:30:12.4		DRAO-ST		ME5	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME5_DRAO-ST	1420MHz	22:31:47.40	+75:30:12.4		DRAO-ST		ME5	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME4_DRAO-ST	Hi-line	22:59:06.65	+71:59:00.7		DRAO-ST		ME4	21 cm
<input type="checkbox"/>	Preview	CGPS	ME4_DRAO-ST	1420MHz	22:59:06.65	+71:59:00.7		DRAO-ST		ME4	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME4_DRAO-ST	1420MHz-QU	22:59:06.65	+71:59:00.7		DRAO-ST		ME4	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME3_DRAO-ST	Hi-line	23:17:35.07	+68:18:03.9		DRAO-ST		ME3	21 cm
<input type="checkbox"/>	Preview	CGPS	ME3_DRAO-ST	1420MHz-QU	23:17:35.07	+68:18:03.9		DRAO-ST		ME3	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME3_DRAO-ST	1420MHz	23:17:35.07	+68:18:03.9		DRAO-ST		ME3	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME2_DRAO-ST	1420MHz-QU	23:16:33.22	+63:58:40.4		DRAO-ST		ME2	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME2_DRAO-ST	1420MHz	23:16:33.22	+63:58:40.4		DRAO-ST		ME2	1420 MHz
<input type="checkbox"/>	Preview	CGPS	ME2_DRAO-ST	Hi-line	23:16:33.22	+63:58:40.4		DRAO-ST		ME2	21 cm
<input type="checkbox"/>	Preview	CGPS	ME2_DRAO-ST	408MHz	23:16:33.22	+63:58:40.4		DRAO-ST		ME2	408 MHz



Simple File Views

- Provided by several tools already
 - OnDemand
 - Jupyter
 - Globus
 - Etc.
- Good enough if you know what is in the file from its name
- Not good for searching

A screenshot of a web browser window displaying the File Manager interface in Globus. The browser tabs include "Dashboard - IDIA Dashboard", "lab? (4) - JupyterLab", and "File Manager | Globus". The address bar shows the URL "app.globus.org/file-manager?origin_id=9001b2fe-d79d-11eb-9b46-47c0f9282fb8&origin_path=%2Fcarta_share%...". The interface shows a "Collection" of "lifu DTN" and a "Path" of "/carta_share/public/angus/". A table lists files with columns for "NAME", "LAST MODIFIED", and "SIZE". A right-hand sidebar contains various actions like "Share", "Transfer or Sync to...", "New Folder", "Rename", "Delete Selected", "Download", "Open", "Upload", "Get Link", "Show Hidden Items", and "Manage Activation".

NAME	LAST MODIFIED	SIZE
cosmos_mega_simbad.fits	5/24/2020, 10:38 PM	116.58 MB
cosmos_mega_simbad.xml	5/5/2020, 09:11 PM	242.45 MB
cosmos_spitzer3.6micron.fits	5/5/2020, 09:11 PM	267.16 MB
COSMOSOPTCAT.fits	5/24/2020, 10:39 PM	444.72 MB
COSMOSOPTCAT.vot	5/14/2020, 07:01 PM	1.63 GB
export_m81.fits	10/24/2021, 01:08 PM	195.39 MB
fornax_moment1.fits	10/9/2020, 04:25 PM	54.72 KB
GALFACTS_N1_0263_4023_avg_l.hdf5	2/7/2020, 08:46 PM	49.15 MB
GALFACTS_N2_0263_4023_avg_l.hdf5	2/7/2020, 08:46 PM	49.22 MB



Initial Public Data Publication



Welcome to the IDIA Science Gateway. This provides access to IDIA resources. For information about IDIA see www.idia.ac.za.

[Application Dashboard](#)

Access secure IDIA / iflu resources. An iflu account is required for this. This will give you access to various resources including Jupyter Notebooks, CARTA, SSH Key Management, Globus and OpenStack. This also allows you to link your institution account to your iflu account using eduGAIN / SAFIRE.

Request an iflu account for access to the IDIA / iflu systems. [Request Account](#)

[Public Data](#)

IDIA provides access to public data sets that can be accessed without an IDIA account.

Public Data Archive
Public data archive for IDIA support projects.

[CARTA Examples](#) The public Images and catalogues

Web: <https://idia.ac.za> Computing support: support@iflu.ac.za Info

IDIA is a partnership between the University of Cape Town, the University of the Western Cape, and the University of Pretoria.

CARTA Examples
The public Images and catalogues for software testing and CARTA tutorials

The CARTA Example data consists of two mosaics files, and the tutorial data in the COSMOS field, G31 bandscan, HD163296, HDF5_fitsidia, Herschel_pacs_spire, M51, Ophi, Stokes, Gaussian_array and set_allsky. All the files (images and catalogues) for each tutorial data can be accessed via the attached links below.

NB. All the example images and catalogue data are collected from the web. They are all public data. These images and catalogue data should only be used for software testing purposes and CARTA tutorials.

Mosaics

- [mosaic-w1-int.fits](#)
- [supermosaic.10.hdf5](#)

COSMOS field

- [cosmos_0_simbad.xml](#)
- [cosmos_1_simbad.xml](#)
- [cosmos_2_simbad.xml](#)
- [cosmos_3_simbad.xml](#)
- [cosmos_herschel250micron.fits](#)
- [cosmos_spitzer24micron.fits](#)
- [cosmos_spitzer3.6micron.fits](#)

G31 bandscan



Application catalogue

- Initial gateway has simple listing of available containers
- Working on providing featureful container management system using sregistry

A screenshot of a web browser window displaying a list of containers. The browser's address bar shows the URL `openondemand.idia.ac.za/public/containers/containerlist.html`. The page title is "Containers found in /idia/software/containers". The main content is a table with two columns: "Container" and "Modification time".

Container	Modification time
ASTRO-GPU-PyTorch-2023-02-21.simg	Feb 21 2023 15:08:14 +0200
ASTRO-GPU-PyTorch.simg -> ASTRO-GPU-PyTorch-2023-02-21.simg	
ASTRO-GPU-TF-2021-07-08.simg	Jul 08 2021 11:43:38 +0200
ASTRO-GPU-TF-2023-02-21.simg	Feb 21 2023 15:09:02 +0200
ASTRO-GPU.simg -> ASTRO-GPU-TF-2023-02-21.simg	
ASTRO-PY3-2020-10-16.sif	Oct 20 2020 09:01:24 +0200
ASTRO-PY3-2020-12-01.simg	Dec 02 2020 14:39:20 +0200
ASTRO-PY3-2021-02-07.simg	Feb 08 2021 14:38:44 +0200
ASTRO-PY3-2021-03-03.simg	Mar 03 2021 14:44:59 +0200
ASTRO-PY3-2021-03-23.simg	Mar 23 2021 13:56:16 +0200
ASTRO-PY3-2021-04-14.simg	Apr 14 2021 13:51:25 +0200
ASTRO-PY3-2021-05-21.simg	May 24 2021 15:00:45 +0200
ASTRO-PY3-2021-07-01.simg	Jul 02 2021 10:41:51 +0200
ASTRO-PY3-2021-07-20.simg	Jul 20 2021 15:31:54 +0200
ASTRO-PY3-2021-08-12.simg	Aug 12 2021 09:34:50 +0200
ASTRO-PY3-2021-08-26.simg	Aug 26 2021 11:25:52 +0200
ASTRO-PY3-2021-09-23.simg	Sep 23 2021 11:20:38 +0200
ASTRO-PY3-2021-10-26.simg	Oct 26 2021 14:36:36 +0200
ASTRO-PY3-2022-01-06.simg	Jan 07 2022 08:34:18 +0200
ASTRO-PY3-2022-01-12.simg	Jan 12 2022 10:02:09 +0200
ASTRO-PY3-2022-01-17.simg	Jan 17 2022 15:26:13 +0200
ASTRO-PY3-2022-01-26.simg	Jan 26 2022 12:10:13 +0200
ASTRO-PY3-2022-02-22.simg	Feb 22 2022 10:53:58 +0200
ASTRO-PY3-2022-05-13.simg	Jun 23 2022 15:56:03 +0200
ASTRO-PY3.8-2022-06-27.sif	Jun 27 2022 15:29:41 +0200
ASTRO-PY3.8-2022-09-16.simg	Sep 19 2022 09:07:40 +0200
ASTRO-PY3.8-2022-10-18.simg	Oct 18 2022 12:21:29 +0200
ASTRO-PY3.8-2023-01-31.simg	Feb 01 2023 08:51:50 +0200
ASTRO-PY3.8-2023-04-05.simg	Apr 05 2023 09:55:19 +0200
ASTRO-PY3.8-2023-06-14.simg	Jun 14 2023 14:56:17 +0200

A screenshot of the Singularity Registry website. The browser's address bar shows `registry.idia.ac.za`. The page features a header with the "SREGISTRY" logo and navigation links for "Containers", "Teams", "User Guide", "Tools", and "Login". The main heading reads "The Inter-university Institute for Data Intensive Astronomy" with the subtitle "Your Open Source Registry for Singularity containers." Below this is a large image of a grey container box with a white circular logo on top. To the right of the image, the text "Package your Analysis" is followed by a paragraph: "Whether you are working from your own computer, or a cluster environment, you can capture your analysis components and save them to **reproducible containers**". A red button labeled "View Collections" is positioned at the bottom right of the text area.



African Shared Computing Projects

- African Open Science Platform
 - Has been in planning for 5+ years
 - 3 initial sites have been funded
- South African Open Science Cloud
 - Planned in collaboration with EOSC partners
 - Documents published by NICIS mid 2023
 - IDIA gateway provides much of what is planned for SAOSC



Summary

- High level requirement for IDIA Science Gateway developed over 6 months
- One aim was to provide federated access to all IDIA / ilifu services
- Working with DIRISA to ensure common federation approaches with their sites
- Aim at utilizing existing best in class systems as far as possible
 - Plan to specialize to user requirements while keeping customizations that need to be maintained to a minimum
- Provides input into development of SKA Regional Centres

