

PORT OF SPAIN WIS2 TRAINING WORKSHOP · June 2026

WIS2 Downloader

Finding and subscribing.

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OVERVIEW

Agenda.

01 Background

02 Finding data on WIS2

03 WIS2 Downloader Management

SECTION 01

Background.

What is a metadata record, what is the GDC?.

01

What is a metadata record in WIS2?

Metadata records

- Show information on the data provided.
- Allow users to search for a specific requirement.
- Required alongside the data to ensure further processing.
- Is produced by the data provider.

WCMP2

- Metadata record format enforced in WIS2 (JSON).
- Is stored at the GDCs.
- Is used by the GDCs to provide queryable APIs.
- Is transmitted through the WIS2 network by the data provider.

What is WIS2 Downloader?

An open-source tool for automated data acquisition from WIS2.

Subscribes via MQTT

Connects to WIS2 Global Brokers.

Automatic downloads

Pulls meteorological data files as notifications arrive.

Containerised deployment

Docker & Docker Compose.

Audience

NMHSs, researchers, WIS2 node operators.

KEY DESIGN GOALS

Ease	one command to start
Reliability	dedup · SHA-512 · multi-queuing
Flexibility	wildcards · filter rules · multi-broker
Observability	Prometheus · Grafana

How does WIS2 Downloader handle metadata?

GDC connection

Fetches WCMP2 records from a WIS2 Global Discovery Catalogue on startup.

Local cache

Records stored locally · used to resolve topic paths and dataset names.

Refresh

Metadata can be reloaded at any time from the Settings tab.

Explore

Records can be explored and used for subscriptions in some views.

SECTION 02

Finding data on WIS2.

Searching metadata records and subscribing in WIS2 Downloader.

02

The Catalogue View.

Search

Filter datasets by keyword, centre, data type and/or geographical information.

Browse

Each entry shows dataset title, WTH and location on the map.

Check

Check the metadata record and/or License agreement.

Subscribe

Select a dataset to expand its details and activate a subscription.

Use case

Finding datasets directly by using filters to find a specific one.

The Catalogue View.

Catalogue View

Free text search:

Data Policy
all

Keywords (comma-se...)

Bounding box:

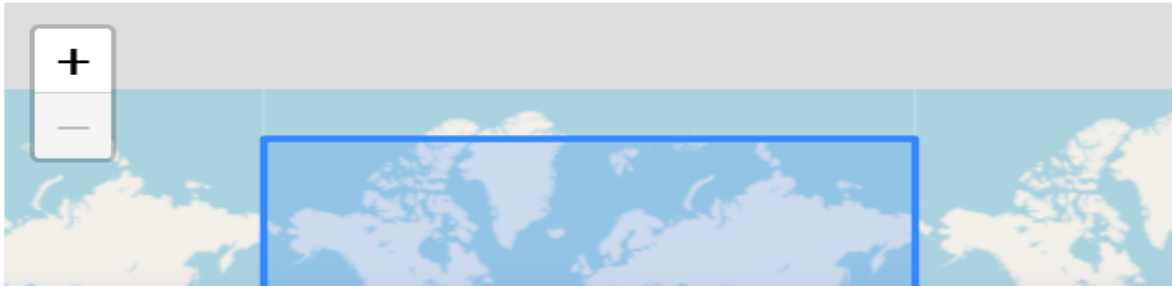
Spatial relationship: Intersects Within

Page
1

Upper-level temperature/humidity/wind reports from fixed-land stations (TEMP) of Russian Federation (ru-aviamettelecom) core CMA DWD ECCC

urn:wmo:md:ru-aviamettelecom:core.surface-based-observations.temp

Upper-level temperature/humidity/wind reports from fixed-land stations (TEMP) of Russian Federation (ru-aviamettelecom)



Save directory

FILTERS

Dataset
Global Ensembl...

Media types

Bounding box

Date & time range

PRIORITY QUEUE

High Priority Small Files Large Files



The Tree View.

Navigate

Expand the topic hierarchy to drill down to a specific dataset or centre.

Wildcard support

Subscribe to a parent node to capture all child topics beneath it.

Subscribe

Click any node to view the full topic path and activate a subscription.

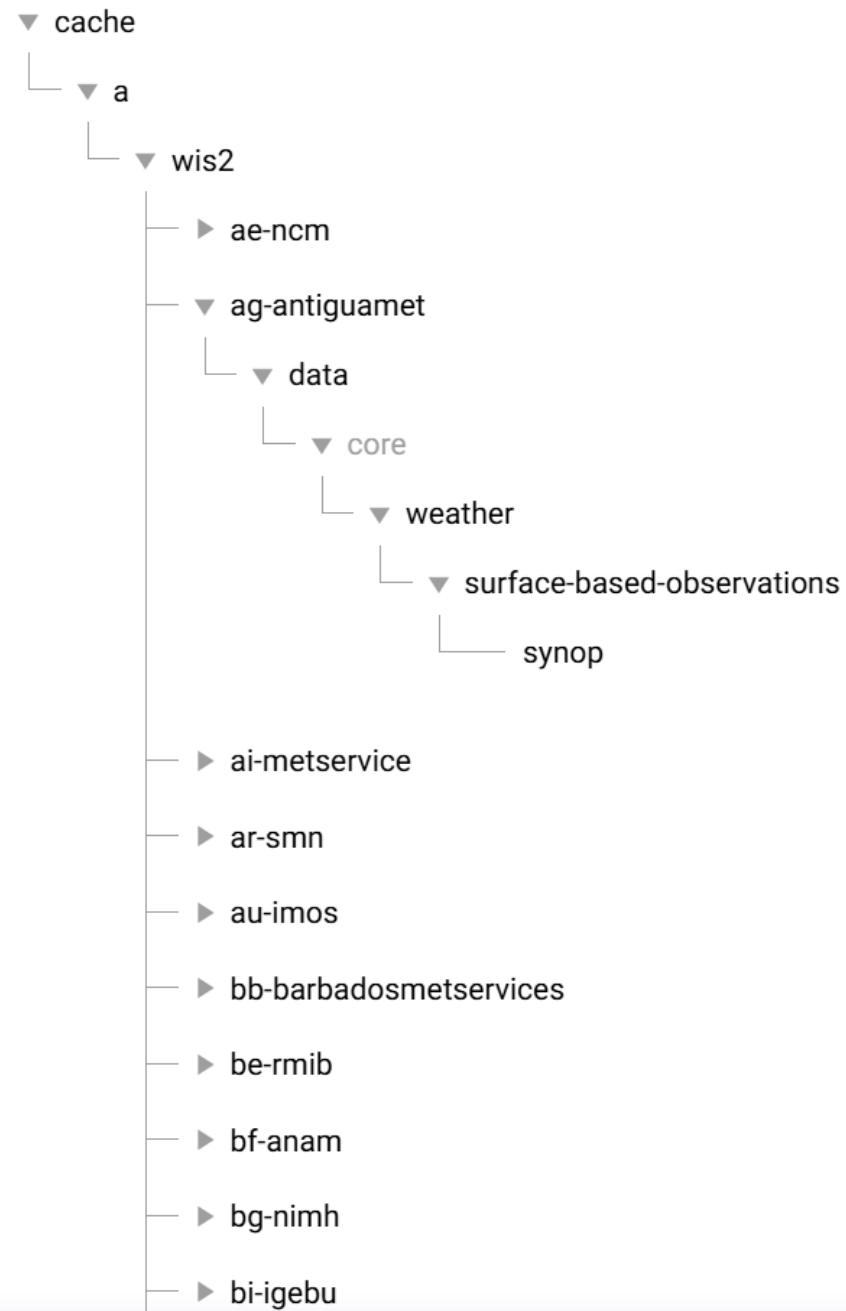
Use case

Find a topic from a top-down approach, easier for making subscriptions of broad range, e.g.: all surface observations of a country.

The Tree View.

Tree View

Filter topics



cache/a/wis2/ag-antiguamet/data/core/#

Save directory

FILTERS

Datasets

Media types

Bounding box

Date & time range

PRIORITY QUEUE

High Priority Small Files

Large Files

SUBSCRIBE

SECTION 03

Management.

Editing and deleting subscriptions, reloading metadata records.

03

Editing subscriptions.

Select

Click the Edit icon next to an active subscription in the Management tab.

Modify

Update filter rules · target directory · additional download options.

Apply

Changes take effect immediately · no restart required.

Edit Subscription

cache/a/wis2+/data/core/weather/surface-based-observations/synop

Save directory
synop

FILTERS

Media types ▾

Bounding box ▾

Date & time range ▾

PRIORITY QUEUE

High Priority Small Files Large Files

AUTHENTICATION

None Basic HTTP Bearer Token

Leave secret fields blank to keep existing credentials

✕ CANCEL

✓ CONFIRM

Deleting subscriptions.

Select

Click the Unsubscribe of the subscription to remove.

Result

Downloader stops consuming that topic · downloaded data is retained on disk.

RELOAD SUBSCRIPTIONS


cache/a/wis2/+/data/core/weather/surface-based-observations/synop

Folder: synop

ID: 2255934e-f206-49a4-a7c1-5b0f2eca924b

Filter: default

 EDIT

 UNSUBSCRIBE

Always consider cleaning up the downloads folder after removing a subscription.

Reloading metadata records.

Trigger

Click Refresh GDC Data in the Settings tab.

Effect

Re-fetches all WCMP2 records from the configured GDCs.

Result

Catalogue and Tree views refresh · new datasets become available immediately.

Settings

Global Discovery Catalogues

Records are fetched from all three GDCs at startup and merged. Results are cached in Redis for 6 hours.

CMA: 434 records

DWD: 404 records

ECCC: 450 records

 REFRESH GDC DATA

Thank you.

Questions, contributions and issue reports welcome.

PROJECT

github.com/World-Meteorological-Organization/wis2downloader

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