

Brazil Data Cube Catalog Plugin for QGIS



- The plugin accesses the Brazil Data Cube service [1] to obtain the images.



Brazil Data Cube

- The Brazil Data Cube (BDC) is a project of the National Institute for Space Research (Inpe) that makes remote sensing images available for the entire national territory.
- The plugin uses images in the Cloud Optimized GeoTiff (COG) format.
These images are restricted to the Brazilian territory.



Luiz Motta - 2025-10-10

[1] <https://data.inpe.br/bdc/sobre-o-brazil-data-cube/>



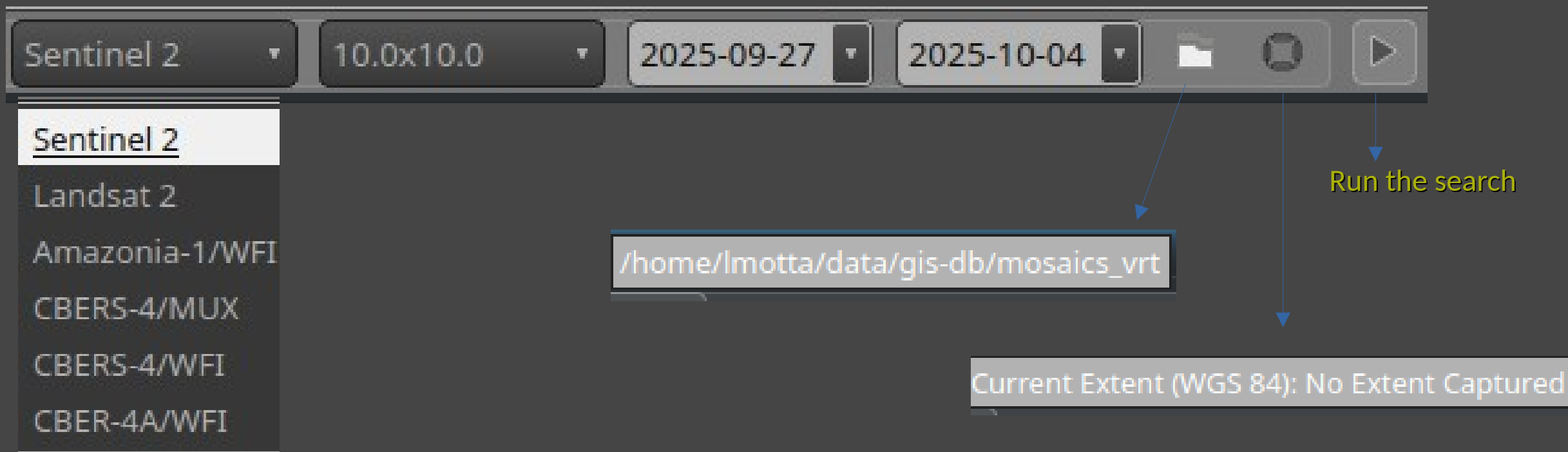
- It searches the BDC for images in the COG format.
 - Parameters:
 - Collection and spatial resolution.
 - Date range (start and end date).
 - Bbox (Map canvas extent).
- Result:
 - Virtual mosaics with the collection bands.
 - Scenes with the same date, orbit, and coordinate reference system (CRS).
 - VRT format (accesses the bands via URL).
 - Catalog (footprint) of the collection images containing the “items.”



Interface - GUI



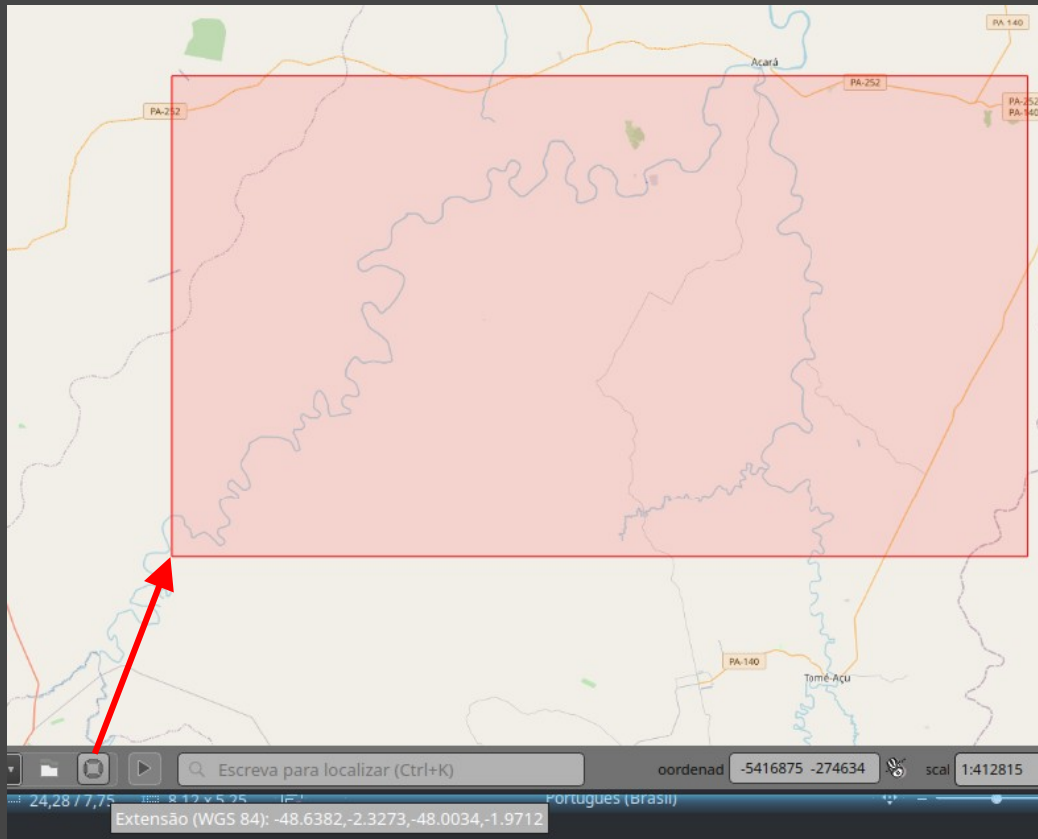
- When the tool is activated, the plugin interface is added.
- The plugin interface (Widget) is in the QGIS "Status Bar."



Interface - GUI (Continuation)



- The collections are from the images that are made available in the COG format.
 - When a collection is selected, the available resolutions are listed.
- The Bbox for the image search is obtained by capturing the map view extent.



Result



Sentinel 2 10.0x10.0 2025-10-04 2025-10-11 S2_L2A-1 - Processando

mosaic.S2_L2A-1_2025-10-04_2025-10-11_-48.6382_-2.3273_-48.0034_-1.9712

☐ S2_L2A-1.2025-10-08_R124_EPSG-32722_10.0x10.0

- Banda 1: B04
- Banda 2: B03
- Banda 3: B02

☐ S2_L2A-1.2025-10-06_R124_EPSG-32722_10.0x10.0

- Banda 1: B04
- Banda 2: B03
- Banda 3: B02

☒ footprint.S2_L2A-1_2025-10-04_2025-10-11_-48.6382_-2.3273_-48.0034_-1.9712

- Mosaic Group:
Collection ID, Date Range, and Bbox (coordinates).
 - Mosaic:
Collection ID, Pass Date, CRS and Spatial Resolution.
- Footprint (same rule as the group).

mosaic.S2_L2A-1_2025-10-04_2025-10-11_-48.6382_-2.3273_-48.0034_-1.9712

☐ S2_L2A-1.2025-10-08_R124_EPSG-32722_10.0x10.0

Informação

Custom properties

bdc_catalog {"layers": ["S2A_MSIL2A_20251008T134231_N0511_R124_T22MHC_20251008T162912_10.0x10.0.vrt", "S2A_MSIL2A_20251008T134231_N0511_R124_T22MGC_20251008T162912_10.0x10.0.vrt"]}

- Images (VRTs) that compose the mosaic.
- Identifies (names) the bands.
- The first 3 bands for true color (or natural color).

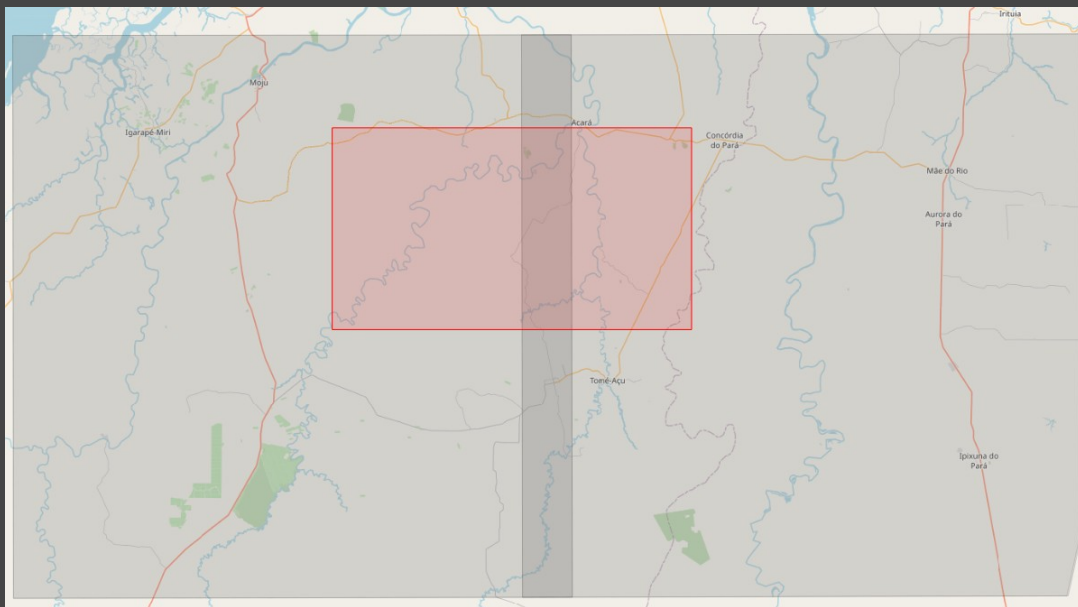
Banda vermelha	Banda 1: B04
	Banda 2: B03
	Banda 3: B02
Banda Verde	Banda 4: AOT
	Banda 5: B08
	Banda 6: TCI
Banda Azul	Banda 7: WVP



Result (Continuation)



☒ footprint.S2_L2A-1_2025-10-04_2025-10-11_-48.6382_-2.3273_-48.0034_-1.9712



- Footprint with each scene separated.
- Each feature has the Item ID from the BDC collection.
- The feature's attributes contain the identification of the "assets" (band URLs) of the item.

☐ S2A_MSIL2A_20251008T134231_N0511_R124_T22MHC_202...
☐ S2A_MSIL2A_20251008T134231_N0511_R124_T22MGC_202...
☐ S2C_MSIL2A_20251006T133851_N0511_R124_T22MHC_202...
☐ S2C_MSIL2A_20251006T133851_N0511_R124_T22MGC_202...

id

S2A_MSIL2A_20251008T134231_N0511_R124_T22MHC_20251008T162912

properties

```
1 - {  
2   "created": "2025-10-09T04:22:22.243688Z",  
3   "datetime": "2025-10-08T13:42:31.000000Z",  
4   "orbit_crs": "R124_EPSG-32722"  
5 }  
6
```

bands

AOT
href https://data.inpe.br/bdc/data/S2_L2A/v001/22/M/HC/2025/10/S2A_AOT_20251008T134231_N0511_R124_T22MHC_20251008T162912.tif
spatial_res 10.0x10.0

B01
href https://data.inpe.br/bdc/data/S2_L2A/v001/22/M/HC/2025/10/S2A_B01_20251008T134231_N0511_R124_T22MHC_20251008T162912.tif
spatial_res 60.0x60.0

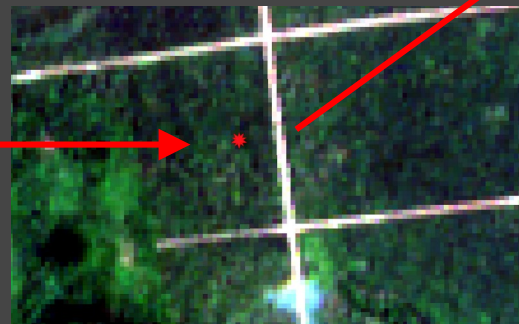
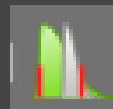
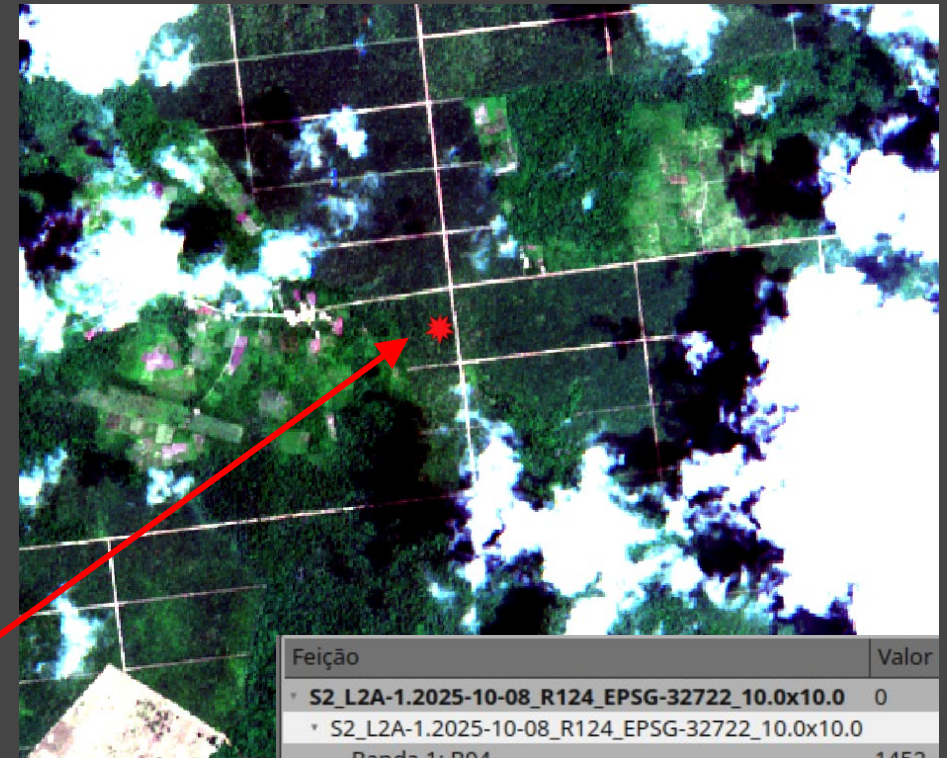
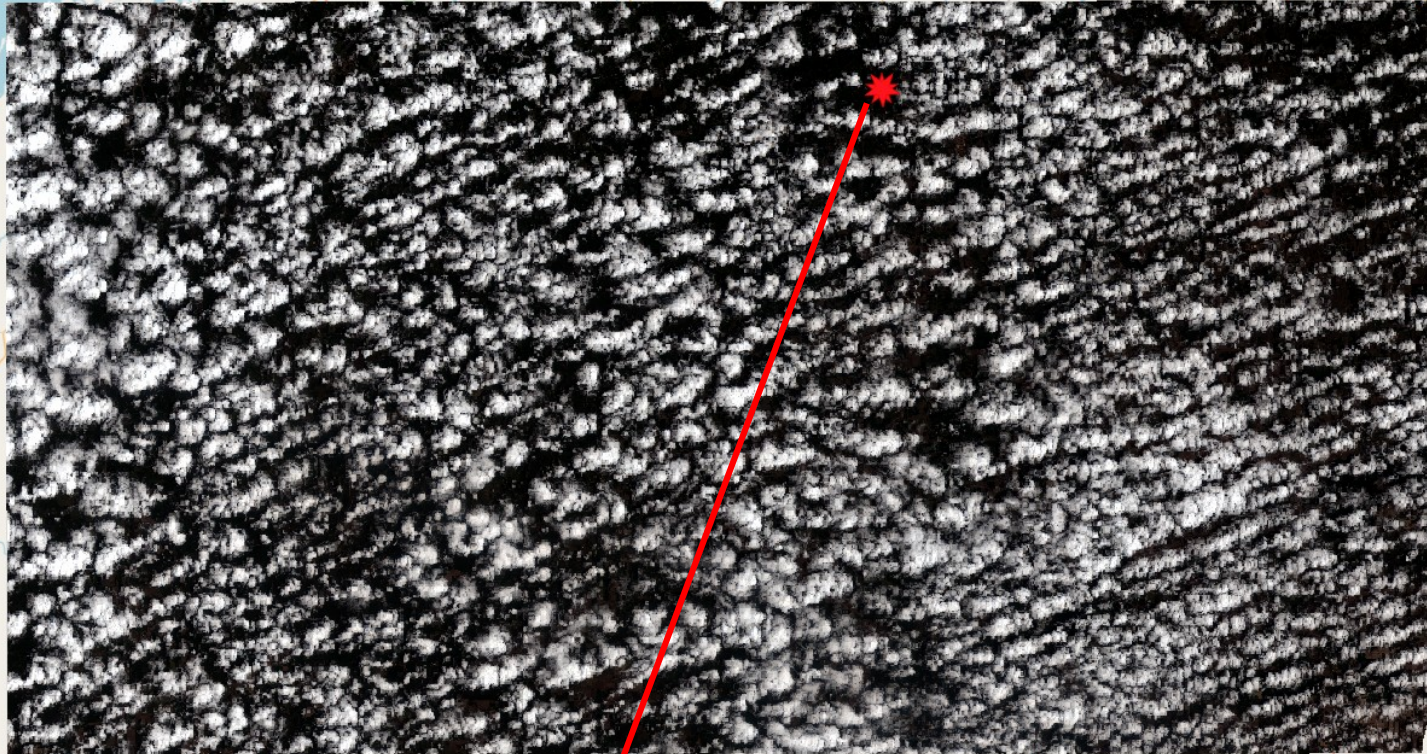
B02
href https://data.inpe.br/bdc/data/S2_L2A/v001/22/M/HC/2025/10/S2A_B02_20251008T134231_N0511_R124_T22MHC_20251008T162912.tif
spatial_res 10.0x10.0



Result (Continuation)



- Mosaic with the two scenes.
S2_L2A-1.2025-10-08_R124_EPSG-32722_10.0x10.0
- Pixels with original values.



Feição	Valor
S2_L2A-1.2025-10-08_R124_EPSG-32722_10.0x10.0	0
S2_L2A-1.2025-10-08_R124_EPSG-32722_10.0x10.0	
Banda 1: B04	1452
Banda 2: B03	1696
Banda 3: B02	1518
Banda 4: AOT	228
Banda 5: B08	5048
Banda 6: TCI	46
Banda 7: WVP	4481



Brazil Data Cube Catalog Plugin



The Plugin is part of the National Fire Information System (Sisfogo), developed by the National Center for Prevention and Combat of Forest Fires (Prevfogo)

Prevfogo is under the Directorate of Environmental Protection (Dipro) of the Brazilian Institute of Environment and Renewable Natural Resources (Ibama), which belongs to the Ministry of Environment and Climate Change (MMA) of the Brazilian Government.

Prevfogo → Dipro → Ibama → MMA



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