



# RDA activities and outputs

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Data Curation & Preservation  
IVOA May 2018

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# THE RESEARCH DATA ALLIANCE

[www.rd-alliance.org](http://www.rd-alliance.org)

*building the social and technical bridges  
that enable open sharing of data*

## 18 FLAGSHIP OUTPUTS

of which 4 ICT  
Technical  
Specifications

## 75 ADOPTION CASES

across multiple  
disciplines,  
organisations &  
countries

## 91 GROUPS WORKING ON GLOBAL DATA INTEROPERABILITY CHALLENGES

of which 33 *WORKING GROUPS*  
& 58 *INTEREST GROUPS*

## 6,952 INDIVIDUAL MEMBERS FROM 137 COUNTRIES

67% Academia & Research  
15% Public Administration  
11% Enterprise & Industry

## 43 ORGANISATIONAL MEMBERS & 8 AFFILIATE MEMBERS



## Vision

Researchers and innovators openly share data across technologies, disciplines, and countries to address the grand challenges of society.

## Mission

RDA builds the **social and technical bridges** that **enable open sharing** of data.

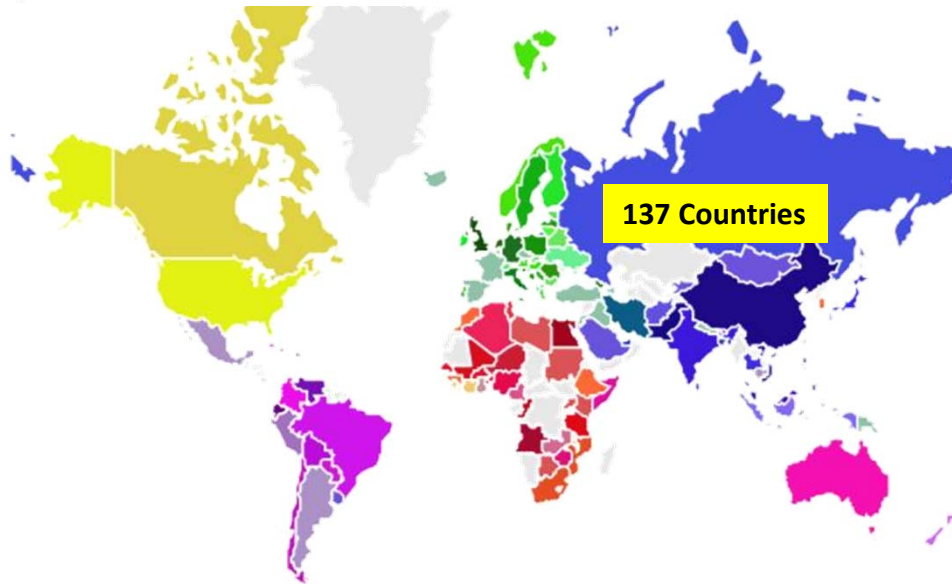
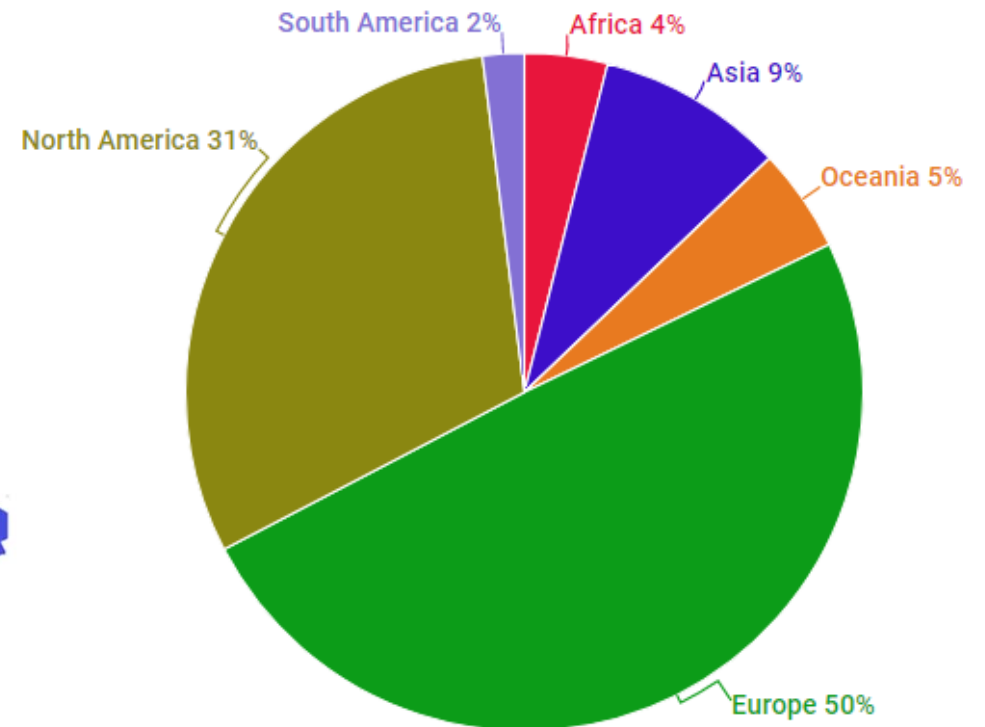
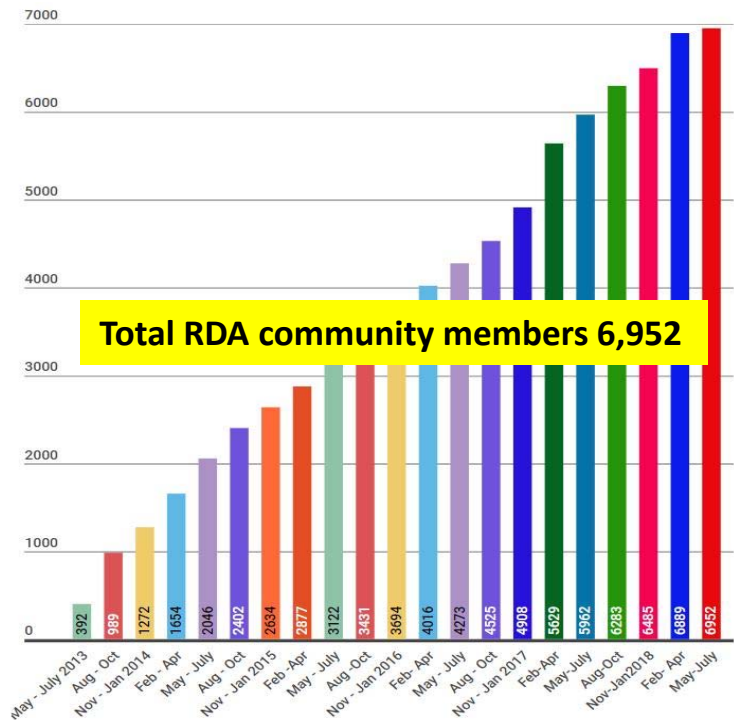
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# RDA worldwide growth





# RDA Interest (IG) & Working Groups (WG) by Focus (1)

Total 91 groups:  
33 Working Groups & 58 Interest Groups

## Domain Science - focused

- Agrisemantics WG
- BioSharing Registry WG
- Blockchain Applications in Health WG
- Capacity Development for Agriculture Data WG
- Fisheries Data Interoperability WG
- On-Farm Data Sharing (OFDS) WG
- Rice Data Interoperability WG
- Wheat Data Interoperability WG
- Agricultural Data IG (IGAD)
- Biodiversity Data Integration IG
- Chemistry Research Data IG
- Digital Practices in History and Ethnography IG
- Earth, Space, and Environmental Sciences IG
- Geospatial IG
- Global Water Information IG
- Health Data IG
- Linguistics Data Interest Group
- Mapping the Landscape IG
- Marine Data Harmonization IG
- Quality of Urban Life IG
- RDA/CODATA Materials Data, Infrastructure & Interoperability IG
- Research data needs of the Photon and Neutron Science community IG
- Small Unmanned Aircraft Systems' Data IG
- Structural Biology IG
- Weather, Climate and air quality IG

## Partnership Groups

- RDA / TDWG Metadata Standards for attribution of physical and digital collections stewardship WG
- RDA/WDS Scholarly Link Exchange Working Group
- ELIXIR Bridging Force IG
- RDA/NISO Privacy Implications of Research Data Sets IG
- RDA/WDS Publishing Data IG

# RDA Interest (IG) & Working Groups (WG) by Focus (2)

Total 91 groups:  
33 Working Groups & 58 Interest Groups

## Reference and Sharing - focused

- Data Citation WG**
- Data Description Registry Interoperability WG**
- Data Security and Trust WG**
- Empirical Humanities Metadata WG**
- International Materials Resource Registries WG**
- Provenance Patterns WG**
- QoS-DataLC Definitions WG**
- RDA / WDS Publishing Data Bibliometrics WG**

- Repository Core Description WG**
- Research Data Collections WG**
- Research Data Repository Interoperability WG**
- Data Discovery Paradigms IG**
- National Data Services IG**
- RDA/CODATA Legal Interoperability IG**
- Reproducibility IG**
- Sharing Rewards and Credit (SHARC) IG**

## Community Needs - focused

- Certification and Accreditation for Data Science Training and Education WG**
- RDA/CODATA Summer Schools in Data Science and Cloud Computing in the Developing World WG**
- Teaching TDM on Education and Skill Development WG**
- CODATA/RDA Research Data Science Schools for Low and Middle Income Countries**
- Archives & Records Professionals for Research Data IG Data for Development IG**
- Development of Cloud Computing Capacity and Education in Developing World Research IG**
- Early Career and Engagement IG**
- Education and Training on handling of research data IG**
- Ethics and Social Aspects of Data IG**
- International Indigenous Data Sovereignty IG**
- Open Questionnaire for Research Data Sharing Survey IG**

# RDA Interest (IG) & Working Groups (WG) by Focus (3)

Total 91 groups:  
33 Working Groups & 58 Interest Groups

## Data Stewardship and Services – focused

- Brokering Framework WG**
- DMP Common Standards WG**
- Exposing Data Management Plans WG**
- RDA / WDS Publishing Data Workflows WG**
- WDS/RDA Assessment of Data Fitness for Use WG**
- Active Data Management Plans IG
- Data in Context IG
- Data Rescue IG
- Data Versioning IG
- Domain Repositories IG
- Virtual Research Environments IG

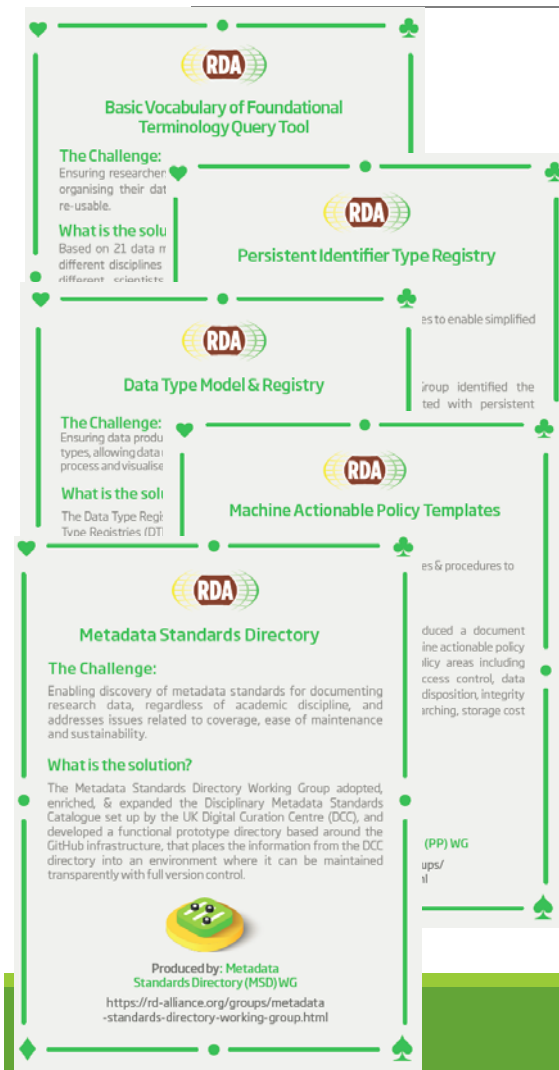
- Libraries for Research Data IG
- Long tail of research data IG
- Physical Samples and Collections in the Research Data Ecosystem IG
- Preservation e-Infrastructure IG
- Preservation Tools, Techniques, and Policies IG
- RDA/WDS Certification of Digital Repositories IG**
- RDA/WDS Publishing Data Cost Recovery for Data Centres IG
- Repository Platforms for Research Data IG
- Research Data Architectures in Research Institutions IG
- Research Data Provenance IG**

## Base Infrastructure – focused

- Array Database Assessment WG**
- Data Type Registries WG**
- Metadata Standards Catalog WG**
- PID Kernel Information WG**
- Data Fabric IG
- Data Foundations and Terminology IG
- Disciplinary Interoperability Framework IG

- Big Data IG
- Brokering IG
- Metadata IG
- PID IG
- Software Source Code IG
- Vocabulary Services IG

# RDA Recommendations & Outputs



**Data Foundation & Terminology:** a model for data in the registered domain.

**PID Information Types:** a common protocol for providers and users of persistent ID services worldwide.

**Data Type Registries:** allowing humans and machines to act on unknown, but registered, data types.

**Practical Policy:** defining best practices of how to deal with data automatically and in a documented way with computer actionable policy.

**Metadata standards directory:** Community curated standards catalogue for metadata interoperability

[rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs](https://rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs)



# RDA Recommendations & Outputs

The infographic is a grid of six cards, each with an RDA logo and a title. The cards are: 1. Scalable dynamic-data Citation Methodology, 2. Data Description Registry Interoperability Model, 3. Wheat Data Interoperability Guidelines, Ontologies and User Cases, 4. Sustainable Business Models for Brokering Middleware to support Research Interoperability, 5. Summer Schools in Data Science and data sharing framework, 6. Brokering Governance WG. Each card includes a 'The Challenge' and 'What is the solution?' section. The bottom card also includes a 'Produced by' section and a URL.

**Scalable dynamic-data Citation Methodology**  
The Challenge: Supporting accurate and efficient processing of dynamic data.  
What is the solution? The Dynamic Data Citation Methodology provides a scalable mechanism for the identification of artifacts in a time- and context-specific manner.

**Data Description Registry Interoperability Model**  
The Challenge: Connecting datasets in different domains using models such as ontologies and vocabularies.  
What is the solution? The Data Description Registry Interoperability Model provides a framework for describing and linking datasets in a way that is interoperable and reusable.

**Wheat Data Interoperability Guidelines, Ontologies and User Cases**  
The Challenge: Helping researchers to describe and link their data in a way that is interoperable and reusable.  
What is the solution? The Wheat Data Interoperability Guidelines, Ontologies and User Cases provide a framework for describing and linking wheat data in a way that is interoperable and reusable.

**Sustainable Business Models for Brokering Middleware to support Research Interoperability**  
The Challenge: Addressing the sustainability of research interoperability.  
What is the solution? The Sustainable Business Models for Brokering Middleware to support Research Interoperability provide a framework for describing and linking research interoperability in a way that is sustainable and reusable.

**Summer Schools in Data Science and data sharing framework**  
The Challenge: A framework to run a series of Summer Schools in Data Science and data sharing in low and middle income countries (LMICs).  
What is the solution? The CODATA/RDA Summer School in Data Science and Cloud Computing in the Developing World WG provides a framework to run a series of Summer Schools in Data Science and data sharing in low and middle income countries (LMICs) with the goal of addressing the gap in research data science skills that stops researchers from reaping the benefits of the data revolution.

**Brokering Governance WG**  
The Challenge: Addressing the sustainability of research interoperability.  
What is the solution? The Brokering Governance WG provides a framework for describing and linking research interoperability in a way that is sustainable and reusable.

Produced by: RDA/CODATA Summer Schools in Data Science and Cloud Computing in the Developing World WG  
<https://www.rd-alliance.org/groups/rdacodata-summer-schools-data-science-and-cloud-computing-developing-world.html>

**Data Citation:** defining mechanisms to reliably cite dynamic data

**Data Description Registry Interoperability** solutions enabling cross platform discovery based on existing open protocols and standards

**Wheat Data Interoperability** impacting the discoverability, reusability and interoperability of wheat data by building a common framework for describing, representing linking and publishing wheat data

**Brokering Governance WG:** Sustainable Business Models for Brokering Middleware to support Research Interoperability

**RDA/CODATA Summer Schools in Data Science and Cloud Computing in the Developing World WG:** A framework to run a series of Summer Schools in Data Science and data sharing in low and middle income countries (LMICs)

[rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs](https://rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs)

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# RDA Recommendations & Outputs

The infographic is a vertical list of four items, each with the RDA logo and a small icon. The items are: 1. Repository Audit and Certification Catalogues, 2. Bibliometric Indicators for Data Publishing, 3. Workflows for Research Data Publishing: Models and Key Components, and 4. An open, universal literature-data cross-linking service. Below the fourth item, there is a section titled 'The Challenge:' with the text 'Sharing information about the links between the literature and research data.' and a section titled 'What is the solution?' with the text 'Building on pre-existing components and international initiatives, the RDA/WDS Publishing Data Services Working Group is one of the drivers behind the "Data Literature Interlinking Service" (DLI), developed in a synergy with OpenAIRE & PANGAEA. DLI is aimed at improving visibility, discoverability, re-use and reproducibility by bringing 2M+ existing article/data links together, normalize them using a common schema, and exposing the full set as an open service.' Below this text is a small image of a chocolate cake with orange frosting. At the bottom of the infographic, it says 'Produced by: RDA/WDS Publishing Data Services WG' and provides the URL 'https://rd-alliance.org/groups/rdawds-publishing-data-services-wg.html'.

**Repository Audit and Certification DSA-WDS:** A convergent DSA-WDS certification standard to help eliminate duplication of effort, increase certification procedure coherence and compatibility thus benefitting researchers, data managers, librarians and scientific communities.

**RDA/WDS Publishing Data Bibliometrics:** improved research data metrics and corresponding services, with the final goal of increasing the overall availability and quality of citations and research data itself.

**RDA/WDS Publishing Data Workflows:** enhance the possibilities for greater discoverability and a more efficient and reliable reuse of research data benefitting other stakeholders like publishers, libraries and data centres.

**RDA/WDS Publishing Data Services:** A universal interlinking service between data and the scientific literature. **The Scholix initiative** a high level interoperability framework for exchanging information about the links between scholarly literature and data. It aims to build an open information ecosystem to understand systematically what data underpins literature and what literature references data.

[rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs](https://rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs)



# RDA Recommendations & Outputs



**23 Things: Libraries For Research Data** An overview of practical, free, online resources and tools that users can immediately take advantage of to incorporate research data management into the practice of librarianship.

**Legal Interoperability of Research Data Principles and Implementation Guidelines:** a set of principles and practical implementation guidelines offered as high-level guidance to all members of the research community —the funders, managers of data centers, librarians, archivists, publishers, policymakers, university administrators, individual researchers, and their legal counsel.

**Matrix of use cases and functional requirements for research data repository platform** Based on use cases, the matrix describes forty-four functional requirements identified for research data repository platforms and provides a score identifying relative importance.

**BioSharing Recommendations** Data repositories, standards and policies in the life, biomedical and environmental sciences

<http://www.rd-alliance.org/recommendations-and-outputs/all-recommendations-and-outputs>

# Berlin recommendations

09:00 - **Plenary Session: Recommendations & Outputs** | Room C01 - Chaired by Timea Biro & Lynn Yarmey, RDA Secretariat  
10:30

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Final Recommendations

- Data Type Registries WG #2 - Larry Lannom, CNRI
- Research Data Repository Interoperability WG - David Wilcox, Duraspace
- RDA / TDWG Metadata Standards for attribution of physical and digital collections stewardship WG - Anne Thessen, The Data Detektiv
- International Materials Resource Registries WG - Raymond Plante, NIST
- Panel discussion

Denise Warzel (ISO)  
Mark Parsons (AGU project cross-group adoption)

Draft Recommendations

- Rice Data Interoperability WG - Shaik Meera, IIRR
- RDA/WDS Scholarly Link Exchange (Scholix) WG - Wouter Haak, Elsevier
- PID Kernel Information - Tobias Weigel, DKRZ

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10:30 - **Coffee break - Poster session / Exhibition**  
11:00

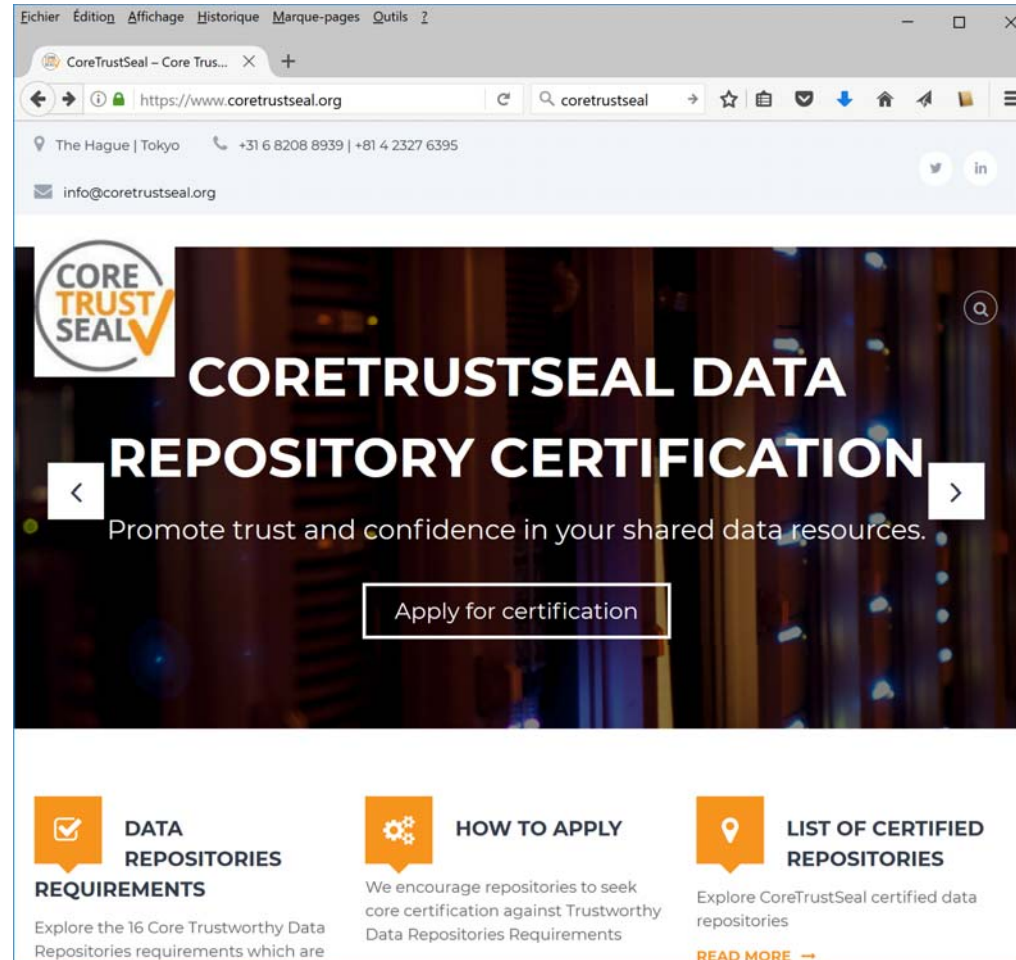
<http://www.rd-alliance.org/plenaries/rda-eleventh-plenary-meeting-berlin-germany/rda-11th-plenary-programme>

# Recent proposed recommendations

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**Research Data Repository Interoperability Primer:** Presents a set of initial use cases, as well as an overview of standards, technologies and tools that could be components of an agreed adoptable approach to facilitating interoperability between different research data repository platforms. Main focus is on machine-machine communication with the primary goal of enabling migration and replication.

# CoreTrust Seal launched





Fichier Édition Affichage Historique Marque-pages Outils ?

All Recommendations & ... Standards

rd-alliance.github.io/metadata-directory/standards/ coretrustseal

## Metadata

RDA | Metadata Directory

Edit this page

View the standards

View the extensions

View the tools

View the use cases

Browse by subject areas

Contribute

Add standards

Add extensions

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Add use cases

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Sponsored by the Global Change Master Directory, the DIF Writer's Guide Version 6 is from November 2010.

**FGDC/CSDGM (Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata)** [Edit](#)

A widely-used, but no longer current standard defining the information content for a set of digital geospatial data required by the US Federal Government.

CSDGM was sponsored by the US Federal Geographic Data Committee. However, in September 2010 the FGDC endorsed ISO 19115 and began encouraging federal agencies to transition to ISO metadata.

**FITS (Flexible Image Transport System)** [Edit](#)

FITS is an image data file format for encoding astronomical data. The WCS (World Coordinate System) conventions map elements in data arrays to standard physical coordinates in the sky. FITS has provisions for image metadata encoded in an ASCII header at the beginning of files.

**International Virtual Observatory Alliance Technical Specifications** [Edit](#)

The technical specifications defined by the IVOA (International Virtual Observatory Alliance) enable interoperability between and the integration of astronomical archives across the world into an international virtual observatory. They include several data models that act as metadata schemas for particular data types: for example, photometry data, simulation data, space-time coordinates, spectral lines data, spectral data, observational data, and the physical parameter space of astronomical datasets.

These data models are under active development by the IVOA Data Modelling Working Group.

Additional recommendations have been made for metadata concepts and terms necessary for the discovery and the use of astronomical data collections and services.

**ISO 19115** [Edit](#)

An internationally-adopted schema for describing geographic information and services. It provides information about the identification, the extent, the quality, the spatial and temporal schema, spatial reference, and distribution of digital geographic data.

Sponsored by the International Standards Organisation, the first edition of ISO 19115 was published in 2003. It has since been split into parts: ISO 19115-1:2014 contains the fundamentals of the standard; ISO 19115-2:2009 contains extensions for imagery and gridded data; and ISO/TS 19115-3:2016 provides an XML schema implementation for the fundamental concepts compatible with ISO/TS 19138:2007 (Geographic Metadata XML, or GMD).

**NeXus** [Edit](#)

NeXus is an international standard for the storage and exchange of neutron, x-ray, and muon experimental

Eichier Édition Affichage Historique Marque-pages Outils ?

All Recommendations & ... × International Virtual Observat... × +

rd-alliance.github.io/metadata-directory/standards/international-virtual-observat coretrustseal

# Metadata

RDA | Metadata Directory

Edit this page

View the standards

View the extensions

View the tools

View the use cases

Browse by subject areas

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## International Virtual Observatory Alliance Technical Specifications

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### Summary [Edit](#)

**Standard Website**  
<http://ivoa.net/documents/>

**Specification**  
<http://www.ivoa.net/documents/#specs>

**Related Vocabularies**  
[Units in the Virtual Observatory](#)  
[Unified Content Descriptors](#)  
[Unified Content Descriptors 1+ Controlled Vocabulary](#)  
[Vocabularies in the Virtual Observatory](#)

**Subjects**  
[Physical Sciences & Mathematics](#)

**Disciplines**  
[Astronomy](#)

### Extensions [Add](#)

**Resource Metadata for the Virtual Observatory** [Edit](#)

Defines metadata terms and concepts necessary for discovery and use of astronomical data collections and services.



# RDA

# 11 PLENARY

# MEETING 21-23 MARCH 2018

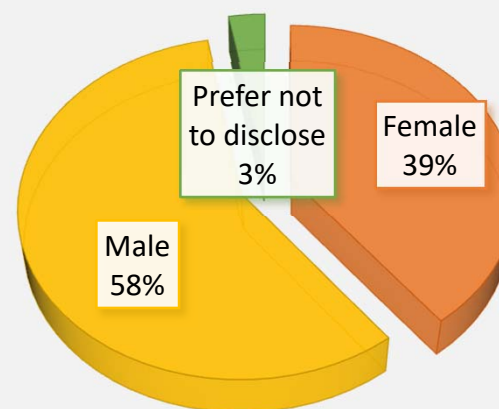
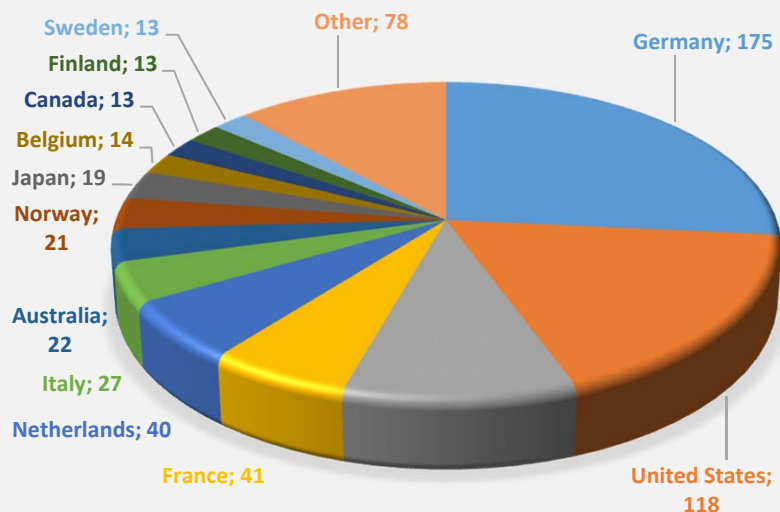
## Berlin, Germany



661 participants  
from 41 countries

83 Breakout meetings

- 19 Working Groups
- 37 Interest Groups
- 12 Joint Working & Interest Groups
- 15 Birds of a Feather
- 4 Final Recommendations presented
- 3 New Recommendations
- Collaboration projects with AGU and ISO on adoption and impact metrics



Gender balance



# Looking Forward to Plenary 12: Botswana



Digital Frontiers of Global Science



To find out more visit: <https://www.rd-alliance.org/plenaries/rda-twelfth-plenary-meeting-part-international-data-week-2018-gaborone-botswana>

Co-organised within the framework of  
International Data Week with CODATA & WDS

[rd-alliance.org/plenaries](https://www.rd-alliance.org/plenaries)

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# RDA's 13<sup>th</sup> Plenary Meeting Philadelphia, Pennsylvania March/April 2019



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## RDA in a Nutshell

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### RDA Global

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Slideshare -

<http://www.slideshare.net/ResearchDataAlliance>

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