# OSCAR/Surface
# Machine-to-Machine Interface

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# Outline

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- Requirements

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# INTRODUCTION

# Metadata for climate applications

"The details and history of local conditions, instruments, operating procedures, data processing algorithms and other factors pertinent to interpreting data (i.e. metadata) should be documented and treated with the same care as the data themselves."

GCOS Climate Monitoring Principle #3

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# Members shall share metadata …

- WIGOS Manual

## 2.5.3  Global compilation of observational metadata

2.5.3.1  Members shall make available to WMO for global compilation those components of the WIGOS metadata that are specified as mandatory or conditional (whenever the condition is met).

Note:  Global compilations of WIGOS metadata are held in several databases. The database of the Observing Systems Capability Analysis and Review tool (OSCAR) of the WIGOS Information Resource (WIR) is the key source of information for WIGOS metadata. Other global compilations of specific components of WIGOS metadata include elements of the GAW Station Information System (GAWSIS), the database of the JCOMM In Situ Observations Programme Support Centre (JCOMMOPS) and others. Purpose and management of WIR and OSCAR are described in Attachment 2.2.

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# OSCAR/Surface offers an elaborate management console ...

# Why an OSCAR/Surface API?

- WIGOS metadata model is fairly comprehensive, lots of elements to report

- OSCAR/Surface management console is intended to support editing of single stations

- If metadata are already maintained in a digital archive, it makes sense to automate WIGOS metadata production and delivery

→An API (Application Programming Interface) allows machine-to-machine interaction, intended to support bulk operations or repeated updates

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# REQUIREMENTS

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# OSCAR/Surface API (i)



- RESTful API
  - Upload/download of WMD records including
    - Stations characteristics
    - Observations
    - Schedules
    - Instruments
    - Contacts
  - Batch uploads of station contacts and code lists contents
  - Search for stations and contacts using filter expressions
  - Retrieval of audit logs [administrators only]
- Supports export in different formats (WMD XML, JSON, GEOJSON, CSV,..)
- Provides error messages detailed enough to allow corrective action

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# OSCAR/Surface API (ii)

**External system**

**API**

OSCAR DB

Authenticated system

Anonymous system
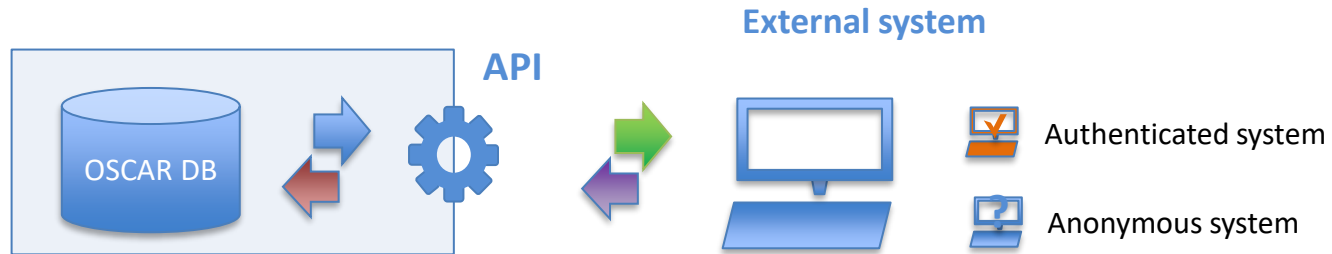
An external system can extract:
- Station metadata (full or partial WMD metadata records)
- Stations list (search results)
- Contacts list (search results)
- Audit logs

An external system can update/insert:
- Stations metadata (full or partial WMD metadata records)
- Station contacts
- Instruments
- Organisations

Ingestion of current/historic metadata relies on business rules and best practices
Metadata updated/inserted via the API is locked for UI changes

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# OSCAR/Surface API «get»

| | GET | input | output | Output format | Comment |
|---|---|---|---|---|---|
| **get stations metadata by WIGOS ID** | Station | WIGOS ID, (date) | Full station metadata record | WMD XML, GEOJSON | Current (no date specified) or historic values |
| | Station(s) | WIGOS ID, required elements, (date) | Subset of station metadata record | CSV, XML, JSON | Required elements can be: WIGOS ID, coordinates, station type, station class, measured variables, coordinates of intruments, observing cycle (VolA legacy file?) |
| **Search for stations metadata** | Station(s) | Filter expression | Full station metadata records | WMD XML, JSON | Filters: station class, station type, location (country/ies), open text, …. |
| **Search for stations** | Stations list | Filter expression | WIGOS ID, station name, … | JSON, XML | Filters: station class, station type, location (country/ies), open text, …. |

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# OSCAR/Surface API «put»

**Upload station metadata**

**Upload code lists contents**

| Update/insert | input | Input format | Output | Comment |
|---|---|---|---|---|
| Station(s) | Full or partial WMD record | WMD XML | Confirmation/error message | Can contain current or historic values |
| Station(s) contact(s) | List of station contacts | CSV, XML | Confirmation/error message | Batch upload of station contacts |
| Instrument | List of instruments | CSV, XML | Confirmation/error message | Batch upload of instruments |
| Organisation | List of organisation | CSV, XML | Confirmation/error message | Batch upload of organisations |

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# CURRENT STATUS

# OSCAR/Surface API

- Available end points (mainly for internal use)
  - https://oscar.wmo.int/surface/rest/api?_wadl
- Example: List all approved stations
  - https://oscar.wmo.int/surface/rest/api/stations/approvedStations/wmoIds?pageSize=100&q=&page=1

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# OUTLOOK

- Distribute schema 1.0RC5 to interested parties
- Align OSCAR/Surface
  - Update DB model,
  - migrate existing information,
  - Update OSCAR/Surface GUI
- Build and test API endpoints
  - «upload» of (complete or partial) WMD records
  - Other endpoints
- Timeline
  - Prototype by end of June based on 1.0RC5
  - Pre-operational API by end of July available for wider testing
  - Bug fixing, deployment by September

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# Thank you
# Merci
# شكرا

You & your organization!

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