MOC Working Draft 1.0
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IVOA Interop – May 2013 - Heidelberg

MOC Working draft

- V1.0 - 14 march 2013

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International
Virtual
Observatory
Alliance

MOC – HEALPix Multi-Order Coverage map

Version 1.0
IVOA Working Draft 14 Mar 2013

This version:
1.0: Working Draft 2013-03-14

Previous version(s):
None

Interest/Working Group:
Applications: http://www.ivoa.net/twiki/bin/view/IVOA/IvoaApplications

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Abstract

This document describes the Multi-Order Coverage map method (MOC) to specify sky regions. The goal is to have a way for providing very fast comparisons and data access methods. The principle is based on HEALPix sky tessellation. It boils down to defining a list of sky cells, grouped hierarchically.

History

- *January 2011*: first implementation

- *May 2011*: presentation at Interop Apps session

- *November 2011*: poster at ADASS

- *April 2012*: IVOA note

- *November 2012:* oral presentation at ADASS

- March 2013 : IVOA Working Draft
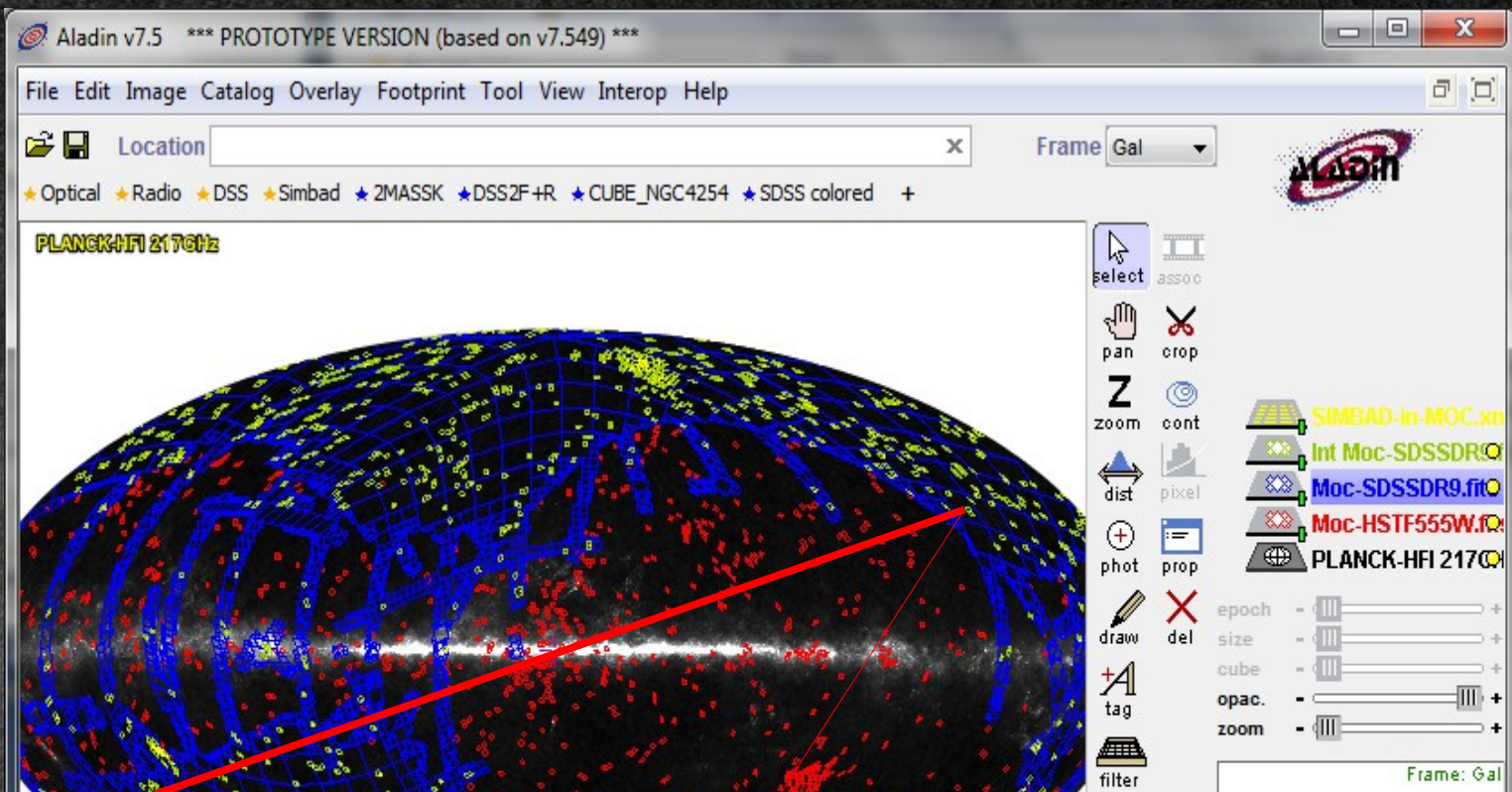
Use case in action

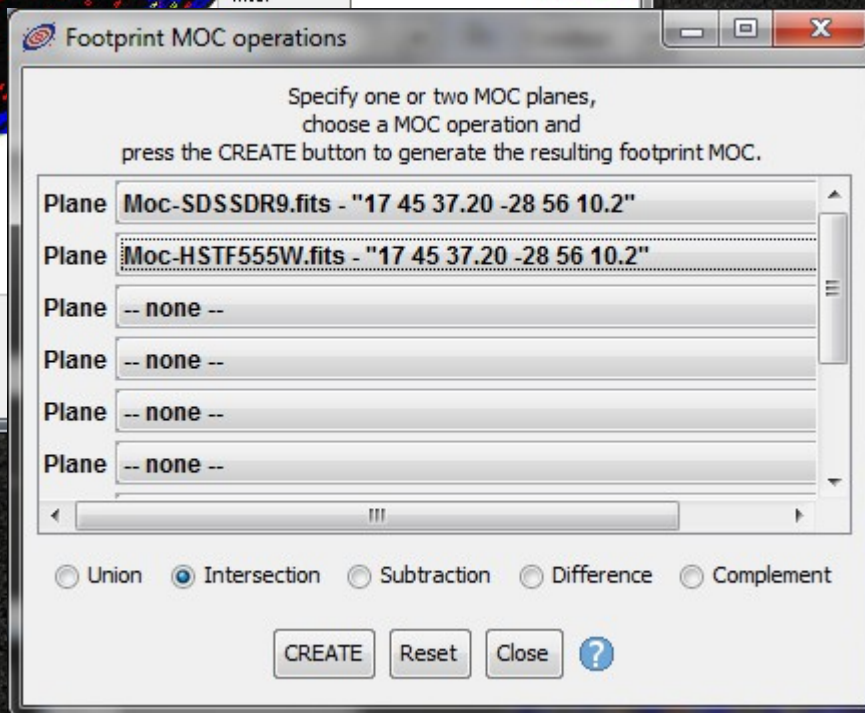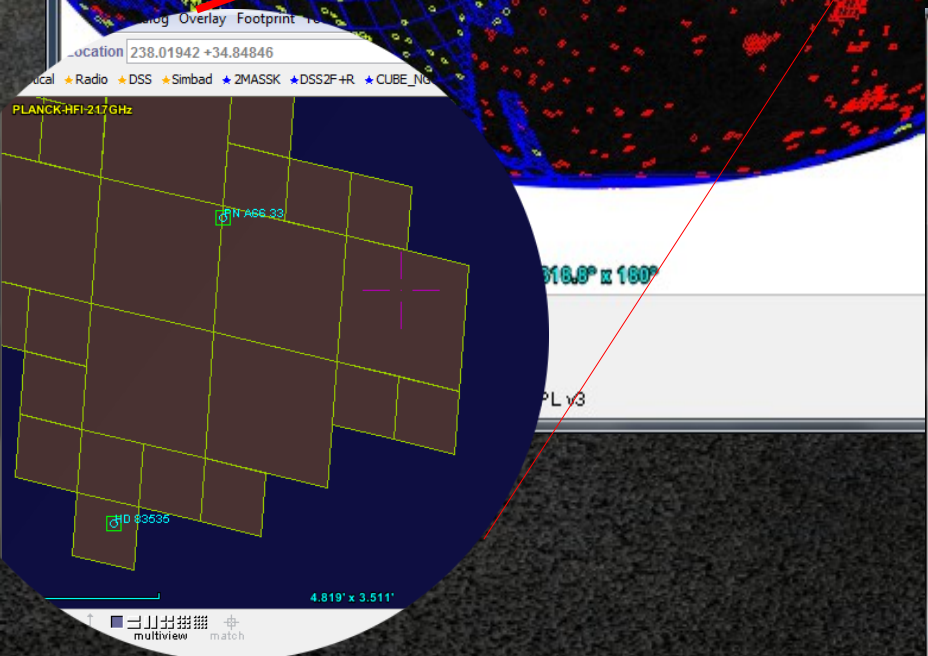*« Please give me all Simbad objects observed by HST F555W and SDSS DR9 »*

Now please !

1. Load
    MOC-HST
    MOC-SDSS
2. Compute
    MOC inters.
3. Query Simbad
    by MOC

=> Realized in 5s

Browsing the WD (12 pages)

Available products

- Available MOCs

  - MOCs for all VizieR tables and cone search services

  - MOCs for a dozen CS services published by ROE *(UKIDSS, VVV, VMC, VIKING, VHS, VIDEO, …)*

  - *MOCs for HST products (CADC) in progress...*

- Libraries

  - Java library to create MOCs (serialization/deserialization) and compare them (computation of intersection/union)

Who uses MOCs ?

- TOPCAT : to speed up *multi-cone search* by discarding positions with no potential counterpart

- Aladin : Visualization, operations (intersection, union, difference, complement), filter out a list of sources, query a VizieR table by MOC

- ROE : to provide and vizualize coverages (UKIDSS...)

- SiTools/CNES : Vizualisation, operations

Links

- IVOA WD:
  http://www.ivoa.net/twiki/bin/view/IVOA/IvoaApplications

- MOC for VizieR tables:
  http://alasky.u-strasbg.fr/footprints

- Java library to manipulate MOCs:
  http://cds.u-strasbg.fr/resources/doku.php?id=moc