BLISS Data Management System

User Manual and Data Entry Guideline

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Abstract

This manual describes how partners of the BLISS project (Black Sea Initiative for Sturgeon Sustainability) in Türkiye, Bulgaria, Romania and Ukraine enter, check, store and retrieve project data with the BLISS Data Management System (DMS). It explains the sign-in and the built-in training, the standard Excel templates that follow the BLISS Methodology Guide, the data entry rules, the automatic file names, versions and SHA-256 fingerprints, the upload register with dual verification, and the evidence screen for the indicators of Annex 4. Every step is shown with a screenshot of the system.

Item	Value
System address	`https://bliss.hanaarge.cloud`
Storage	Hana R&D Cloud (Nextcloud), `BLISS Data/<country>`
Reference documents	BLISS Methodology Guide (Modules 1–3, Chapters 1–7); Annex 4 – Data Management System Development
Interface languages	English, Türkçe, Български, Română, Українська
Training video	2 minutes, English, inside the system

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1 Introduction

The BLISS DMS is the single entry point for all data produced in the project. It replaces manual uploads to shared folders. Partners work only in the web interface; they do not need a Nextcloud account. The DMS writes into Hana R&D Cloud through one service account and keeps a register of everything it stores.

The system has six properties that answer the data management requirements of Annex 4:

- **Standard templates.** Structured data are entered in Excel templates that follow the chapters of the Methodology Guide.
- **Automatic checks.** Each template is checked cell by cell (required values, units, ranges, dates, coordinates, station codes) before anything is stored.
- **Automatic naming and filing.** Files get a standard name and go to the right country and chapter folder. Nothing is overwritten; a corrected file becomes a new version.
- **Traceability.** Every upload is recorded with uploader, date, record count, stations and QA status, with a metadata file, a machine-readable CSV copy and a SHA-256 fingerprint of every file.
- **Quality assurance.** Each file is checked automatically before it is stored; files with errors are not stored.
- **Evidence for reporting.** KPIs, an archive inventory, file integrity checks, the weekly backups and training sessions are shown on one screen.

Figure 1 shows the path of a dataset from the template to the register.

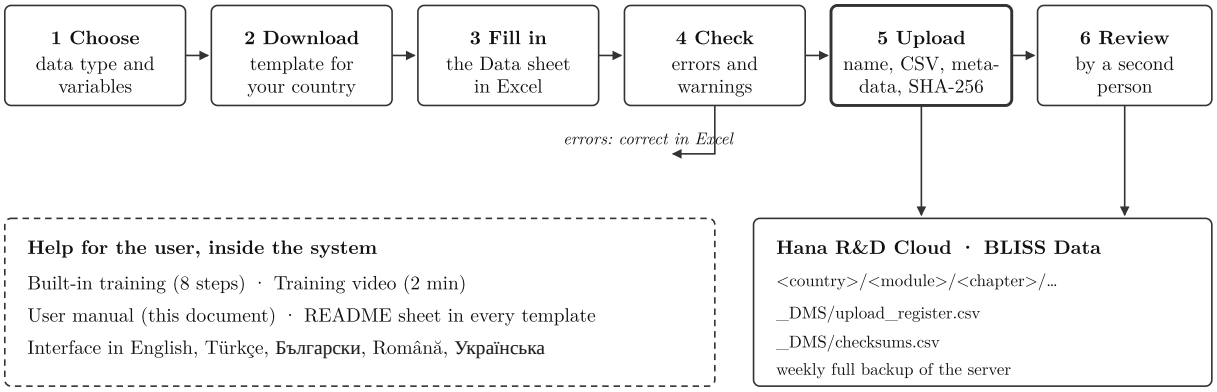

Figure 1: Data flow in the BLISS DMS. Steps 1–6 are done in the web interface; the DMS writes the files and the register into Hana R&D Cloud.

> **Note.** Column names, list values and file names are always in English, so that the data of all countries can be combined. The interface, the training and the instructions inside the templates are available in the partner languages.

2 Accounts, countries and rights

Accounts are created by the DMS administrator. Each account has a role and, for every country, an access level (Table 1).

Table 1: Roles and access levels.

Role	What the user can do
Administrator	All countries, all rights: users, stations, all registers, evidence logs.
Partner	Per country either *view and download* (browse, download, see the register) or *view, download and upload* (also submit data).
Viewer	Only view and download in the countries given. Cannot upload, review or change anything. For evaluators and observers.

Example: a member of the Turkish team can have upload rights for Türkiye and view rights for Bulgaria and Romania.

3 Getting started: sign-in, training and training video

3.1 Sign-in

Open `https://bliss.hanaarge.cloud`, choose the interface language (🌐), enter your username and password and choose the **country** you want to work on (Figure 2). If your account has no access to that country, the system tells you which countries you can open. With access to several countries you can switch at any time in the menu at the top right. The whole interface changes with the language menu (Figure 3).

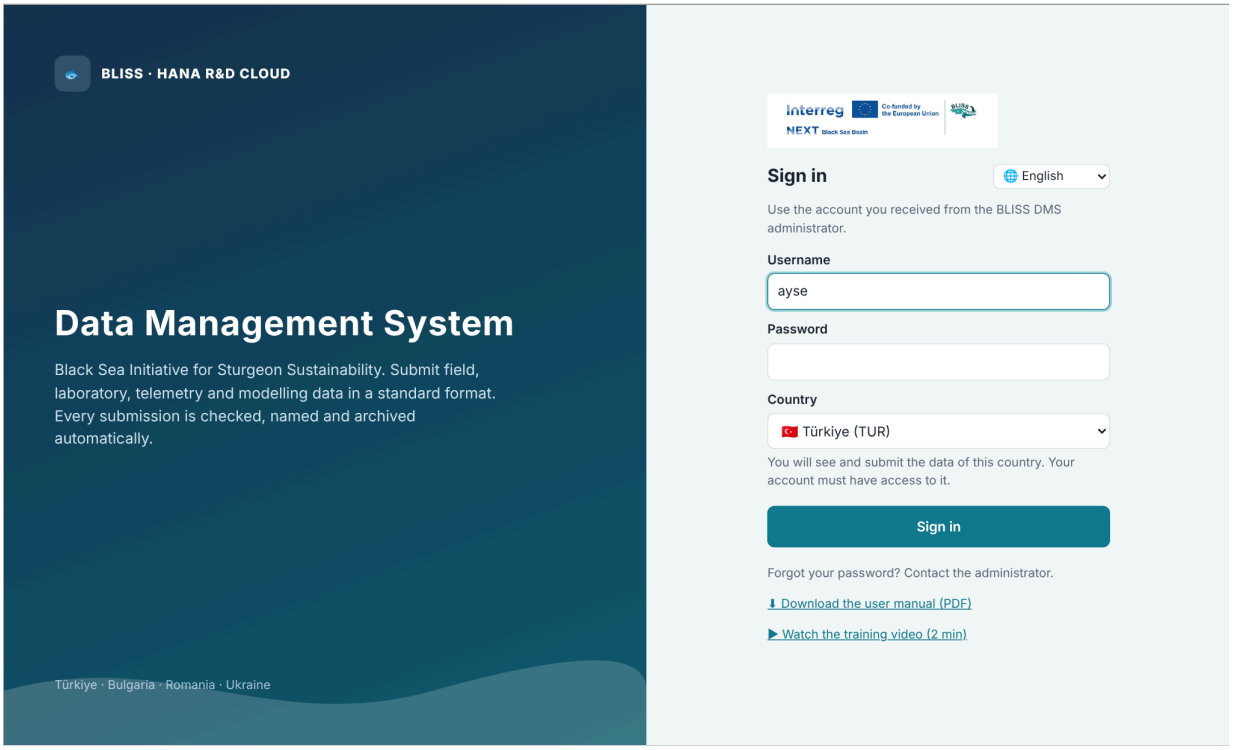

Figure 2: Sign-in page with language, username, password and country. The manual and the training video can be opened here before signing in.

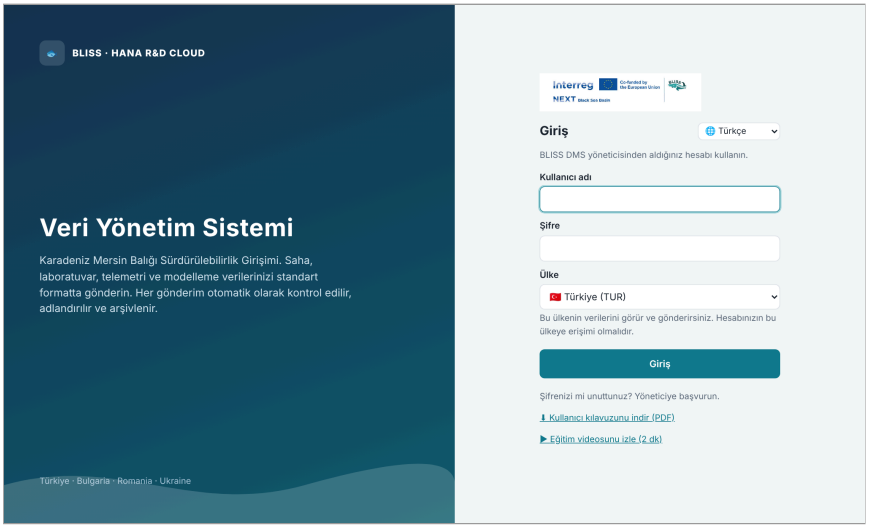

Figure 3: The same page in Turkish. The interface is available in five languages.

Accounts start with an initial password. Change it with 🔑 **Password** (at least 8 characters).

3.2 Built-in training

The training is **mandatory**. At every sign-in, until it is completed, a short training opens and cannot be closed: 8 steps, about three minutes (Figure 4). At the last step the user ticks "I have completed the BLISS DMS training" (Figure 5); the completion is recorded with name, country and date in `BLISS Data/_DMS/training_log.csv` as evidence of user training. The training can be opened again at any time with 🎓 **Training**.

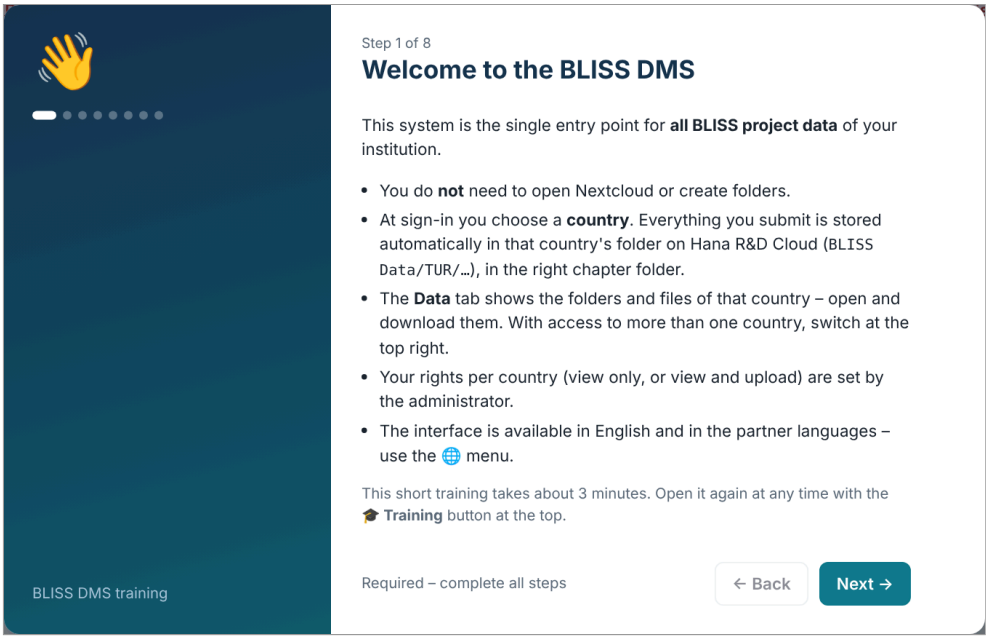

Figure 4: First step of the built-in training.

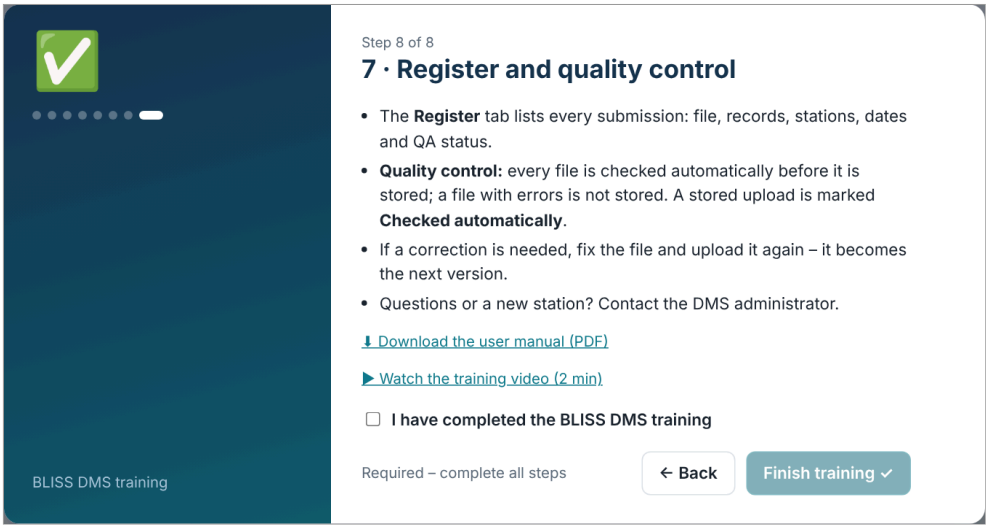

Figure 5: Last step of the training: links to this manual and the video, and the confirmation that replaces a signature. The window cannot be skipped.

3.3 Training video

A two-minute training video in English shows the whole workflow: sign-in, choosing the data type and the variables, filling and checking the template, upload and download (Figure 6). After the training, the video opens at every sign-in until it is confirmed. The window cannot be closed. The confirmation box becomes active only after at least 90 % of the video has really been watched (jumping forward or fast playback does not count). The user then ticks “I confirm that I watched the full training video”; this tick replaces a signature. Afterwards the video opens with the 🎬 **Training video** button at the top of the DMS, from the sign-in page and from the last step of the training. It can also be downloaded as an MP4 file for live training sessions.

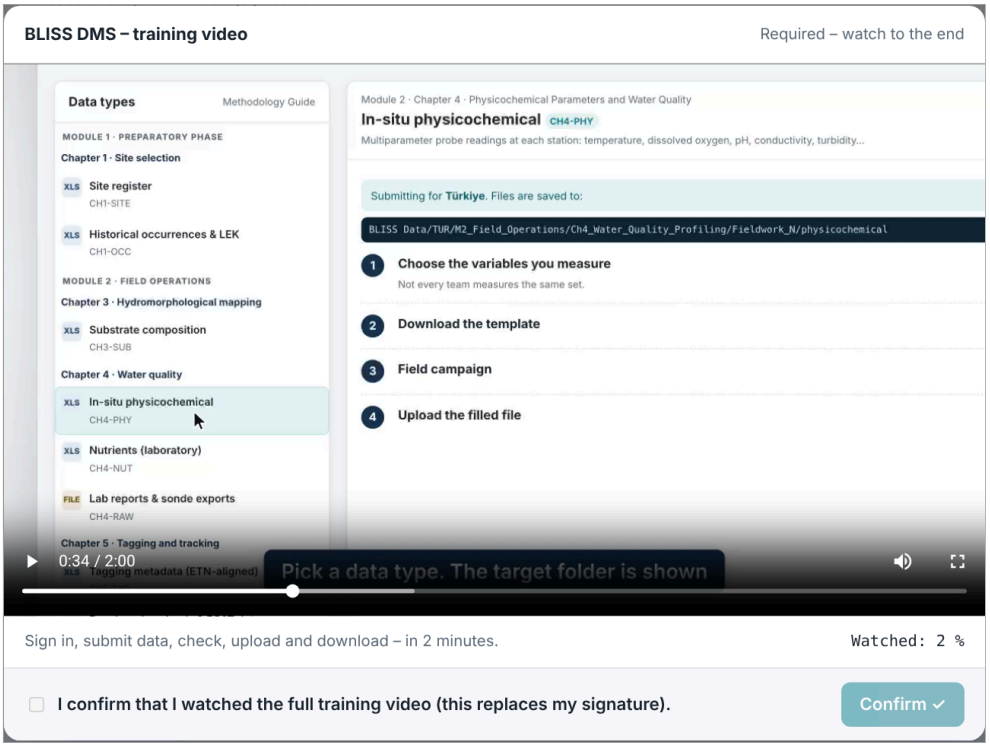

Figure 6: Mandatory training video with watched share and the confirmation that replaces a signature.

4 Submitting structured data with Excel templates

4.1 Choosing the data type

Open **Submit data**. The list on the left follows the Methodology Guide (Modules 1–3, Chapters 1–7); **XLS** marks an Excel template and **FILE** a free file upload (Figure 7). Appendix A lists all 21 data types with their target folders.

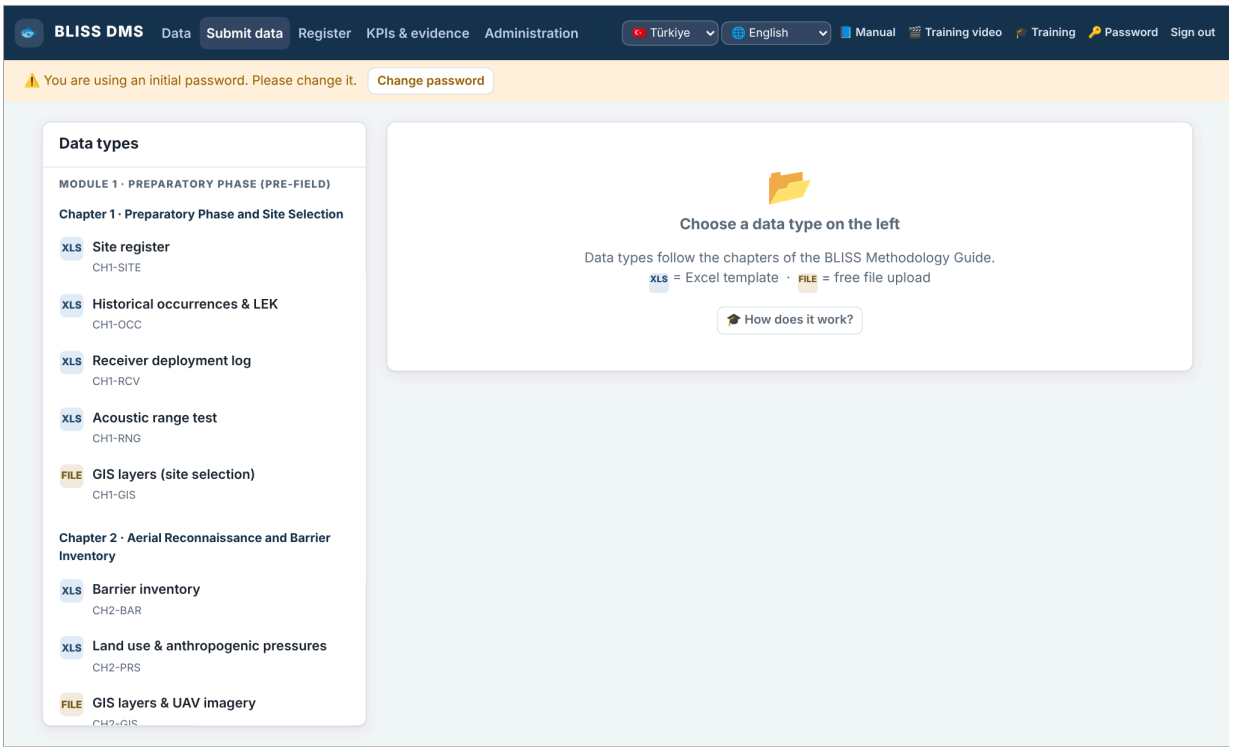

Figure 7: The *Submit data* page. Data types are grouped by module and chapter of the Methodology Guide.

4.2 Choosing the variables

For physicochemical and nutrient data, tick the variables you measure or the parameters your laboratory analyses (Figure 8). Variables marked **GUIDE** are the minimum set of the Methodology Guide. **Add variable** adds anything that is not in the list, with name, unit and an optional plausible range. Only the selected variables become columns of the template, and the selection is stored inside the file.

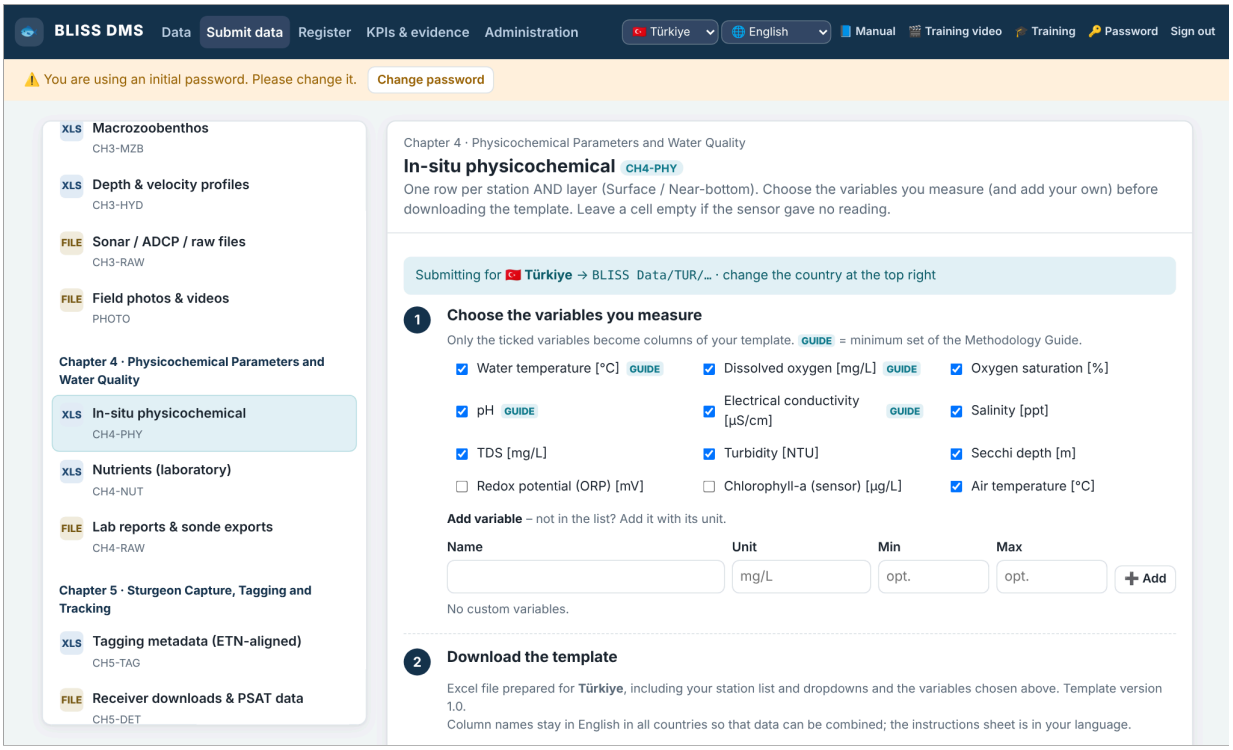

Figure 8: Variable selection, *Add variable* and template download for in-situ physicochemical data.

4.3 The template

Download the template; it is prepared for your country and already contains your station list and all dropdown lists. Always download a fresh template. The **README** sheet repeats the rules and describes every column in your language (Figure 9). Data are typed only in the **Data** sheet: one row per record, dark blue headers required, light blue optional (Figure 10).

BLISS DMS – data entry template

Template code	CH4-PHY
Template version	1.0
Data type	In-situ physicochemical
Chapter	Chapter 4 · Physicochemical Parameters and Water Quality
Country	Türkiye (TUR)
Description	One row per station AND layer (Surface / Near-bottom). Choose the variables you measure (and add your own) before downloading the template. Leave a cell empty if the sensor gave no reading.
Variables in this template	Water temperature [°C], Dissolved oxygen [mg/L], Oxygen saturation [%], pH, Electrical conductivity [µS/cm], Salinity [ppt], TDS [mg/L], Turbidity [NTU], Secchi depth [m], Air temperature [°C]

How to fill in

1. Fill in the 'Data' sheet only. Do not rename, delete or reorder the columns.
2. One row = one record (one station / sample / layer / taxon / individual).
3. Dark blue headers are REQUIRED; light blue headers are optional.
4. Hover over a header to see what to enter. Use the dropdown lists where they exist.
5. Dates: YYYY-MM-DD (e.g. 2026-07-27). Times: HH:MM in UTC.
6. Coordinates: decimal degrees, WGS84, dot as decimal separator (41.13713, 36.72541).
7. Missing value: leave the cell EMPTY. Do not type NaN, -, 'Error Code' or text in number columns.
8. Below detection limit: put '<' in the Qualifier column and the detection limit in Value.
9. Units are fixed by the header. Convert your data to these units before entering it.
10. Attach the original files (lab PDFs, sonde exports, photos) on the upload page – they are stored with the data.
11. You may keep the file name you like: the system renames the file automatically on upload.
12. Column names and list values stay in English in all countries so that the datasets can be combined.

Columns

Column	Required / type / allowed range / help
Station ID	REQUIRED · choose station · Use the station code from the dropdown (e.g. YS01). New station? Add it to the Site Register first.
Date	REQUIRED · date YYYY-MM-DD · YYYY-MM-DD
Time (UTC)	optional · time HH:MM (UTC) · HH:MM, UTC

Figure 9: README sheet of the physicochemical template (excerpt).

Station ID	Date	Time (UTC)	Latitude [decimal degrees, WGS84]	Longitude [decimal degrees, WGS84]	Layer	Sampling depth [m]	Total depth [m]	Water temperature [°C]	Dissolved oxygen [mg/L]	Oxygen saturation [%]	pH	Electrical conductivity [µS/cm]	Salinity [ppt]
YS01	2026-07-22		41.13713	36.72541	Surface		2.2	20.8	10.2	118.2	7.7		0.24
YS01	2026-07-22		41.13713	36.72541	Near-bottom		2.2	20.9	10.1	112.9	7.4	453	0.23
YS02	2026-07-22		41.183	36.719	Surface		1.8	21.3	8.7	93.1	7.94		0.23
YS02	2026-07-22		41.183	36.719	Near-bottom		1.8	21.5	10	112.8	7.7	431	0.23
YS03	2026-07-27		41.19	36.723	Surface		1.5	21.8	10.9	110.8	7.25	451	0.23
YS03	2026-07-27		41.19	36.723	Near-bottom		1.5	22.1	10.9	118.7	7.64	383	0.24
YS04	2026-07-29		41.2064	36.726	Surface		1.2		8.1	93.5			
YS04	2026-07-29		41.2064	36.726	Near-bottom		1.2	23.5			7.83	454	0.23
YS05	2026-07-27		41.252	36.698	Surface		2.2						
YS05	2026-07-27		41.252	36.698	Near-bottom		2.2	22.6	8.5	93.6	7.35	445	0.22
YS06	2026-07-27		41.261	36.682	Surface		1.1	22.1	11.1	128.8	7.88		0.24
YS06	2026-07-27		41.261	36.682	Near-bottom		1.1	22.6	11.6	132.4	7.97	443	0.24

Figure 10: Data sheet of a filled physicochemical template: Yeşilırmak stations, one row per station and layer (first 14 columns).

4.4 Checking the file

Choose the field campaign (`Fieldwork_1`, `Fieldwork_2`, …) or start a new one; all data of one field trip go into the same campaign folder in every chapter. Select the filled template, add the original files as attachments (laboratory reports, sonde exports, photos) and click **Check file**. **Errors** must be corrected in Excel; **warnings** can be accepted when the values are correct (Figure 11, Table 2).

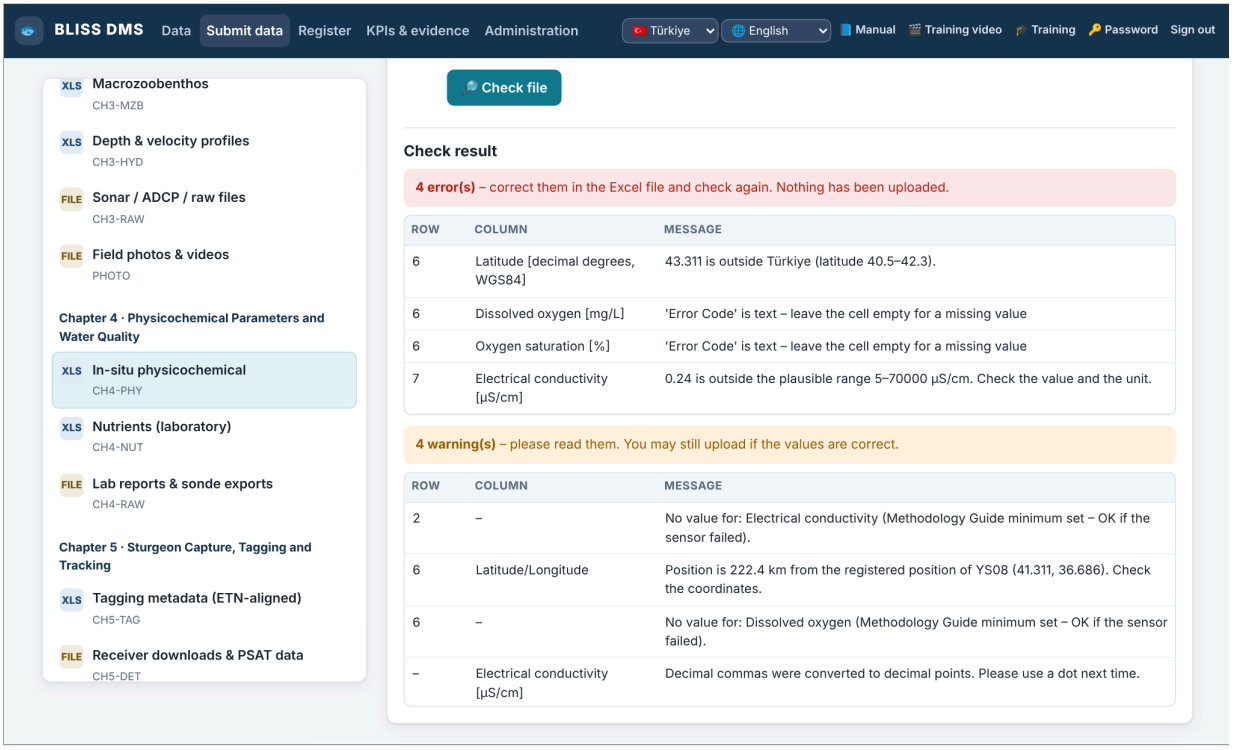

Figure 11: Check result for a file with typical problems: errors (must be corrected) and warnings (to be read). Nothing is stored at this stage.

Table 2: Examples of automatic checks.

Problem in the file	Result
Coordinate outside the country (e.g. latitude 43.311 in Türkiye)	Error
Position more than 1 km from the registered station position	Warning
Text such as “NaN”, “-”, “Error Code” or “<0.1” in a number column	Error
Value outside the plausible range (e.g. EC = 0.24 µS/cm, pH = 15)	Error
Decimal comma (2,34)	Converted, with a warning
Unknown station code	Warning – ask the administrator to add the station
Substrate classes not adding up to 100 %	Warning
Template of another data type, missing required column	Error
File identical to a file stored before (same SHA-256)	Warning

4.5 Uploading

When the check shows no errors, the page lists the files that will be created, with their new names, the original names and their SHA-256 fingerprints (Figure 12). **Upload to DMS** stores them and writes the upload into the register.

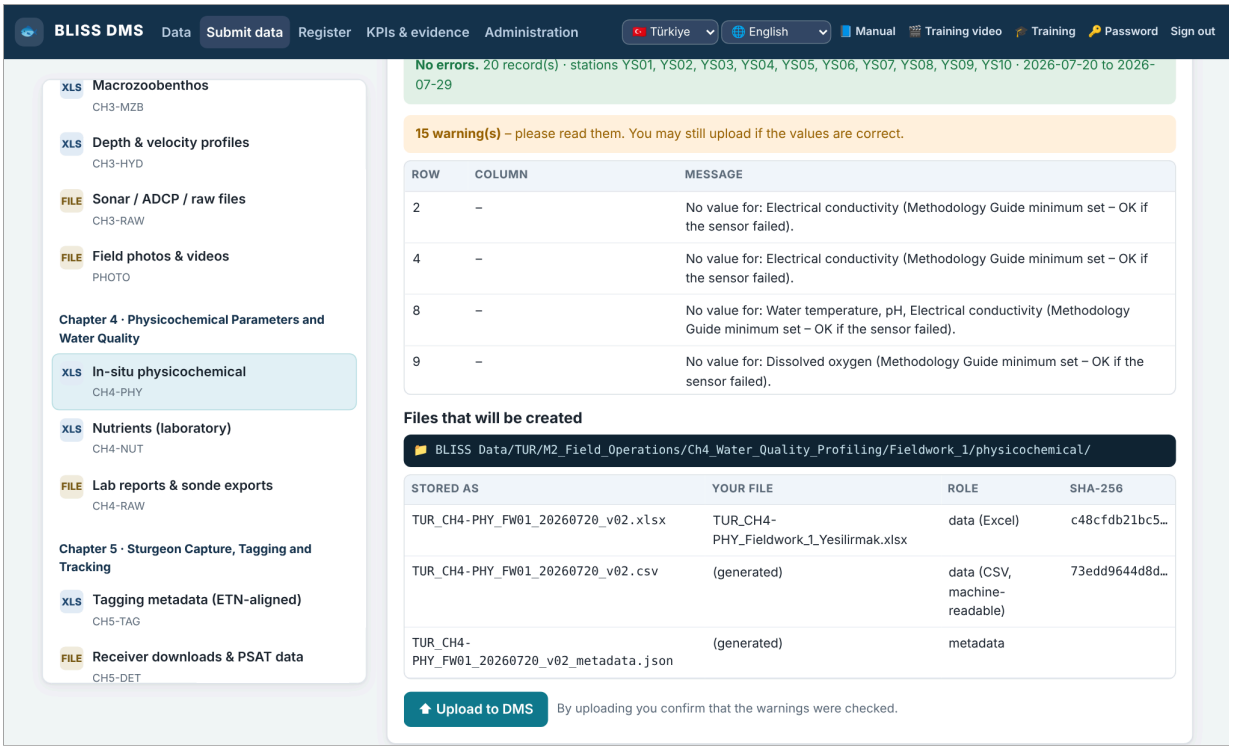

Figure 12: Check result without errors and the list of files that will be stored.

5 Data entry rules (Data Entry Guideline)

The rules in Table 3 apply to all templates. They are also printed in the README sheet of every template.

Table 3: Data entry rules.

Topic	Rule
Where to type	Only in the **Data** sheet. Do not rename, delete or move columns. Do not merge cells or use colours as information.
Rows	One row = one record: one station, sample, layer (Surface / Near-bottom), taxon or individual.
Required columns	Dark blue headers are required, light blue headers optional. Hover over a header for help.
Station codes	Choose from the dropdown list (e.g. YS01). New stations are added by the administrator.
Dates and times	Dates `YYYY-MM-DD`; times `HH:MM` in UTC.
Coordinates	Decimal degrees, WGS84, dot as decimal separator (41.13713, 36.72541).
Numbers	Dot as decimal separator. Only numbers in number columns.
Missing values	Leave the cell empty. Never type NaN, NA, - or "Error Code".
Below detection limit	Qualifier column "<", value = detection limit (and the limit in *Detection limit*).
Units	Fixed in the header. Convert data before entering them. Do not put salinity in the EC column.
Laboratory results	Enter the laboratory protocol or report number in every row and attach the laboratory report (PDF).
Discharge	Record the discharge at the time of sampling where available (Methodology Guide: temporal alignment).
Sensitive information	Do not enter names or phone numbers of interviewed fishers; use anonymised informant codes.

6 File uploads: photos, model runs, reports and raw files

Data types marked **FILE** accept files of any format, uploaded as they are: laboratory PDFs, sonde exports, side-scan sonar and ADCP files, receiver downloads (VRL/VDAT/CSV), PSAT data, GIS layers (kmz, zipped shapefile, GeoTIFF), model inputs and outputs (csv, nc, tif, mat, m, py), photos, videos and reports.

6.1 Field photos and videos

Station and field campaign are optional (Figure 13). With a station the files go to `Additional_Material_Archive/<station>`, with a campaign only to `…/General/<campaign>`, and with neither to `…/General`.

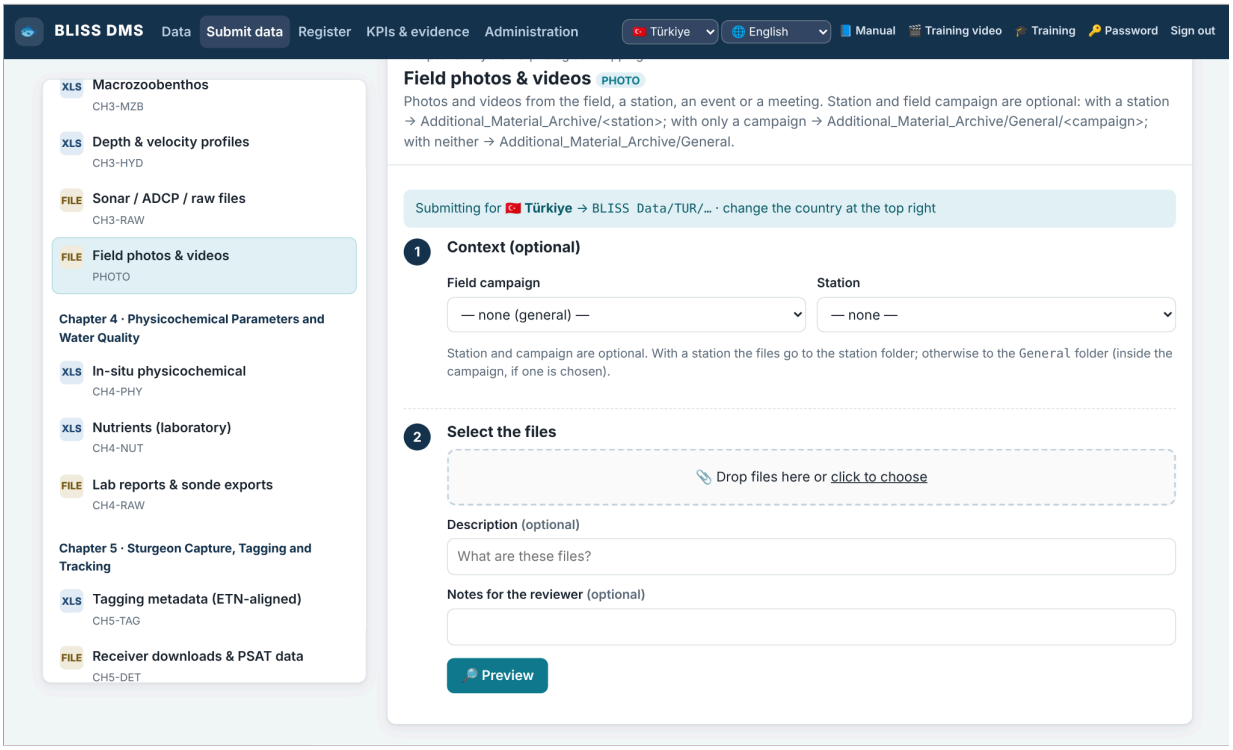

Figure 13: Upload of field photos and videos with optional station and campaign.

6.2 Model runs

For an HSI or other model run (CH6-RUN), give the run a short title and describe the inputs, parameters and the script used. All files go into one folder `Model_Runs/RUN_YYYYMMDD_title` with an automatic `README.txt` (Figure 14).

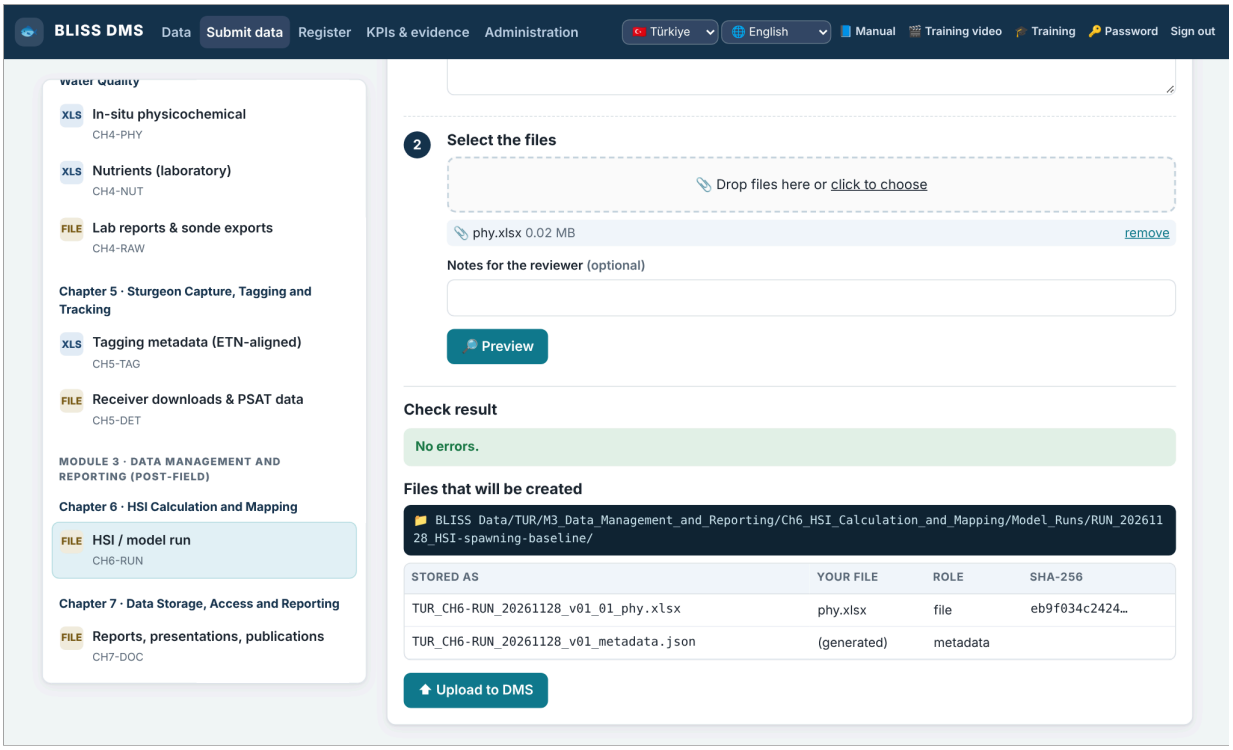

Figure 14: Model run upload: target folder, new file names and SHA-256 fingerprints before upload.

6.3 Reports and raw files

For reports (CH7-DOC) choose the category: Reports, Presentations, Publications, Meetings or Archive. Raw instrument files and laboratory reports without a template go to the *Raw files* data type of their chapter (CH3-RAW, CH4-RAW).

7 File names, versions, folders and fingerprints

You can give your file any name. The DMS renames it, for example `TUR_CH4-PHY_FW01_20260722_v01.xlsx`; Table 4 explains the parts.

Table 4: Parts of a standard file name.

Part	Meaning
`TUR`	Country (ISO 3166-1 alpha-3: TUR, BGR, ROU, UKR)
`CH4-PHY`	Data type code (chapter and type, see Appendix A)
`FW01`	Field campaign (Fieldwork_1); for photos also the station, e.g. `FW01_YS03`
`20260722`	First sampling date in the file (upload date for file uploads)
`v01`	Version. A corrected re-upload becomes v02. Existing files are never overwritten.

For every template upload the files in Table 5 are stored together.

Table 5: Files stored for one template upload.

File	Content
`…_v01.xlsx`	The filled template as uploaded
`…_v01.csv`	Standardised machine-readable copy (UTF-8; for MATLAB, R and Python)
`…_v01_ATT01_<original name>.pdf`	Attachments (laboratory reports, photos, …)
`…_v01_metadata.json`	Uploader, date, country, data type, campaign, stations, record count, variable selection, warnings, QA status and SHA-256 fingerprints

SHA-256 fingerprints. Every stored file gets a fingerprint, a 64-character code calculated from its content with the SHA-256 algorithm (NIST, 2015). If one byte of the file changes, the fingerprint changes. The fingerprints are kept in `BLISS Data/_DMS/checksums.csv` and in the metadata file. The DMS uses them to warn when the same file is uploaded twice and to check later that no file was changed or lost (Section 10). The DMS never changes file contents.

Folder structure. Each country has one folder; the register and the logs are kept in `_DMS`:

```
BLISS Data/
├── TUR/   BG/   RO/   UKR/                      country folders
│   ├── M1_Preparatory_Phase/Ch1_…, Ch2_…/
│   ├── M2_Field_Operations/
│   │   ├── Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/<data type folder>/
│   │   ├── Ch4_Water_Quality_Profiling/Fieldwork_N/<data type folder>/
│   │   ├── Ch5_Sturgeon_Tagging_and_Tracking/…
│   │   └── Additional_Material_Archive/<station> | General/
│   └── M3_Data_Management_and_Reporting/Ch6_…, Ch7_…/
└── _DMS/   upload_register.csv · checksums.csv · training_log.csv
            training_sessions.csv · training_events.csv · inventory/ · integrity/
```

8 Browsing and downloading data

The **Data** tab shows the folders and files of the country selected at the top (Figures 15 and 16). Click a folder to open it and **Download** to download a file. Users see only the countries they have access to; viewer accounts use this tab to read the data without changing it.

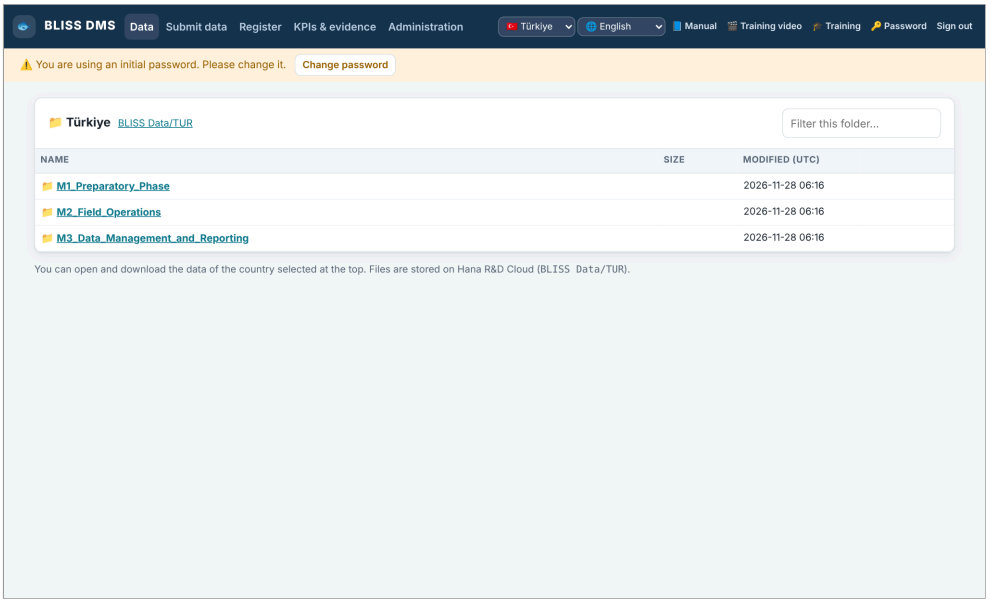

Figure 15: The Data tab at the country folder `BLISS Data/TUR`.

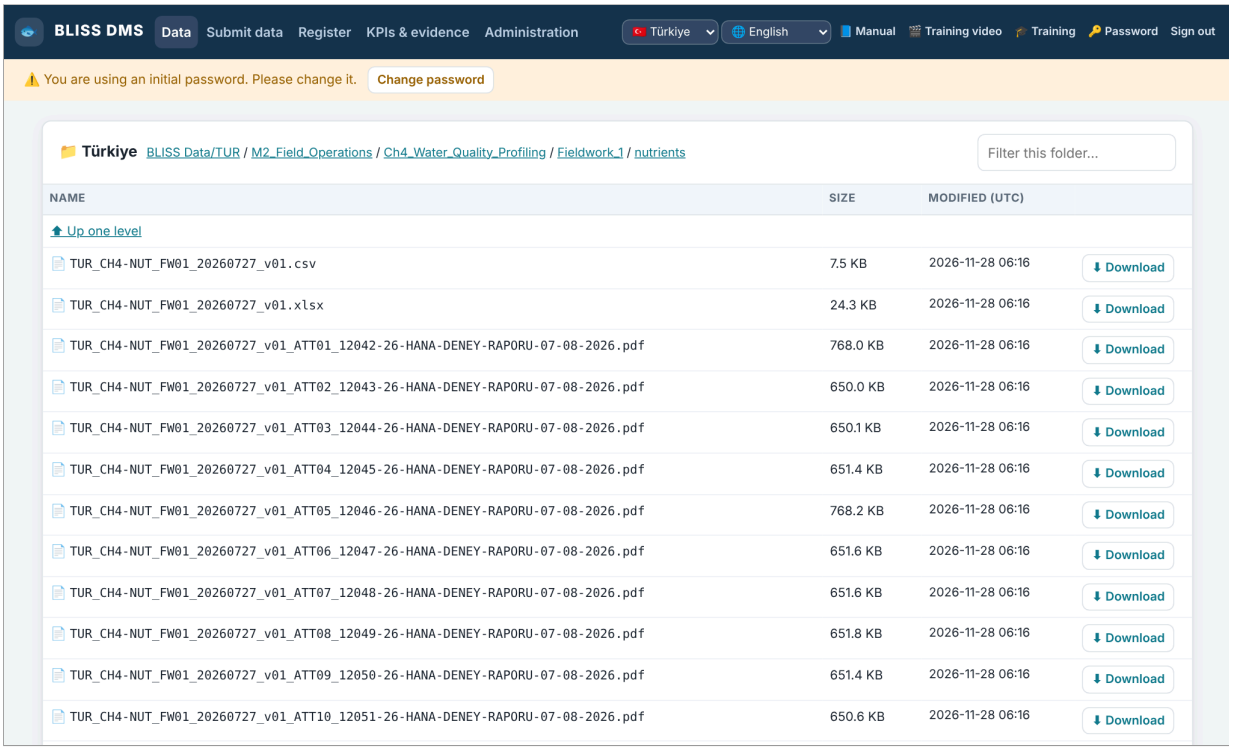

Figure 16: A campaign folder with the stored template, the CSV copy, the attachments and the metadata file, each with a download button.

> **Note.** This manual can be downloaded at any time with the 📘 **Manual** button at the top of the DMS, from the sign-in page and from the last step of the training; the training video opens with 🎬 **Training video**.

9 Upload register and quality control

The **Register** tab lists every upload with date, country, data type, campaign, stored file, number of records, uploader and QA status, together with totals: uploads, datasets, records and checked uploads (Figure 17). The register can be exported as CSV.

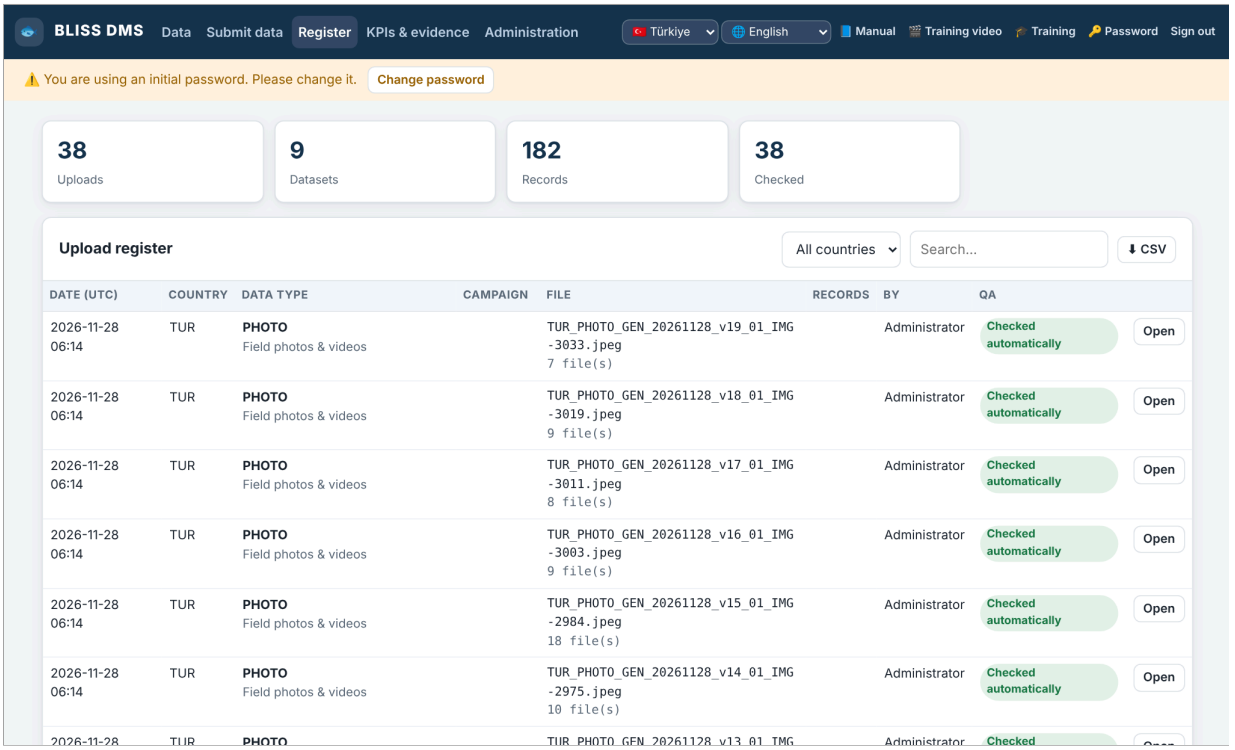

Figure 17: Upload register with totals and QA status.

Quality control. The check is done by the system, not by a second person. Every template is checked against the data type rules (columns, units, ranges, dates, stations, coordinates) before it is stored, and a file with errors is not stored. A stored upload therefore has the status **Checked automatically**. If a file has to be corrected later, the uploader fixes it and uploads it again; it becomes the next version and the older version is kept. All files are protected by SHA-256 checksums (see File integrity in the next section).

10 KPIs and evidence for Annex 4

The **KPIs & evidence** tab collects the evidence required by Annex 4 on one screen (Figure 18). Administrators see all countries, other users their selected country.

- **Annex 4 KPIs**, computed live: standardised datasets (> 20), QA compliance (≥ 95 % of uploads passed the automatic check), e-training (tutorial and video confirmed by every user), metadata completeness (≥ 95 %), training sessions (≥ 3), days since the last weekly backup (≤ 7), telemetry uploads.
- **Archive inventory.** *Scan archive* counts every file and its size per country and folder, including files placed in Nextcloud outside the DMS, and shows DMS uploads and records per folder. Administrators can save a dated snapshot as CSV in `_DMS/inventory/`.
- **File integrity.** *Verify all files* recalculates the SHA-256 fingerprint of every stored file and lists any file that was changed or is missing since its upload. A dated report is saved in `_DMS/integrity/`. Run it every three months and after each restore test.
- **Weekly backups.** A full backup of the server is made every week. The DMS reads the list of backups directly from the backup folder on the server (date, number of files, size); nothing is entered by hand. If the backup folder is not connected to the DMS, this part and its KPI are not shown.
- **Live training sessions.** Each online or on-site session is recorded with date, countries, number of participants, trainer and attendance list. E-training completions are logged automatically.

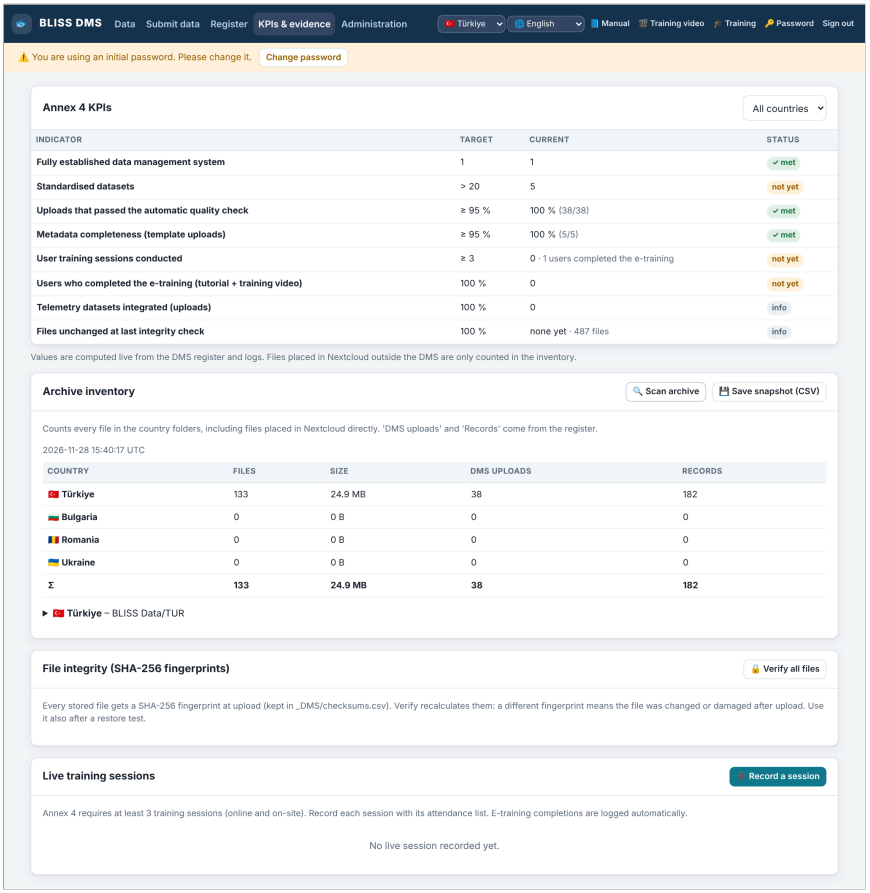

Figure 18: KPIs, archive inventory, file integrity and training sessions, from a test installation.

11 Administration

- **Users.** Add, edit, deactivate or delete accounts; set the role and the access level per country; reset passwords (Figures 19 and 20). A generated initial password is shown once, to be sent to the user, who is asked to change it.
- **Stations.** Keep the station list of each country: code, name and coordinates (Figure 21). The list feeds the dropdowns of all templates and the coordinate check (warning if an uploaded position is more than 1 km away).
- **Training log.** All e-training completions (first training and refreshers). In addition, **Administration → Training log** shows for every user when the tutorial and the video were opened, how much of the video was watched and the time-stamped confirmations ("signatures"); stored in `_DMS/training_events.csv` and exportable as CSV.
- **System.** Connection to Hana R&D Cloud, storage check and template version. If the DMS is not connected, administrators (only) see a red banner with **Connect now**. There the administrator enters the Nextcloud address, the DMS service account, an app password and the root folder (`BLISS Data`). The connection is tested before it is saved; the app password stays on the server and is never shown again. The storage check lists which country folders the DMS sees and how many register rows each country has.
- **Administrators and training.** Administrators monitor the e-training. They are not asked to complete it and do not appear in the training log or in the e-training KPI.

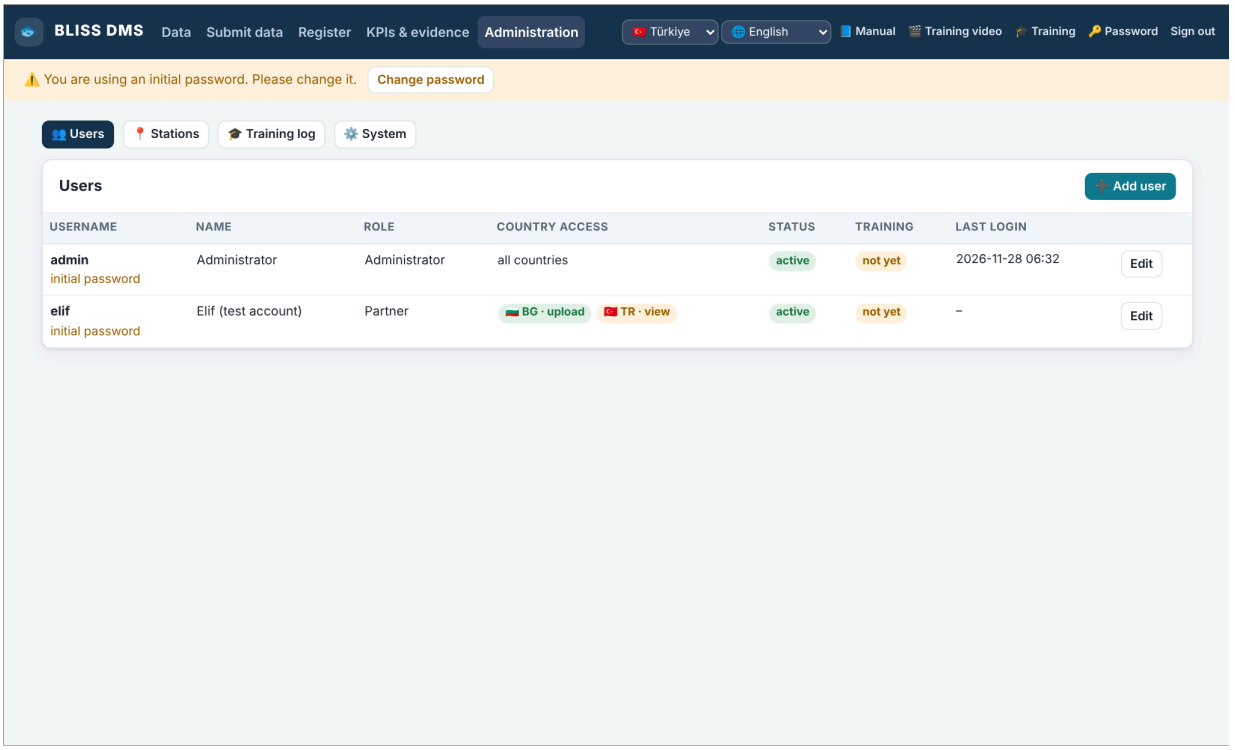

Figure 19: User administration.

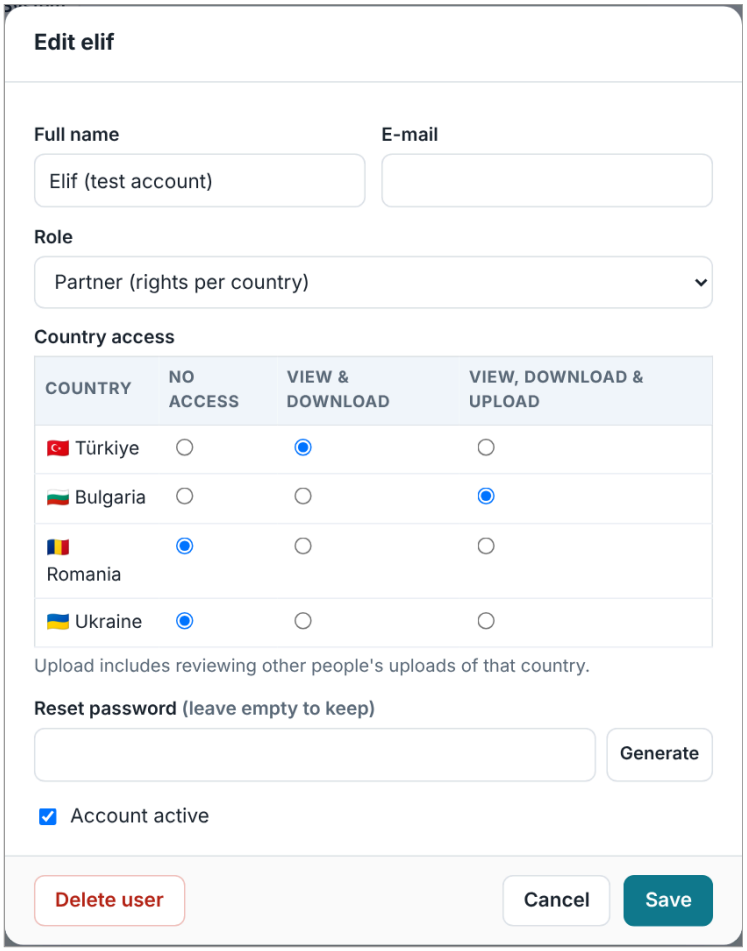

Figure 20: Role and access level per country for one account.

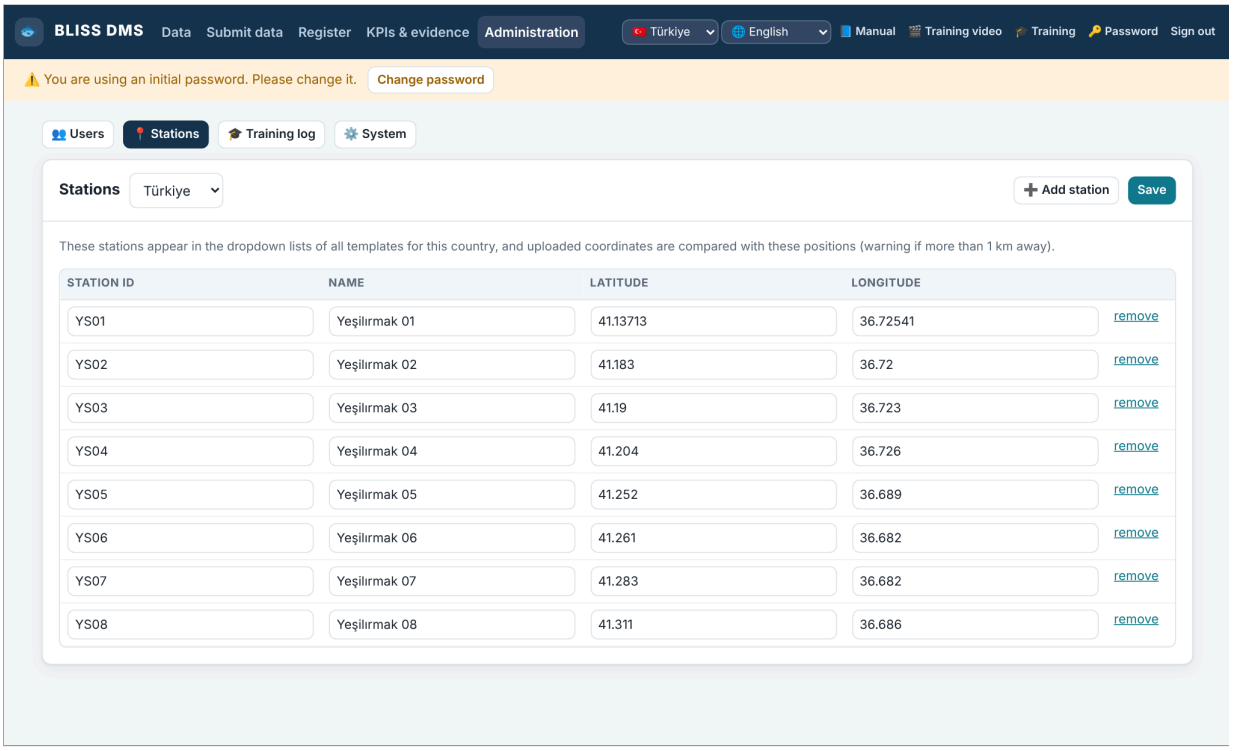

Figure 21: Station list of a country.

12 Support

For new accounts, forgotten passwords, new stations, additional data types or problems with an upload, contact the BLISS DMS administrator at HANA R&D. Please give the upload ID shown in the register when you report a problem with a specific upload.

The screenshots in this manual come from a test installation that holds a copy of the Türkiye archive as entered into the DMS on 28 November 2026 (`BLISS Data/TUR`), with test accounts.

References

BLISS project (2026). *BLISS Methodology Guide*, final revision, 16 October 2026. Modules 1–3, Chapters 1–7.

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ISO (2020). *ISO 3166-1:2020 Codes for the representation of names of countries and their subdivisions – Part 1: Country code*. International Organization for Standardization.

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A Data types and target folders

Folders are relative to `BLISS Data/<country>/`; `Fieldwork_N` is the selected field campaign.

Table 6: The 21 data types of the BLISS DMS.

Code	Kind	Data type	Target folder
CH1-SITE	Template	Site register	`M1_Preparatory_Phase/Ch1_Site_Selection/Site_Register`
CH1-OCC	Template	Historical occurrences & LEK	`M1_Preparatory_Phase/Ch1_Site_Selection/Historical_Records_LEK`
CH1-RCV	Template	Receiver deployment log	`M1_Preparatory_Phase/Ch1_Site_Selection/Receiver_Deployment`
CH1-RNG	Template	Acoustic range test	`M1_Preparatory_Phase/Ch1_Site_Selection/Range_Tests`
CH1-GIS	Files	GIS layers (site selection)	`M1_Preparatory_Phase/Ch1_Site_Selection/GIS_Layers`
CH2-BAR	Template	Barrier inventory	`M1_Preparatory_Phase/Ch2_Aerial_Reconnaissance_and_Barrier_Inventory/Barrier_Inventory`
CH2-PRS	Template	Land use & anthropogenic pressures	`M1_Preparatory_Phase/Ch2_Aerial_Reconnaissance_and_Barrier_Inventory/Anthropogenic_Pressures`
CH2-GIS	Files	GIS layers & UAV imagery	`M1_Preparatory_Phase/Ch2_Aerial_Reconnaissance_and_Barrier_Inventory/GIS_Layers`
CH3-SUB	Template	Substrate composition	`M2_Field_Operations/Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/Bottom_texture`
CH3-OM	Template	Sediment organic matter	`M2_Field_Operations/Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/organicpercentage`
CH3-MZB	Template	Macrozoobenthos	`M2_Field_Operations/Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/makrozoobentik`
CH3-HYD	Template	Depth & velocity profiles	`M2_Field_Operations/Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/Hydrodynamics`
CH3-RAW	Files	Sonar / ADCP / raw files	`M2_Field_Operations/Ch3_Benthic_and_Hydrodynamic_Mapping/Fieldwork_N/Raw_Instrument_Files`
CH4-PHY	Template	In-situ physicochemical	`M2_Field_Operations/Ch4_Water_Quality_Profiling/Fieldwork_N/physicochemical`
CH4-NUT	Template	Nutrients (laboratory)	`M2_Field_Operations/Ch4_Water_Quality_Profiling/Fieldwork_N/nutrients`
CH4-RAW	Files	Lab reports & sonde exports	`M2_Field_Operations/Ch4_Water_Quality_Profiling/Fieldwork_N/Raw_Files`
CH5-TAG	Template	Tagging metadata (ETN-aligned)	`M2_Field_Operations/Ch5_Sturgeon_Tagging_and_Tracking/Tagging_Metadata`
CH5-DET	Files	Receiver downloads & PSAT data	`M2_Field_Operations/Ch5_Sturgeon_Tagging_and_Tracking/Telemetry_Raw`
CH6-RUN	Files	HSI / model run	`M3_Data_Management_and_Reporting/Ch6_HSI_Calculation_and_Mapping/Model_Runs/RUN_<date>_<title>`
CH7-DOC	Files	Reports, presentations, publications	`M3_Data_Management_and_Reporting/Ch7_Reporting_and_Knowledge_Transfer/<category>`
PHOTO	Files	Field photos & videos	`M2_Field_Operations/Additional_Material_Archive/<station>` or `…/General[/<campaign>]`