BEATS

Work Package 6

Beamline assembly and commissioning

Beamline operation manual for staff and users

D 6.03

July 2023

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DISSEMINATION LEVEL		
x	P - Public	
☐	PP - Restricted to other programme participants & EC:	
☐	RE - Restricted to a group	
	CO - Confidential, only for members of the consortium	

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Contents

BACKGROUND

The **Be**amline for **T**omography at **S**ESAME (BEATS) was installed in the SESAME storage ring tunnel and SESAME's experimental hall during the year 2022 and the first quarter of 2023. During Spring 2023 the beamline was commissioned to its first-day operation level, i.e. monochromatic / pink beam mode (cf. BEATS deliverables 6.2, 6.3, and 7.4).

Beginning of June 2023, during the BEATS inauguration, a workshop / hands-on school on the use of the beamline was organised, during which the first friendly users had the opportunity to carry out first experiments, proving that the beamline had reached its day-one performance figures.

BEATS will enter into User Service Mode with the next SESAME beamtime application deadline in September 2023 which will lead to routine operation with external users from early 2024 onward.

To facilitate users getting acquainted with the use of the beamline, an online operation manual has been established, which can be accessed via

https://beats.readthedocs.io/

This manual is open to the public. It will constantly be updated and extended (for instance to cover additional operation modes like monochromatic mode or software developments) as experience with the beamline equipment (hard- and software) grows with time.

This document briefly describes the structure and content of the online document "as is" at the end of July 2023.

STRUCTURE OF THE ONLINE MANUAL

Following the aforementioned link, users (and staff) are diverted to the manual's landing page, yielding the available chapters of the documentation.

- A brief section **"About"** recapitulates the general design performance parameters of the BEATS beamline

- The next section, the **"Quick start guide"** then enters into describing the operation of the beamline in technical detail, featuring sub-sections on

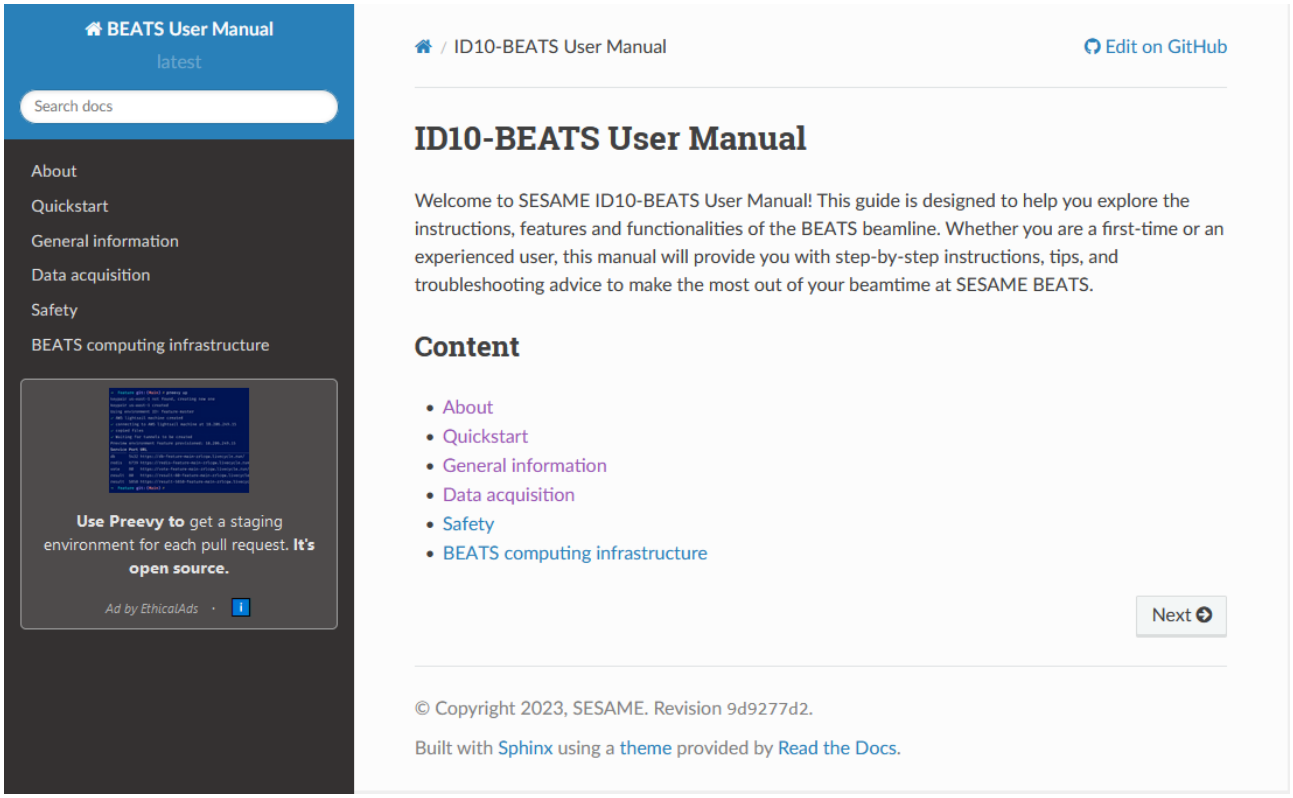
    - The setup of the beamline in general and the graphical user interfaces established for front end, optics, and experimental station,
    - the setup of the experimental station (mounting and aligning the sample),
    - the personnel safety system, assuring radiation safety by implementing a hutch search procedure to be carried out before the beam shutters can be opened,
    - the graphical user interface of the beamline's vacuum system used to monitor the various vacuum levels from the front end down to the experimental end station which is needed for opening and closing the beam shutters, and, finally,
    - the procedure to set up the scanning procedure.

- A section named **"General Information"** provides background information on the H2020 project BEATS, which made the establishment of the beamline possible, complemented by direct access links to

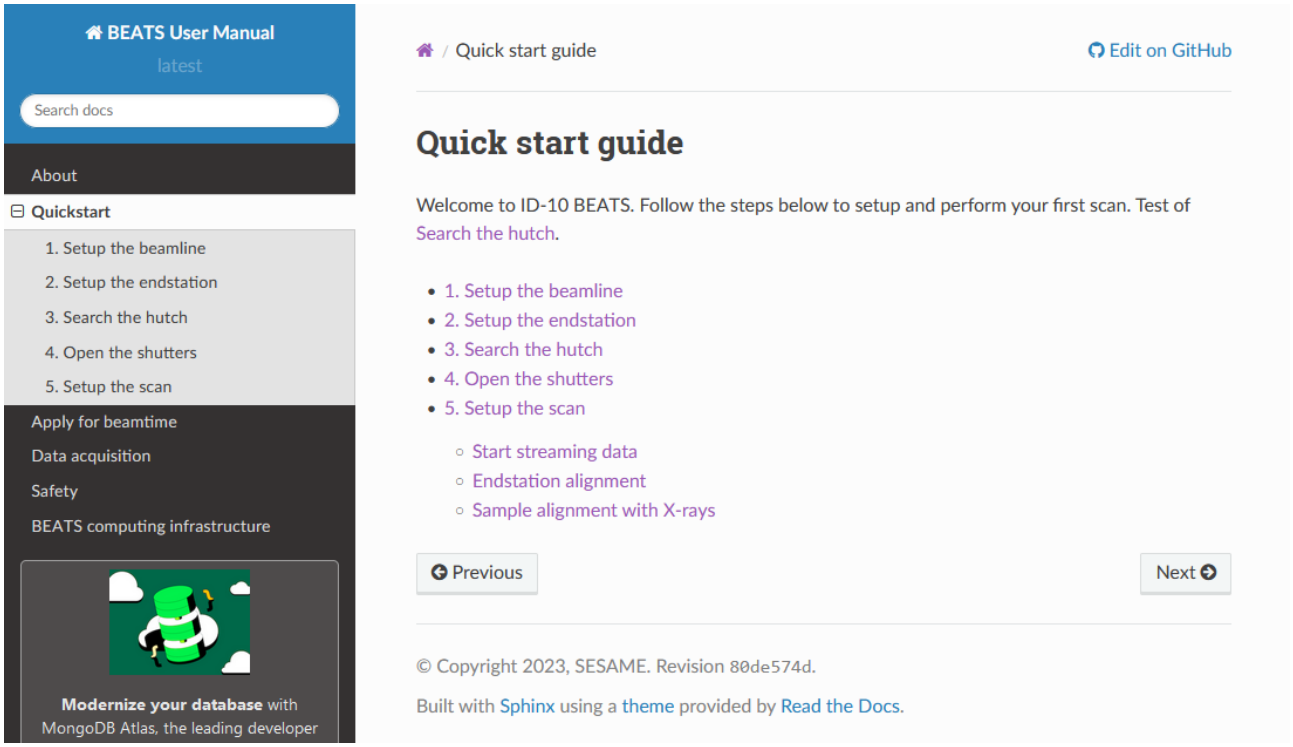
    - more detailed documents on the beamline design and use, in particular the BEATS Science Case and Technical Design Report, and
    - the SESAME User guide laying out details on the regular SESAME calls for proposals and the procedures to apply for beamtime.

- The next section **"Data Acquisition**" covers, in great technical detail and as a reference, the applications for collecting experimental data within the EPICS operation system of BEATS with sub-sections on

    - TomoScan and
    - the BEATS dashboard



BEATS online manual, main menu (as of end of July 2023)



BEATS online manual, menu "Quick start guide" (as of end of July 2023)