WIS2 Operation Model & the role of GISCs in WIS2

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Overview

- Introduction
- Support for AoR / Transition
- WIS2 Node Assessment
- Monitoring Events
- GISC Watch

Introduction

Three type of WIS Centres are defined: NCs, DCPCs and GISCs

NCs and DCPCs are affiliated with a Global Information System Centre (GISC)

As of the operational phase of WIS2 in 2025, the role of WIS Centres has evolved

- **NCs and DCPCs operate WIS2 Nodes to share their data**

- **Global Information System Centres (GISCs)**:
  - ✓ **Support NCs** and **DCPCs** to establish their data sharing on WIS2
  - ✓ Perform **WIS2 Node Assessment** prior to WIS2 Node registration in Global Registry
  - ✓ **Ensure the smooth operation of data exchange in WIS2**, using the Global Monitoring tools and participating in the GISC Watch

For Designation Procedures for WIS Centres see:
Manual on WIS, Volume I, Part II, Page 16

For list of current NC/DCPC and affiliated GISC see:
https://community.wmo.int/en/wis-centres

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Support for AoR / Transition

1. GISCs are supporting their AoR in the transition
   - **Training**
     - GISCs provide training and expertise in various areas
   - Need help?
     - Contact your GISC. GISCs are your first contact point
   - Miss something? / Data not available? / Other operational issues?
     - GISCs can provide further contact points or guidance
2. Provide services depending on GISC
   - WIS portal
   - Cloud infrastructure
   - …
3. Help with data sharing / reception on WIS2
   - GTS data available?
   - What is the correct topic?
   - How to provide good metadata

WIS2 Node Assessment

When you register your WIS2 Node, the WIS2 compliance is assessed

The principal GISC verifies that the WIS2 Node is compliant with WIS2 requirements. This assessment includes:

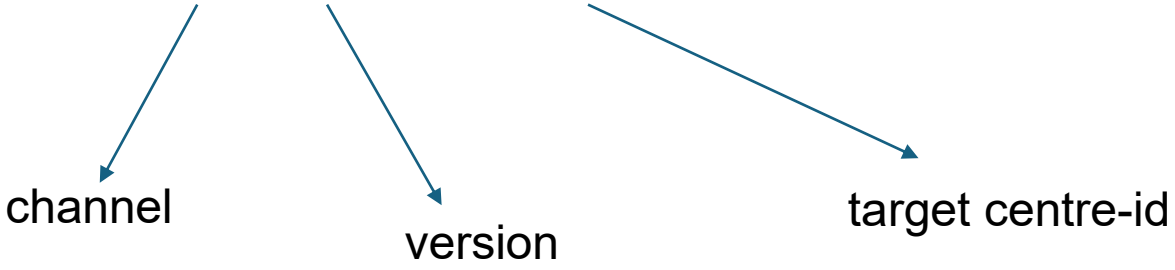
- Verification of **compliance of the topics used by the centre** with the WTH specification;
- Verification of **compliance of the notification messages** with the WIS2 Notification Message (WNM) specification;
- Verification that the **data server** is correctly configured and **properly functioning**;
- Verification that the **Message Broker** is correctly configured and **properly functioning**.

Monitoring Events

- Each global service (and sensor centers) export **Monitoring Metrics** for the **Global Monitor**
  - Openmetrics format
- In addition to WMCP and WNM there are **alert messages** defined (WEM)
  - Can be seen as successor of NOXX
  - WIS2 Nodes and global services can inform about issues

Monitoring Events

- https://wmo-im.github.io/wis2-monitoring-events/standard/wis2-monitoring-events-DRAFT.html
- Messages from Global Services
  - *Global Service service down*
  - *Global Service malfunctioning*
  - *WIS2 Node malfunctioning*
  - planned/expected outages
  - …
- Example topic:
  - `monitor/a/wis2/de-dwd`



Monitoring Events

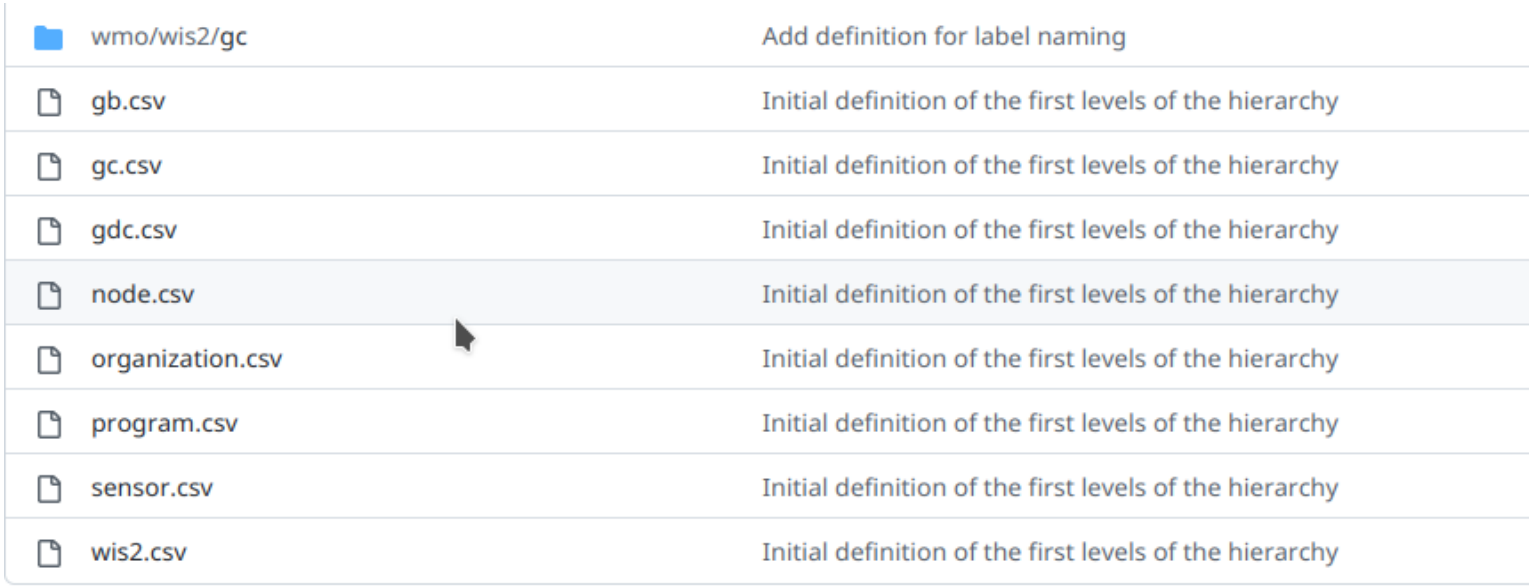
Property	Requirement	Description
`id`	**Required**	A universally unique identifier (UUID) of the message (see Identifier)
`specversion`	**Required**	The CloudEvents specification version (see Version)
`source`	**Required**	The centre identifier producing the event (see Source)
`type`	**Required**	The event type related to the message (see Type)
`subject`	**Required**	The centre identifier of the subject of the event (see Subject)
`time`	**Required**	The date and time of when the notification was published, in RFC3339 format, UTC (see Time)
`datacontenttype`	**Required**	The media type of the data content encoding in the event message (`application/json`) (see Data content type)
`data`	**Required**	The event payload as JSON (see Data)

Monitoring Events


```
{
    "specversion": "1.0",
    "type": "int.wmo.wis.wme.event.report.notice",
    "source": "ar-smn",
    "subject": "ar-smn",
    "id": "6da24af0-b19f-4106-b583-73cc25a4435d",
    "time": "2025-08-02T02:43:35Z",
    "datacontenttype": "application/json",
    "dataschema": "https://schemas.wmo.int/wme/1.0.0/schemas/wis2-event-message-encoding-report.json",
    "data": {
        "type": "wmem:report",
        "title": "Data outage notice",
        "detail": "Surface synoptic observations will be missing until 22 July 2025, 09:00Z",
        "channel": "origin/a/wis2/ar-smn/data/core/weather/surface-based-observations/synop",
        "time": {
            "interval": [
                "..",
                "2025-07-25T09:00:00Z"
            ]
        },
        "wmem:severity": "info"
    }
}
```

GISC Watch

1	Organization	The root of the monitoring metrics is set fixed to [wmo]
2	Program	wmo program for which the metrics apply. WIS 2 related metrics are set to [wis2]
3	Service	Name of the service / data feed




```
# TYPE wmo_wis2_gc_dataserver_last_download_timestamp_seconds untyped
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="ammc",dataserver="www.wis2.cloud.bom.gov.au'
02.dwd.de:12000",job="globalcache_sub",report_by="dwd",monitor="wis2_dwd"} 1.705390604e+09 1705391451538
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="aviamettelecom",dataserver="wis2box.mecom.ru
p02.dwd.de:12000",job="globalcache_sub",report_by="dwd",monitor="wis2_dwd"} 1.705387505e+09 1705391451538
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="babj",dataserver="wis2node.wis.cma.cn",insta
.de:12000",job="globalcache_sub",report_by="dwd",monitor="wis2_dwd"} 1.705389063e+09 1705391451538
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="ca-eccc-
msc",dataserver="dd4.weather.gc.ca",instance="wis2p02.dwd.de:12000",job="globalcache_sub",report_by="dwd",mon
1.705390819e+09 1705391451538
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="ca-eccc-
msc",dataserver="dd5.weather.gc.ca",instance="wis2p02.dwd.de:12000",job="globalcache_sub",report_by="dwd",mon
1.705390816e+09 1705391451538
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="casablanca_met_centre",dataserver="wis2box.
stance="wis2p02.dwd.de:12000",job="globalcache_sub",report_by="dwd",monitor="wis2_dwd"} 1.705391326e+09 17053
wmo_wis2_gc_dataserver_last_download_timestamp_seconds{centre_id="de-
dwd",dataserver="wisdev.kishou.go.jp",instance="wis2p02.dwd.de:12000",job="globalcache_sub",report_by="dwd",mo
} 1.705391426e+09 1705391451538
```

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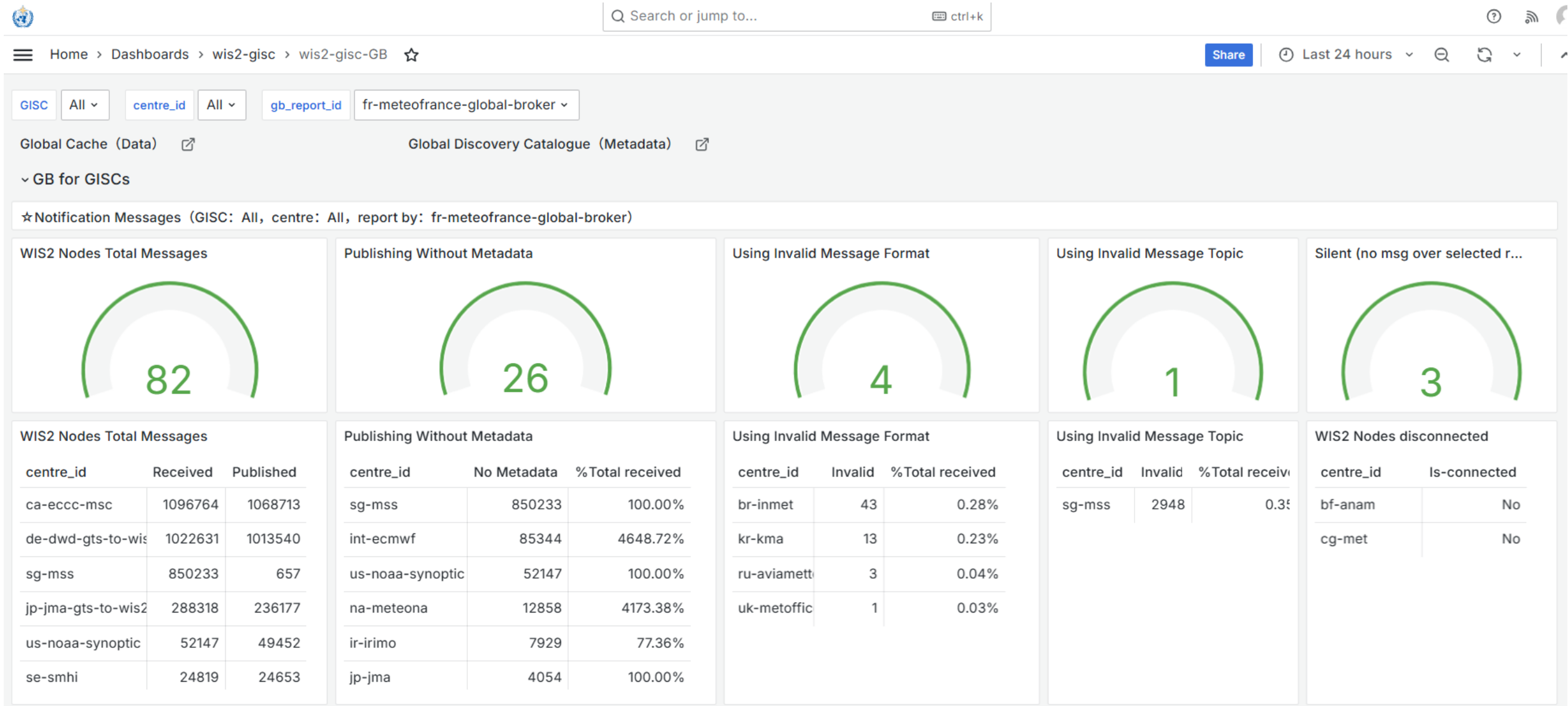
GISC Watch

Global Monitoring provides dashboards for GISCs to monitor WIS2 Operations:



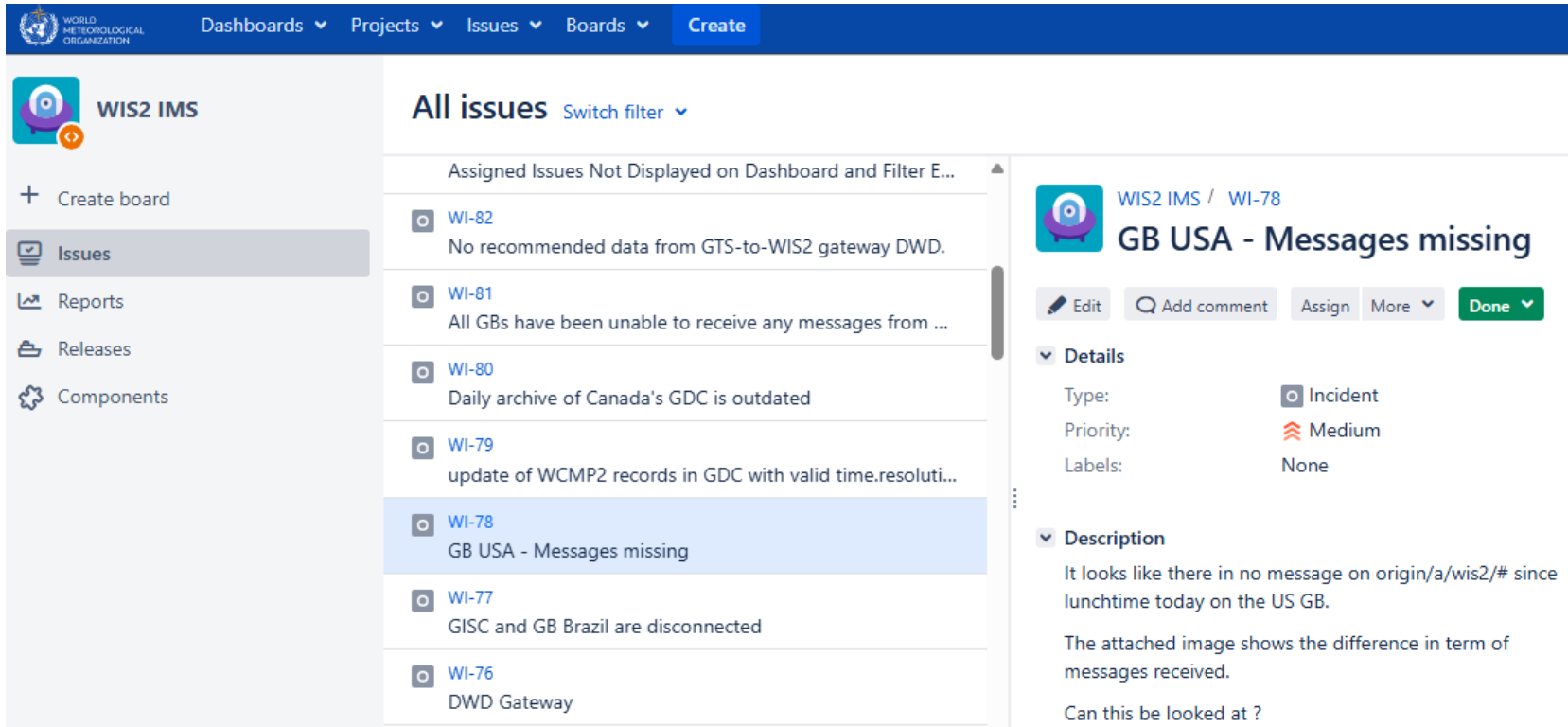
GISC Watch

New GISC Watch monitoring procedure launched in April 2025

- replacing the WIS1 Watch, which had been active from 2017 through 2024

New version of GISC Watch Guide (under development) adapting procedures originally developed for WIS1 to WIS2

GISC Watch follows-up on issues using the WIS2 Incident Management System



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Summary

GISCs support NCs and DCPCs in their WIS2 implementation

GISCs perform WIS2 Node assessment prior to registration in the Global Registry

GISCs continuously monitor WIS2 operations using Global Monitoring dashboard and participate in GISC Watch to follow-up on issues

New Expert Team in WIS2 “ET-WISOP” brings together all GISCs representatives to work consistently and coherently toward successfully implementing WIS 2.0

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you
Merci
Gracias
اركش
谢谢
Спасибо

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale