

ConeSearch-1.1 status



IVOA November 2025 Interoperability Meeting
Data Access Layer session
Friday 14 November 2025
Görlitz, Germany

Marco Molinaro



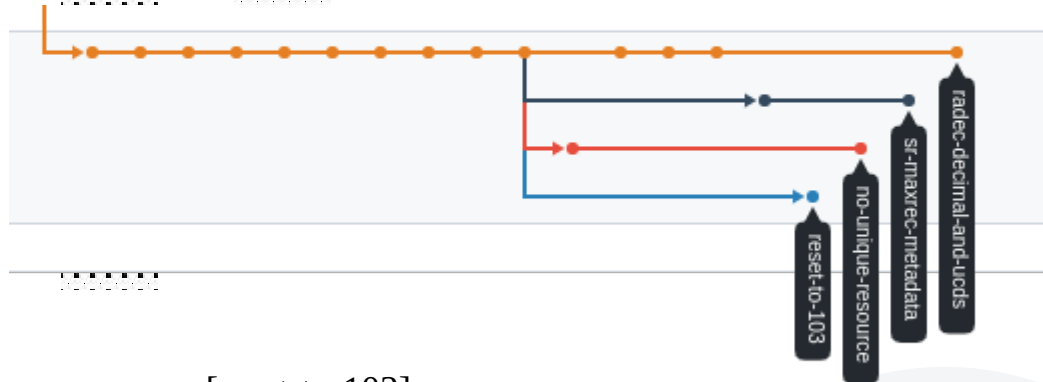
WD-ConeSearch-1.1 – history

- Previous 1.1 revision attempt
 - tried to change too much
 - while forcing it to be “minor”
- Restart, limit to
 - update to UCD1+ ([issue #20](#))
 - yes, it's **minor!**
 - re-add MAXREC
 - re-add RESPONSEFORMAT
 - rework resource description (a.k.a. Section 3)
 - (TBD – [issue #54](#)) align VOTable error to DALI
 - (TBD – [issue #17](#)) fix silently failing optional parameters



2023

WD-ConeSearch-1.1 – history



- ☐ [RA Dec decimal and UCD to 1+ ✓](#)
#58 by molinaro-m was merged last month • Approved
- ☐ [SR & MAXREC for metadata ✓](#)
#57 by molinaro-m was merged last month • Approved
- ☐ [No unique resource ✓](#)
#56 by molinaro-m was merged last month • Approved
- ☐ [WD 1.1 - basic reset to REC-ConeSearch-1.03 w/ Errata fixes ✓](#)
#55 by molinaro-m was merged on Sep 30 • Approved

- [reset-to-103]
 - reverted to the text of the initial .tex porting
 - added Erratum 1 content from v1.03 - <INFO> element uniqueness
 - added Erratum 2 content from v1.03 - VOTable version in responses
 - added Erratum 3 content from v1.03 - fix error VOTable response
- [no-unique-resource]
 - proposal to remove RESOURCE uniqueness in response
- [sr-maxrec-metadata]
 - SR and MAXREC behaviour
- [radec-decimal-and-ucds]
 - datatype and UCD changes in RA, Dec, ID
 - updated obs angsize to UCD1+
 - fixed UCDs in App.A example

end of 2024

WD-ConeSearch-1.1 – history

- More readable Section 2
- RESPONSEFORMAT added
- DALI behaviour
 - VOTable usage and error responses
 - includes OVERFLOW indicator
- clarified MAXREC=0 & SR=0 enquiries
- forced RA/Dec decimal degrees in response
- Registry section referencing SimpleDALRegExt
- explicated HTTP(S)
- clarified behaviour on custom & optional parameters

- ☐  adding RESPONSEFORMAT, DALI error responses & OVERFLOW usage ✓
#64 by molinaro-m was merged last month • Approved
- ☐  Clean Registry extension specification ✓
#67 by molinaro-m was merged 2 weeks ago • Approved
- ☐  server behaviour on optional parameters ✓
#66 by molinaro-m was merged 3 weeks ago • Approved

DAL Running Meeting #21

https://wiki.ivoa.net/twiki/bin/view/IVOA/IvoaDAL_RunningMeetings

summer 2025

WD-ConeSearch-1.1 – history

ConeSearch status reported and an hack-a-thon session happened following the skeleton from the DAL Running Meeting #21 notes

- re-opened the issue for behaviour in responses to optional parameters
 - clarify/structure the info/warning solution
- ConeSearch--DALI-->DataOrigin reference chain
- discuss meta.id;meta.main column unique behaviour in the basic ConeSearch model
 - clarify/explicit ConeSearch text
 - discuss with catalog/data providers
 - reach an agreement!

Astro-CC 1st Technology Forum

<https://indico.in2p3.fr/event/36318/>



October 2025

TODO – repo issue list

☐ Open 7 Closed 10

Author ▾ Labels ▾ Projects ▾ Milestones ▾

☐ ☒ OpenAPI ConeSearch I/F document 1.1 documentation enhancement
#63 · molinaro-m opened on Jul 1

☐ ☒ ivoid in VOTable response 1.1 ← DataOrigin through DALI (read: wait for DALI-1.2)
#59 · gilleslandais opened on Nov 10, 2023

☐ ☒ main ID usage 1.1
#53 · molinaro-m opened on Feb 4, 2021

☐ ☒ SR=0 wrt MAXREC=0 text clarification 1.1
#43 · molinaro-m opened on Aug 28, 2020

☐ ☒ Update .xsd and .vor 1.1 ← .xsd ► OpenAPI
#38 · molinaro-m opened on Aug 27, 2020

☐ ☒ VOTable examples (Appendix A) 1.1 bug
#18 · molinaro-m opened on Jul 24, 2020

☐ ☒ unrecognized custom parameter and optional parameters responses 1.1 2.x bug question
#17 · molinaro-m opened on Jul 24, 2020

TODO – other

- editorial work
 - architecture schema and references
 - Architecture 1.2
 - DALI
 - SimpleDALRegExt (that will need an Erratum)
 - VOUnits
 - raise VOUnits awareness
- VOTable media-type prescription
 - **SHOULD** application/x-votable+xml
 - **OPTIONAL** text/xml
 - **accept** text/xml;votable **only for back compatibility reasons**
- check with DALI (?): responses in other formats
 - allowed but unspecified

Finally: have WD out

- once the WD is out
 - check for reference implementations
 - check for validator(s)
 - move to PR -> REC
- feature-wise it should already be fine
- all the other gitrepo issues will move to SCS-2.0

up for discussion (1)

DataOrigin

- now a Proposed Endorsed Note
- (when) EN can be “safely” referenced
- it is wider in scope than ConeSearch
 - reference it through DALI
 - squeeze it in DALI-1.2 (RFC)

<https://github.com/ivoa-std/ConeSearch/issues/59>

VOTable **media-type** prescription

- SHOULD application/x-votable+xml
 - following VOTable REC
- OPTIONAL text/xml
- accept text/xml;votable only for back compatibility reasons

Responses: **other than VOTable**

- leave it to DALI
- allowed but unspecified

I/F **API description**

- abandon XSD
- move to OpenAPI

<https://github.com/ivoa-std/ConeSearch/issues/63>
<https://github.com/ivoa-std/ConeSearch/issues/38>

up for discussion (2)

Optional & custom parameters

- avoid silent failure on not mandatory parameters
- do not force clients to parse a complex/structured warning response
- provide user/client with potentially useful information on interface capabilities

- There may be other parameters in the query, but this document does not specify their meaning or usage. If a query includes an optional parameter, either one specified by this document or not, that is not supported by the service implementation, the service can ignore it. In this case it is encouraged to add, in the response, an INFO element with the name attribute set to warning to include the parsing report for the ignored parameter, like:

```
<INFO name="warning"
      value="Unrecognized optional/custom parameters.
      Ignored: TIME, MAG_V"/>
```

<https://github.com/ivoa-std/ConeSearch/pull/68>

<https://github.com/ivoa-std/ConeSearch/issues/17>

up for discussion (3)

Metadata enquiries

- v.1.03 SR=0
 - metadata behaviour
 - not binding
- v.1.1 (as of today)
 - MAXREC=0
 - metadata (DALI)
 - SR=0
 - should be metadata

SR the radius of the cone to search, given in decimal degrees. If set to zero (SR=0) it should not return an error condition because the request might describe an interest in retrieving only the metadata structure of the service's response (i.e. discovery of the FIELDS delivered by the service). This is similar to setting MAXREC=0, i.e. a service metadata request as prescribed by DALI³(Dowler and Demleitner et al., 2017).

Example

<https://mycone.org/cgi-bin/search?RA=180.567&DEC=-30.45&SR=0.0125>

- As defined by DALI a service SHOULD also understand the following parameters:

MAXREC to let the client limit the number of records returned or require a service metadata response. That means that a request including any of MAXREC or SR set with a value of 0 should require a metadata response.

³SR=0 is kept in this version of this specification for back compatibility. It is suggested to prefer the usage of MAXREC to enable metadata discovery

up for discussion (3)

Metadata enquiries

- v.1.03 SR=0
 - metadata behaviour
 - not binding
- v.1.1 (as of today)
 - **OPS: validation, SR=0 & data response is not an error.**
 - metadata (DALI)
 - SR=0
 - should be metadata

SR the radius of the cone to search, given in decimal degrees. If set to zero (SR=0) it should not return an error condition because the request might describe an interest in retrieving only the metadata structure of the service's response (i.e. discovery of the FIELDS delivered by the service). This is similar to setting MAXREC=0, i.e. a service metadata request as prescribed by DALI³(Dowler and Demleitner et al., 2017).

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up for discussion (4)

Main ID

- meta.id;meta.main
 - only one column
 - values uniqueness unclear
 - in the text
- what's a source catalog?

- The TABLE must have FIELDS where the following UCD values have been set. There must only be one FIELD with each of these UCDs:

- Exactly one FIELD must have ucd="meta.id;meta.main", with an array character type (fixed or variable length), representing an ID string for that record of the table. This identifier may not be repeated in the table, and it could be used to retrieve that same record again from that same table.

Abstract

This specification defines a simple query protocol for retrieving records from a catalog of astronomical sources. The query describes sky position and an angular distance, defining a cone on the sky. The response returns a list of astronomical sources from the catalog whose positions lie within the cone, formatted as a VOTable. This version of the specification is essentially a transcription of the original Cone Search specification in order to move it into the IVOA standardization process.

<https://github.com/ivoa-std/ConeSearch/issues/53>

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Thank you for your attention!

Follow <https://github.com/ivoa-std/ConeSearch> & DAL list for updates.



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1.1? 2.0?

- 1.1 tries to fix the minimum
 - it is bound to back-compatibility
- 2.0 can overcome those bounds
 - how far can 2.0 push itself?
 - not a “transition” question
 - a MUST/SHOULD discussion