



→ 9th ADVANCED TRAINING COURSE ON LAND REMOTE SENSING: AGRICULTURE

16–20 September 2019

Practical on cloud computing (Virtual Machine) for Sen2Agri installation
and processing

Hosted by

 UCLouvain

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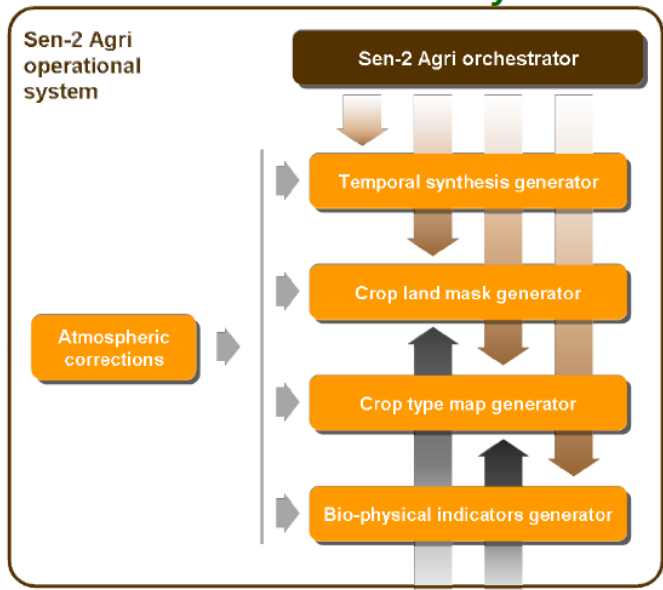


- **System overview (5 min)**
- **System installation (20 min)**
- **User interface overview (5 min)**
- **EO data source configuration (15 min)**
- **Create a site and define a season (15 min)**
- **Manual execution: L3A processor (10 min)**
- **Inspect advanced parameters (10 min)**
- **Output handling (5 min)**



Designed as a set of components that can be automatically managed by an orchestrator

Designed to work with S2 and L8



Designed to ingest in situ data





Free open source software

4 types of products

Cloud-free surface reflectance composite

Vegetation status

Dynamic cropland mask

Cultivated crop type map

2 operation modes

Automatic

Manual



Based on **Orfeo ToolBox**



Cluster-ready architecture for distributed processing



Integration with **Sentinel-2 ToolBox**



Source code:

<https://github.com/sen2agri/>



Free open source software

4 types of products

Cloud-free surface reflectance composite

Vegetation status

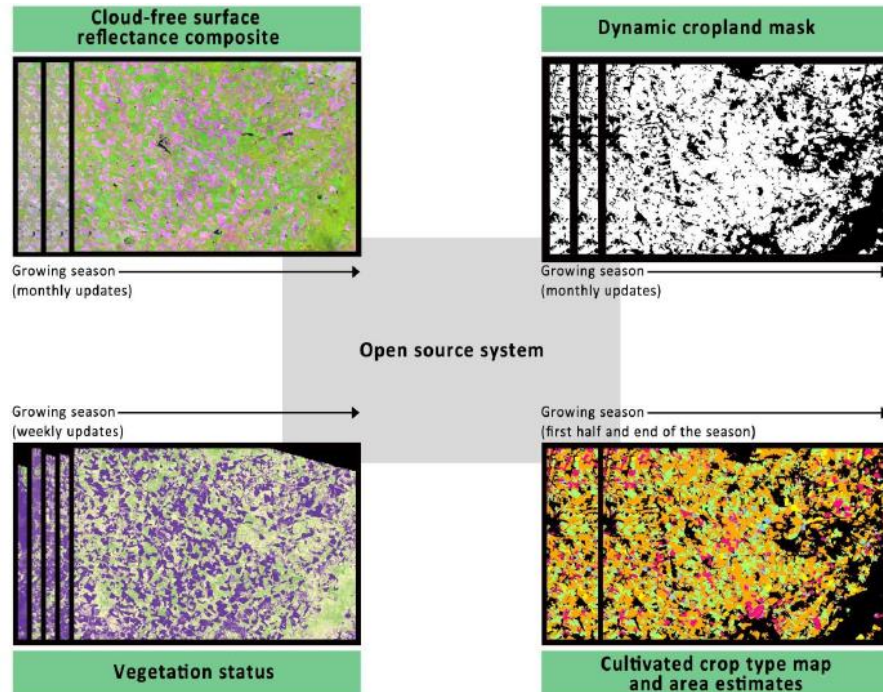
Dynamic cropland mask

Cultivated crop type map

2 operation modes

Automatic

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Free open source software

4 types of products

Cloud-free surface reflectance composite

Vegetation status

Dynamic cropland mask

Cultivated crop type map

2 operation modes

Automatic

Manual

Automated Mode (near real-time)

- Automatic data flow
- Processing driven by new products availability
- Automated (scheduled) downloads for S2A L1C (only needed granules) and L8 L1T

Manual Mode (on-demand)

- Processing triggered by user requests
- Data processed in one run



Step 1: Download the system

a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>

System download


Installation package System requirements Installation/Update Changelog

The installation package of the **Sen2-Agri system** has been split into 5 parts to ease its download:

- A zip archive containing **all the necessary binaries and setup scripts** (not considering MAJA, see below) [-1GB]:
 - *install_script* – contains the installation scripts that are used to create the distribution and to install the system and the tool needed for the integration of the Sen2-Agri processors in SNAP
 - *rpm_binaries* – the RPM files for all other system components (SLURM, orchestrator, downloader, processors)
- A zip archive containing the **GIPP files** [-12GB]: files needed by MAJA
- A zip archive containing the **SRTM dataset** [-16 GB]: files needed by MAJA
- A zip archive containing the **SWBD dataset** [-900 MB]: files needed by MAJA
- A zip archive containing all the necessary binaries and setup scripts of the installation of the new **visualization tool** [-400 MB]

IMPORTANT: MAJA – that is used by the Sen2-Agri system for the atmospheric corrections and non-valid pixels masking – is not included in the installation package of the Sen2-Agri system and have to be downloaded separately from the [CNES site](#). Nevertheless, MAJA must be installed before running the Sen2-Agri installer, as described in the [Software User Manual](#). The Sen2-Agri installation script will look for the executable and prompt for its installed path location.

You can download the latest Software User Manual, as well synthesis technical documents in the [Technical Documents](#) page.



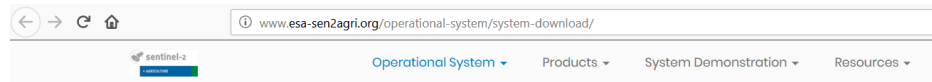
[Sen2-Agri system download](#) Version 2.0.1 [Release 10-07-2019]



Step 1: Download the system

a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>

b) Read carefully the "System requirements" section to dimension your hardware



System download

Installation package **System requirements** Installation/Update Changelog

If you intend to use the Sen2-Agri system on a **local site** (~90 000km²), the **minimum system requirements** to install and run this system are as follows:

- CPU: 8 Cores
- RAM: 32GB
- HDD Storage: 4 TB
- SSD Storage: 250 GB (optional – for temporary files)

If you intend to use the Sen2-Agri system on a **national site** (~500 000km²), the **minimum system requirements** to install and run this system are as follows:

- CPU: 16 to 32 Cores
- RAM: 64GB to 128 GB
- HDD Storage: 10 TB is enough even if 15TB is recommended
- SSD Storage: 1 TB (optional – for temporary files)



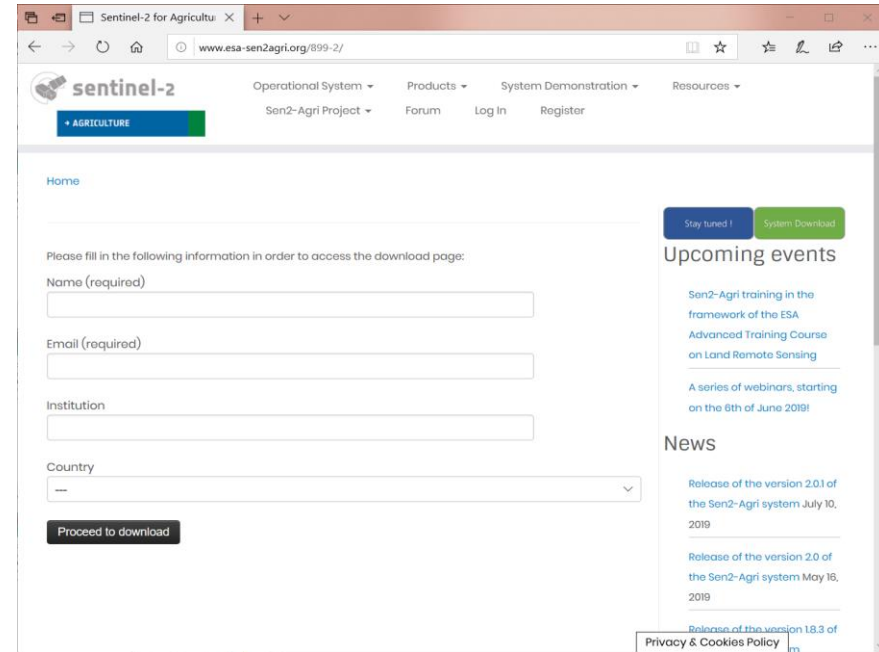
Hardware Requirements

	Small Site	Large Site
Area	90,000 km ²	500,000 km ²
Sentinel-2 coverage	9 tiles	50 tiles
Landsat-8 coverage	4 scenes	16 scenes
Season duration	10 months	10 months
Storage	4 TB – 8 TB	10 – 15 TB
CPU	8 cores	16 cores
RAM	32 GB	64 GB – 128 GB



Step 1: Download the system

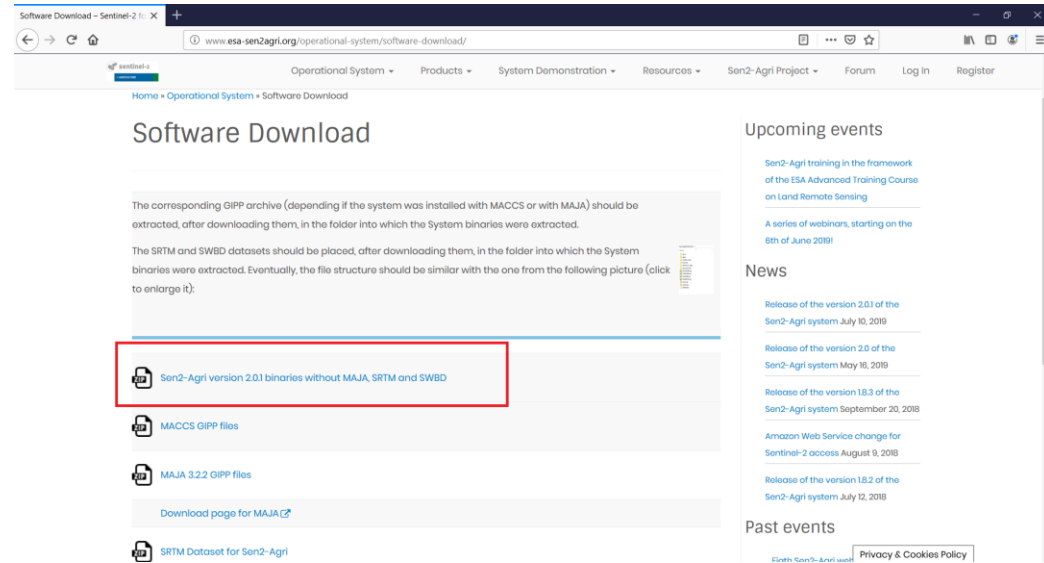
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself





Step 1: Download the system

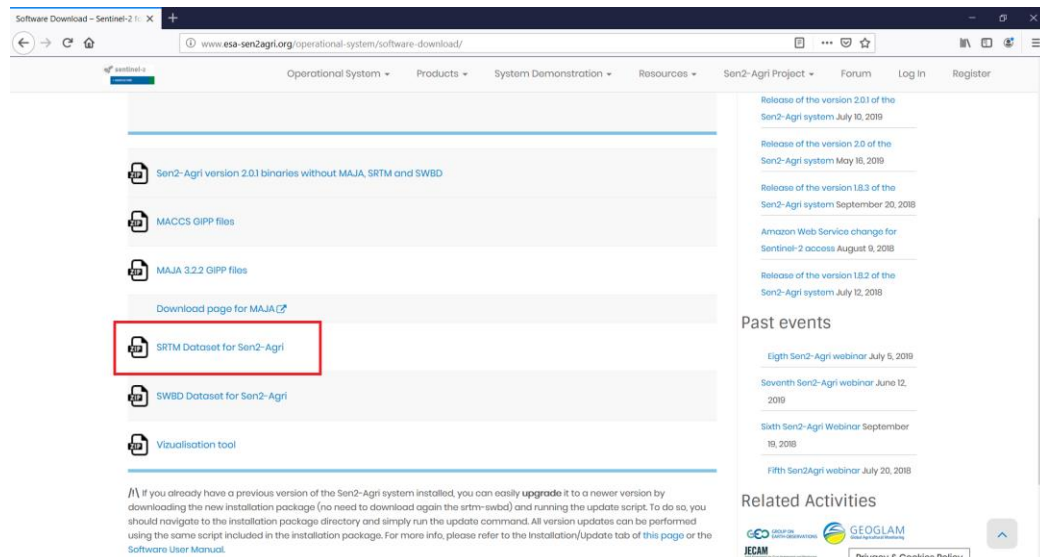
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself
- d) **Download the system installation package**





Step 1: Download the system

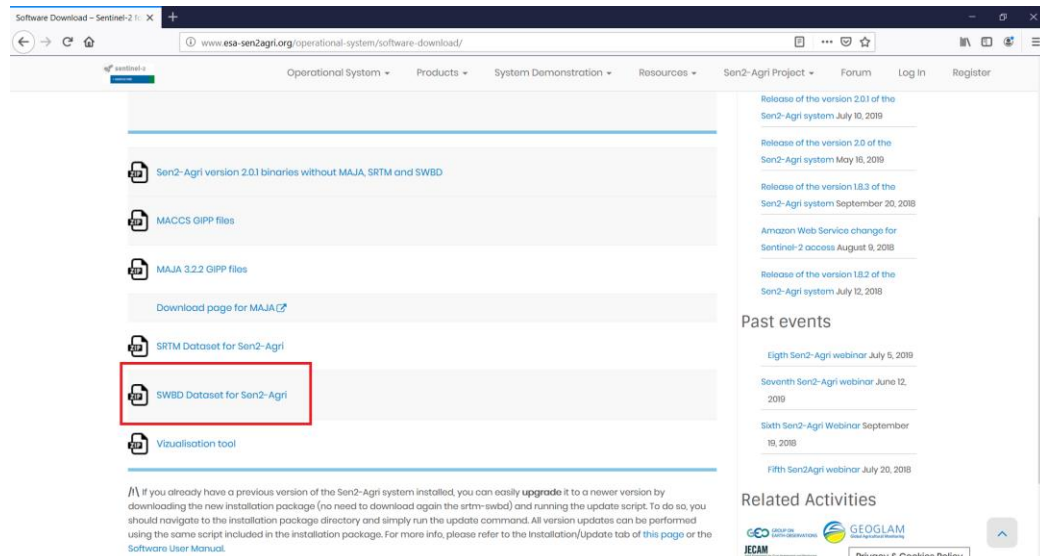
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself
- d) Download the system installation package
- e) **Download the SRTM dataset**





Step 1: Download the system

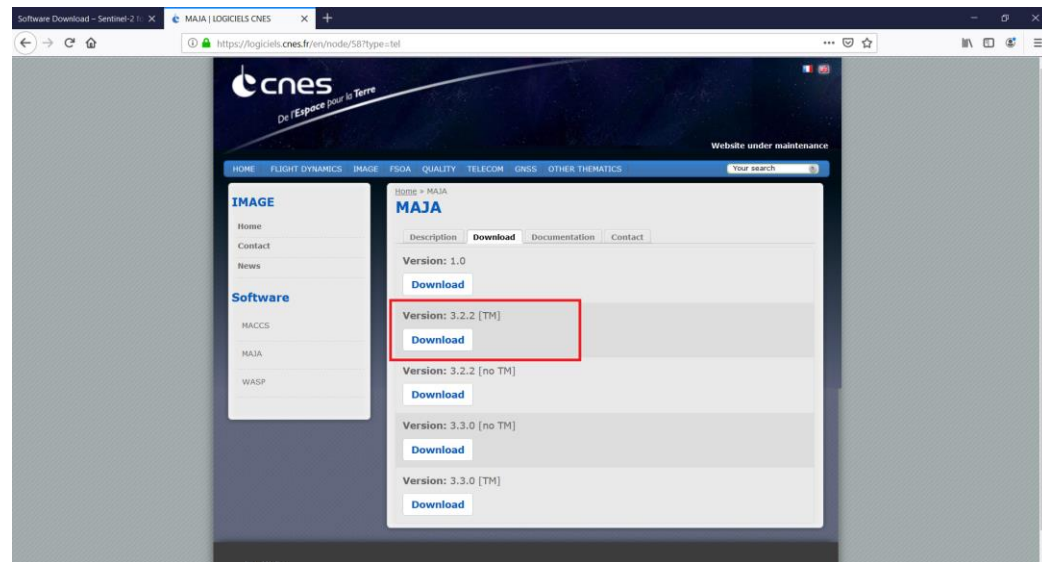
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself
- d) Download the system installation package
- e) Download the SRTM dataset
- f) Download the SWBD dataset**





Step 1: Download the system

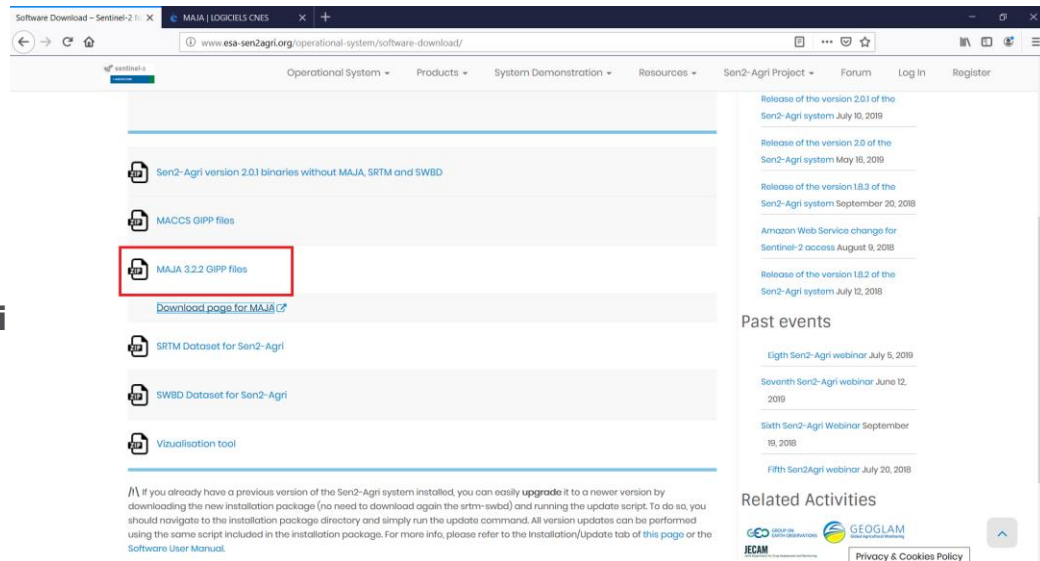
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself
- d) Download the system installation package
- e) Download the SRTM dataset
- f) Download the SWBD dataset
- g) Download the MAJA package from CNES (after accepting their terms and conditions)**





Step 1: Download the system

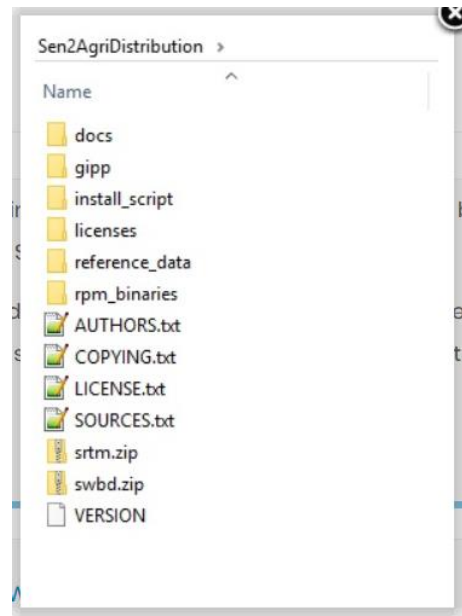
- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the "System requirements" section to dimension your hardware
- c) Fill in some information about yourself
- d) Download the system installation package
- e) Download the SRTM dataset
- f) Download the SWBD dataset
- g) Download the MAJA package from CNES
- h) Download the MAJA GIPP files for Sen2Agri**





Step 1: Download the system

- a) Go to <http://www.esa-sen2agri.org/operational-system/system-download/>
- b) Read carefully the “System requirements” section to dimension your hardware
- c) Fill in some information about yourself
- d) Download the system installation package
- e) Download the SRTM dataset
- f) Download the SWBD dataset
- g) Download the MAJA package from CNES
- h) Download the MAJA GIPP files for Sen2Agri
- i) Decompress the Sen2Agri and move the other downloaded packages in a file structure like on the right. MAJA can be decompressed in a “maja” subfolder and it will be installed altogether.**





Step 2: Install the system

a) Setup a machine with CentOS7 Linux minimal install. Use an account with super-user privileges.

CentOS7 Minimal ISO can be downloaded from

http://isoredirect.centos.org/centos/7/isos/x86_64/CentOS-7-x86_64-Minimal-1810.iso

b) Install utility packages needed for installation:

- **Unzip (for decompression):** `sudo yum install -y unzip`
- **Nano (simple text editor):** `sudo yum install -y nano`
- **Midnight Commander (file manipulation):** `sudo yum install -y mc`

While installation is in progress, let's browse the Sen2Agri web site.



Step 2: Install the system

c) Create some necessary folders:

```
sudo mkdir /mnt/archive && sudo mkdir /mnt/upload
```

d) Make sure the folders are writable for any account:

```
sudo chmod 777 /mnt/archive && sudo chmod 777 /mnt/upload
```

e) Make sure the installation script is executable:

```
sudo chmod +x
```

```
~/Downloads/Sen2AgriDistribution/install_script/sen2agriPlatformInstallAndConfig.sh
```

f) Run the installation script:

```
sudo ~/Downloads/Sen2AgriDistribution/install_script/sen2agriPlatformInstallAndConfig.sh
```

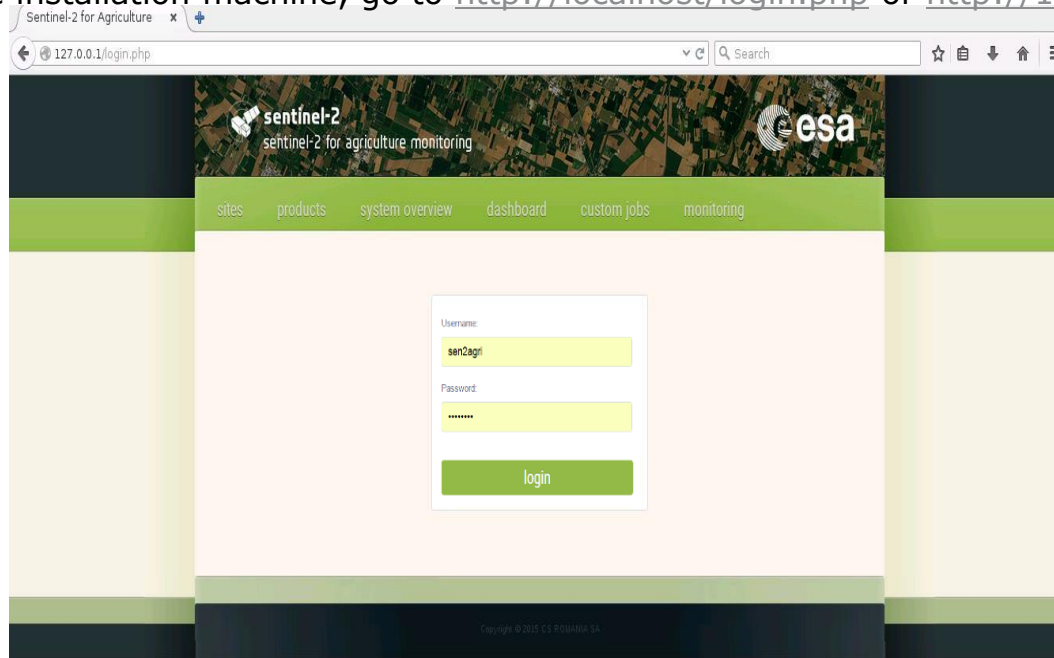
Done!



- **Connect to the graphical user interface**

In a web browser on the installation machine, go to <http://localhost/login.php> or <http://127.0.0.1/login.php>

Username: *sen2agri*
Password: *sen2agri*





Site management

- Add, edit sites
- Define seasons
- Define processors to execute
- Upload in-situ data
- Upload strata data

The screenshot shows a web browser window with the URL 185.178.87.0/create_site.php. The page header includes the Sentinel-2 logo and 'sentinel-2 for agriculture monitoring'. A navigation menu contains: sites, products, system overview, dashboard, custom jobs, monitoring, users, data sources, and logout. A 'Create new site' button is visible. Below it is a table with the following data:

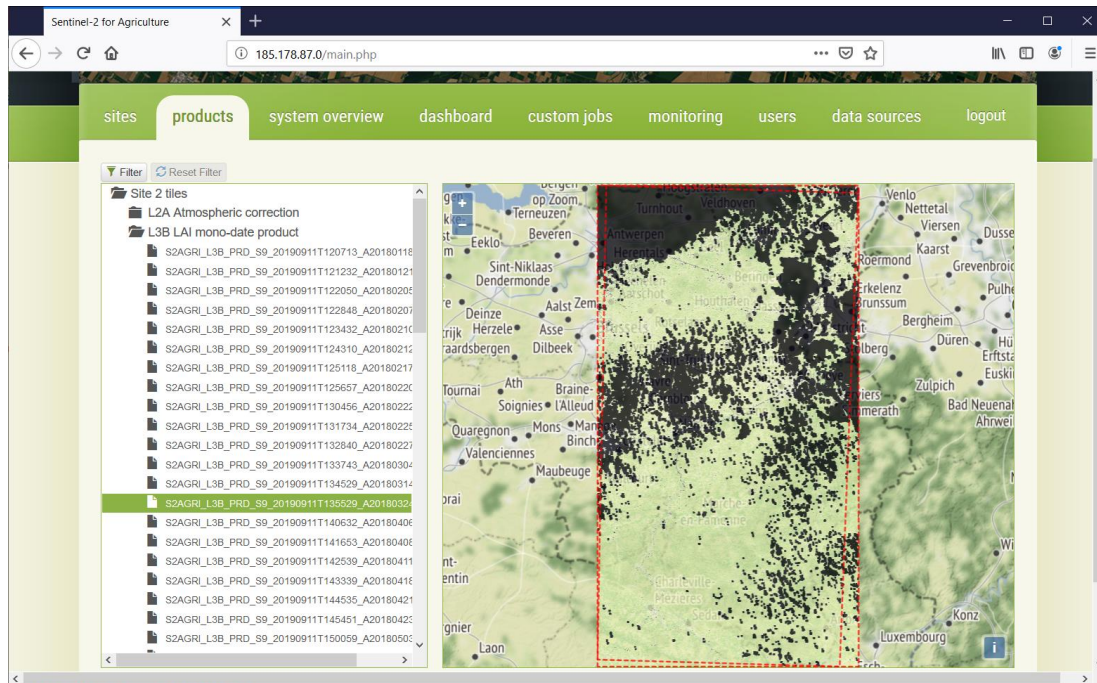
Site name	Short name	Season name	Season start	Seasons		Enabled	Edit	Enabled
				Season mid	Season end			
Site 2 tiles	site_2_tiles	2018	2018-01-01	2018-06-15	2018-12-31	<input checked="" type="checkbox"/>	Edit	<input checked="" type="checkbox"/>
Wallonia Subset	wallonia_subset	2018	2018-01-01	2018-06-15	2018-12-31	<input checked="" type="checkbox"/>	Edit	<input checked="" type="checkbox"/>

At the bottom right of the interface, it says 'Logged in as sen2agri | DB version 2.0.1'. The footer contains 'Copyright © 2015-2019 ESA ROMANIA SA'.



Output products

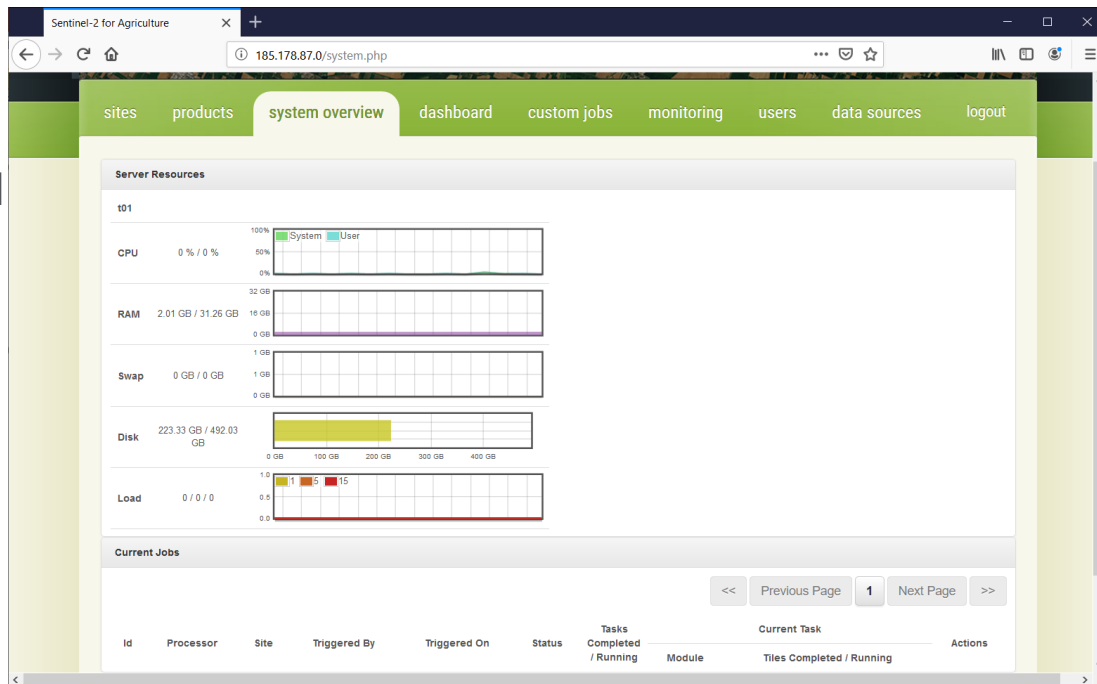
- **Visualize** quick looks of Output products (L2A, L3*, L4*)
- **Download** products





System resources and running jobs

- View **CPU, RAM, Disk** and **Load** of execution machines
- View **currently executing** processing **jobs and tasks**





Processor dashboard

- View **resources** used by each processor
- View **default configuration** of each processor
- View scheduled **jobs** defined for each processor

The screenshot shows a web browser window with the URL 185.178.87.0/dashboard.php. The dashboard has a green header with navigation tabs: sites, products, system overview (active), dashboard, custom jobs, monitoring, users, data sources, and logout. Below the header, there are sub-tabs for L3A Composite, L3B Vegetation Status, L3E Pheno NDVI metrics, L4A Crop Mask, and L4B Crop Type. The main content area is divided into three sections:

- Resource Utilization:** A table showing metrics for the L3A Composite processor.

Resource Utilization	
Last Run On	2019-09-12 03:51:36
Average Duration	00:04:35.001
Average User CPU	00:14:58.496
Average System CPU	00:01:14.483
Average Max RSS	0.00 MB
Average Max VM	0.00 MB
Average Disk Read	0.00 MB
Average Disk Write	0.00 MB
- Default Configuration:** A table listing various configuration parameters and their values.

Default Configuration	
preproc.scatcoeffs_10m	/usr/share/sen2agri/scattering_coeffs_10m.txt
weight.aot.maxaot	0.8
weight.aot.minweight	0.33
weight.aot.maxweight	1
weight.cloud.coarserresolution	240
weight.cloud.sigmasmall	2
weight.cloud.sigmalarge	10
weight.total.weightdatemin	0.5
bandsmapping	/usr/share/sen2agri/bands_mapping_s2.txt
synth_date_sched_offset	30
half_synthesis	25
generate_20m_s2_resolution	1
preproc.scatcoeffs_20m	/usr/share/sen2agri/scattering_coeffs_20m.txt
lut_path	/usr/share/sen2agri/composite.map
sched_wait_proc_inputs	1
- Output:** A small table showing summary statistics.

Output	
Number of Products	12
Average Tiles per Product	115.67
Average Duration per Tile	00:00:02.327

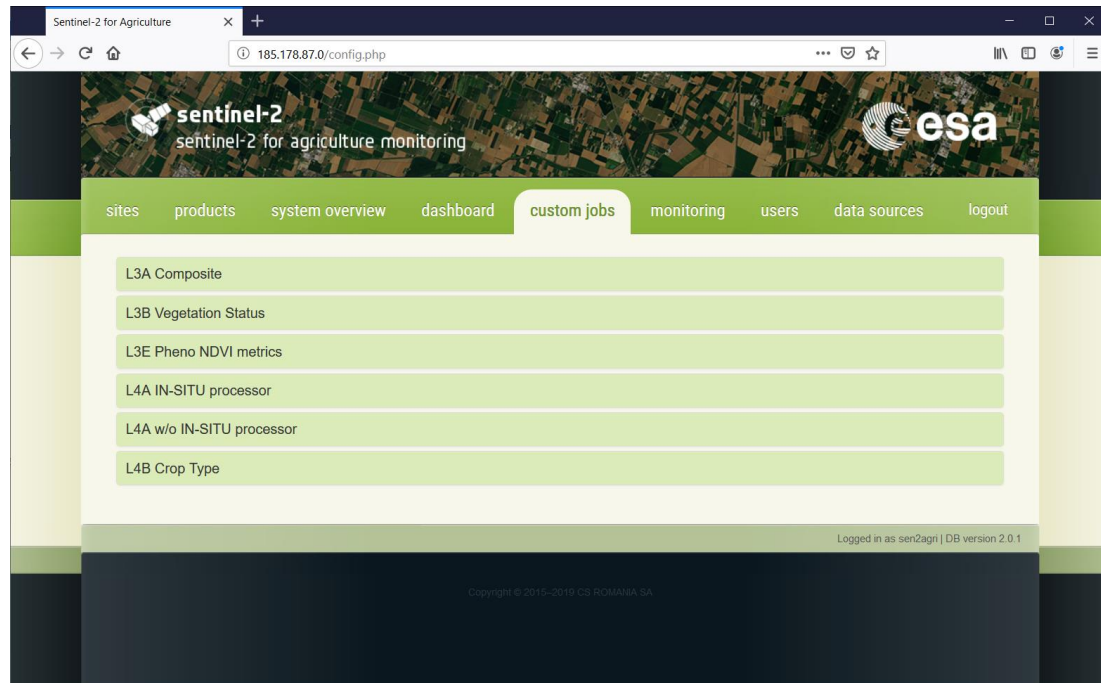
At the bottom, there is an "Add New Job" button and a table of existing jobs:

Job name	Site name	Season name	Schedule type	First run time	Repeat	Action
WalloniaL3A	Wallonia Subset	2018	Repeat	2018-02-01 00:00:00	Every 1 day of month	Save Delete



Manual jobs

- Parametrization for manual invocation of all processors
- Default values for parameters
- Common parameters
- Advanced parameters





Monitoring

- Monitoring of **downloads** (completed, in progress, errors)
- Progress of current download
- **History** of execution jobs

Download statistics

0% (0) 0% (0) 0% (0) 0% (0)

Estimated number of products to download: 0

Current downloads

Site	Product	Product Type	Progress
No downloads in progress.			

Jobs history

Rows/page: 10

Job ID	End timestamp	Processor	Site	Status	Start type	Output
34	-	L4B Crop Type	Wallonia Subset	Cancelled	Requested	[output]
33	-	L3A Composite	Wallonia Subset	Finished	Scheduled	[output]
32	-	L3A Composite	Wallonia Subset	Finished	Scheduled	[output]
31	-	L3A Composite	Wallonia Subset	Finished	Scheduled	[output]



Users

- Simple management of system users

Two kinds of users:

- **Administrators:** can see/work on any site of any user
- **Users:** can only see/work on sites defined by her-/him-self

The screenshot shows a web browser window titled "Sentinel-2 for Agriculture" with the URL "185.178.87.0/users.php". The page features a header with the Sentinel-2 logo and "sentinel-2 for agriculture monitoring", and the ESA logo. A navigation menu includes "sites", "products", "system overview", "dashboard", "custom jobs", "monitoring", "users" (selected), "data sources", and "logout".

The main content area has a green "Add new user" button. Below it, there is a "Show 10 entries" dropdown and a search box. A table displays user information:

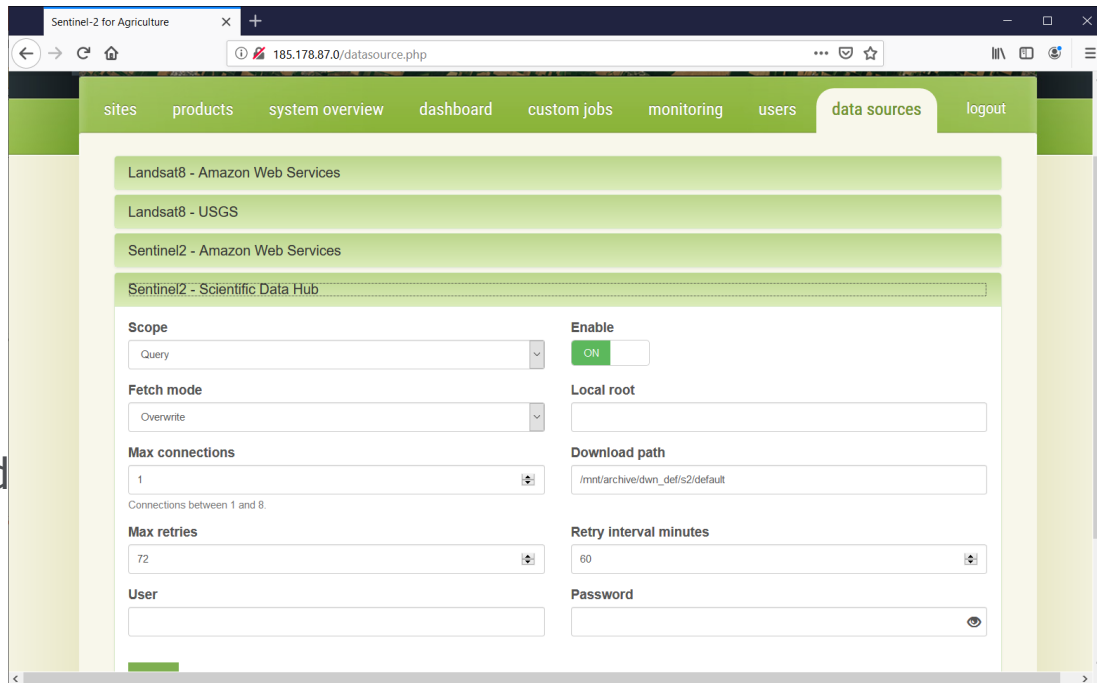
Login	Email	Role	Sites	Actions
sen2agri	sen2agri@c-s.ro	admin		

Below the table, it says "Showing 1 to 1 of 1 entries" and "Previous 1 Next". At the bottom right, it indicates "Logged in as sen2agri | DB version 2.0.1".



Data sources

- Configuration of modules for query and download¹ of Sentinel-2 and Landsat-8 Products
- Dynamic behavior: if new modules (jar files) are copied in a specific folder², they will be shown here.



¹ download or linking to local product repos

² /usr/share/sen2agri/sen2agri-services/lib



- Scientific Data Hub (**SciHub**) used for **looking up** for **S2** products
- **USGS** used for **looking up** for **L8** products
- **No local product** repository available

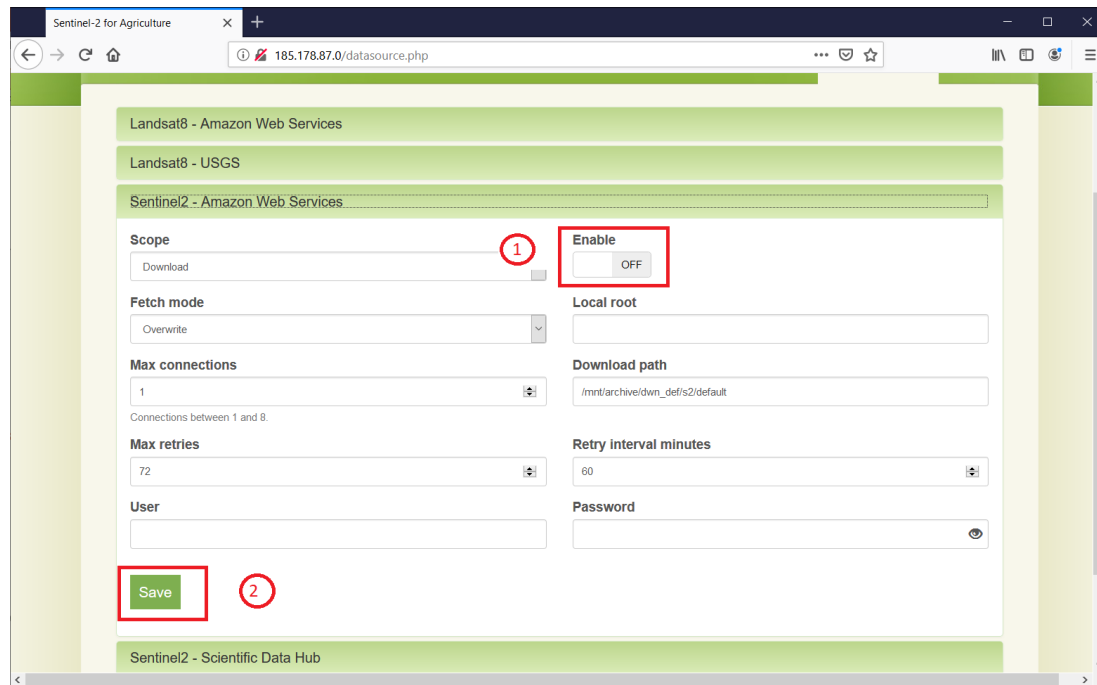
=>

- **S2** products will be **downloaded** from **SciHub**
- **L8** products will be **downloaded** from **USGS**



• How to configure query and download for S2 from SciHub?

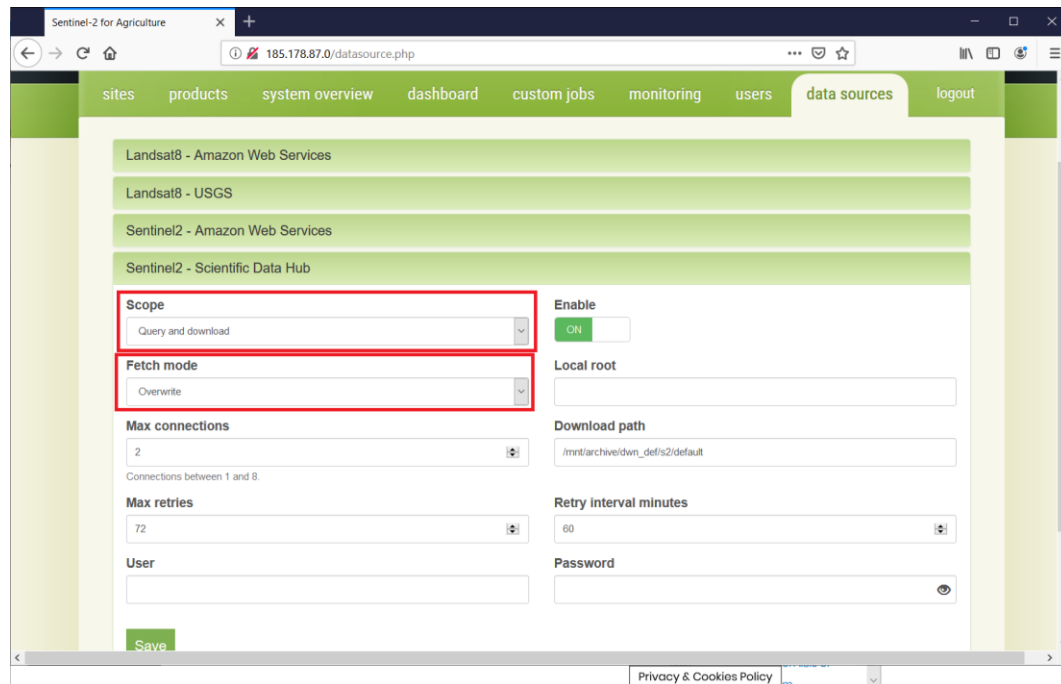
1. **Disable** other S2 sources
2. Set the S2 – SciHub scope to “Query and download”;
Set the fetch mode to “Overwrite”;
Enter your SciHub account;
Save.





• How to configure query and download for S2 from SciHub?

1. Disable other S2 sources
2. Set the S2 – SciHub **scope** to **“Query and download”**;
Set the **fetch mode** to **“Overwrite”**;
Enter your **SciHub account**;
Save.





- Any cloud (except DIASes or AWS): like on-premises
 - For **DIAS** or **AWS** installation:
 - **SciHub** used to **lookup** for **S2** products
 - **USGS** used to **lookup** for **L8** products
 - **Local product repository available**
- =>
- **S2** products **linked** (via symlinks) from local buckets; if not available, they can be downloaded from SciHub
 - **L8** products **linked** (via symlinks) from local buckets; if not available, they can be downloaded from USGS



- What you need to know before selecting a DIAS:

Sentinel-2 on-line availability

	CreoDIAS	MUNDI	Sobloo	ONDA	SciHub	AWS
L1C	all	July 2015 (Europe) January 2018 (Global)	Previous 2 years	September 2018	Last 12+ months	all
L2A	orderable	April 2017 (Europe)	Previous 1 year	September 2018	Last 18+ months	all



• How to configure data sources?

1. **Disable** other S2 sources

2. Set the S2 – SciHub scope to

“Query and download”;

Set the fetch mode to

“Overwrite”;

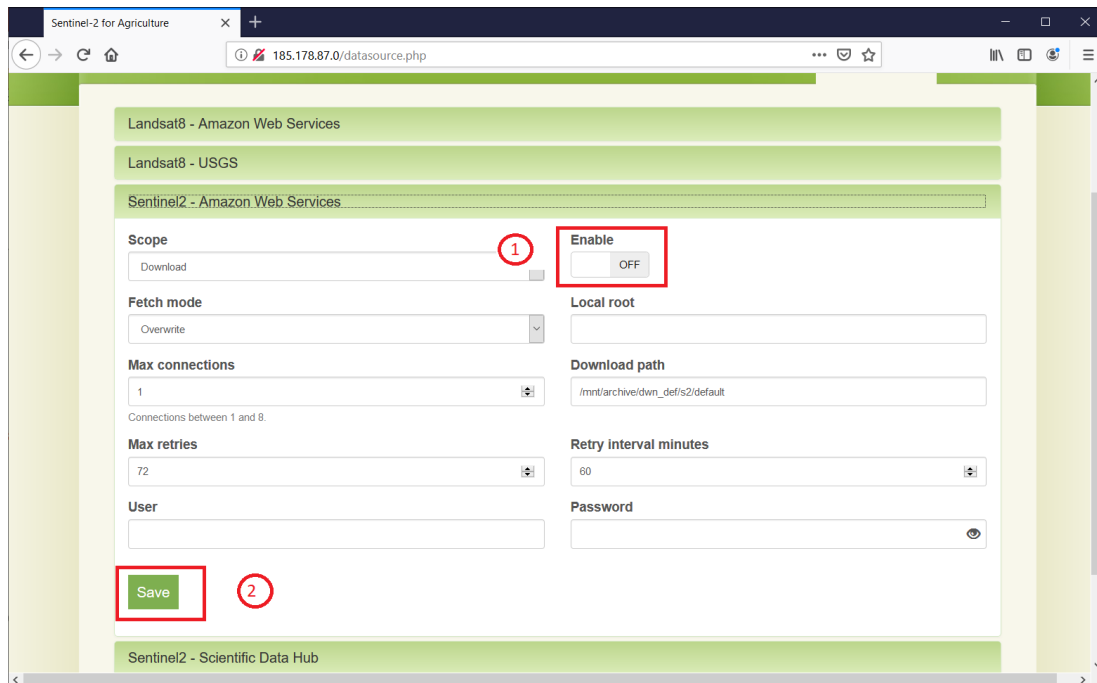
Enter your SciHub account;

Enter the local repository mount;

Save.

3. Configure the local path

resolver





- **How to configure data sources?**

1. Disable other S2 sources

2. Set the S2 – SciHub **scope** to

“Query and download”;

Set the **fetch mode** to

“Symbolic link”;

Enter your **SciHub account**;

Enter the **local repository mount**;

Save.

3. Configure the local path

resolver

The screenshot shows the 'data sources' configuration page in the Sentinel-2 for Agriculture web application. The page lists several data sources: Landsat8 - Amazon Web Services, Landsat8 - USGS, Sentinel2 - Amazon Web Services, and Sentinel2 - Scientific Data Hub. The configuration for the selected source is shown below, with the 'Scope' and 'Fetch mode' dropdowns highlighted in red. The 'Enable' checkbox is checked (ON). Other fields include 'Local root' (set to /mnt/eodata), 'Download path' (set to /mnt/archive/dwn_def/s2/default), 'Max connections' (set to 2), 'Max retries' (set to 72), 'User', and 'Password'.



• How to configure data sources?

1. Disable other S2 sources
2. Set the S2 – SciHub scope to “Query and download”;

Set the fetch mode to

“Symbolic link”;

Enter the local repository mount;

Enter your SciHub account;

Save.

3. **Configure** the local path resolver

If not on CreoDIAS, in the file

`/usr/share/sen2agri/sen2agri-services/config/services.properties`

uncomment the section specific to the DIAS platform (see next slide)



MUNDI DIAS path resolver example

On MUNDI, the Sentinel-2 L1C path is **UU/L/SS/YYYY/MM/dd/<product_folder>**, where:

UU	= the UTM code,	L	= the latitude band,
SS	= the UTM square code,	YYYY	= year,
MM	= month (0-padded),	dd	= day (0-padded),

<product_folder> = the product folder, without .SAFE suffix

eg. the product S2A_MSIL1C_20181015T104021_N0206_R008_T31UFS_20181015T125304.SAFE would be located in

/eodata/31/U/FS/2018/10/15/ S2A_MSIL1C_20181015T104021_N0206_R008_T31UFS_20181015T125304

In services.properties file, the uncommented section is:

```

SciHubDataSource.Sentinel2.path.builder.class = org.esa.sen2agri.dias.mundi.Sentinel2PathBuilder
SciHubDataSource.Sentinel2.local.archive.path.format = UU/L/SS/YYYY/MM/dd
SciHubDataSource.Sentinel2.path.suffix = none
SciHubDataSource.Sentinel2.product.format = folder

```



Step 1: Let's have access to EO Data on CreoDIAS

- On the training machine, open a Terminal (Applications > Terminal Emulator) and type

```
sudo mount /eodata
```

- Enter the password **E0grB97450if2AD**
- Verify that the mount was created. Enter:

```
ls /eodata/Sentinel-2/MSI/L1C
```



Step 2: Configure the Sen2Agri data sources

- Open Firefox (Applications > Internet > Firefox) and go to address **http://localhost**

- Login using the user **sen2agri** with the password **sen2agri**
- Go to **data sources** tab. Disable the following sources:

Landsat8 – Amazon Web Services

Landsat8 – USGS

Sentinel2 – Amazon Web Services

(for each one, toggle the **Enable** button and then click **Save**)



Step 2: Configure the Sen2Agri data sources (cont.)

- Modify the [Sentinel2 – Scientific Data Hub](#) as follows
 - Change **Scope** to **Query and download**
 - Change **Fetch Mode** to **Symbolic link**
 - Set **Local root** to **/eodata/Sentinel-2/MSI/L1C**
 - Enter your SciHub account details (**User** and **Password**)
 - Click **Save**



• Site and season creation

- In the **Sites** tab, press the **Create new site** button
- In the **Add New Site** dialog box provide the following informations
 - Enter a **unique site name** – **1st letter must be an uppercase**
 - Upload a **shapefile** with the site extent.

The uploaded file will have to be in a “.zip” archive that contains all the “.shp”, “.dbf”, “.prj” and “.shx” files.

Browse for a zipped small shape file in:

/home/ltcstudent/Desktop/Sen2Agri_Training_Files/sen2agri_sample_site_shape.zip

- Press the **Save New Site** button
 - Your new site is created

The screenshot shows the Sentinel-2 Agriculture Monitoring web interface. At the top, there's a header with the Sentinel-2 logo and the text 'sentinel-2 for agriculture monitoring'. Below the header is a navigation bar with tabs for 'sites', 'products', 'system overview', and 'dashboard'. The 'sites' tab is active. A 'Create new site' button is visible. A modal dialog box titled 'Add New Site' is open, containing the following fields and controls:

- Site name:** A text input field containing 'test_site'.
- Seasons:** A section with the text 'Seasons can only be added/modified after site creation'.
- Upload site shape file:** A file selection area with a button labeled 'Choisissez un fichier' and the text 'Aucun fichier choisi'.
- At the bottom right of the dialog are two buttons: 'Save New Site' and 'Abort'.



• Site and season creation

To configure the season, go to **Sites** tab and press the **Edit** button corresponding to the newly created site

The screenshot shows the 'sentinel-2 for agriculture monitoring' web interface. The 'sites' tab is active, displaying a table with the following data:

Site name	Short name	Seasons				Enabled	Edit	Enabled
		Season name	Season start	Season mid	Season end			
Site 2 tiles	site_2_tiles	2018	2018-01-01	2018-06-15	2018-12-31	<input type="checkbox"/>	Edit	<input type="checkbox"/>
Wallonia Subset	wallonia_subset	2018	2018-01-01	2018-06-15	2018-12-31	<input type="checkbox"/>	Edit	<input type="checkbox"/>

The 'Edit' link for the 'Wallonia Subset' site is highlighted with a red box. The interface also includes a 'Create new site' button and a navigation menu with options like 'products', 'system overview', 'dashboard', 'custom jobs', 'monitoring', 'users', 'data sources', and 'logout'. The footer shows 'Logged in as sen2agri | DB version 2.0.1' and 'Copyright © 2015–2019 CS ROMANIA SA'.



• Site and season creation

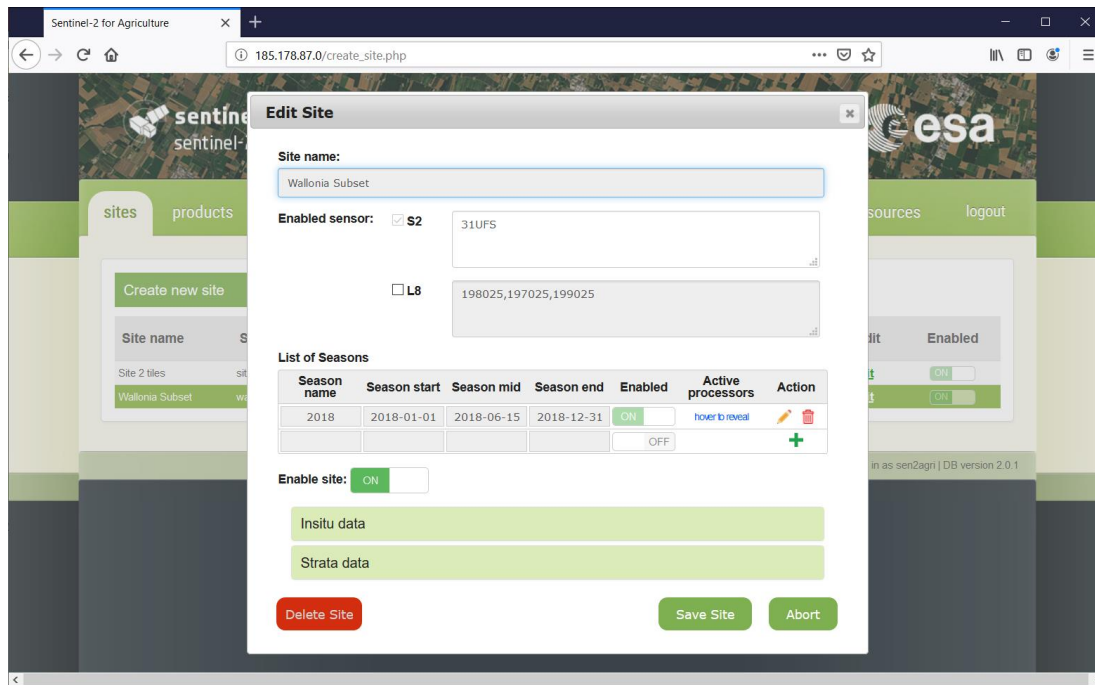
- In order to add a season, press the “+” icon in the **List of Seasons** section
- It will allow you specifying the following parameters:

Season Name eg. *Summer 2018*

Season start eg. *01-04-2018*



Season mid eg. *01-09-2018*

Season End eg. *01-11-2018*





• Site and season creation

- You can then specify **which processor will be run** in the automated mode for the site and the specified season
 - *Atmospheric correction (L2A) is always run automatically since it is a mandatory input for all the other processor*
 - *L3A = Monthly cloud free composite*
 - *L3B = Vegetation Status (LAI and NDVI) produced for each L2A product*
 - *L4A = Monthly Cropland Mask starting from the middle of the season*
 - *L4B = Crop Type map produced at the middle and at the end of the season*
- Once the season is defined, it can be saved using the  icon. The changes can be cancelled using the  icon.

The screenshot shows the 'Edit Site' dialog box in the Sentinel-2 for Agriculture web application. The dialog contains the following information:

- Site name:** Wallonia Subset
- Enabled sensor:**
 - S2: 31UFS
 - L8: 198025,197025,199025
- List of Seasons:**

Season name	Season start	Season mid	Season end	Enabled	Active processors	Action
2018	2018-01-01	2018-06-15	2018-12-31	<input checked="" type="checkbox"/>	hover to reveal	
				<input type="checkbox"/>		
- Enable site:** ON
- Data sources:** In situ data, Strata data
- Buttons:** Delete Site, Save Site, Abort



Not to wait until the next Lookup job, let's restart the services to pick the changes.

Open (if not already) a **Terminal** window and type:

```
sudo systemctl restart sen2agri-services
```

If prompted, enter again the password **E0grB97450if2AD**

After 15-20 seconds, revisit the **Monitoring** tab of the web site. The bar from **Download statistics** should be **blue** this time with a product count > 0.



After the successful creation of a season, a set of **scheduled jobs** corresponding to the selected processors are automatically created for that season. These jobs are available in the ***Dashboard*** tab and will start to execute once the site is ***Enabled***.

Go to the ***Dashboard*** tab and navigate through the processors sub tabs to see the automatically created jobs and the by-default parameters values used for each processors.

The screenshot shows the 'Sentinel-2 for Agriculture' dashboard. The 'dashboard' tab is active, displaying several sections:

- Navigation:** sites, products, system overview, dashboard, custom jobs, monitoring, users, data sources, logout
- Sub-tabs:** L3A Composite, L3B Vegetation Status, L3E Pheno NDVI metrics, L4A Crop Mask, L4B Crop Type
- Resource Utilization:**

Last Run On	2019-09-12 03:51:36
Average Duration	00:04:35.001
Average User CPU	00:14:58.496
Average System CPU	00:01:14.483
Average Max RSS	0.00 MB
Average Max VM	0.00 MB
Average Disk Read	0.00 MB
Average Disk Write	0.00 MB
- Output:**

Number of Products	12
Average Tiles per Product	115.67
Average Duration per Tile	00:00:02.327
- Default Configuration:**

```

preproc.scatcoeffs_10m /usr/share/sen2agri/scattering_coeffs_10m.txt
weight.aot.maxaot 0.8
weight.aot.minweight 0.33
weight.aot.maxweight 1
weight.cloud.coarseresolution 240
weight.cloud.sigmasmall 2
weight.cloud.sigmalarge 10
weight.total.weightdatemin 0.5
bandsmapping /usr/share/sen2agri/bands_mapping_s2.txt
synth_date_sched_offset 30
half_synthesis 25
generate_20m_s2_resolution 1
preproc.scatcoeffs_20m /usr/share/sen2agri/scattering_coeffs_20m.txt
lut_path /usr/share/sen2agri/composite.map
sched_wait_proc_inputs 1

```
- Add New Job:**

Job name	Site name	Season name	Schedule type	First run time	Repeat	Action
WalloniaL3A	Wallonia Subset	2018	Repeat	2018-02-01 00:00:00	Every 1 day of month	Save Delete



Add a scheduled jobs on a site already configured for the training

In the *Dashboard* tab, press the **Add New Job** button

- **Job name** eg. « *LAI_Training* »
- Select a **Site**: 2 sites are pre-configured
 - *Site 2 Tiles*
 - *Wallonia subset*
- **Season**: pick the only season available
- **Product**: select the L3B product (Vegetation Status)
- **Schedule Type** : Once
- **First run time**: **TBD**

The screenshot shows the 'Sentinel-2 for Agriculture' dashboard. The 'Add New Job' form is visible at the bottom, with the following details:

Job name	Site name	Season name	Product	Schedule type	First run time	Repeat	Action
CyclicL3B	Wallonia Subset	2018	L3B	Cycle	2019-09-19	After 5 days	Save



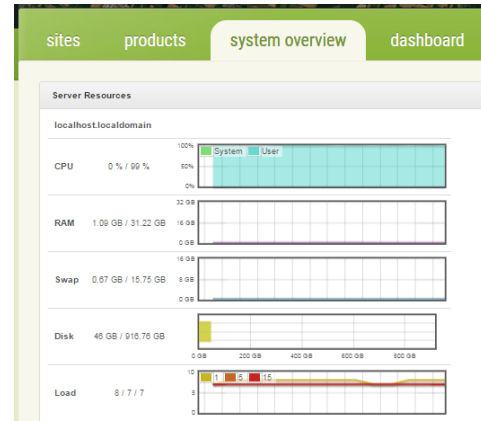
After the successful configuration of this additional scheduled job,

- Go to **System Overview** tab to
 - monitor the activity of the system in terms of resources and storage
 - see the progress of the LAI job: *Task Completed/Running*

Current Jobs

<< Previous Page 1 Next Page >>

Id	Processor	Site	Triggered By	Triggered On	Status	Tasks Completed / Running	Current Task	
							Module	Tiles Completed / Running
175	L3B Vegetation Status	WFP_Karamoja	Scheduler Request	2017-06-12 09:21:03	Running	863 / 294	files-remover	0 / 33
							la-bv-an-image-inversion	0 / 109
							la-bv-image-inversion	0 / 109
							la-bv-product-image-generation	0 / 109
							la-end-of-job	0 / 1
							la-inverse-model-learning	0 / 109
							la-mono-dataset-flags	0 / 109
							la-mono-dataset-formatter	0 / 33
							la-indvini-extractor	1 / 109
							la-mono-simulator	0 / 109



- Go to **Monitoring** tab to
 - see the new LAI scheduled job added in the current job history list.
 - see the command line inputs, outputs and potential error of each individual command launched by the processor (click on the [\[output\]](#) button)

Jobs history

Rows/page: 10

1 2 ... 20 Prev Next

Job ID	End timestamp	Processor	Site	Status	Start type	Output
235	-	L3B Vegetation Status	Belgium	Running	Scheduled	[output]



Add a custom job on a site already configured for the training

In **custom jobs** tab, expand **L3A Composite**

Select the input L2A products using filters:

- Uncheck L8, From: 2018-04-01, To: 2018-04-30 and press **“Filter”**

Select them all in the product list:

S2A_MSIL2A_20180408T104021_...

S2A_MSIL2A_20180418T104021_...

S2A_MSIL2A_20180421T105031_...

S2B_MSIL2A_20180406T105929_...

S2B_MSIL2A_20180423T104018_...

Select **Resolution** = **20**

Select **Synthesis date** = **20180418**

Tick **Show advanced parameters** to see what other parameters can be set

Filter Criteria For Input Files

Sensor: S2 Tiles
 L8 Tiles

Season: 198025,197025,199025

From: To:

Available input files:*

```
S2A_MSIL2A_20180408T104021_N0206_R008_T31UFS_20180408T124948 SAFE
S2A_MSIL2A_20180418T104021_N0206_R008_T31UFS_20180418T125356 SAFE
S2A_MSIL2A_20180421T105031_N0206_R051_T31UFS_20180421T125911 SAFE
S2B_MSIL2A_20180406T105029_N0206_R051_T31UFS_20180406T125448 SAFE
S2B_MSIL2A_20180423T104019_N0206_R008_T31UFS_20180423T110230 SAFE
```

The list of products descriptors (xml files)

Resolution:

Resolution of the output image (in meters).

Synthesis date:*

The synthesis date [YYYYMMDD].



The new custom job can be seen in the **monitoring** tab with the status *Running*.

You can check the command issued, the output and any error by clicking the **[output]** link.

Download statistics

0% (0) 0% (0) 0% (0) 0% (0)

Estimated number of products to download: 552

Current downloads

Site	Product	Product Type	Progress
No downloads in progress.			

Jobs history

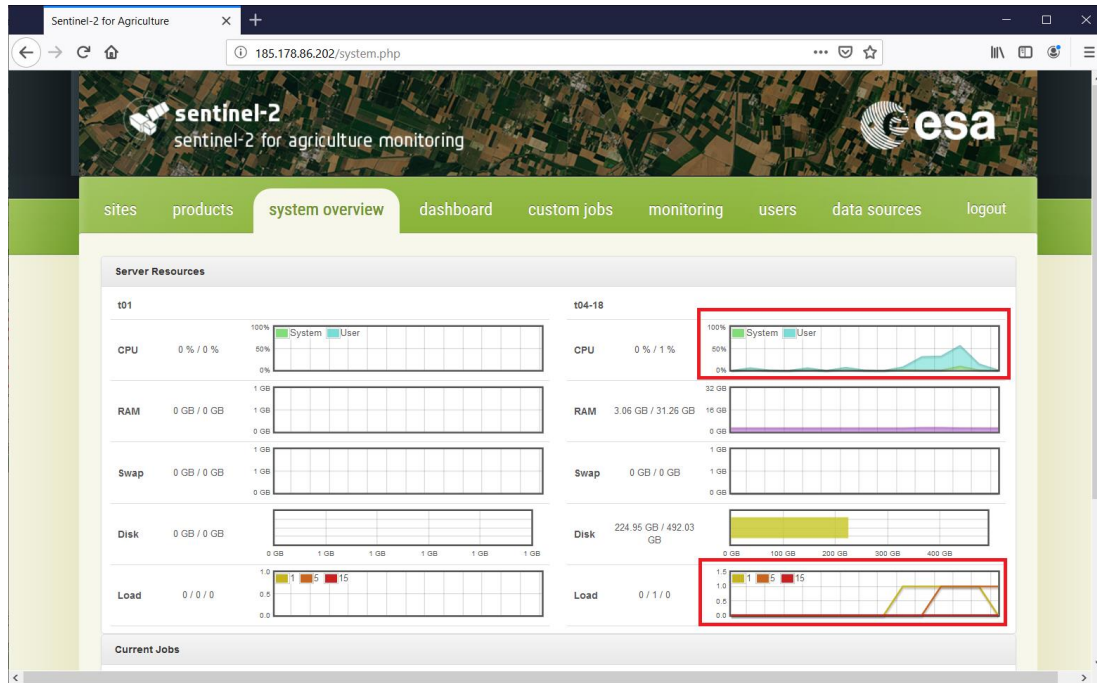
Rows/page: 10

Job ID	End timestamp	Processor	Site	Status	Start type	Output
37	-	L3A Composite	Wallonia Subset	Running	Requested	[output]
36	-	L4B Crop type	Wallonia subset	Finished	Requested	[output]



In **system overview** tab, you can see that some activity takes place in the system.

At least the **CPU** and **Load** graphs are being updated (@ 1 min).





While waiting for the task to complete, let's see what advanced parameters are available for other processors.

- ⇒ Go to the **custom jobs** tab
- ⇒ Select other processors and tick **Show advanced parameters**
- ⇒ More information about them can be found by opening the User Manual:
 - ⇒ Find it on your desktop, in **Sen2Agri_Training_Files/ Sen2Agri_SUM_v3.0.pdf**
 - ⇒ All parameters are found in **Appendix F.9** (starting with **page 137**)
 - ⇒ They start with the prefix "**processor.lxx.**"



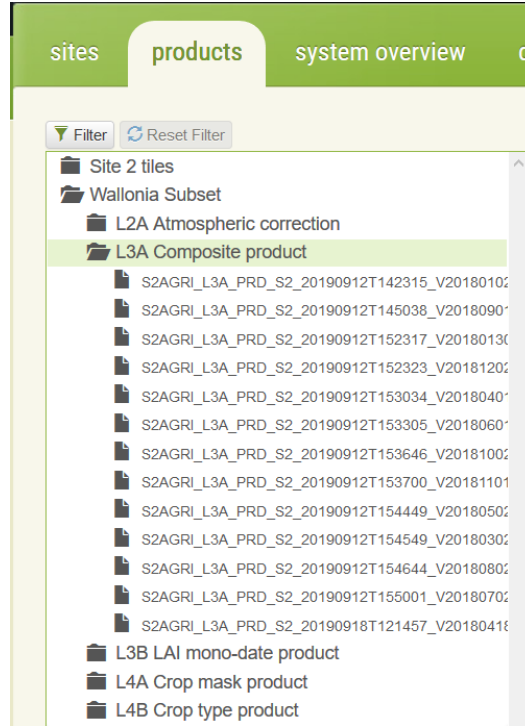
After ~10-15 minutes, the custom job should have finished.

In the **products** tab, expand:

Wallonia Subset

↳ *L3A Composite product*

...

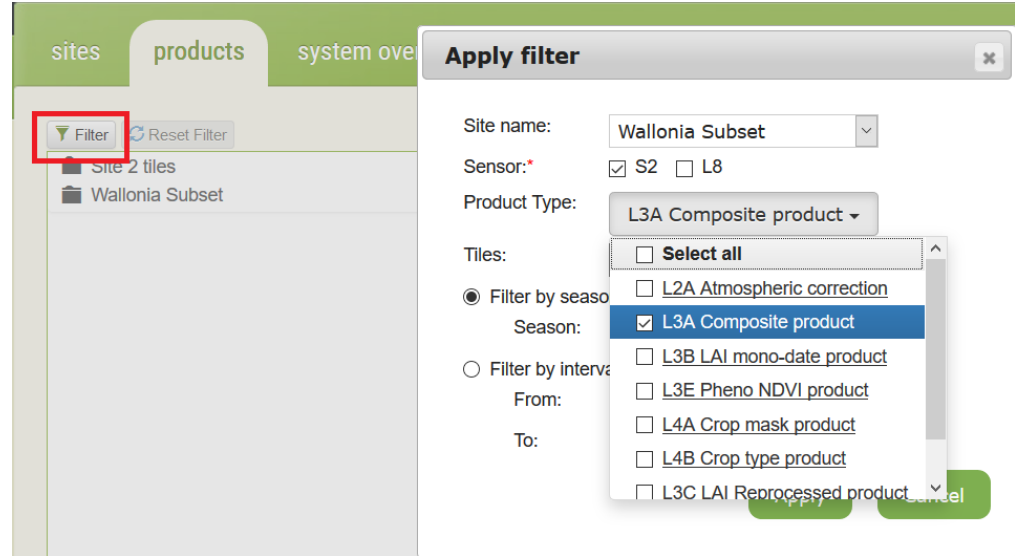




... or use the “**Filter**” to easily sort out the products (click **Apply** after criteria selection)

You can filter by:

- **Site**
- and
- **Sensor**
- and
- **Product Type**
- and
- **Season** or specific **dates interval**



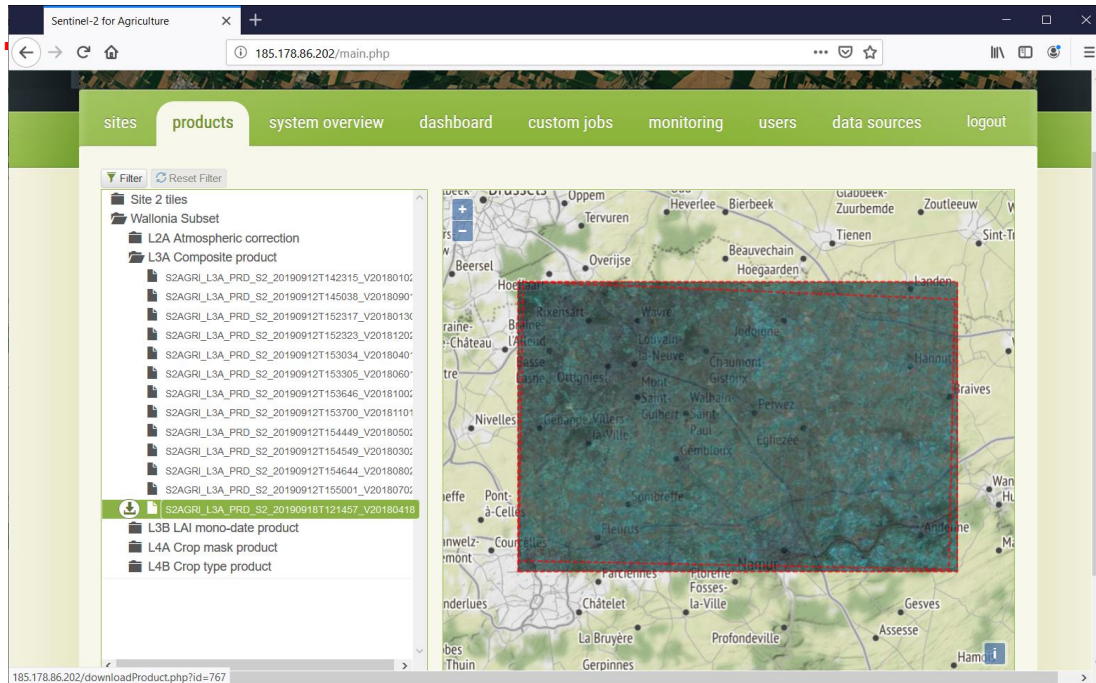


The just-finished product is there:

S2A_L3A_PRD_S2_20190919...

Select it to see its quick look.

Click the **left arrow button** to **download** it as tar.gz archive (available on *hover*)



For **more information** about products and processors, please visit

<http://www.esa-sen2agri.org>

For additional **assistance** or troubleshooting:

1. **Register** on Sen2Agri web site at

<http://www.esa-sen2agri.org/wp-login.php?action=register>

2. **Login** to the Sen2Agri forum at

<https://forum.esa-sen2agri.org>

