

E-INFRASTRUCTURE BOARD

Stefano Bagnasco, INFN

For the e-Infrastructure Board

XV ET Monthly Meeting



EINSTEIN
TELESCOPE

February 3, 2026

THANKS ANTONELLA

 **EGO** EUROPEAN GRAVITATIONAL OBSERVATORY

≡

CIAO ANTONELLA

Gen 28, 2026



A portrait photograph of a woman with short, wavy blonde hair and glasses, wearing a white shirt. She is seated in a green chair, smiling at the camera. The background shows a room with a whiteboard and some equipment.



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- Use Mock Data Challenges as multi-purpose tools
 - Working on this with OSB
- Provide and deploy “workflow evaluation kits”...
 - Partial functionalities to evaluate tools and architectures
 - And quickly evolve towards a common and uniform environment
- ...using ESCAPE as the first toolbox
 - But not the only one
- Exploit synergies with Virgo as much as possible
 - IGWN computing infrastructure will be evolving
 - Seeking explicit collaboration with coming IGWN collaboration
 - Avoiding hard dependencies
- As usual, (skilled) personpower is the issue
 - Keep this in mind, I will not repeat it every other slide!

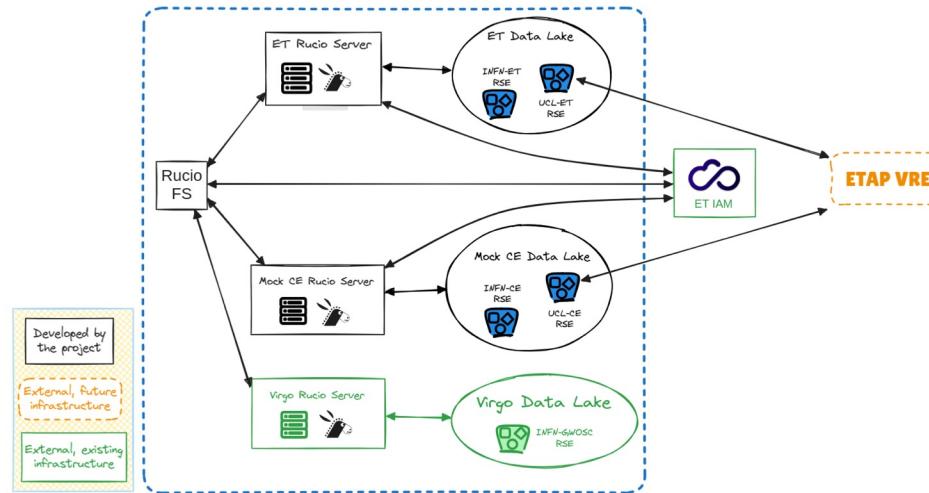
- Need to replace several chairs
 - Including Patrice Verdier, who “stepped up” to CB chair
- Ongoing work with OSG to coordinate MDC planning
 - As discussed in Opatija, creation of an ad-hoc common panel
 - Scope: to plan “questions” to be “answered” by MDCs
 - Planning for a workshop later in the year (joint with Symposium?)
- EU-supported projects working on developing candidate infrastructural tools
 - MADDEN (data management, INFN-T0 and UCLouvain) and ETAP (analysis workflow, UniGE)
 - Should be ready to be used for MDC2
 - Working on more funding (OSCARS2, INFRA-TECH,...)
- Effort to make GW computing more visible in the larger community
 - Participation to conferences (e.g., CHEP), coordination bodies and projects (SPECTRUM, JENA, ESCAPE,...) etc.

DIVISION 1 - SOFTWARE FRAMEWORKS AND MDC

The MADDEN project



Multi-RI (Research Infrastructure) Access and Discovery of Data for Experiment Networking



- funded by 1st call OSCARS cascading grants
- Participating organization:
 - **INFN Turin (PI: F. Legger)**
 - **UCLouvain (coordinator: A. Tanasijczuk)**
- Duration: **Feb 1st, 2025 – Jan 31st, 2027**
- Funding: **210 K€**
- Personnel: hired **2 postdocs** (in Torino and Louvain)

Main objectives:

- Build a multi-RI Data Lake managed with Rucio and interface it with the VRE (Virtual Research Environment) developed by companion project ETAP
- Develop and test the possibility to provide a POSIX-like view of the Rucio catalogue in a multi-RI environment and extend it to support advanced querying capabilities using metadata

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MADDEN Gitlab

MADDEN Webpage

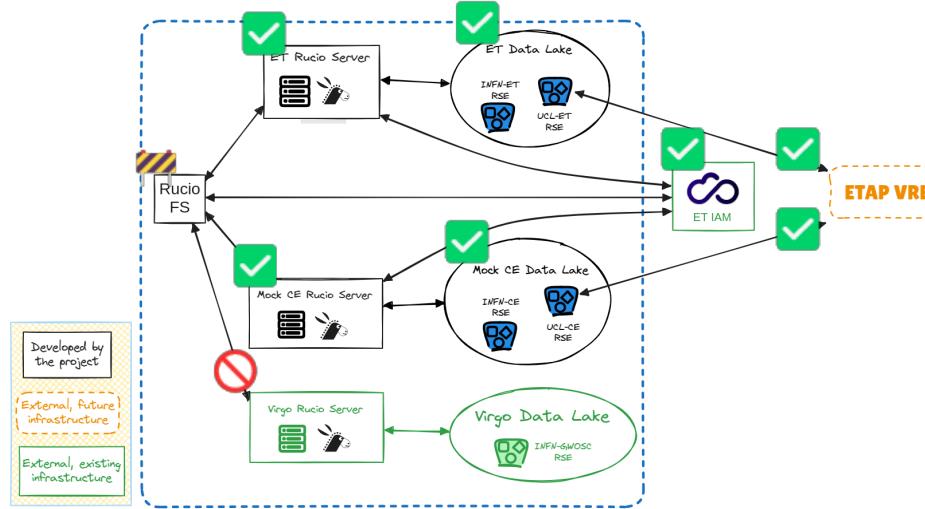
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DIVISION 1 - SOFTWARE FRAMEWORKS AND MDC

The MADDEN status



ET and CE Lakes

- **Rucio server** installed in INFN Torino
- **Rucio Storage Elements (RSEs)**:
 - UCLouvain (OSDF origin for MDC1 data distribution)
 - INFN Torino (for tests)
 - PIC (for MDC data, 20 TB)
- **Authentication**: connected to ET Indigo IAM
- **mini Data Lake for LVK**
- Replicate setup , use Virgo open data and connect to **existing Virgo Rucio server** in INFN Torino

Multi-RI access – pull request with modification of the code was merged in the official Rucio server code

Posix-like view – work in progress to implement a plugin to expose the Rucio catalog via CVMFS

Partecipation in xRIDGE Data Challenge promoted by ESCAPE in March 2026

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MADDEN Gitlab

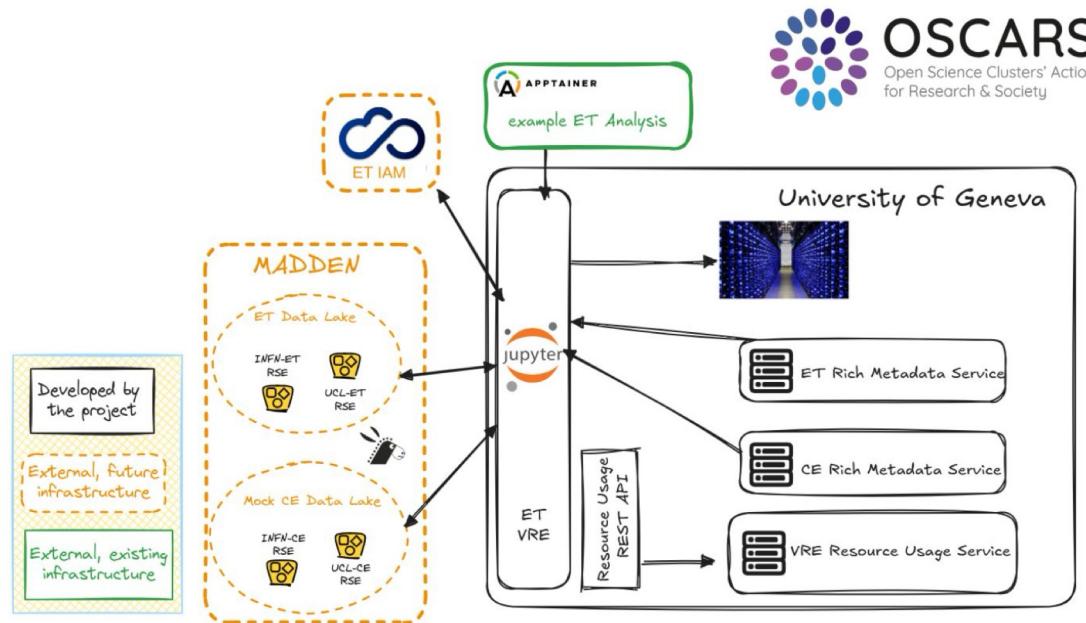
MADDEN Webpage

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ET Analysis Portal (ETAP)



Funded through [EOSC/OSCARS](#) cascading grants, a jupyterhub-based platform built on the [CERN VRE](#):

- [Rucio](#) for data management, through the MADDEN project ✓
- [REANA](#) for workflow capture ✓
- Monitoring and accounting ✓
- A unified [helm chart](#) ✓
- Expert testing phase in progress (thanks to [Alberto less](#) !) ✓
- In progress [HSF metadata DB](#)

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DIVISION 2 - COLLABORATION SUPPORT

- INDIGO IAM + ETMD
 - ETMD inc. authentication via CNAF Indigo IAM online and in testing -> Working.
 - Onboarding + Offboarding of Members done entirely via ETMD.
 - Group structure for authorisation under definition. Needs to be included in Indigo IAM + final testing. Discussions on-going regarding non-Collaboration accounts.
 - Once authorisation testing done, remove all accounts from CNAF Indigo IAM and add current Collaboration accounts as inactive. Users will then activate their Indigo accounts and be able to access ET services. Needs final testing and preparation of user-facing documentation.
 - Knock-on effect: all other services require modification in terms of authentication + authentication. More straightforward for some than others.
- ETMD + Mailing-lists
 - Modifications of ETMD to allow for automatic population of ECS mailing-list. Needs approval of ETMD modifications from SP+DSP. In progress.
- ET Docs
 - Project underway in IGWN for development of Document Management System.
 - Strong interest also from CE.
 - ET DMS requirements also being covered.
 - Potential pathway to use single DMS system for all collaborations in future

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DIVISION 3 - COMPUTING MODEL & RESOURCES

Div3 status



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No news since the last report in December

- <https://indico.ego-gw.it/event/835/#4-report-from-division-3>

The main topic is now on the **estimation of computing resource needs**

- Related to the discussion started with the OSB, SCB and ISB last year; Reported in the ET annual meeting in Nov 2025, in the joint session EIB-OSB
 - <https://indico.ego-gw.it/event/916/contributions/9098/>
- There we saw that the computing resource needs are dominated by the OSB requirements
 - Got input from eight individual analysis.
 - Need to follow up with each of them on the details of the numbers provided.
 - **Call for volunteers to help following up on resource needs presented last year by OSB, ISB and SCB.**

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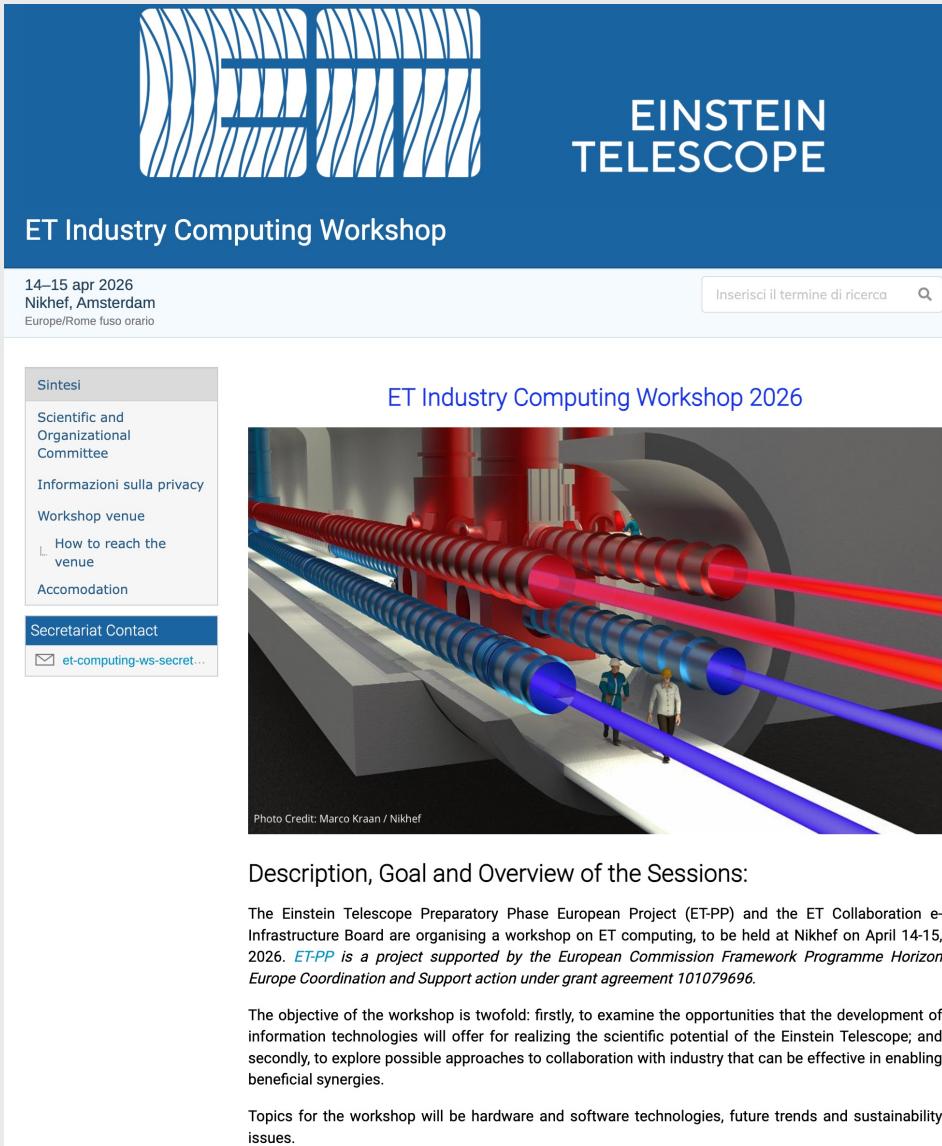
EIB Div4: multi-messenger alert infrastructure

- Main 2025 outcomes:
 - Added multi-messenger computing requirements to the Computing Requirements document (ET-PP D8.1)
 - Hosted a multi-messenger / low-latency workshop, leading to a preliminary computing model
 - Revised computing model nomenclature, multi-messenger falls under “time- and mission-critical” infrastructure
 - Gathered inputs and wrote relevant sections of the ET Computing and Data Model document (ET-PP D8.2)
- Ongoing activities:
 - Refine the ET Computing and Data Model
 - Engage in MDC activities to ensure key metrics for multi-messenger alert infrastructure are considered
 - Liaise with other observatories to define possible multi-messenger infrastructure interfaces
- Related activity: working to re-submit INFRA-TECH “M2Tech” proposal (CTAO+ELI+ET+KM3NeT+Virgo)
 - Very positively reviewed in 2024 submission (14.0/15, reserve list), resubmit in June 2026
 - We coordinate the M2Tech computing work package, including Div4 related activities
 - New to resubmission: aiming to support testbed infrastructure for ET MDCs

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TECHNOLOGY TRACKING WG



The screenshot shows the website for the ET Industry Computing Workshop. The header features the ET logo and the text 'EINSTEIN TELESCOPE'. Below the header, it says 'ET Industry Computing Workshop' and '14-15 apr 2026 Nikhef, Amsterdam Europe/Rome fuso orario'. A search bar and a sidebar with links to 'Sintesi', 'Scientific and Organizational Committee', 'Informazioni sulla privacy', 'Workshop venue', 'How to reach the venue', 'Accommodation', and 'Secretariat Contact' (with an email link). The main content area has a title 'ET Industry Computing Workshop 2026' and a large image of a complex optical system with red and blue pipes. Below the image is a photo credit to 'Marco Kraan / Nikhef'. The text 'Description, Goal and Overview of the Sessions:' follows, along with a detailed description of the workshop's purpose and topics, and a note about the ET-PP project funding.

ET Industry Computing Workshop

14-15 apr 2026
Nikhef, Amsterdam
Europe/Rome fuso orario

Sintesi

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et-computing-ws-secret...

ET Industry Computing Workshop 2026

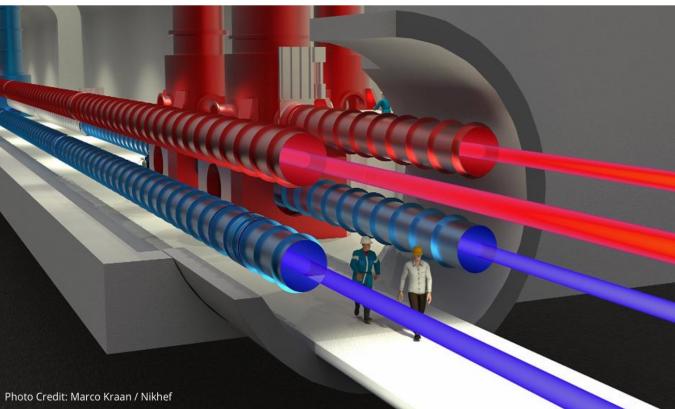


Photo Credit: Marco Kraan / Nikhef

Description, Goal and Overview of the Sessions:

The Einstein Telescope Preparatory Phase European Project (ET-PP) and the ET Collaboration e-Infrastructure Board are organising a workshop on ET computing, to be held at Nikhef on April 14-15, 2026. [ET-PP is a project supported by the European Commission Framework Programme Horizon Europe Coordination and Support action under grant agreement 101079696.](#)

The objective of the workshop is twofold: firstly, to examine the opportunities that the development of information technologies will offer for realizing the scientific potential of the Einstein Telescope; and secondly, to explore possible approaches to collaboration with industry that can be effective in enabling beneficial synergies.

Topics for the workshop will be hardware and software technologies, future trends and sustainability issues.



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- Workshop with industry on computing topics
 - Organized together by ET-PP WP8, WP7 and EIB-TTG
 - NIKHEF, Amsterdam, Apr 14-15 2026
 - Finalizing the speakers list
- Meta-session 1: Enabling technologies and infrastructures
 - **S1: HW and Architectures trends & evolution**
 - **S2: The infrastructure**
- Meta-session 2: AI applications and tools
 - **S3: AI for software technologies and code development**
 - **S4: AI for data analysis**



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ET-PP WP8 & EiB Status Report & Activities

EiB + ET-PP WP8 All-hands

February 3rd 2026

Deliverables

D8.1 Computing and Data requirements
Re-submitted 15-09-2025
EC Approved

D8.2 Computing and Data model
EC Due date: End February 2026
Internal due date: End 2025
Comments Received – End Jan 2026

D8.3 Data access policy implementation guidelines
EC Due date: August 2026
Internal due date: May/June 2026

Milestones

M8.3 Workshop
On site Infrastructure, computing and data model
Jun 30 - Jul 01

M8.4 Workshop on Low-latency and offline workflows
Due date: Dec 2025 → Feb/March 2026

M8.5 Workshop on Data management access policy implementation
Due date: July 2026
Proposed: Early May 2026 (with ET-PP annual)

Activities

1. D8.2 Computing model. EC Due date End of February 2026

Reviewer comments received (end of January), around 20 pages

RAW comments being summarized and structured for assignment, sharing with authors very soon

Same strategy as for main editing (sharing tasks and tracking via Gitlab issues). Exp. ~1-2 weeks of editing work

2. Early Preparations for D8.3: Data Access Policy Implementation Guidelines - EC Due date August 2026

Integrates Data Management Plan (WP6), Data Access Policy (WP6) and Computing Model (WP8)

Dedicated M8.5 workshop. Tentative Early May together with ET-PP annual meeting

3. Other activities

OSCARS projects: MADDEN: Testing ET+mock CE Rucio data lake - ETAP: VRE for ET, like CERN/ESCAPE-VRE

Einstein Telescope Mock Data Challenges, participation in relevant meetings and activities

Collaboration with WP7 and WP9 for workshops for industry engagement and sustainability



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THANKS!

- Questions?