



# SeaDataCloud

Implementation plan for the upgraded CDI service

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# Main components

- Replication manager (replacing Download Manager) OR Interim Solution
- Import Manager
- HTTP API and central data cloud with all unrestricted files and versions in multiple formats, where relevant
- CDI User interface with integrated MySeaDataCloud, shopping, and RSM



## Which EUDAT centres?

- EUDAT is participating with 5 processing centres: CSC (FI), STFC (UK), DKRZ (DE), CINECA (IT) and GRNET (GR)
- The Import process will include only one EUDAT centre – **CSC** in order to lower risk as the import is complex and EUDAT centres have different infrastructures. This means that all RMs will exchange data with CSC, controlled by the Import Manager service which runs at MARIS
- Initially the CDI shopping system will communicate only with CSC as central cloud. Later in time EUDAT will establishing horizontal replication and load balancing between the 5 EUDAT centres. Users should not notice.

# Installed base of CDI nodes





## Installed base of CDI nodes

- 89 nodes with Download Manager
- 23 nodes with Interim solution
- 1 node with own software

**Important condition is that the CDI service must stay operational while upgrading; this also applies for the related services for EMODnet portals and buffers!**

# Installed base of CDI nodes

| No. | Partner organization (abbreviation) | EDMO code | Country        | Downloaded Manager version | Participating in the following projects: |                           |     |          |                         |                   |       |
|-----|-------------------------------------|-----------|----------------|----------------------------|--|---------------------------|-----|----------|-------------------------|-------------------|-------|
|     |                                     |           |                |                            | SDC                                      | EMODnet Bathymetry - HRSM | SDN | Geo-Seas | Upgrade Black Sea SCENE | EMODnet Chemistry | WaTeR |
| 1   | IFREMER                             | 486       | France         | 1.4.7                      | X  | X                         | X   | X        |                         | X                 |       |
| 2   | NERI (DCE - DMU)                    | 729       | Denmark        | 1.4.6                      | X  |                           | X   |          |                         | X                 |       |
| 3   | Shom                                | 540       | France         | 1.4.4                      | X  | X                         | X   | X        |                         |                   |       |
| 4   | RIHMI-WDC (aka RNODC)               | 681       | Russia         | 1.4.4                      | X  |                           | X   |          | X                       | X                 |       |
| 5   | IMR                                 | 612       | Norway         | 1.4.4                      | X  |                           | X   |          |                         | X                 |       |
| 6   | NERC-BODC                           | 43        | United Kingdom | 1.4.6                      | X  | X                         | X   | X        |                         | X                 |       |
| 7   | OGS                                 | 120       | Italy          | 1.4.6                      | X  | X                         | X   |          |                         | X                 |       |
| 8   | SMHI                                | 545       | Sweden         | 1.4.4                      | X  |                           | X   |          |                         | X                 |       |
| 9   | MHI-DMIST                           | 727       | Ukraine        | 1.4.4                      |  |                           | X   |          | X                       | X                 |       |
| 10  | ICES                                | 730       | Denmark        | 1.4.6                      | X  |                           | X   |          |                         | X                 |       |
| 11  | IEO                                 | 353       | Spain          | 1.4.6                      | X  | X                         | X   |          |                         | X                 |       |
| 12  | BSH-DOD                             | 96        | Germany        | 1.4.6                      | X  | X                         | X   | X        |                         |                   |       |
| 13  | FMI                                 | 1725      | Finland        | 1.4.4                      | X  |                           | X   |          |                         | X                 |       |
| 14  | NERC-BGS                            | 42        | United Kingdom | interim                    |  | X                         |     | X        |                         |                   |       |
| 15  | UHI-MB                              | 841       | Ukraine        | 1.4.4                      |  |                           |     |          | X                       | X                 |       |
| 16  | IMS-METU                            | 696       | Turkey         | 1.4.6                      | X  |                           | X   |          |                         | X                 |       |
| 17  | MSI                                 | 713       | Estonia        | 1.4.6                      | X  |                           | X   |          |                         | X                 |       |
| 18  | SOI                                 | 723       | Russia         | 1.4.4                      |  |                           |     |          |                         | X                 |       |
| 19  | MI                                  | 396       | Ireland        | 1.4.51                     | X  | X                         | X   |          |                         | X                 |       |
| 20  | HCMR-HNODC                          | 269       | Greece         | 1.4.6                      | X  | X                         | X   |          |                         | X                 |       |



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|-----|-------------------------------------|-----------|-------------|--------------------------|--|---------------------------|-----|----------|-------------------------|-------------------|-------|
|     |                                     |           |             |                          | SDC                                      | EMODnet Bathymetry - HRSM | SDN | Geo-Seas | Upgrade Black Sea SCENE | EMODnet Chemistry | WaTeR |
| 21  | RWS *                               | 1526      | Netherlands | 1.4.7                    |  |                           | X   |          |                         | X                 |       |
| 22  | TNO                                 | 635       | Netherlands | own software             | X  |                           | X   | X        |                         |                   |       |
| 23  | BRGM                                | 1022      | France      | 1.4.3                    |  |                           |     | X        |                         |                   |       |
| 24  | RBINS-MUMM (RBINS-BMDC)             | 1578      | Belgium     | 1.4.6                    | X  |                           | X   | X        |                         | X                 |       |
| 25  | IMWM (aka IMGW)                     | 193       | Poland      | 1.4.6                    | X  |                           | X   |          |                         | X                 |       |
| 26  | NIOO                                | 633       | Netherlands | 1.2.0                    | X  |                           | X   |          |                         |                   |       |
| 27  | SYKE                                | 1104      | Finland     | 1.4.4                    | X  |                           |     |          |                         | X                 |       |
| 28  | PANGAEA                             | 3234      | Germany     | 1.4.4                    |  |                           | X   |          |                         | X                 |       |
| 29  | IORAS (aka SIO-RAS)                 | 685       | Russia      | 1.4.3                    | X  |                           | X   |          | X                       | X                 |       |
| 30  | ENEA                                | 136       | Italy       | 1.4.7                    | X  |                           | X   |          |                         |                   |       |
| 31  | NIMRD                               | 697       | Romania     | 1.4.4                    | X  | X                         | X   |          | X                       | X                 |       |
| 32  | MBSS-NIB                            | 1229      | Slovenia    | 1.4.4                    | X  |                           | X   |          |                         | X                 |       |
| 33  | GEUS                                | 1543      | Denmark     | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 34  | MRI                                 | 583       | Iceland     | 1.4.6                    | X  |                           | X   |          |                         |                   |       |
| 35  | KNMI                                | 632       | Netherlands | 1.1c                     | X  |                           | X   |          |                         |                   |       |
| 36  | IHPT                                | 590       | Portugal    | 1.4.4                    | X  | X                         | X   |          |                         | X                 |       |
| 37  | NIOZ                                | 630       | Netherlands | 1.4.6                    | X  | X                         | X   |          |                         | X                 | X     |
| 38  | <u>UkrSCES</u>                      | 1167      | Ukraine     | 1.4.6                    | X  |                           |     |          | X                       | X                 |       |
| 39  | PGI                                 | 609       | Poland      | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 40  | SMA                                 | 1215      | Sweden      | interim                  |  | X                         |     |          |                         |                   |       |
| 41  | IOLR                                | 963       | Israel      | 1.4.6                    | X  | X                         | X   |          |                         | X                 |       |
| 42  | NGU **                              | 1415      | Norway      | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 43  | IBSS                                | 840       | Ukraine     | 1.4.4                    |  |                           | X   |          | X                       | X                 |       |
| 44  | ISMAR Ancona                        | 144       | Italy       | 1.4.51                   |  |                           |     |          |                         | X                 |       |
| 45  | ISPRA                               | 3009      | Italy       | 1.4.4                    |  |                           |     |          |                         | X                 |       |

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|-----|-------------------------------------|-----------|----------------|--------------------------|--|---------------------------|-----|----------|-------------------------|-------------------|-------|
|     |                                     |           |                |                          | SDC                                      | EMODnet Bathymetry - HRSM | SDN | Geo-Seas | Upgrade Black Sea SCENE | EMODnet Chemistry | WaTeR |
| 46  | LIAE                                | 698       | Latvia         | 1.4.6                    | X  |                           | X   |          |                         | X                 |       |
| 47  | IO-BAS (aka BGODC)                  | 692       | Bulgaria       | 1.4.6                    | X  | X                         | X   | X        | X                       | X                 |       |
| 48  | VLIZ                                | 422       | Belgium        | 1.4.6                    | X  |                           | X   |          |                         | X                 |       |
| 49  | BGR                                 | 1496      | Germany        | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 50  | OC-UCY                              | 711       | Cyprus         | 1.4.6                    | X  |                           | X   |          |                         | X                 |       |
| 51  | NCSD                                | 3092      | Greece         | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 52  | RWS - ICT                           | 1527      | Netherlands    | interim                  |  | X                         |     |          |                         |                   |       |
| 53  | ONU                                 | 1169      | Ukraine        | 1.2.0                    |  |                           |     |          | X                       |                   |       |
| 54  | IOF (aka IZOR)                      | 700       | Croatia        | 1.4.4                    | X  |                           | X   |          |                         |                   |       |
| 55  | <u>OceanWise</u>                    | 2607      | United Kingdom | interim                  |  | X                         |     |          |                         |                   |       |
| 56  | BSCS                                | 1546      | Turkey         | 1.2.0                    |  |                           |     |          | X                       |                   |       |
| 57  | DEU-IMST                            | 801       | Turkey         | 1.4.3                    |  |                           |     |          | X                       |                   |       |
| 58  | NIMH                                | 961       | Bulgaria       | 1.4.3                    |  |                           |     |          | X                       |                   |       |
| 59  | <u>IOI-UoM</u>                      | 708       | Malta          | 1.4.4                    | X  | X                         | X   |          |                         |                   |       |
| 60  | SOVON                               | 3393      | Netherlands    | 1.4.4                    |  |                           |     |          |                         |                   | X     |
| 61  | GAMMA                               | 1265      | Georgia        | 1.4.3                    |  |                           |     |          | X                       | X                 |       |
| 62  | IPMA                                | 3288      | Portugal       | 1.4.3                    |  | X                         |     |          |                         |                   |       |
| 63  | IGG - NRC                           | 1545      | Lithuania      | 1.4.4                    |  |                           |     | X        |                         |                   |       |
| 64  | NHS                                 | 543       | Norway         | interim                  |  | X                         |     |          |                         |                   |       |
| 65  | SHODB                               | 731       | Turkey         | 1.4.6                    |  |                           | X   |          |                         |                   |       |
| 66  | IIM                                 | 1338      | Italy          | interim                  |  | X                         |     |          |                         |                   |       |
| 67  | INHR                                | 691       | <u>Morocco</u> | 1.4.3                    |  |                           | X   |          |                         |                   |       |
| 68  | TSU-DNA                             | 693       | Georgia        | 1.4.3                    | X  |                           | X   |          | X                       | X                 |       |
| 69  | LU                                  | 2239      | Latvia         | interim                  |  |                           |     | X        |                         |                   |       |
| 70  | EPA                                 | 2108      | Lithuania      | 1.4.4                    |  |                           | X   |          |                         |                   |       |
| 71  | IGME-ES                             | 310       | Spain          | 1.2.0                    |  | X                         |     | X        |                         |                   |       |
| 72  | INSTM                               | 1232      | Tunisia        | 1.4.6                    | X  |                           | X   |          |                         |                   |       |
| 73  | IMBK                                | 2432      | Montenegro     | 1.4.51                   | X  |                           | X   |          |                         | X                 |       |



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|     |                                     |           |             |                          | SDC                                      | EMODnet Bathymetry - HRSM | SDN | Geo-Seas | Upgrade Black Sea SCENE | EMODnet Chemistry | WaLTeR |
| 74  | EGK                                 | 1609      | Estonia     | 1.4.3                    |  |                           |     | X        |                         |                   |        |
| 75  | IMARES                              | 1340      | Netherlands | 1.4.3                    |  |                           |     |          |                         |                   | X      |
| 76  | IFR                                 | 191       | Bulgaria    | 1.4.6                    |  |                           |     |          | X                       |                   |        |
| 77  | MAL                                 | 4665      | Latvia      | interim                  |  | X                         |     |          |                         |                   |        |
| 78  | CNR - ISAC                          | 149       | Italy       | 1.4.6                    | X  |                           | X   |          |                         | X                 |        |
| 79  | CNR-Spezia (ISMAR Lerici)           | 134       | Italy       | 1.4.6                    | X  |                           | X   |          |                         |                   |        |
| 80  | IKI-RAS                             | 761       | Russia      | 1.4.4                    |  |                           |     |          | X                       |                   |        |
| 81  | SNU-FF                              | 733       | Turkey      | 1.2.0                    |  |                           |     |          | X                       |                   |        |
| 82  | UCC (MaRel)                         | 1848      | Ireland     | 1.4.4                    |  |                           |     | X        |                         |                   |        |
| 83  | IU-FF-IMS                           | 802       | Turkey      | 1.4.3                    |  |                           |     |          | X                       | X                 |        |
| 84  | MOW                                 | 2243      | Belgium     | interim                  |  | X                         |     |          |                         |                   |        |
| 85  | OGS - IRI (aka OGS RIMA)            | 2276      | Italy       | 1.4.4                    | X  | X                         | X   | X        |                         | X                 |        |
| 86  | NLHS (aka RNLHS)                    | 574       | Netherlands | interim                  |  | X                         |     |          |                         |                   |        |
| 87  | RSHU                                | 924       | Russia      | 1.4.4                    |  |                           | X   |          |                         |                   |        |
| 88  | GSI                                 | 366       | Ireland     | 1.4.3                    |  | X                         |     | X        |                         |                   |        |
| 89  | BSTU                                | 732       | Turkey      | 1.4.4                    |  |                           |     |          | X                       |                   |        |
| 90  | UB                                  | 2172      | Spain       | 1.2.0                    |  |                           |     | X        |                         |                   |        |
| 91  | CMR (NEA)                           | 2267      | Georgia     | 1.4.4                    |  |                           |     |          | X                       | X                 |        |
| 92  | ISMAR                               | 145       | Italy       | interim                  |  | X                         |     |          |                         |                   |        |
| 93  | NOA                                 | 1703      | Greece      | 1.4.4                    |  |                           |     | X        |                         |                   |        |
| 94  | IGS                                 | 2228      | Ukraine     | 1.2.0                    |  |                           |     |          | X                       |                   |        |
| 95  | CDG-CNRS                            | 565       | France      | 1.4.4                    |  |                           |     | X        |                         |                   |        |
| 96  | DHMO                                | 2231      | Ukraine     | 1.4.6                    |  |                           |     |          | X                       |                   |        |
| 97  | Geo SU (IGV)                        | 2210      | Sweden      | interim                  |  | X                         |     |          |                         |                   |        |
| 98  | IHM                                 | 1461      | Spain       | interim                  |  | X                         |     |          |                         |                   |        |
| 99  | UTM-CSIC                            | 2489      | Spain       | 1.4.6                    | X  | X                         |     |          |                         |                   |        |
| 100 | MARUM                               | 1568      | Germany     | interim                  |  | X                         |     |          |                         |                   |        |

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|-----|-------------------------------------|-----------|----------------|--------------------------|--|---------------------------|-----|----------|-------------------------|-------------------|--------|
|     |                                     |           |                |                          | SDC                                      | EMODnet Bathymetry - HRSM | SDN | Geo-Seas | Upgrade Black Sea SCENE | EMODnet Chemistry | WalTeR |
| 101 | CONISMA                             | 239       | Italy          | interim                  |  | X                         |     |          |                         |                   |        |
| 102 | CNR-IAMC-Napoli                     | 252       | Italy          | interim                  |  | X                         |     |          |                         |                   |        |
| 103 | AU-FAF                              | 2176      | Turkey         | 1.4.4                    |  |                           |     |          | X                       |                   |        |
| 104 | CNR-IGAG                            | 2918      | Italy          | interim                  |  | X                         |     |          |                         |                   |        |
| 105 | IOPAN                               | 195       | Poland         | 1.4.4                    | X  | X                         | X   |          |                         |                   |        |
| 106 | GRID - <u>Arendal</u>               | 2543      | Norway         | interim                  |  | X                         |     |          |                         |                   |        |
| 107 | <u>GeoECOMAR</u>                    | 850       | Romania        | interim                  |  | X                         |     |          |                         |                   |        |
| 108 | <u>Jardfeingi</u>                   | 3289      | Faroe Islands  | interim                  |  | X                         |     |          |                         |                   |        |
| 109 | MR (Marine Research)                | 3339      | Romania        | interim                  |  | X                         |     |          |                         |                   |        |
| 110 | ICM                                 | 2157      | Spain          | interim                  |  | X                         |     |          |                         |                   |        |
| 111 | GIS                                 | 4666      | Slovenia       | interim                  |  | X                         |     |          |                         |                   |        |
| 112 | CNRS-MIO                            | 3078      | France         | 1.4.6                    | X  |                           |     |          |                         |                   |        |
| 113 | SBR                                 | 521       | France         | 1.4.7                    | X  |                           |     |          |                         |                   |        |
| 114 | MBA                                 | 45        | United Kingdom | 1.4.7                    | X  |                           |     |          |                         |                   |        |

## Activities

- Finalising technical developments for a robust and operational system with versions for development, testing, import, and production (like current CDI system)
- Connecting all SeaDataNet nodes to the upgraded CDI service
- Validating and working up the central CDI database and associated unrestricted data collection, including completing different formats.
- Integrating all components for public launch.



## Timing

- Overall aim is publicly launching upgraded CDI service in **March 2019**.
- **Till mid November 2018:** making the import cycle robust and lots of testing to ensure that the new **import and retrieval processes** work, both for unrestricted and for restricted data: **SDC technical team**.
- **Mid November 2018 – end February 2019:** rolling out the new technical configuration in test and in parallel to current operational system; installing and configuring **Replication Managers**. Each month 30 nodes in groups: **Data Centres with support by MARIS and IFREMER**
- **Mid November 2018 – end February 2019:** configuring the new system for the Data Centres with **Interim Solution**. In operation MARIS will intermediate for new and updated entries towards the Import Manager. At present access default is 'restricted'; discussion on releasing (subsets of) data: **Data Centres with MARIS and IFREMER**

## Timing

- **Mid November 2018 – end February 2019:** thorough testing of the new connections, both for unrestricted and for restricted data. Feedback loop to developers for possible bug fixing and refining: **Data Centres with MARIS and IFREMER**
- **Till end December 2018:** further improving the front side (user interface – shopping – RSM): **MARIS** in dialogue with Beta testers from the **SeaDataNet data centre community**.
- **Till end December 2018:** further expanding the central QA-QC services as part of import, following requirements: **MARIS, IFREMER and EUDAT**

## Timing

- In parallel to technical configuring of the network nodes, the central data buffer of unrestricted data has to be fully checked and worked up as V0 database. This requires actions focused on data handling:
  - **September till end December 2018:** MARIS will **harvest** all **unrestricted** data sets in all formats. Checking in batch with OCTOPUS is ongoing for ODV files. OCTOPUS has a number of auto-correction functions. Feedback to data centres for corrections and updates of ODV and CDI files. (Hopefully also inclusion of unrestricted data from Interim Solution data centres).
  - **January – February 2019:** Freezing of the CDI contents (> 2.25 Million entries). **NO** mutations or additions in that short period.



## Timing and versioning

- **January – February 2019:** Completing the V0 data collection with other file types (MedAtlas => ODV + NetCDF; ODV => NetCDF; NetCDF => ODV) by central conversion and updating of file types in CDIs. Other filetypes can not be converted. This action should result in a clean and consistent V0 CDI database and V0 central database of unrestricted data files.
- **Early March 2019** integrating all components and switching to operation
- The CDI service will then be open again for updates and new data sets. From this point on we will work with **versioning**. This implicates that each updated CDI submission will be imported as a new version of the CDI and an associated data set (max possibly MedAtlas + ODV + NetCDF; or other file types, seismic as ZIP of SEG-Y + UKOAA nav file).