

Regional statistics and
Geographic Information
Author: E4.LUCAS (ESTAT)

eurostat
Technical Documents
2018

LUCAS 2018
(Land Use / Cover Area Frame Survey)

Technical reference document D1
DMT User Guide

TABLE OF CONTENTS

1. Introduction.....	11
2. Functional architecture	13
3. DMT 2018 environments.....	13
3.1.a. Functional test environment	13
3.1.b. Training environment.....	14
3.1.c. Production environment	14
4. User authentication.....	14
4.1. Rules for user identification	14
4.2. Authentication in different environments	14
4.3. Connection window.....	16
4.3.a. Password lost.....	17
5. Use cases	18
5.1. SU Level	18
5.2. QC levels (RO, CO, XC, EU).....	18
6. DMT Viewer	21
6.1. DMT Viewer menu.....	21
6.2. DMT Viewer buttons	22
6.3. DMT Viewer dashboard menu	24
6.3.a. Overview tabulation	24
a) Point's distribution by level.....	25
b) Point's distribution per status	25
c) News published by the National Contractor and/or Eurostat.....	25
6.3.b. Filtering records.....	27
a) Using filter zone on the table mode	27
b) By clicking on an area of the chart, for selecting records related to this zone	27
6.3.c. Exporting all filtered records	29

6.3.d.	Exporting selected record(s).....	30
6.4.	DMT Viewer survey management menu.....	32
6.4.a.	Survey setup	33
6.4.b.	Data initialization using the survey setup options	34
a)	Download template.....	34
b)	Upload file	38
c)	Download file.....	40
6.4.c.	Survey progress	40
a)	Overview of the survey progress.....	40
b)	Survey progress detail	42
6.4.d.	Photos visual quality control	44
6.4.e.	Generate weekly report	46
6.5.	DMT Viewer requester menu.....	47
6.5.a.	Requester user interface	48
6.5.b.	List of predefined queries by level	49
6.5.c.	Query builder interface (CO, XC and EC levels only)	54
6.5.d.	List of queries by level	56
6.6.	Login drop down.....	57
7.	DMT Web client.....	60
7.1.	Access to DMT Web client.....	60
7.2.	Data entry form	61
7.3.	Selecting your preferred language	62
7.4.	Help and tooltips	62
7.4.a.	Help	62
7.4.b.	Tooltips	62
7.5.	Entering data	62
7.5.a.	Pre-filled fields.....	62
7.5.b.	Pre-filled fields.....	63

7.5.c.	Drop down lists.....	63
7.5.d.	Entering numeric/percentage values	64
7.5.e.	Multiple choice fields	65
7.6.	Entering comments	65
7.7.	Photo uploading	67
7.8.	M15 Photo Display after Upload	68
7.9.	Anonymizing photos.....	69
7.10.	Loading a daily GPS track.....	73
7.11.	Visual Quality Control	74
7.12.	Automatic validating of a point	75
7.12.a.	Viewing the AQC error report	75
7.12.b.	Correcting "red" points	76
7.13.	Online/Offline Web Client	77
7.14.	Stale Data	78
7.15.	Read only mode.....	78
8.	DMT Map.....	80
8.1.	Access to DMT Map.....	80
8.1.a.	From the survey progress board	80
8.1.b.	From the dashboard	80
8.1.c.	From the requester	81
8.1.d.	Multiple point selection	82
8.1.e.	Points without KML file	82
8.2.	DMT Map User Interface.....	82
8.2.a.	Header banner.....	83
8.2.b.	Point selector zone	83
a)	Removing a point from the list.....	83
b)	Removing all points from the list	83
8.2.c.	Settings selector zone.....	84

8.2.d.	Survey data (right slider)	85
8.2.e.	Banner photos	86
8.2.f.	Previous photos quick comparison	87
8.2.g.	GIS Window	88
8.2.h.	Multiple point selection visualization	89
8.3.	DMT Map visual quality control	91
8.4.	Use of Google Earth.....	92
9.	DMT REST API	95
9.1.	Full set of INIT files download	95
9.1.a.	Address	95
9.1.b.	Input parameters.....	95
9.1.c.	Output parameters.....	95
9.2.	Ground Document download.....	96
9.2.a.	Address	96
9.2.b.	Input parameters.....	96
9.2.c.	Output parameters.....	96
9.3.	Previous Photos download.....	96
9.3.a.	Address	96
9.3.b.	Input parameters.....	96
9.3.c.	Output parameters.....	96
9.4.	Point data download	97
9.4.a.	Address	97
9.4.b.	Input parameters.....	97
9.4.c.	Output parameters.....	97
9.5.	Photos download.....	97
9.5.a.	Address	97
9.5.b.	Input parameters.....	97
9.5.c.	Output parameters.....	97

9.6.	Full dataset download	98
9.6.a.	Address	98
9.6.b.	Input parameters.....	98
9.6.c.	Output parameters.....	98
9.7.	Survey upload	98
9.7.a.	Address	98
9.7.b.	Input parameters.....	99
9.7.c.	Output parameters.....	99
9.8.	Daily Track upload	99
9.8.a.	Address	99
9.8.b.	Input parameters.....	99
9.8.c.	Output parameters.....	99
9.9.	Upload data validation	99
9.9.a.	Address	99
9.9.b.	Input parameters.....	100
9.9.c.	Output parameters.....	100
9.10.	Image metadata reader.....	100
9.10.a.	Address	100
9.10.b.	Input parameters.....	100
9.10.c.	Output parameters.....	100
9.11.	Survey	100
9.11.a.	Address	100
9.11.b.	Input parameters.....	100
9.11.c.	Output parameters.....	100
9.12.	Single point data download.....	101
9.12.a.	Address	101
9.12.b.	Input parameters.....	101
9.12.c.	Output parameters.....	101

9.13.	Survey Upload	101
9.13.a.	Address	101
9.13.b.	Input parameters.....	101
9.13.c.	Output parameters.....	101
9.14.	Provisioning	102
9.14.a.	Address	102
9.14.b.	Input parameters.....	102
9.14.c.	Output parameters.....	102
9.15.	Point Summaries.....	102
9.15.a.	Address	102
9.15.b.	Input parameters.....	102
9.15.c.	Output	103
9.16.	AQC Errors	104
9.16.a.	Address	104
9.16.b.	Input parameters.....	104
9.16.c.	Output	104
9.17.	KML.....	105
9.17.a.	Address	105
9.17.b.	Input parameters.....	105
9.17.c.	Output	105
9.18.	VQC.....	105
9.18.a.	Address	106
9.18.b.	Input parameters.....	106
9.18.c.	Output	106
9.19.	VQC start	106
9.19.a.	Address	106
9.19.b.	Input parameters.....	106
9.19.c.	Output	106

9.20.	VQC comment	106
9.20.a.	Address	107
9.20.b.	Input parameters	107
9.20.c.	Output	107
9.21.	VQC accept/reject	107
9.21.a.	Address	107
9.21.b.	Input parameters	107
9.21.c.	Output	107
9.22.	JSON schema	107
9.22.a.	JSON schema description	107
9.22.b.	Data upload Json Example	135

DOCUMENT CHANGE RECORD			
ISSUE	DATE	CHANGE AUTHORITY / AUTHOR	REASON FOR CHANGE AND AFFECTED SECTIONS
V0.1	2017/03/17	Eurostat / E4.LUCAS	
V0.2	2017/03/24	Eurostat / E4.LUCAS	Photo codes added
V0.3	2017/04/09	Eurostat / E4.LUCAS	Updates to the document, related to the new interface
V0.4	2017/05/19	Abaroa	Updates to the document, related to the new interface
V0.5	2017/12/21	JBA	Updates to the API documentation for new fields added to the DMT.
V0.6	2018/01/18	JBA	Added the undocumented DMT API end points. All updates highlighted in yellow.
V0.7	2018/01/19	JBA	RO/CO editing functionality and the update giving the user a notification if the data on the server is more up to date and an option to download the latest data. All updates highlighted in yellow.
V0.8	2018/02/28	JBA	Updates to the DMT Web Client, Query Builder and API.
V0.10	2018/03/12	JBA	Updates to the AutoQC interface and new AutoQC API End Point.
V0.11	2018/03/16	JBA	Update to the DMT Client – M15 display and DMT Viewer, utilise the Download Survey and Photos end point.
V0.12	2018/03/23	JBA	New KML API End Point and use in Google Earth. Correct of typo in the GPS Track End Point.
V0.13	2018/04/05	JBA	New VQC API end point and interface. Note regarding not accepting VQC with outstanding AQC.
V0.14	2018/04/26	JBA	New method of displaying current and previous photographs.

DOCUMENT CHANGE RECORD			
ISSUE	DATE	CHANGE AUTHORITY / AUTHOR	REASON FOR CHANGE AND AFFECTED SECTIONS
			Added missing documentation for the quick comparison of current and previous photographs.
V0.15	2018/05/17	JBA	DMT Web Client Filter VQC API end point updates.

1. Introduction

The Data Management Tool (DMT) 2018 was created to manage data entry, transfer and control of information collected in the field, in the scope of the LUCAS 2018 survey.

This architecture allows the collection of information (data entry at surveyor level) and the centralization of information in a single database (ORACLE) stored on a remote server (hosted platform).

DMT 2018 has 5 components:

-  DMT Web Client – For data entry
-  DMT API – For upload and download of data collected in other applications
-  DMT Server – For business rules validation and workflow management
-  DMT Viewer – For survey management
-  DMT Map – For quality controller activities



DMT Web Client

The DMT web client is a web application than can be accessed by the user via the internet, provided he is given access by an administrator.

It is expected to be used mostly in online mode, but offline data entry is also possible, although this data will not be available for other users until the user goes online and synchronizes his device.

Upload of photos is also not possible in offline mode.



DMT API

DMT API provides REST services to users, allowing them to upload data and images collected in a user application directly to the server for future validation.



DMT Server

The following features are managed by DMT server:

- Checking authentication
- Uploading data
 - Consistency of data uploaded, i.e. expected files are found

- Consistency with information stored in the central database, i.e. is level and status of the points uploaded is consistent with level and status of point stored in the ORCALE database?
- Import data in the central database. If consistency checks are successfully carried out, data (and associated files, photos, tracks) are imported, additional files generated (kml, track extracts) and point level and status are updated according to the defined workflow by Eurostat.



DMT Viewer

DMT Viewer is a Web application used for survey management that displays the information stored on the central server.

The following features are available (depending on the user profile):

- Initialization of data (Functional administrator at RO, CO, XC or EC levels)
 - Initialization of the list of users
 - Points allocation (i.e. association of a point number to a surveyor code)
 - Initialization of list of points to be visually controlled by external company (Eurostat only)
 - Initialization of list of points that can be ex-ante (Eurostat only)
 - Initialization of photos to be controlled (Eurostat)
 - Initialization of assignment of point to modules (Eurostat)
 - Initialization of Business Rules (Eurostat)
- Survey management: user interface to download assorted data (ground document, previous photos, and current survey photos), visualization of survey progress, and accessing the DMT Client application.
- Requester: user interface where predefined queries can be executed, depending on the rights of the connected user. New ones can also be added, only at CO, XC and EC levels. Result of the queries can be exported on text format.
- Dashboard: graphs showing survey progress and news/information posted by Eurostat or national managers.



DMT Map

DMT Map is used for visual control of survey data. It allows a spatial representation of data collected.

The following information can be controlled:

- Surveyor position when collecting information (surveyor location declared in the questionnaire)
- Photo's location
- Land cover and land use declared
- Extract of the daily GPS track near the point (5km)
- Graphical representation of the Copernicus points

2. Functional architecture

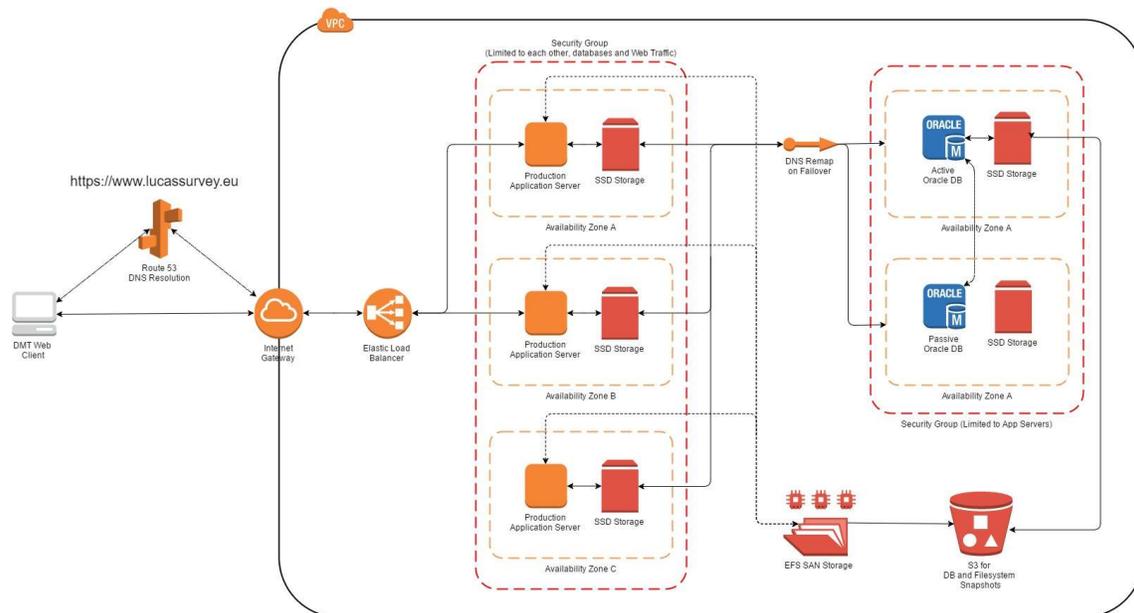


Figure 1: DMT 2018 Suite – Overall architecture – Production Environment

3. DMT 2018 environments

Depending on the phase of the project, DMT 2018 can be used on different environments.

Before the beginning of the project, the contractors may wish to test the solutions and control its seamless integration with their own organizations. Then the software will be used for user training session, and finally into production to manage real survey data.

According to the countries involved in this program, periods may overlap between countries. For example, Southern countries begin the survey, while the Northern will be in the testing phase.

To fulfil all needs, three environments are available. Each environment is accessible from a specific URL. For each environment, a separate ORACLE database is created.

3.1.a. Functional test environment

F

This environment can be used by Eurostat and the contractors of LOT1-7 to test infrastructure and project processes. It is a testing ground during the early weeks after DMT is made available for the contractors

- URL = <https://testing.lucassurvey.eu/dmt/viewer>
- DMT Web client = <https://testing.lucassurvey.eu/dmt/survey/index.html>

3.1.b. Training environment

T

This environment can be used by the contractor during the training sessions.

URL = <https://training.lucassurvey.eu/dmt/viewer>

- DMT Web client = <https://training.lucassurvey.eu/dmt/survey/index.html>

3.1.c. Production environment

P

This environment is used during the field survey. The sample of points to be visited or photo interpreted is initialized by Eurostat

- URL = <https://www.lucassurvey.eu/dmt/viewer>
- DMT Web client = <https://www.lucassurvey.eu/dmt/survey/index.html>

4. User authentication

Each user of the system will have its own login and password.

4.1. Rules for user identification

User code is composed by 7 digits, as follows: CYLExxx, with:

- CY = Country code
- LE = level. Accepted values are SU (surveyor), RO (regional officer), CO (central officer), XC (external controller) or EC (Eurostat controller)
- xxx = unique user code for a given country and level

4.2. Authentication in different environments

To avoid mishandling of users between the three environments (functional testing, training, or production) an additional rule coding has been added.

1. Functional training environment user code: CyliX, with:
 - CY = Country code
 - LL = level. Accepted values are SU (surveyor), RO (regional officer), CO (central officer), XC (external controller) or EC (Eurostat controller)

- **T** = Training environment
 - **xx** = unique user code (two positions) for a given country and level
2. Functional testing environment user code: CYLL**F**xx, with:
- **CY** = Country code
 - **LL** = level. Accepted values are SU (surveyor), RO (regional officer), CO (central officer), XC (external controller) or EC (Eurostat controller)
 - **F** = Functional testing environment
 - **xx** = unique user code (two positions) for a given country and level
3. Production environment (Survey) user code: Cylix, with:
- **CY** = Country code
 - **LL** = level. Accepted values are SU (surveyor), RO (regional officer), CO (central officer), XC (external controller) or EC (Eurostat controller)
 - **xxx** = unique user code (three positions) for a given country and level. All characters (letter or number) are allowed for the first digit except F and T

Then, by reading a user code, it is possible to know the working environment, the country, and the rights of the user (access level).

For each program, depending on his rights, a user will have access to dedicated features.

In addition of the standard user code detailed here above, functional administrator codes are defined. These functional administrator codes are created by the support company (LOT 7) and cannot be modified. These profiles are used to initialize metadata before the beginning of the survey. These user's codes are provided to the contractor at the beginning of the support period.

At each level (except SU level), for each country, a functional administrator user code is created.

4. Functional administrator user codes: CYLLX00, with:
- **CY** = Country code
 - **LL** = level. Accepted values are RO (regional officer), CO (central officer), XC (external controller) or EC (Eurostat controller)
 - **X00**, with:
 - i. Functional testing environment; X = F
 - ii. Training environment; X = T
 - iii. Production environment; X = 0

Environment	Role	Standard user	Functional administrator
Functional testing	SU	CYSUFxx (ex: ROSUF44)	
	RO	CYROFxx	CYROF00
	CO	CYCOFxx	CYCOF00 (ex: ESCOF00)
	XC	CYXCFxx	CYXCF00

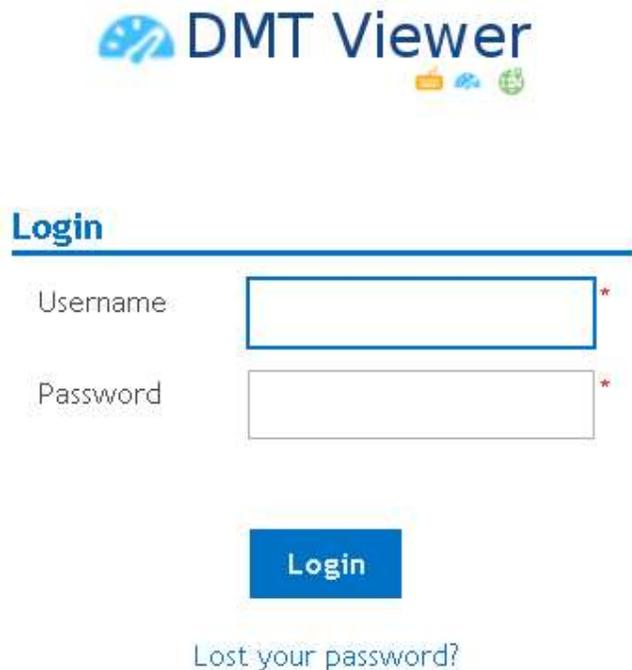
	EC	CYECFxx	CYECF00
Training	SU	CYSUTxx (ex: UKSUTAA)	
	RO	CYROTxx	CYROT00
	CO	CYCOTxx	CYCOT00 (ex: DECOTA1)
	XC	CYXCTxx	CYXCT00
	EC	CYECTxx	CYECT00
Production	SU	CYSUxxx	
	RO	CYROxxx	CYRO000
	CO	CYCOxxx (ex: GRCOARF)	CYCO000 (ex: BGCO000)
	XC	CYXCxxx	CYXC000
	EC	CYECxxx	CYEC000

Figure 2: DMT 2018 – User’s code by role

4.3. Connection window

User can access directly on DMT Viewer application by entering the URL in Section 3.1 in a web browser interface.

After opening the software, a login window displays.



DMT Viewer

Login

Username: *

Password: *

Login

[Lost your password?](#)

Figure 3: DMT Viewer – Connection window

User enters login and password, given by his manager, and clicks on 'Login' button.

If the no login and/or password is entered, the following messages will be displayed, and the user is not connected.

- **Username : The username cannot be empty.**
- **Password : The password cannot be empty.**

Figure 4: DMT Viewer – no login nor password entered

If the login and/or password entered is/are incorrect, the following message is displayed, and the user is not connected.

User/password invalid

Figure 5: DMT Viewer – Invalid access

Otherwise, the user is accessing to the platform.

To disconnect, click on 'User code' menu and select on the drop 'sign out' option.



Figure 6: DMT Viewer – Sign out

4.3.a. Password lost

If a password is lost, the user can retrieve it by using the "get a password" button

Get a password

Username :

Get a password

Cancel

Figure 7: DMT Viewer – Recover password screen

If the user is not created yet, you will receive an error message

Not a valid user. Contact your administrator.

Figure 8: DMT Viewer – User is not valid.

5. Use cases

5.1. SU Level

This chapter describes the operations to be performed by the surveyor to obtain validation of its points by his supervisor. The process below summarizes the different steps

	Description
	Start DMT Web client through DMT Viewer
	Upload daily track
	Data entry
	Upload survey data (only possible online)
	Correct points after automatic control rejection
	Correct points rejected by visual quality control

5.2. QC levels (RO, CO, XC, EU)

This chapter describes the operations to be performed by the quality controller for point’s validation. The process summarized here below is followed

	Description
	Start DMT Map through DMT Viewer
	Visual quality control points



DMT Viewer



6. DMT Viewer

6.1. DMT Viewer menu

When connecting on DMT Viewer, the following menu is displayed on the top:



Figure 9: DMT Viewer – Main menu

- Dashboard: Displays graphs by type of data collected and news published by the National responsible and / or Eurostat.
- Survey management: Screen for monitoring and initialization of the survey. According to the rights of the connected user some of the features are not available
- Requester: Predefined queries depending on the level of the connected user, and addition of new custom queries (only CO, XC and EC levels)
- Login drop down: allows sign out, user data visualization and preferred language selection.



6.2. DMT Viewer buttons

See below the buttons available on DMT Viewer user interface

Button	Description	Screen in relation
	Download ground documents related to the selected points (point ID + g.pdf extension)	Survey management / Survey progress
	Download current survey photos related to the selected points	Survey management / Survey progress
	Download previous survey photos (panel points) related to the selected points	Survey management / Survey progress
	Download the full survey (json) including photos related to the selected points	Survey management / Survey progress
	Go to DMT Web client (data entry form)	Survey management/Survey progress
	Go to DMT Map (GIS and visual quality check)	Survey management / Survey progress
	View error report (for red points)	Survey management / Survey progress
	Export selected list of point to csv file	Survey management
	Export all points to csv file	Survey management
Country <input type="text" value="FR"/>	Apply a filter on the data according to the country code	
Surveyor <input type="text" value="All"/>	Apply a filter on the data according to the user code	
	Display values on table mode	Dashboard
	Display chart when table mode is selected	Dashboard
	Expand a window	Dashboard
	Create news	Dashboard/Overview
	Update news	Dashboard/Overview
	Delete news	Dashboard/Overview



Button	Description	Screen in relation
▶	Expand a list	Requester
▼	Shrink a list	Requester



6.3. DMT Viewer dashboard menu



Figure 10: DMT Viewer – Dashboard on the main menu

When user clicks on ‘dashboard’ button, the following window is displayed and the ‘overview’ tabulation opens by default. 5 types of information can be displayed (selected from the left banner):

- Overview: general overview of the survey
- Observation: information related to the type of observation
- Land cover: information related to the land cover survey data
- Land use: information related to the land use survey data
- Water management: information related to the water management data
- Soil: information related to the soil data

All information displayed reflects to data uploaded by users and stored in the central database.

6.3.a. Overview tabulation

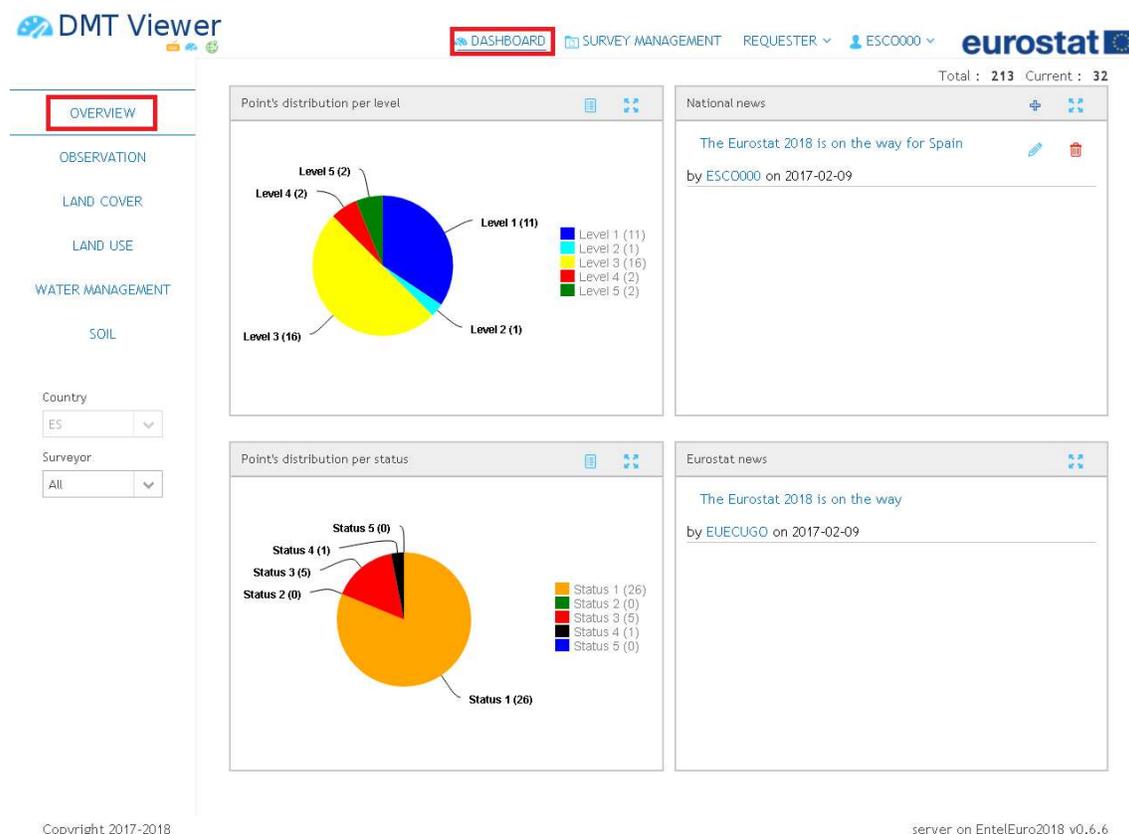


Figure 11: Dashboard menu, overview tabulation



Overview tabulation is divided into 4 zones

a) *Point's distribution by level*

Chart/table with the number of points per level, with the following group by:

- 1 = point at surveyor level (SU)
- 2 = point at regional officer level (RO)
- 3 = point at central officer level (CO)
- 4 = point at external contractor level (XC)
- 5 = point at Eurostat level (EC)

By default, the chart is displayed. To display the table, follow the next steps

	Button	Description
1		Click on 'table icon' or on a part of the chart to display a table with the list of points associated to the table

b) *Point's distribution per status*

Chart/table with the number of points per status (in the central database), with the following group by:

- 1 = on going data entry or control
- 2 = point accepted
- 3 = point rejected
- 4 = point rejected by quality controller
- 5 = point rejected twice

c) *News published by the National Contractor and/or Eurostat*

On the right side of the 'Overview' tabulation, are displayed news published by responsible of the survey. Only National functional administrator can add, update, or delete National news (login CYCO000). Only functional administrator at Eurostat level can add, update, or delete news at Eurostat level. Functional administrator at XC level (External controller) cannot create or modify news.

Click on news title to expand the description:



National news			
Transect Sequence - Electric lines			
by FRCO000 on 2014-10-21			
Instruction - Point on linear feature			
Put the point marker on the linear feature or the limit between two plots and take a photo from 5 m with the point marker on the center			
by FRCO000 on 2014-10-21			

Figure 12: Overview – National and Eurostat news

(1) Adding news to the news tabulation

	Button	Description
1		Connect on DMT Viewer with a functional administrator login (like CYCO000 or EUCE000)
2		Click on 'Add news' button
3		Enter news title
4		Enter free text and add a file if needed
5		Save

(2) Update news

	Button	Description
1		Connect on DMT Viewer with a functional administrator login (like CYCO000 or EUCE000)
2		Select news to be updated
3		Click on 'Update news' button
4		Update the news
5		Save

(3) Delete news

	Button	Description
--	--------	-------------



- 1 Connect on DMT Viewer with a functional administrator login (like CYCO000 or EUCE000)
- 2 Select news to be deleted
Click on 'Delete news' button
- 3  Confirmation message is displayed
- 4 Click on 'Yes' to confirm deletion
- 5

6.3.b. Filtering records

There are two options for filtering data in dashboard module:

a) *Using filter zone on the table mode*

As presented in the figure below, on the table mode user can enter a value in the filter zone to select only records where the field value is equal to the entered value.

Overview

**Select a value and click
on enter key**

Point's distribution per level				
	SURVEY_LEVEL	POINT_ID	POINT_LAT	POINT_LONG
	<input type="text" value="3"/>			
1	3	37 462 556	45,859	2,592
2	3	38 142 564	45,988	3,455
3	3	37 342 548	45,776	2,448
4	3	38 162 522	45,613	3,526

Items per page: <v> << < Page: / 1 > >>

Figure 13: Filter method on table mode

b) *By clicking on an area of the chart, for selecting records related to this zone*

For example, user would display points list of points on level 3 (Central officer level).

First, hide the relative area on points in Level 1, by clicking on the legend 'Level1'



Overview

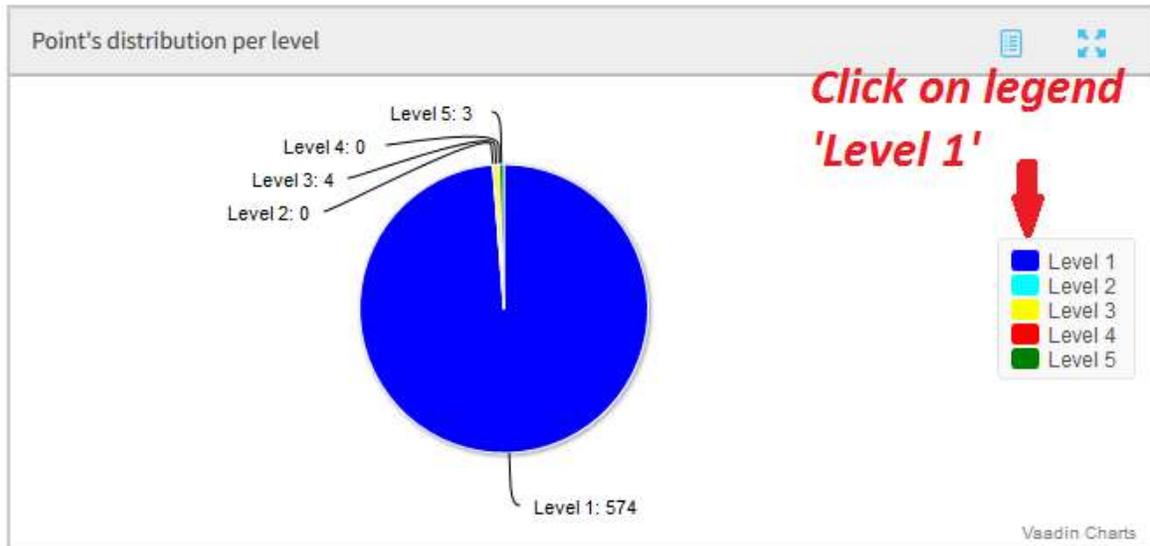


Figure 14: Filter mode - Hide area of the chart

Then, click the area you want to display records

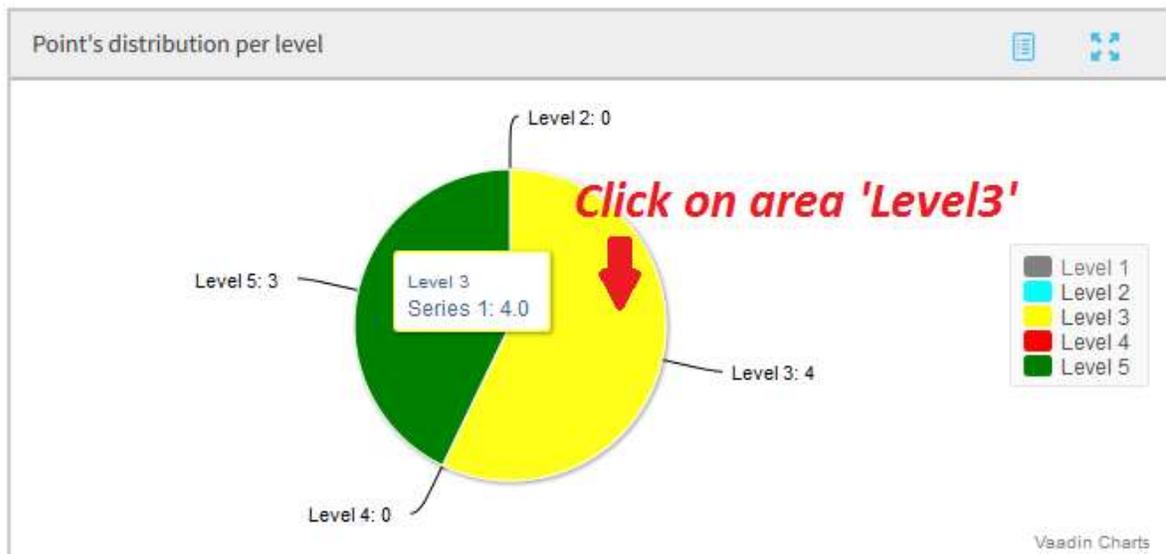


Figure 15: Filter mode – select area to be extracted

Then, the filtered list of points is automatically displayed on table mode



Point's distribution per level

	SURVEY_LEVEL	POINT_ID	POINT_LAT	POINT_LONG
1	3	37 462 556	45,859	2,592
2	3	38 142 564	45,988	3,455
3	3	37 342 548	45,776	2,448
4	3	38 162 522	45,613	3,526

Items per page: 25

Page: 1 / 1

Figure 16: Filter mode – List of filtered points

6.3.c. Exporting all filtered records

To export the records, follow the steps below

Button	Description
1	From a graph, select the table mode
2 	Click on 'export all' button
3	The user selects whether the file should be saved to the file system or directly opened from specific software selected from a predefined drop-down list
4	Then user can access to the downloaded data



Point's distribution per level - Total record count : 32 Click on 'Export All' icon

	POINT	SURVEYOR	COUNTRY	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Observation Type	14-Distance
1	33042294	ESSU080	ES	1	3		2017-04-21	01:00:00	01:00:00		
2	33062292	ESSU080	ES	1	1	00000	2017-03-13	08:42:11	10:42:19	7	5
3	33062294	ESSU080	ES	1	1						
4	33062296	ESSU083	ES	1	1	00000	2017-03-13	07:12:28	12:25:34	2	
5	33062304	ESSU083	ES	2	1	00000	2017-03-13	07:13:23	09:13:49	1	
6	33062308	ESSU084	ES	3	1	00000					
7	33082292	ESSU083	ES	4	1	00000	2017-03-13	09:13:29	08:00:54	1	
8	33082298	ESSU080	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	4	43

Items per page: 25 Page: 1 / 2

Figure 17: Export process – Export All

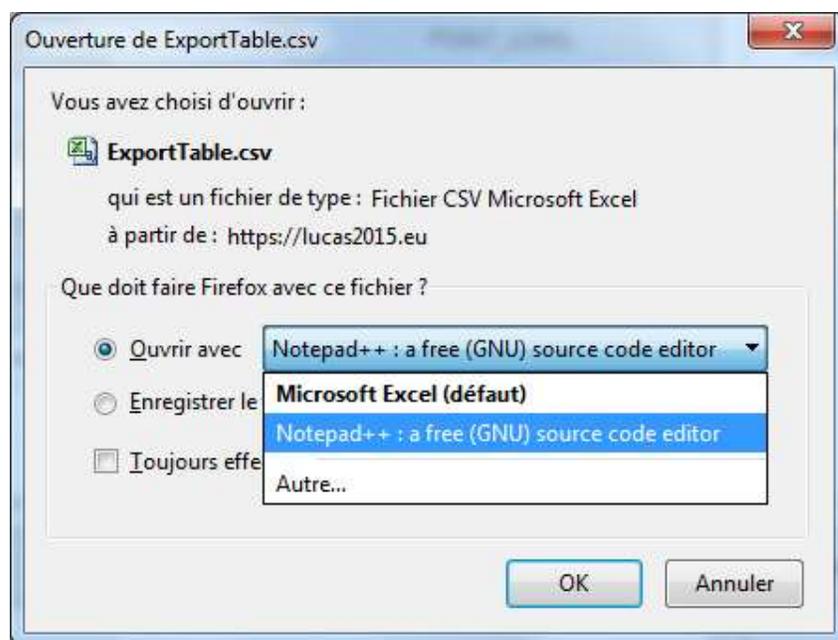


Figure 18: Export process – Select export destination (available options depend on local configurations)

6.3.d. Exporting selected record(s)

To export specific records, follow the steps below

Button	Description
1	From a graph, select the table mode
2	Select rows to be exported



3



Click on 'export selection' button

4

The user selects whether the file should be saved to the file system or directly opened from specific software selected from a predefined drop-down list

5

Then user can access to the downloaded data

Click on 'Export Selection' button Total : 213 Current : 32

Point's distribution per level - Total record count : 32										
POINT	SURVEYOR	COUNTRY	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Observation Type	
1	33042294	ESSU080	ES	1	3	2017-04-21	01:00:00	01:00:00		
2	33062292	ESSU080	ES	1	1	00000	2017-03-13	08:42:11	10:42:19	7
3	33062294	ESSU080	ES	1	1					
4	33062296	ESSU083	ES	1	1	00000	2017-03-13	07:12:28	12:25:34	2
5	33062304	ESSU083	ES	2	1	00000	2017-03-13	07:13:23	09:13:49	1
6	33062308	ESSU084	ES	3	1	00000				
7	33082292	ESSU083	ES	4	1	00000	2017-03-13	09:13:29	08:00:54	1
8	33082298	ESSU080	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	4
9	33082302	ESSU080	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	4
10	33082306	ESSU082	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	3
11	33082310	ESSU082	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	4
12	33082318	ESSU082	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	5
13	33102290	ESSU082	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	6
14	33102298	ESSU082	ES	3	1	21100	2015-05-06	10:24:00	10:39:00	8
15	33102304	ESSU082	ES	1	1	00000				

Items per page: 25 Page: 1 / 2

Figure 19: Export process – Export Sélection



6.4. DMT Viewer survey management menu



Figure 20: DMT Viewer – Survey management on the main menu

This menu allows monitoring of the survey throughout the project.

Depending on the profile of the connected user, some menus will be available or not.



Figure 21: DMT Viewer – Survey management menu

In 'Survey management menu', the following subcategories are available:

- Survey setup: initialization of the survey
- Survey progress: follow-up of the survey, data uploaded and request for download process
- Visual quality: Visual quality control on survey photos
- Weekly report: automatically create a weekly report (predefined tables) to be completed by the National contractor



6.4.a. Survey setup

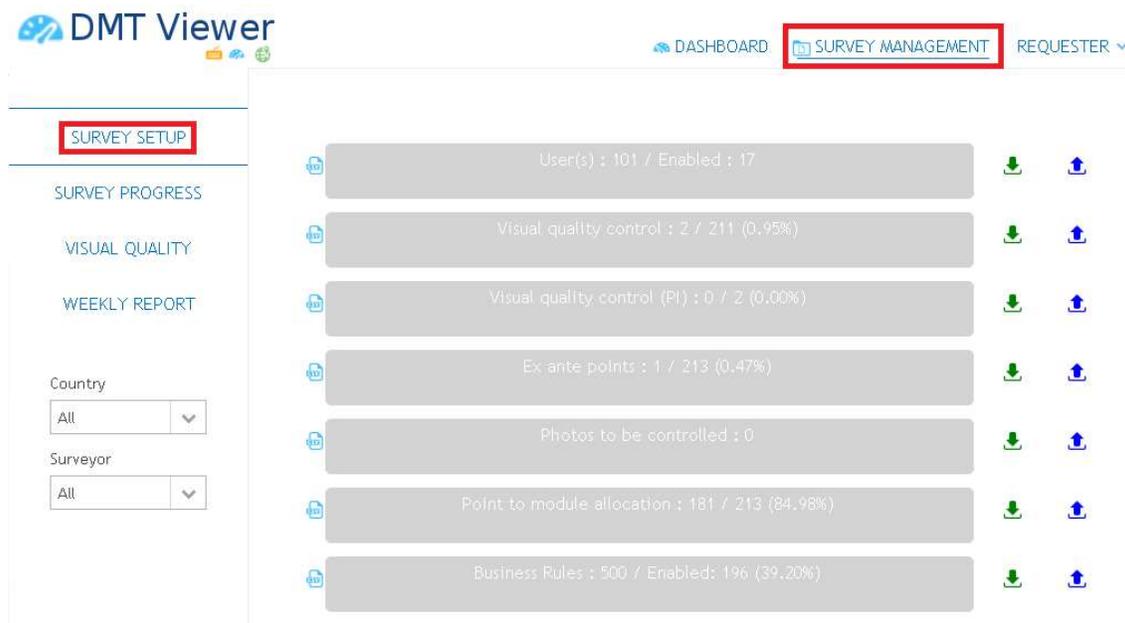


Figure 22: DMT Viewer – Survey setup

This menu is used to initialize data required by DMT Viewer. The following data will be initialized from this user interface:

- User(s): manage list of users authorized to be connected to DMT Viewer. This menu is visible at RO, CO, XC and EC levels.
- Visual quality control: define points to be visually controlled by external controllers (XC). This option is available only at EC (Eurostat) level.
- Visual quality control (PI): define points to be photo-interpreted by external controllers (XC). This option is available only at EC (Eurostat) level.
- Ex ante points: define the list of Ex ante points. This option is available only at EC (Eurostat) level.
- Photos to be controlled: define list of photos to be visually controlled by external controllers. This option is available only at EC (Eurostat) level.
- Point to module allocation: define list of points per module. Eurostat sets this list. This option is available only at EC (Eurostat) level.
- Business Rules: manage the rules used for the Automatic quality check. This option is available only at EC (Eurostat) level.
- Point to user allocation: associate a point to a specific surveyor. This option is available at RO and CO levels.

For each option, three buttons are available:

Button	Description	Screen in relation
	Download a template for data input	



Button	Description	Screen in relation
	Download list of data already initialized	
	Upload data	

Additionally, clicking on the menu option themselves will show a list detailing the data already initialized.

	POINT	POINT_EX_ANTE	PI_EXTENSION	POINT_COPERNICUS	POINT_GRASSLAND	POINT_EROSION	POINT_SOIL	POINT_SOIL_ORGANIC	POIN
1	32962294						0		1
2	32982296						0		
3	33002298						0		
4	33022294		1				0		
5	33022296						0		
6	33022304	1	1	1	1	1	1	1	1
7	33042294	0		1	0	1	0	0	1
8	33042300	0		1	0	1	0	0	0
9	33062292	0		1	0	1	0	0	0
10	33062294	0		1	0	1	0	0	0
11	33062296	0		1	0	1	0	0	0

Items per page: Page: / 9

Figure 23: DMT Viewer – Detail of the data already initialized.

6.4.b. Data initialization using the survey setup options

Data initialization is carried out by uploading csv files on the survey management menu. A template is available for each option.

a) Download template

For initializing a set of data, download first the template of the file to be uploaded. In the proposed template, user will have found list of columns (fields) to be initialized. The following steps will be carried out:

Button	Description
1	Connect with functional administrator login
2	Click on 'Survey management'/'Survey setup' menu
3	Click on the 'csv file' icon placed to the left of the button
4	A window opens where user can directly open the csv file or saved on the local computer



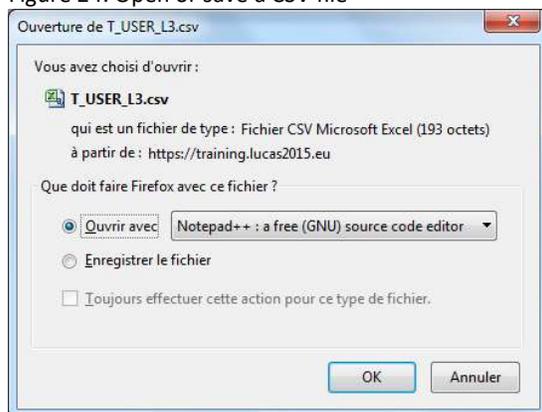
5

Open csv file and fill-in according list of columns displayed on the first line.
Use the comma column separator

6

Save the csv file

Figure 24: Open or save a CSV file



(1) User's initialization csv file structure

Column	Description	Required
USER_ID	user login coded on 7 digits	Yes
COUNTRY_CODE	country code on 2 digits	Yes
ROLE_ID	Integer. The following rule will be respected: Surveyor (Role = 1), Regional officer (Role = 2), Central officer (Role = 3), External controller (Role = 4), Eurostat (Role = 5)	Yes
USER_PASSWORD	Password of the user. Enter a secured password	Yes
USER_FIRSTNAME	User first name	Yes
USER_LASTNAME	User last name	Yes
USER_MAIL	E-mail of the user	Yes
USER_PHONE	Phone number of the user	No
USER_ADDRESS	Address of the user	No
USER_UPPER_LEVEL	Level of control if the user is a surveyor. This field = 2, if the surveyor will be controlled by RO and 3 if a CO. will control the surveyor for other users, USER_UPPER_LEVEL field = 0	Yes
USER_ACTIVATED	1 if the user is enabled or 0 is the user is disabled. When 0, user cannot connect anymore on the system	Yes
USER_START_DATE	Date of start (relevant for controls)	Yes
USER_END_DATE	Date of end (relevant for controls)	Yes



(2) Points to module allocation csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
POINT_EX_ANTE	1 if the point can be photo-interpreted from the contractor premises, otherwise 0	Yes
PI_EXTENSION	1 if the point is part of the PI in office sample, otherwise 0	Yes
POINT_COPERNICUS	1 if the point is part of the COPERNICUS sample, otherwise 0	Yes
POINT_GRASSLAND	1 if the point is part of the GRASSLAND sample, otherwise 0	Yes
POINT_EROSION	1 if the point is to be assessed for erosion, otherwise 0	Yes
POINT_SOIL	1 if the point is part of the soil sample (all soil points), otherwise 0	Yes
POINT_SOIL_ORGANIC	1 if the soil point is to be assessed for the depth of the organic horizon, otherwise 0	Yes
POINT_SOIL_BULK_0_10	1 if the soil point is part of the bulk 0-10 sample, otherwise 0	Yes
POINT_SOIL_BULK_10_20	1 if the soil point is part of the bulk 10-20 sample, otherwise 0	Yes
POINT_SOIL_BULK_20_30	1 if the soil point is part of the bulk 20-30 sample, otherwise 0	Yes
POINT_SOIL_BIO	1 if the soil point is part of the biodiversity sample, otherwise 0	Yes
POINT_TRANSECT	1 if the 250m transect is to be assessed, otherwise 0 – NOT USED	Yes
POINT_TRANSECT_LENGTH	1 if the transect is to be a measured transect, otherwise 0 – NOT USED	Yes

(3) Point's to be visually controlled csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
POINT_XC_VISUAL_QC	1, if the point must be visually controlled by external company, otherwise 0. Normally, only value 1 should be found in this column. 0 is only used if a point was previously declared by error to be controlled.	Yes



(4) Point's to be visually controlled (PI) csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
POINT_XC_VISUAL_QC	1, if the point must be photo interpreted by external company, otherwise 0. Normally, only value 1 should be found in this column. 0 is only used if a point was previously declared by error to be controlled.	Yes

(5) List of photos to be controlled csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
PHOTO_TYPE	Type of photo to be visually controlled. All the initials corresponding to the photo types in the survey (P,C,N,E,S,W,I,T,L,X,Y,Z,D,A,M,Q,O,R), as well as integer values from 1 to 9 for the additional photos, are allowed.	Yes

(6) Point to user allocation (initialization) csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
USER_ID	User code of the surveyor in charge of the point.	Yes

(7) Ex ante points csv file structure

Column	Description	Required
POINT_ID	Point ID, coded on 8 digits. Point's from the official sample are expected	Yes
POINT_EX_ANTE	1, if the point is allowed to be photo-interpreted from the contractor premises	Yes

(8) Ex ante points csv file structure

Column	Description	Required
ID_CONTROL	Control rule code	Yes
CONTROL_TYPE	Type of control, specifying the set of data over which the rule should be executed.	Yes



Column	Description	Required
CONTROL_ORDER	Order in which the existing rules are to be executed.	Yes
CONTROL_LABEL	Name of the rule	Yes
CONTROL_SEQUENCE	SQL sentence that detects errors in the survey data	Yes
CONTROL_SEQUENCE2	Auxiliary SQL sentence for the detection of complex errors. An error is raised when the data satisfies the SQL in CONTROL_SEQUENCE but DOES NOT satisfy the SQL in CONTROL_SEQUENCE2.	No
CONTROL_ERROR	Type of error control (1, 2 or null)	No
CONTROL_UI_ORDER	Order in which the errors found are to be displayed.	Yes
QC_ASSOCIATED_FIELD	The field for which the error has been found.	Yes
QC_ASSOCIATED_FIELD_LABEL	The label of the field for which the error has been found.	Yes
QC_TYPE_OF_ERROR	Type of error. Values Error and Warning are expected. Note, Warning is accepted but no longer valid and is not to be used.	Yes
QC_ERROR_MSG	Additional error message	No
CONTROL_MSG_ID	Control message identifier	No
CONTROL_DESCRIPTION	Description of the error detected through the rule.	Yes
CONTROL_TO_BE_RUN_PI_EXANTE	1, if the rule is to be evaluated over PI Ex ante points, otherwise 0 - – NOT USED	Yes
CONTROL_TO_BE_RUN_2018	1, if the rule is to be evaluated, otherwise 0	Yes
CONTROL_COMMENTS	Explanatory comments over the rule itself	No

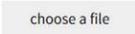
b) Upload file

To upload a file the following steps will be carried out:

Button	Description
1	Connect with functional administrator login
2	Click on 'Survey management'/'Survey setup' menu
3	Click on the 'upload' icon placed to the right of the button





4		A 'Choose file' button displays. Click on it and select csv file to be uploaded
5		Click on 'Open'
6		Csv file is uploaded
7		A consistency check is applied according business rules described here above

If an error is detected the entire file is rejected and a csv file with errors detected is proposed to the connected user. In the following example EU user tries to import a French user.

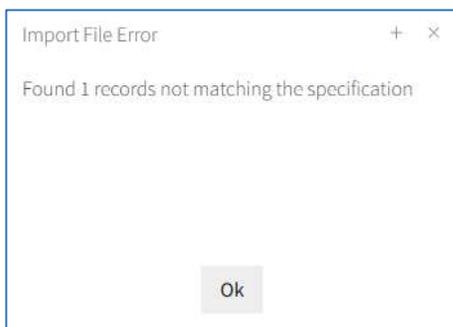


Figure 25: Error message on csv upload

```
USER_ID,COUNTRY_CODE,ROLE_ID,USER_PASSWORD,USER_FIRSTNAME,USER_LASTNAME,USER_MAIL,USER_PHONE,USER_ADDRESS,USER_UPPER_LEVEL,USER_ACTIVATED,ERROR  
FRCOT01,FR,3,FRCOT01,Eric ,BINEAU,xxx.yy@mail.com,,,0,,FR is not a valid country code.
```

Figure 26: Error message on csv upload

If the consistency control is successfully executed, an information message is displayed indicating the number of records inserted/updated



Figure 27: Information message on csv upload in case OK

The label on the related button is updated according to the data uploaded, as presented here below



Figure 28: 69 users before upload process





Figure 29: 70 users after upload process; 1 additional user inserted from csv file

c) Download file

The user can check the list of data already initialized by downloading data, instead of the template.

Button	Description
1	Connect with functional administrator login
2	Click on 'Survey management'/'Survey setup' menu
3	Click on the 'download csv file' icon placed to the right of the button
4	Open and/or save csv file proposed

6.4.c. Survey progress



Figure 30: DMT Viewer – survey progress

This menu's main objective is to display a progress of the survey in real time, but it also gives access to the respective lists of points that in turn can be viewed in DMT Map (e.g. for quality control) or in the DMT Web client (for data entry/editing).

Download buttons appear around each cell, allowing to download data and files relative to the points of the cell.

a) Overview of the survey progress

Survey progress window displays a table that identifies the position and the status of the points in the project. In the data workflow, a point is identified the following three parameters:

- Who is currently in charge of a point (point level): 5 levels are defined: SU- surveyor, RO – Regional officer, CO – Central officer, XC – External controller, EC – Eurostat controller



- What is the state of the point (point status): The following status are available: Orange (status = 1) – On-going quality control or data entry, Green (status = 2) – Point controlled and accepted, Red (status = 3) – Point rejected by automatic quality control, Black (status = 4) – Point rejected by visual quality control, Blue (status = 5) – point rejected twice and accepted by Eurostat
- Where the point is: Is the point in central database or blocked by the user.

In the table, point is arranged in the different lines according to their level, and on the columns according to their status.

At the intersection of rows and columns two numbers are displayed:

- On the top, the total number of points in the database corresponding to the level and status.
- Below, the subset of the points not yet blocked by the user.

In the example given here below, 3 points are currently at surveyor level waiting data entry, including one point not yet blocked by the surveyor (2 points already blocked for data entry).



Figure 31: Survey progress window

On the survey progress window, close to the square related to the level of the user connected, several buttons are visible.

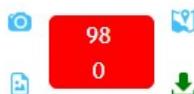


Figure 32: Data download buttons

When the user clicks on one button, a zip file containing the files for each of the points is downloaded.

Depending on the button pressed, different data will be downloaded



Button	Description	Screen in relation
	Only current survey photos of the points	
	Only ground documents of the points	
	Only previous survey photos of the points (panel points)	
	Download the full survey (json) including photos related to the selected points	

If a user tries to download files for too many points the following message is displayed:

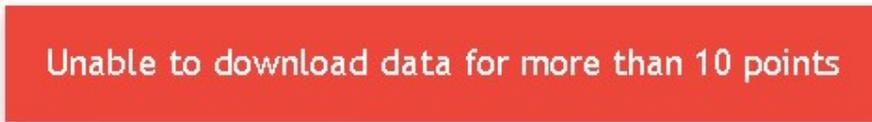


Figure 33: Attempt to download data for an excessive number of points

If none of the points inside the set has files of the type requested by the user, a zip file will be downloaded, containing a single file named “no-data. Json”, detailing that no data was found.

b) *Survey progress detail*

Clicking on the squares of the overview table will take the user to a listing of all the surveys currently in that level/state, showing a summary of the data entered for each of them.

DMT Viewer TESTING

DASHBOARD SURVEY MANAGEMENT REQUESTER UKSUF01 eurostat

UK / UKSUF01 - Point level = 1 Point status = 1 (Total record count : 1)

POINT	USER_ID	COUNTRY	IN_DATABASE	PL_EXT	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Observation Type	14-Distance to point	17-Direct
1	33943938	UKSUF01	UK	No	Yes	1	1	00000	2018-03-15		3		3

Items per page: 25 Page: 1 / 1

Copyright 2017-2018 dmt-node1 on lucas-tst-app01.lucassurvey.eu v1.0.11

Figure 34: DMT Viewer→Survey Management->Survey Progress after clicking selected square.

When accessing the details for surveys in the same level as the user data can also be downloaded for a subset of the points shown. The following procedure is executed:



Button	Description
1	Connect on DMT
2	Click on 'Survey Management/Survey progress' menu
3	Click on the square related to the points to be downloaded
4	A table window with the list of points is displayed
5	Select points to be downloaded
6	Click one of the buttons to begin data download

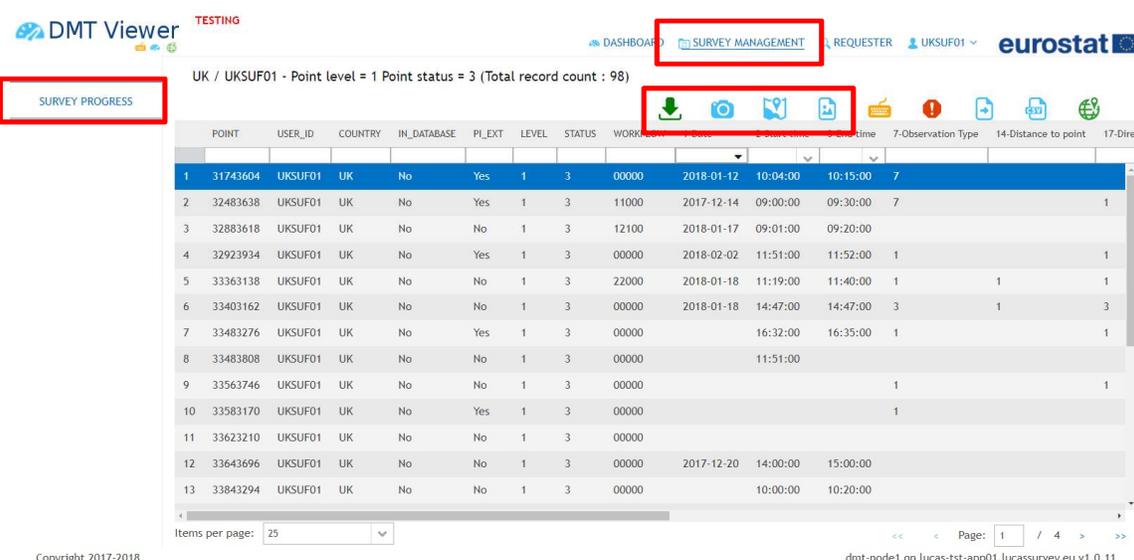


Figure 35: Download selected list of points

As is explained in the previous section, an error message will be shown if too many surveys are selected, and attempting the download for a set with no data in the system will result in the download of a zip file containing a single file indicating that no data was found.

From each of the detail screens in SU, RO, CO or XC levels, surveyors, Regional or Central officers and External Quality Control will also be able to access the DMT Web Client, to enter or modify data for the surveys selected except for XC who have read only mode. The following procedure is to be executed:

Button	Description
1	Connect on DMT Viewer
2	Click on 'Survey management' menu
3	Select 'Survey progress'



- 4  Open the table view by clicking on the relevant button
- 5  Click the 'open point in survey application' button
- 6 (If your browser is blocking pop-ups make sure to put the DMT server address on the allowed list)
- 7 If more than one point is selected, the DMT Web Client splash window, with basic information on the point, will open. It presents the user with the list of available points for which data can be entered/edited. If one point is selected the DMT Web Client opens directly in Data Entry mode.

ES / ESSU080 - Point level = 1 Point status = 3 (Total record count : 4)

All points       

POINT	USER_ID	COUNTRY	IN_DATABASE	PI_EXT	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Observation Type	
1	32962294	ESSU080	ES	No	No	1	3	00000	2017-03-17	01:00:00	01:00:00	
2	33022304	ESSU080	ES	No	Yes	1	3					
3	33042294	ESSU080	ES	No	No	1	3	2017-04-21	01:00:00	01:00:00		
4	33702318	ESSU080	ES	No	No	1	3	11100	2015-05-06	10:24:00	10:39:00	1

Figure 36: Access to the DMT Web Client

Note that it is not necessary to select any of the surveys: every survey available to the user will be added to the DMT Web Client as soon as the surveyor accesses it, however if one point is selected it will open directly in Data Entry mode in the Web Client. The full functionality of the DMT Web Client will be detailed at full in its corresponding section.

6.4.d. Photos visual quality control

This menu displays a user interface for checking photos taken during the field survey. The external controller company is in charge to check around 20.000 photos for anonymization.

This feature is available on write mode for external quality controllers and read mode for National Contractor (CO levels) and Eurostat (EC level).

When user clicks on 'Photo Visual QC' menu, the following window opens:

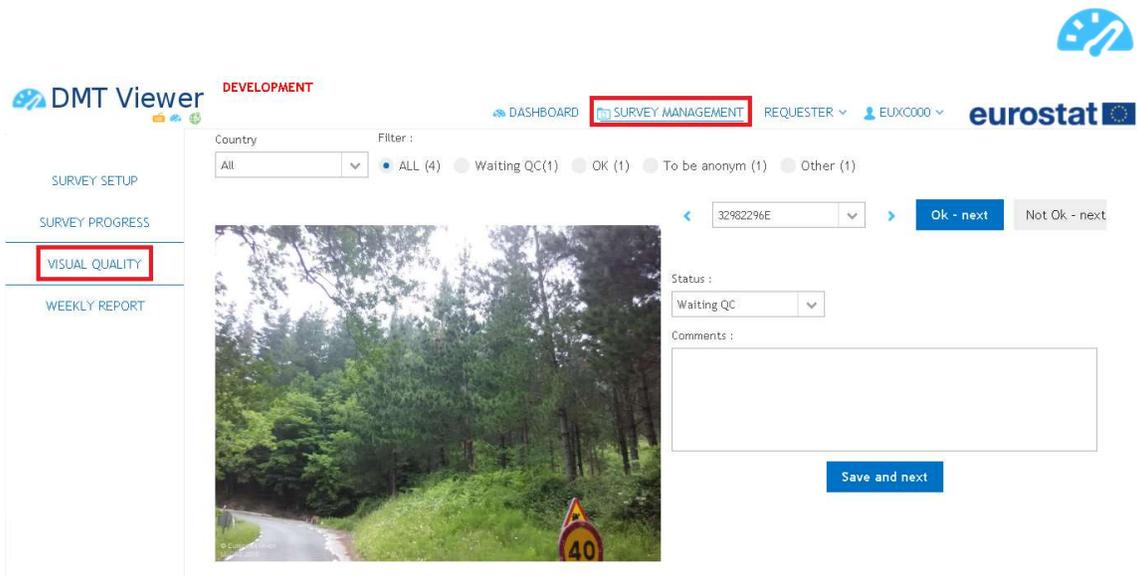


Figure 37: Photo visual quality control window

On the top of the window is displayed a filter zone where user can filter photo to be displayed. The following filter criteria are available:

- Filter by country code (drop down list)
- Filter by type of status. For a given photo, the following statuses are available:
 - All - Display all photos whatever the status
 - Waiting QC - Photos waiting visual quality control
 - OK - Photos successfully controlled
 - To be anonym - Photos to be anonymized after controlling by external company
 - Other - Photos with a status not listed here above

Right side of the window is dedicated to the point selection (based on the filter criteria applied) and the decision taken.

Button	Description
	Select point to be controlled from the drop-down list
	Select the previous/next photo to be controlled
	Assign "Ok" status to the photo and load next one to be controlled.
	Assign "To be anonym" status to the photo and load next one to be controlled.



Select a status for the photo

Status :
Waiting QC
Waiting QC
OK
To be anonym
Other

(Optional) Free text field to enter comments

Comments :

Save

'Save' button for saving data

6.4.e. Generate weekly report

This menu computes data stored in the central database and creates automatically a weekly report based on the template defined by Eurostat.

The document produced can be updated by the National or XC contractor before providing to Eurostat.



Figure 38: Weekly Reports

To generate the weekly report, take the following steps:

Button	Description
1	Connect on DMT Viewer with a functional administrator login (3 last digits = 000)
2	Click on 'Survey management' menu
3	Click on 'Weekly report' menu



- 4 A pop-up window asks whether the weekly report should be generated
- 5 A word file is created and updated according data saved in the central database
- 6 A pop-up opens requesting the user to open the word document generated or to save on local computer

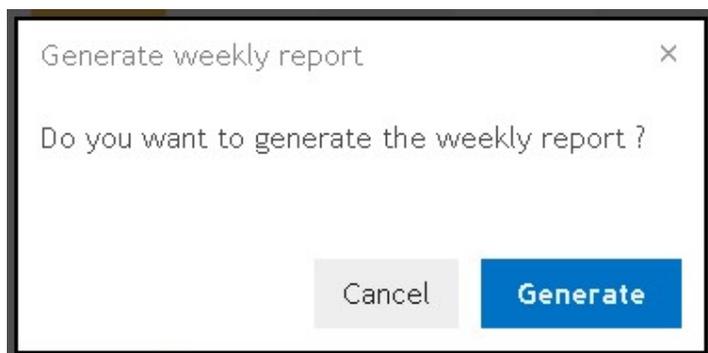
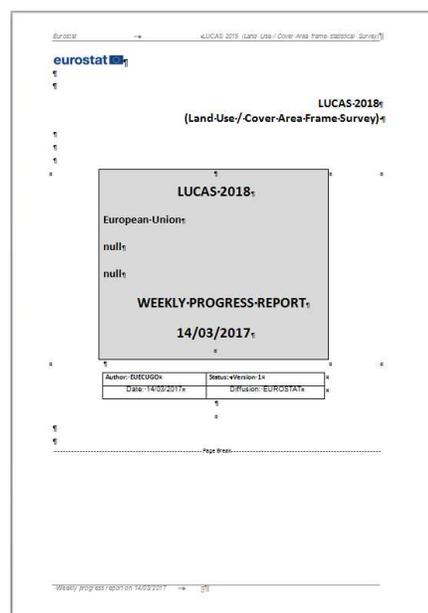


Figure 39: Weekly Report pop-up



Figure 40: Generate weekly report



6.5. DMT Viewer requester menu

This menu provides access to a user interface for executing predefined queries. A query consists on a request of the database and retrieving data in relation to the request.

Depending on the role of the connected user, the list of available queries will be different.

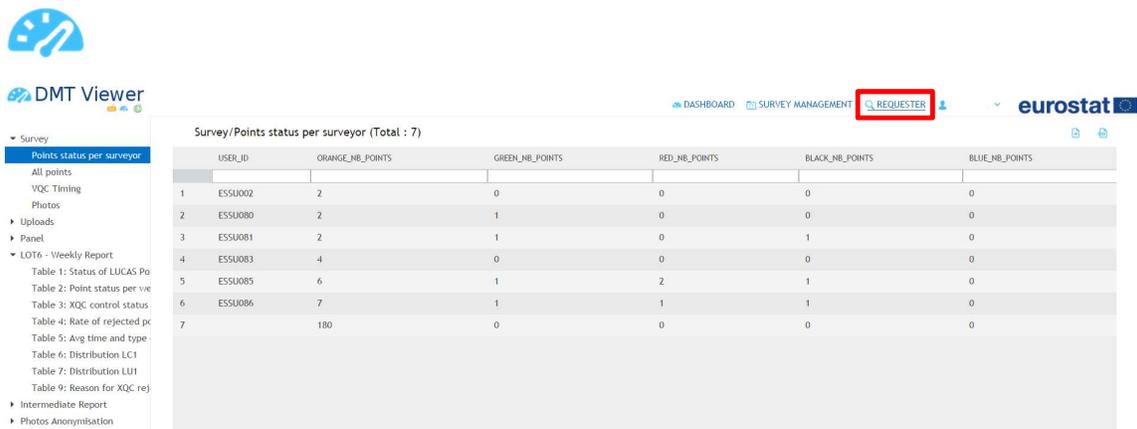


Figure 41: DMT Viewer Requester

Users at CO, XC and EC levels will have two options inside the Requester menu. The first one, “Reports”, will take them to the interface which provides the execution of predefined and saved queries. The second, “Query builder”, will enable the users to generate, test and save custom requests via a request builder.



Figure 42: DMT Viewer Requester menu for CO, XC and EC users

6.5.a. Requester user interface

When user clicks on ‘Requester’ menu, the window displayed below is opened. On the left side a tree view with the list of predefined queries is visible. When user clicks on one query name, the query is executed, and the result shown in a table on the central area of the view.

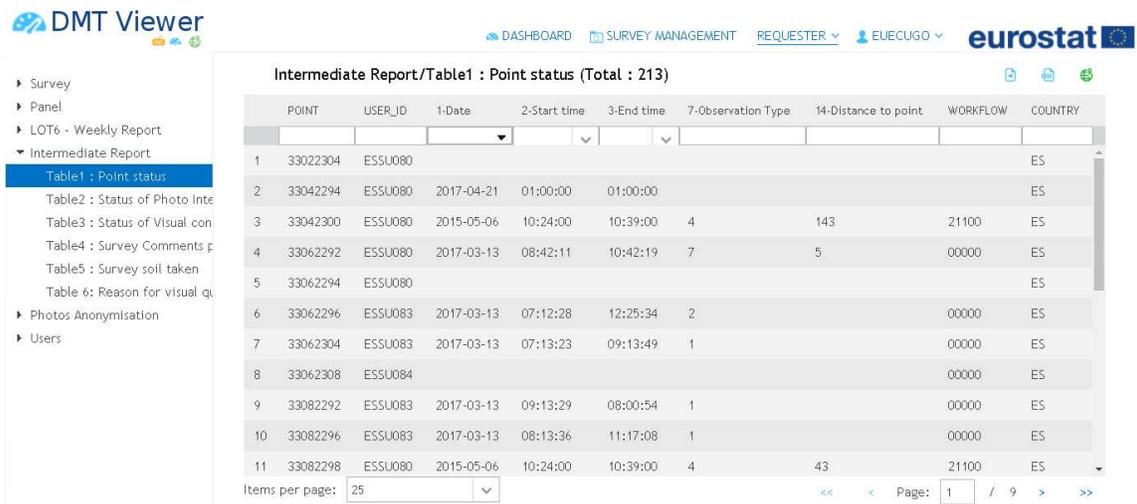


Figure 43: Requester window



On the top right three buttons allow various operations with the data displayed:

Button	Description	Screen in relation
	Export selected record in a csv file	
	Export all records in a csv file	
	Display in DMT Map information related to the selected records. This button is visible only when a list of points is displayed in the table. For custom queries, only those obtaining information for the Point identifier and Country code will include this option.	
	Only available for the custom queries generated via the Query builder. Removes the current query from the database. This operation cannot be reversed.	

6.5.b. List of predefined queries by level

Query name	Description	Access
Survey/Point Status/# points per status	Number of points per status	SU, RO, CO
Survey/Point Status/Point Status 1	List of points with status 1 (On-going) linked to the connected surveyor	SU, RO, CO
Survey/Point Status/Point Status 2	List of points with status 2 (OK) linked to the connected surveyor	SU, RO, CO
Survey/Point Status/Point Status 3	List of points with status 3 (Rejected) linked to the connected surveyor	SU, RO, CO
Survey/Point Status/Point Status 4	List of points with status 4 (Rejected by QC) linked to the connected surveyor	SU, RO, CO
Survey/Point Status/Point Status 5	List of points with status 5 (Double rejected) linked to the connected surveyor	SU, RO, CO
Survey/Point level/# points per level	Number of points per level	SU, RO, CO
Survey/Point level/Point Level 1	List of points on level 1 (Surveyor level)	SU, RO, CO
Survey/Point level/Point Level 2	List of points on level 2 (RO level)	SU, RO, CO
Survey/Point level/Point Level 3	List of points on level 3 (CO level)	SU, RO, CO
Survey/Point level/Point Level 4	List of points on level 4 (XC level)	SU, RO, CO
Survey/Point level/Point Level 5	List of points on level 5 (EC level)	SU, RO, CO



Query name	Description	Access
Survey/Point photos status	List of points with the status of its photos	RO, CO
Survey/Points status per surveyor	Number of points in each status per surveyor	RO, CO, EU
Survey/Points level per surveyor	Number of points in each level per surveyor	RO, CO
Survey/All points	List of all points	CO, XC, EU
Survey/VQC Timing	List of VCQ timing per point	EU
Type of observation/# points per type of orbs	Number of points per observation type	SU, RO, CO
Type of observation/0 to 100 m	Point observed from 0 to 100m	SU, RO, CO
Type of observation/Field survey > 100m	Point observed from more than 100m	SU, RO, CO
Type of observation/Photo-interpreted	Point photo-interpreted	SU, RO, CO
Type of observation/PI not possible and point not visible	Point not observed and PI not possible	SU, RO, CO
Type of observation/Point in marine sea	Point in marine sea; not observed	SU, RO, CO
Type of observation/Out of National territory	Point out of the territory; not observed	SU, RO, CO
Type of observation/Ex-ante	Point filled-in in the contractor premises	SU, RO, CO
Type of observation/Comments/# Obs comments per point	Number of observation comments per point	SU, RO, CO
Type of observation/Comments/# points per obs. comment type	Number of points per observation comment type	SU, RO, CO
GPS/# points per GPS type	Number of points per GPS type	SU, RO, CO
GPS /WGS84 - Connected	Points with no GPS problem	SU, RO, CO
GPS /Problem with signal	Points with GPS problem	SU, RO, CO
GPS /Not relevant	Points with no relevant information regarding GPS	SU, RO, CO
GPS/Comments/# GPS comments per point	Number of GPS comments per point	SU, RO, CO
GPS/Comments/# points per GPS comment type	Number of points per GPS comment type	SU, RO, CO
Direction of observation/# points per type of dir	Number of points per direction of observation	SU, RO, CO



Query name	Description	Access
Direction of observation/On the point	List of points observed “on the point”	SU, RO, CO
Direction of observation /To the North	List of points observed “to the North”	SU, RO, CO
Direction of observation /To the East	List of points observed “to the East”	SU, RO, CO
Direction of observation/Not relevant	List of points observed with no relevant information for direction of observation	SU, RO, CO
Plot area/# points per type of dir	Number of points per plot area	SU, RO, CO
Plot area/Area < 0.5	List of points with area less than 0.5	SU, RO, CO
Plot area/0.5 <= area < 1	List of points with area between 0.5 and 1	SU, RO, CO
Plot area/1 <= area < 10	List of points with area between 1 and 10	SU, RO, CO
Plot area/area >= 10	List of points with area greater than 10	SU, RO, CO
Plot area/Not relevant	List of points with no relevant information for plot area	SU, RO, CO
Time duration/Less than 15 minutes	Point where survey was carried out in less than 15 minutes	SU, RO, CO
Time duration/16 to 45 minutes	Point where survey was carried out between 16 minutes and 45 minutes	SU, RO, CO
Time duration/46 to 75 minutes	Point where survey was carried out between 46 minutes and 75 minutes	SU, RO, CO
Time duration/More than 75 minutes	Point where survey duration is over 75 minutes	SU, RO, CO
Time duration/Comments/# Time comments per point	Number of survey duration comments per point	SU, RO, CO
Time duration/Comments/# points per Time comment type	Number of points per survey duration comment	SU, RO, CO
Quality Control/Number points per QC CO	Point control by CO level user	CO
Quality Control/Points per QC CO	List of points controlled at CO level	CO
Quality Control/Number points per QC RO	Point control by RO level user	RO, CO
Quality Control/Points per QC RO	List of points controlled at RO level	RO, CO
Quality Control/Number points per QC XC	Point control by XC level user	XC



Query name	Description	Access
Quality Control/Number points per QC rejected once	Point rejection by XC level user	XC
Quality Control/Number points per QC rejected twice	Second time point rejection by XC level user	XC
Quality Control/Panel Points/LC Rare changes	List of points with LC Rare changes	XC
Quality Control/Panel Points/LC Normal changes	List of points with LC Normal changes	XC
Quality Control/Panel Points/LC All changes	List of points, all LC changes	XC
Quality Control/Panel Points/LU Rare changes	List of points with LU Rare changes	XC
Quality Control/Panel Points/LU Normal changes	List of points with LU Normal changes	XC
Quality Control/Panel Points/LU All changes	List of points, all LU changes	XC
Panel/LC changes (Crossing table)	List of LC changes	XC, EU
Panel/LC changes (List of points)	List of points with LC changes	XC, EU
Panel/LU changes (Crossing table)	List of LU changes	XC, EU
Panel/LU changes (List of points)	List of points with LU changes	XC, EU
LOT6 - Weekly Report/Table 1: Status of LUCAS Points in total	Weekly report: Status of LUCAS points	XC, EU
LOT6 - Weekly Report/Table 2: Point status per week	Weekly report: Point status per week	XC, EU
LOT6 - Weekly Report/Table 3: XQC control status	Weekly report: XQC control status	XC, EU
LOT6 - Weekly Report/Table 4: Rate of rejected points per surveyor	Weekly report: Rate of point rejected per surveyor	XC, EU
LOT6 - Weekly Report/Table 5: Avg time and type of observation distribution for once rejected points	Weekly report: Average observation time and type of observation for points rejected once	XC, EU
LOT6 - Weekly Report/Table 6: Avg time and type of observation distribution for twice rejected points	Weekly report: Average observation time and type of observation for points rejected twice	XC, EU
LOT6 - Weekly Report/Table 7: Distribution LC1 for once rejected points	Weekly report: LC1 distribution for points rejected once	XC, EU



Query name	Description	Access
LOT6 - Weekly Report/Table 8: Distribution LU1 for once rejected points	Weekly report:LU1 distribution for points rejected once	XC
LOT6 - Weekly Report/Table 9: Status of Unlikely changes	Weekly report: Status of unlikely Changes	XC, EU
LOT6 - Weekly Report/Table 10: Reason for XQC rejection	Weekly report: Reasons for XQC rejection	XC
LOT6 (PI) - Weekly Report/Table 1: Status of LUCAS Points in total	Weekly report: Status of LUCAS PI points	XC
LOT6 (PI) - Weekly Report/Table 2: Point status per week	Weekly report: PI Point status per week	XC
LOT6 (PI) - Weekly Report/Table 3: XQC control status	Weekly report: XQC control status for PI points	XC
LOT6 (PI) - Weekly Report/Table 4: Rate of rejected points per surveyor	Weekly report: Rate of PI point rejected per surveyor	XC
LOT6 (PI) - Weekly Report/Table 5: Avg time and type of observation distribution for once rejected points	Weekly report: Average observation time and type of observation for PI points rejected once	XC
LOT6 (PI) - Weekly Report/Table 6: Avg time and type of observation distribution for twice rejected points	Weekly report: Average observation time and type of observation for PI points rejected twice	XC
LOT6 (PI) - Weekly Report/Table 7: Distribution LC1 for once rejected points	Weekly report:LC1 distribution for PI points rejected once	XC
LOT6 (PI) - Weekly Report/Table 8: Distribution LU1 for once rejected points	Weekly report:LU1 distribution for PI points rejected once	XC
LOT6 (PI) - Weekly Report/Table 9: Status of Unlikely changes	Weekly report: Status of unlikely Changes for PI points	XC
LOT6 (PI) - Weekly Report/Table 10: Reason for XQC rejection	Weekly report: Reasons for XQC rejection for PI points	XC
Intermediate Report/Table1 : Point status	Intermediate report: Point status	CO, EU
Intermediate Report/Table2 : Status of Photo Interpretation	Intermediate report: Status of Photo Interpretation	CO, EU
Intermediate Report/Table3 : Status of Visual control	Intermediate report: Status of Visual control	CO, EU
Intermediate Report/Table4 : Survey Comments per point	Intermediate report: Survey comments per point	CO, EU



Query name	Description	Access
Intermediate Report/Table5 : Survey soil taken V2	Intermediate report: Survey soil taken	CO, EU
Intermediate Report/Table 6: Reason for visual quality rejection	Intermediate report: Reason for visual quality rejection	CO, EU
Photos Anonymisation/Results	Results of the Photo Visual Quality Check	XC
Photos Anonymisation/Summary by country	Summary of the results of the Photo Visual Quality Check per country	XC

6.5.c. Query builder interface (CO, XC and EC levels only)

When the Query builder is accessed, the following interface is shown.

The screenshot shows the Eurostat Query Builder interface. At the top, there is a navigation bar with links for 'DASHBOARD', 'SURVEY MANAGEMENT', 'REQUESTER', and 'EUECUGO', along with the Eurostat logo. Below the navigation bar, there is a 'Table:' dropdown menu. Underneath, there is a 'Fields:' dropdown menu showing 'None selected'. Below that, there are two input fields: 'Name:' and 'Description:'. At the bottom of the interface, there are two buttons: 'Test' and 'Save'.

Figure 44: Query builder interface

Through this interface, new custom queries can be tested and saved for later use in the Requester interface. To create new queries, take the following steps:

Button	Description
1	Connect on DMT
2	Click on 'Requester/Query builder' menu
3	Select the table over which the query is to be executed
4	Select the fields for which the query must collect data
5	Define the filters for the query (if no filter is required, delete the filter skeleton added by default)



6 Test (Optional) Test the query generated

7 **Name:** Enter the name of the query

8 **Description:** (Optional) Input a Description for the query

9 Save Save the query

After the query is saved a message will appear to indicate that the process was carried out successfully.

Table:

Fields:

AND OR + Add rule + Add group

<input type="text" value="SURVEY_OBS_TYPE"/>	<input type="text" value="equal"/>	<input type="text" value="4"/>	<input type="button" value="Delete"/>
<input type="text" value="SURVEY_OBS_TYPE"/>	<input type="text" value="equal"/>	<input type="text" value="7"/>	<input type="button" value="Delete"/>

Name: **Description:**

Test Save

Request successfully saved!

Figure 45: Successfully saved query

After saving the new query, this can be executed from the Requester interface. The custom queries created by the user will all appear in the left-side menu, under a section named after the user's login.

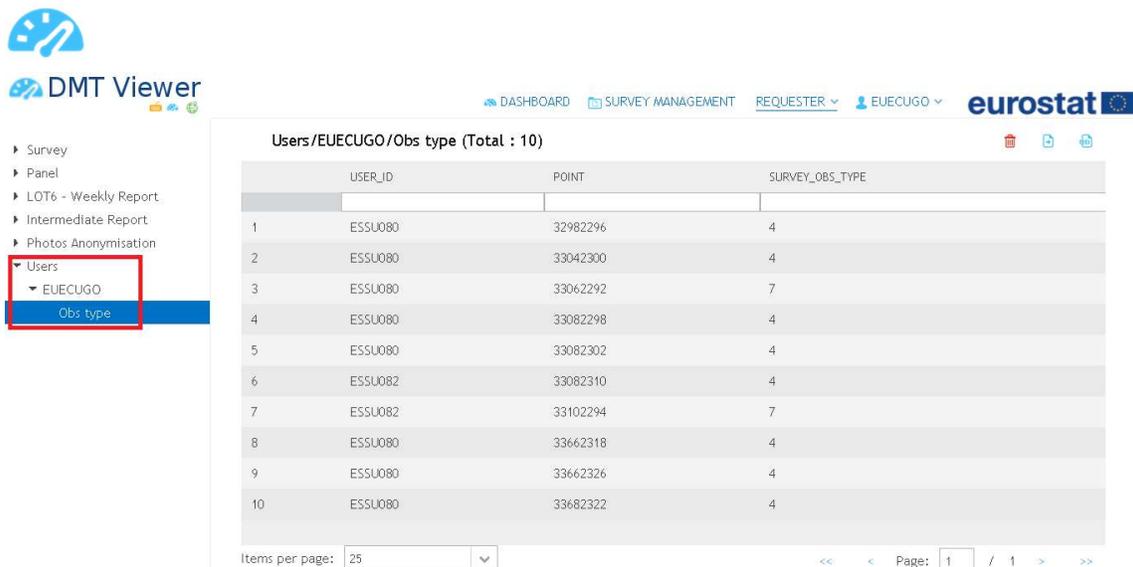


Figure 46: Custom query inside Requester interface

Note that the queries' naming system allow the creation of levels inside the left-side menu. Using the '/' character will create successive levels.

- ▼ Users
 - ▼ EUECUGO
 - Obs type
 - ▼ Custom queries
 - ▼ Set 1
 - Query 1
 - Query 2
 - Query 3
 - ▼ Set 2
 - Query 1
 - Query 2

Figure 47: Custom query hierarchy

6.5.d. List of queries by level

Query name	Description	Access
V_ALL_POINTS_EU	Original EU query	EU
V_LOT9_GRASSLAND_EU	Query for information required by Lot 9	EU
V_ADDITIONAL1_EU... V_ADDITIONAL10_EU	10 queries ready to be configured and used during the campaign	EU



Query name	Description	Access
V_ALL_POINTS_XC	Original XC query	XC
V_ALL_VQC_COMMENTS_XC	Query for all VQC Comments	XC
V_ADDITIONAL1_XC... V_ADDITIONAL10_XC	10 queries ready to be configured and used during the campaign	XC
V_ALL_POINTS_CO	Original CO query	CO
V_BASIC_SURVEY_CO	Returns the key survey data	CO
V_SOIL_SURVEY_CO	Returns the soil element of the survey data	CO
V_SURVEY_GRASSLAND_CO	Returns the grassland element of the survey data	CO
V_SURVEY_COPERNICUS_CO	Returns the Copernicus element of the survey data	CO
V_SURVEY_EROSION_CO	Returns the erosion element of the survey data	CO
V_SURVEY_COMMENTS_CO	Returns the comments element of the survey data	CO
V_SURVEY_PHOTOS_CO	Returns the photos element of the survey data (no image data)	CO
V_ALL_AQC_COMMENTS_CO	Returns the current AutoQC comments	CO
V_ALL_VQC_COMMENTS_CO	Returns the Visual QC comments	CO
V_ADDITIONAL1_CO... V_ADDITIONAL10_CO	10 queries ready to be configured and used during the campaign	CO

6.6. Login drop down

This menu option allows the user to close his or her session, overview his or her profile data and change the preferred language in which the DMT Web Client will be shown by default.



Figure 48: Login drop down menu



Note that, when visualizing the user's profile, only the preferred language for the DMT Web Client will be editable. Any other information requiring modification should be edited via the appropriate Survey setup option, as seen above (contact your manager if you lack permission to access it).

My profile

Choose your preferred language

User Name	<input type="text" value="EUECUGO"/>
Country	<input type="text" value="EU"/>
First Name	<input type="text" value="First Name"/>
Last Name	<input type="text" value="Last Name"/>
Address	<input type="text" value="Full address"/>
Mail	<input type="text" value="user@examplemail.com"/>
Phone	<input type="text" value="123-456-789"/>
Preferred Language	<input type="text" value="English"/> ▼

Figure 49: User profile visualization and preferred language edition.



DMT Web Client



7. DMT Web client

The DMT web client is a web application than can be accessed by the user via the internet, provided he is given access by an administrator.

It is expected to be used mostly in online mode, but offline data entry is also possible, although this data will not be available for other users until the user goes online and synchronizes his device.

Upload of photos is also not possible in offline mode.

7.1. Access to DMT Web client

Button	Description
1	Connect on DMT Viewer
2	Click on 'Survey management' menu
3	Select 'Survey progress'
4	Open the table view by clicking on the relevant button
5	Click the 'open point in survey application' button
6	(If your browser is blocking pop-ups make sure to put the DMT server address on the allowed list)
7	If more than one point is selected, the DMT Web Client splash window, with basic information on the point, will open. It presents the user with the list of available points for which data can be entered/edited. If one point is selected the DMT Web Client opens directly in Data Entry mode. The form can be paged, 25 points are displayed per page and ordered by point ID. A filter is available on Point ID and User ID.

Login as: UKSUF01 | Status: Online

Available surveys

#	Point ID	User ID	PI	EX ANTE	COPERNICUS	GRASS	SOIL	BULK 0-10	BULK 10-20	BULK 20-30	SOIL BIO	Survey date	Status	Options
1	34323660	UKSUF01	true	false	false	false	false	false	false	false	false			
2	35523432	UKSUF01	false	false	false	false	true	false	false	false	false			
3	35583432	UKSUF01	false	false	true	false	false	false	false	false	false			
4	35743432	UKSUF01	false	false	true	false	false	false	false	false	false	16.03.2018		
5	36203432	UKSUF01	false	false	true	false	false	false	false	false	false			

© Copyright 2018

Figure 50: DMT Web Client splash window with filter



7.2. Data entry form

The DMT web client data entry form is a responsive web form. This allows it to be displayed in different devices.

DMT Client Lucas 2018 Back to DMT Viewer DMT Client

Survey 3596 - Status **Online**

M1 | M2 | **M3** | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M13 | M14 | M17

LC1 land cover 1 LC1 plant species

LC1 coverage (%) LC2 land cover 2 LC2 plant species

0 LC2 coverage (%) LU1 land use 1 LU1 land use type

0 LU1 % coverage LU2 land use 2 LU2 land use type

0 LU2 % coverage Parcel area (ha)

Go back Next module >

© Copyright 2018

LC1 land cover 1

LC1 plant species

LC1 coverage (%)

0

LC2 land cover 2

LC2 plant species

Next module >

Figure 51: DMT web client data entry form: same form displays differently in different devices

The data entry is separated in different screens, each associated to different modules of the LUCAS Survey

- M1 - Access to point
- M2 - Point observation
- M3 - Land cover and land use
- M4 - FAO parameters
- M5 - Land management
- M6 - Special remarks
- M7 - Copernicus



- M8 - INSPIRE (Urban and Pure Land Cover Components)
- M9 - EUNIS habitat complexes
- M10 - Grassland
- M11 - Water management
- M12 - Erosion
- M13 - Soil
- M14 - Comments
- M15 - Photos

7.3. Selecting your preferred language

As seen above, the preferred language can be edited inside the user profile visualization. If the labels of fields, the items in drop down lists and comments have been translated by the contractor into other languages you can have access to a custom user form in your preferred language.

7.4. Help and tooltips

7.4.a. Help

The information button (i) on top of each module a short help text and links to the instructions are available case you may need some quick support for data entry. However, the Help links will only be functional if you are working in online mode.

The screenshot shows a form titled 'IDENTIFICATION' with three input fields: 'User ID' (containing 'ESSU080'), 'Point ID' (containing '33042300'), and 'Point altitude' (containing '304'). A red box highlights an information button (i) in the top right corner of the form.

Figure 52: Help button

7.4.b. Tooltips

The information button (i) on the right of the field labels provide short tooltips on how to fill in the fields.

The screenshot shows a form titled 'ACCESS TO POINT' with three input fields: 'Date', 'Start time', and 'End time'. The 'Start time' field contains '01:00' and has a tooltip 'HH:mm' displayed above it. A red box highlights the information button (i) on the right of the 'Start time' label.

Figure 53: Field tooltips

7.5. Entering data

7.5.a. Pre-filled fields

The web client has pre-filled fields you will not be able to alter (see below, marked in grey).



IDENTIFICATION

User ID	Point ID	Point altitude
ESSU080	33042300	304

Figure 54: Some fields are pre-filled

7.5.b. Pre-filled fields

Some fields have special data entry support.

Date ⓘ

◀ Apr ▶ Today ◀ 2017 ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7

Figure 55: Date can be entered through a calendar

7.5.c. Drop down lists

Select the relevant code from the list.

LC1 land cover 1 ⓘ

- Not relevant
- Buildings with 1 to 3 floors
- Buildings with more than 3 floors
- Greenhouses
- Non built-up area features
- Non built-up linear features**
- Other artificial areas

Figure 56: Drop down list

You can type a selection of characters to narrow-down the list



LC1 land cover 1 ⓘ

- Buildings with 1 to 3 floors
- Buildings with more than 3 floors
- Non built-up area features
- Non built-up linear features**

Figure 57: Narrow the list down by typing some characters

Some drop-down lists depend on values of parent drop-down lists

LC1 land cover 1 ⓘ

LC1 plant species ⓘ

- Sorghum (*Sorghum bicolor*)
- Buckwheat (*Fagopyrum esculentum* Mill.)
- Common, golden or proso millet (*Panicum miliaceum*)
- Canary grass (*Phalaris canariensis* L.)
- Quinoa (*Chenopodium quinoa*)
- Fonio (*Digitaria* spp.)
- Other cereals not specified elsewhere**

Figure 58: Drop-down list elements may depend on the previous selection in a parent field: in the example above, when choosing "other cereals" for LC1 the plant species are limited to sorghum, buckwheat, etc.

To remove a previously selected value from the field use the right cross on the right

✕

Figure 59: Delete drop-down list elements by clicking on the cross

Note, for some fields, the cross on the right will remove multiple values where these values are dependent on each other. For example:

- LC1 land cover 1 will remove all LC1, LC2, LU1, LU2 values
- LC2 land cover 2 will remove all LC2 values
- LU1 land use 1 will remove all LU1 values
- LU2 land use 2 will remove all LU2 values.

7.5.d. Entering numeric/percentage values

Type the values or use the arrows on the right to enter/increase/decrease the value



Figure 60: Use the arrows to enter/increase/decrease values in numeric fields

7.5.e. Multiple choice fields

Select the appropriate boxes in multiple choice fields.

Figure 61: In multiple choice fields, select the appropriate boxes only

7.6. Entering comments

Predefined comments are selected via a drop-down list.

Comments can be searched for typing its code, or any combination of text, within the comment description. Only the comments matching the text will be shown

Figure 62: Type a combination of characters to obtain the relevant list of comments



After selecting a predefined comment, the user can enter a free text detailing it. Although every kind of comment can have a detail attached, only comments ending in xx99 require it.

To add the comment simply click on the plus (+) symbol next to the detail field.

Coment detail:



Figure 63: Comment detail field and comment button to add the full comment.

Added comments will be shown in a list below. Comments can be removed from this list clicking in on the blue cross icon next to each of them.

BA03	BA03 - Not updated orthophoto	
AA99	Point beyond car access	
AB12	AB12 - High crop on the ground	

Figure 64: Entered comment list.



7.7. Photo uploading

Use the photos module to upload regular and additional photos



Figure 65: Use the photo uploader to upload the needed photos. Always insert the corresponding photo type.

If a photo has been already uploaded previously, the drop down control will be populated with Taken. If the survey is again uploaded, the photos already stored will NOT be deleted, unless a new photo is uploaded, in which case the latest photo will be stored. The user can also delete the uploaded photo by clicking on the X in the drop down control (the photo will be removed from the server after uploading the survey).

602. Point	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
605. Crop-Cover	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
608. North	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
611. East	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
614. South	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
617. West	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised
620. Copernicus	<input type="button" value="Choose File"/> No file chosen	Taken	<input type="checkbox"/> To be anonymised

Figure 66: Photos marked as already uploaded.

The following regular photo types are available:

- Photo P – Point photo
- Photo C – Crop photo
- Photo N – North photo
- Photo E – East photo
- Photo S – South photo
- Photo W – West photo
- Photo K – Copernicus
- Photo I – Irrigation photo, when relevant
- Photo L – Soil photo, when relevant
- Photo X – Soil standard label
- Photo Y – Soil bulk label
- Photo Z – Soil biodiversity label
- Photo D – Soil organic horizon point



- Photo B – Soil organic horizon North
- Photo H – Soil organic horizon East
- Photo J – Soil organic horizon South
- Photo V – Soil organic horizon West
- Photo A – Grassland with unclear age
- Photo M – Grass transect on map
- Photo U – Grass transect start
- Photo Q – Grass transect end
- Photo R – Grass transect from above

Up to 9 additional photos can be uploaded. Each additional photo will have one of these types (each type can be selected more than once):

- Grassland dominant species
- Grassland special species
- Access to point
- Point observation
- Land cover
- Soil
- Water management
- Other

7.8. M15 Photo Display after Upload

When the DMT Web Client Upload button is pressed, if any of the photograph drop down controls are empty, the drop down will automatically be assigned the first value in the drop down 'Taken'. This is the behavior of the web page as it is defaulting to the first value. This value is NOT saved. By changing modules the drop down will clear where it has defaulted.

The figure shows two screenshots of the M15 photo display interface. The top screenshot is labeled 'before' and shows the interface with two photo entries: '602. Point' and '605. Crop-Cover'. Each entry has a 'Choose File' button, a dropdown menu, and a 'To be anonymised' checkbox. The dropdown menus are empty. The bottom screenshot is labeled 'after' and shows the same interface, but the dropdown menus are now populated with the value 'Taken'. The 'Upload' button is visible in both screenshots.

Figure 67: M15 before and after Upload.

The drop down display is different when this behavior occurs to one where a photograph is already uploaded or you have selected 'Not Taken'. The difference is the X.



Figure 68: Left – Photo uploaded or user selected not taken, right default behaviour after upload.

7.9. Anonymizing photos

Photo anonymization is the process of removing identifiable persons or vehicle identification plates in a picture. Due to the data privacy reasons (Notification to the EU Data Protection Officer DPO-3308), it is forbidden to collect, store or disseminate photos with identifiable persons (photos of persons or names) or vehicle identification plates. For this reason, the surveyors must avoid taking such photos. However, if these characteristics are unavoidable in the photos, the surveyor must remove these characteristics from the photos.

In DMT, photo anonymization is available as a service, accessible through the DMT Web client. Note that the photo anonymization tool can only be accessed when the DMT Web client has network connection.



Status: Online

Figure 69: Access to the photo anonymization tool.

To use the service, follow the steps below

Button	Description
1	Click on the photo anonymization tool button (upper right side inside DMT Web client)
2	Click on 'Browse' button
3	Select a photo to be anonymized
4	Drag your mouse over the picture to create a rectangle over the feature you want to anonymize. You will not be able to move the rectangle to a different location.
5	Repeat as needed or just click on a different location to immediately have a similar rectangle in the new location
6	There is no delete option, so just reload the image if you want to start over



7

Save

To save the anonymized image, click on save



Figure 70: On the anonymizer service window click on browse

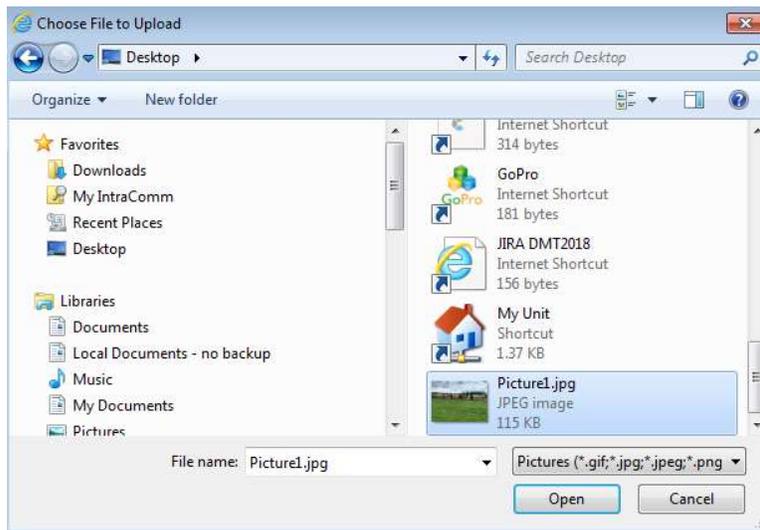


Figure 71: Navigate to the photos location and select a photo to be anonymized (different screen according to local settings)

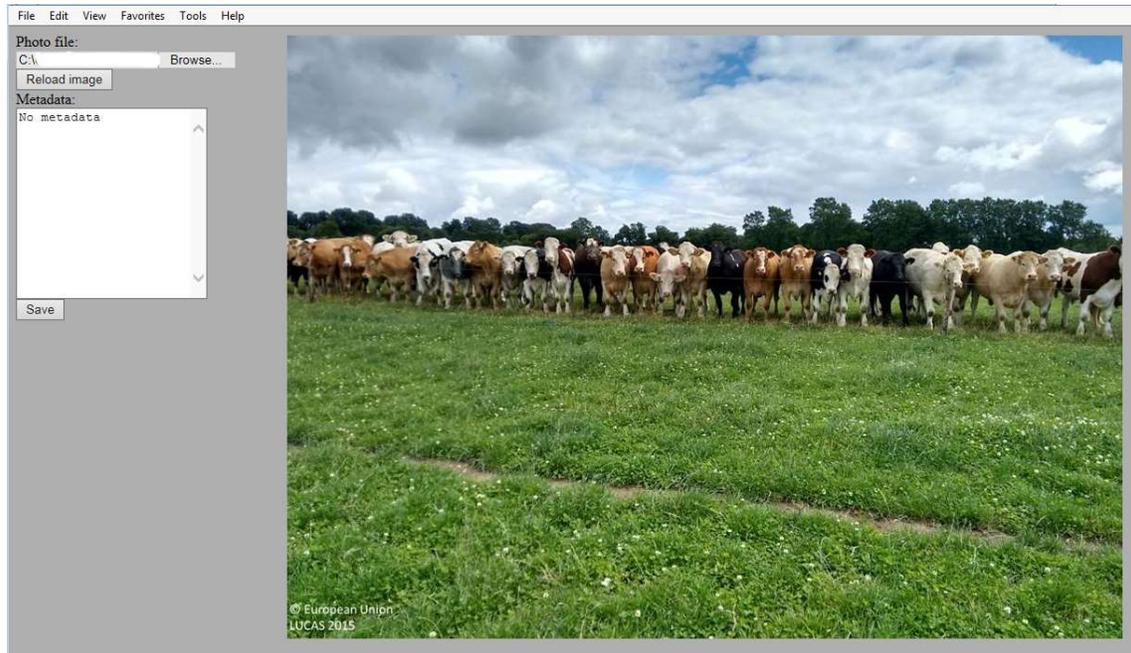


Figure 72: The photo will open. Drag the mouse over the image to create a rectangle. Note you will not be able to move the rectangle after.

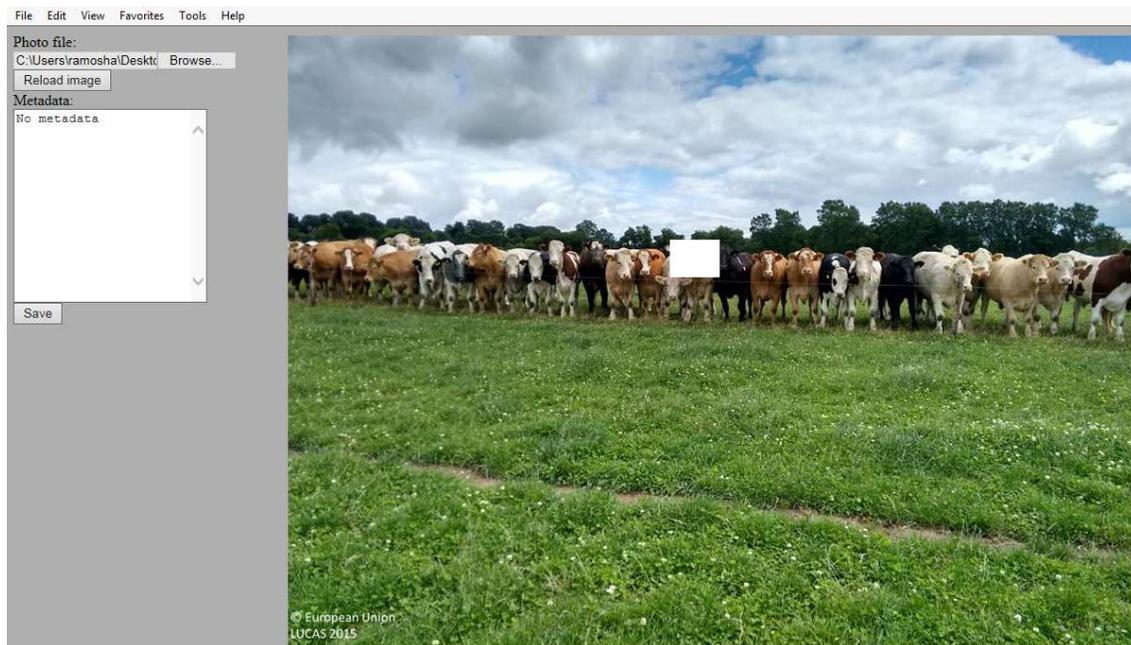


Figure 73: Drag and drop the mouse over the image to create a rectangle.

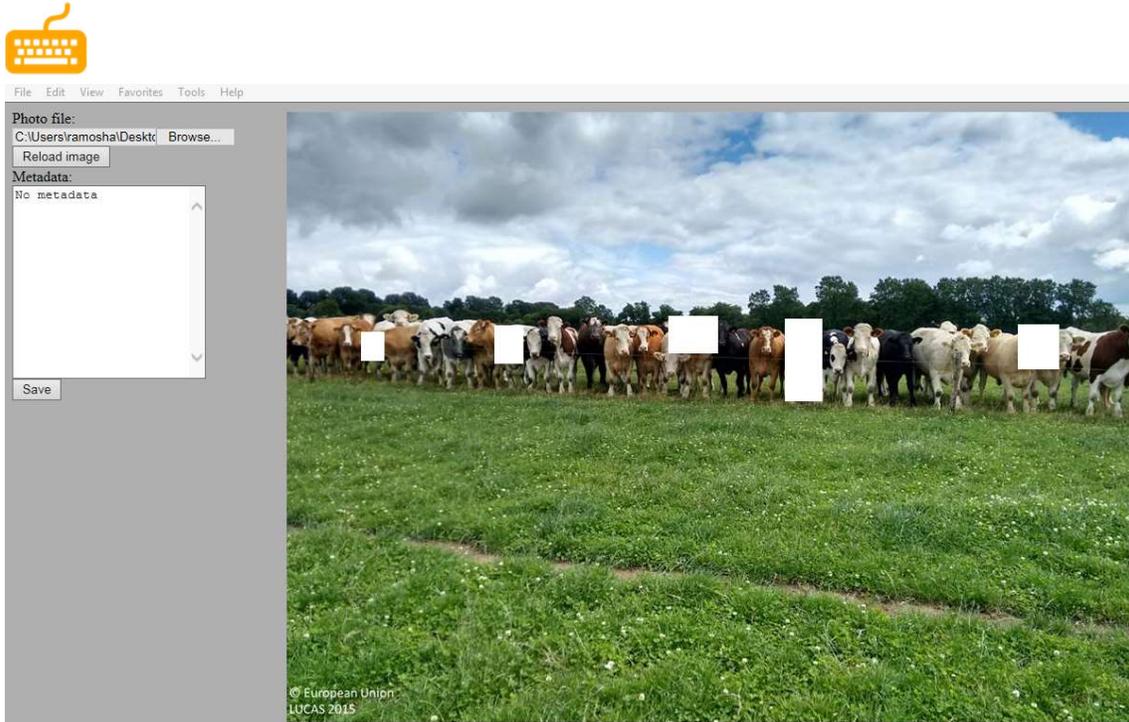


Figure 74: Repeat as needed. Re-load in case you want to start over¹.



Figure 75: Save the picture only when finished. Metadata (namely location tags) is kept if the original photo has it.

¹ In case you may be wandering: you do not need to anonymize cows during the real survey. Only people and license plates of vehicles.



7.10. Loading a daily GPS track

The surveyor needs to upload, either before or after entering the data obtained for the surveys, the GPS track obtained in each of the days in which the surveying has been carried out. To this end, an upload service is available inside the DMT Web Client. The icon to access the service is in the upper right corner of the main screen.



Figure 76: Accessing the daily GPS track service.

Clicking on the icon will bring up a modal window where the date of the daily track and the gpx file obtained can be entered. Both the date and the file must be selected before the upload button enabled.

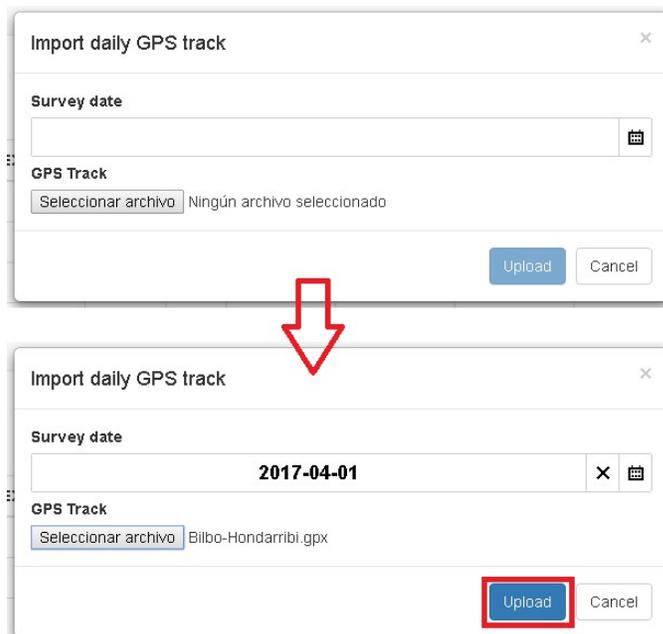


Figure 77: Upload of a daily GPS track.

Once the upload has been successfully executed, a message will be shown notifying it.

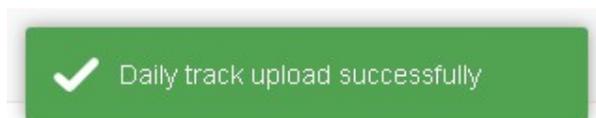


Figure 78: Daily GPS track successfully uploaded.



It is possible to upload as many files as needed; every file uploaded for a given day will be stored and used to generate the tracks corresponding to the surveys completed in that same date.

7.11. Visual Quality Control

The surveyor can access visual quality control comments from inside the DMT Web Client. The icon to access the service is in the upper right corner of the main screen.



Figure 79: Accessing the visual quality control comments.

Clicking on the icon will bring up a new window where the visual quality control comments are displayed, colour coded and in reverse chronological order.

Survey 34383700 Login as: UKROF00 | Status: Online

Visual Quality Control Comments 12

User	Date Created	Comments
UKCOF00	2018-04-05T11:47:01Z	Point REJECTED (S:4, L:2, W:13310)
UKCOF00	2018-04-05T11:44:56Z	EA04, Point not correctly surveyed – to be visited again Car park GPS is out of bounds
UKROF00	2018-04-05T11:42:39Z	Point ACCEPTED (S:1, L:3, W:13210)
UKROF00	2018-03-21T12:35:30Z	Point ACCEPTED (S:1, L:3, W:12210)
UKCOF00	2018-03-21T11:48:21Z	Point REJECTED (S:4, L:2, W:11210)
UKCOF00	2018-03-21T11:48:21Z	Point REJECTED (S:4, L:2, W:11210)
UKCOF00	2018-03-21T11:48:16Z	EA02, Data entry not complete See XC comment
EUXCF00	2018-03-20T14:24:29Z	Point REJECTED (S:4, L:3, W:11110)
EUXCF00	2018-03-20T14:24:19Z	EA04, Point not correctly surveyed – to be visited again Car park GPS is out of bounds
UKCOF00	2018-03-20T12:59:14Z	Point ACCEPTED (S:1, L:4, W:11100)
UKROF00	2018-03-19T16:12:13Z	Point ACCEPTED (S:1, L:3, W:11000)
UKROF00	2018-03-19T16:12:13Z	Point ACCEPTED (S:1, L:3, W:11000)

© Copyright 2018

Figure 80: Visual quality control comments.

RO visual quality control comments are coloured light green.

CO visual quality control comments are coloured light blue.

XC visual quality control comments are coloured light red.



7.12. Automatic validating of a point

When the data entry is over, and the survey uploaded, many automated quality checks will be run on the data. If the point passes the automated quality checks it will be moved to the next step in the workflow. If it fails it will be marked as "red" (failed AQC) and remain on the same level. To check the new status of the point, and the errors that may have been found by the Automatic Quality Check, use de DMT Viewer's Survey Overview section.

7.12.a. Viewing the AQC error report

The error report can be seen under DMT Viewer by going to the survey progress window and selecting the relevant button.

Button	Description
1	Connect on DMT Viewer
2	Click on 'Survey management' menu
3	Select 'Survey progress'
4	Click on the red (AQC not OK) selector
5	The point list will open
6	Select a point
8	Click on the 'validation error list' button
9	Open or save the file

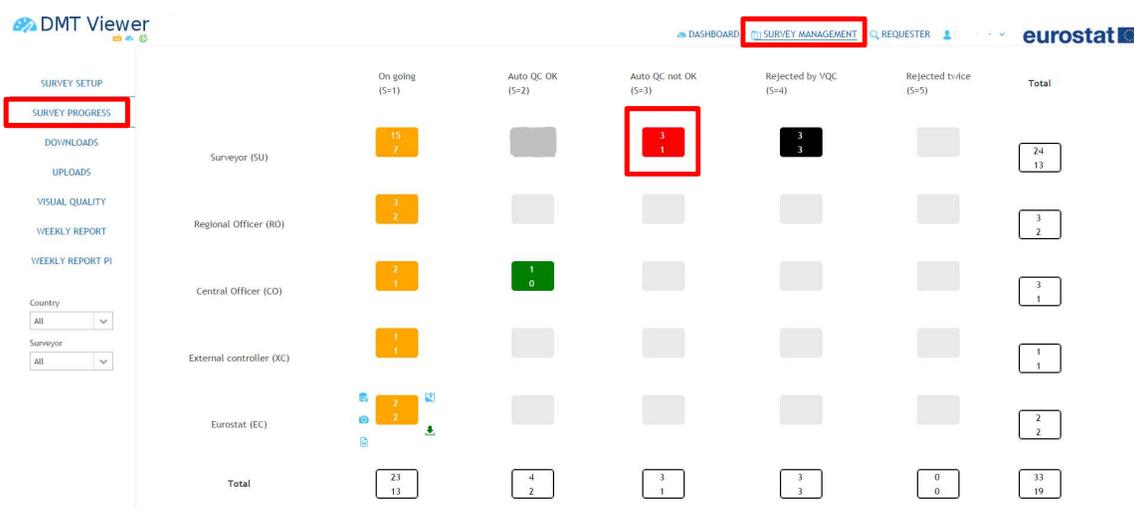


Figure 81: DMT viewer survey progress window (red points)



Select the point for which you want to see the report and click on the error report button.

DMT Viewer TEST

DASHBOARD SURVEY MANAGEMENT REQUESTER EUECUGO eurostat

All / All - Point level = 1 Point status = 3 (Total record count : 3)

POINT USER_ID COUNTRY IN_DATABASE P_LEXT LEVEL STATUS WORKFLOW 1-Date 2-Start time 3-End time 7-Observation Type 14-Distance to point 17-Direction 20-Direction 23-Land Cover 2 29-Land Us

POINT	USER_ID	COUNTRY	IN_DATABASE	P_LEXT	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Observation Type	14-Distance to point	17-Direction	20-Direction	23-Land Cover 2	29-Land Us
1	33082306	ESSU085	ES	No	No	1	3	00000								
2	33082310	ESSU085	ES	No	No	1	3	00000								
3	33122294	ESSU086	ES	Yes	No	1	3	00000								

Figure 82: DMT viewer survey progress window (red points selection): validation error list button

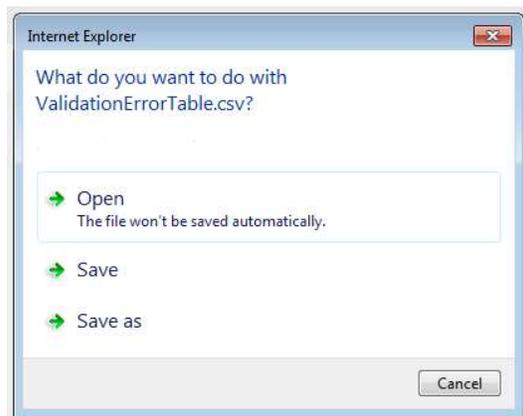


Figure 83: DMT viewer survey progress window (red points selection): get error report button

7.12.b. Correcting "red" points

The list given in the error report is aimed to help correcting the errors found. Once the survey data is edited and uploaded, the point will be again validated. If there are still errors, a new error report will be generated and the latest AutoQC data for the record is presented at the top of the Data Entry form, in Module order. Selecting the 'Module' will open the relevant module below. This process is to be repeated until no error is found, at which point the survey will be automatically sent to the next level of validation (RO or CO).

Survey 35123526

Auto QC Errors 3

Control Id	Message	Module(s)	Field(s)
10321	Signs of grazing not needed if LC1 not like Bxx or Cxx or Dxx or Exx or Fxx or Hxx	6	53
10411	Water Mngt - Delivery system cannot be NR	11	254
17070	Photo IRRIGATION cannot be NR	15	623

Go back Upload

M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 | M12 | M13 | M14 | M15

Help

Figure 84: DMT Web Client AutoQC



7.13. Online/Offline Web Client

The DMT Web Client offers the possibility of accessing it even if no Internet connection is available. It is however required, to use the application in offline mode, that the surveys are added beforehand, while network connection is still available. The following steps describe the appropriate way to access the DMT Web Client to obtain the desired results:

	Button	Description
1		While online, connect to the DMT Viewer with a surveyor level (SU) user, and enter the Survey Management screen.
2		Open the table view by clicking on the relevant button
3		Select the surveys with which the surveyors will want to work, and click the 'open point in survey application' button.
4		The selected surveys are listed in the DMT Web Client splash window.
5		Once the survey has been loaded into the DMT Web Client, the user can close and re-open the browser without losing any information, even if there is no network connection available.
6		The survey will only be uploaded after clicking the upload button IF THE DMT WEB CLIENT IS ONLINE. While offline, the equivalent button will only locally save the information, so that it can be accessed later. Note that the images can NOT be saved locally, and therefore should only be added before finally uploading the survey, once there is a network connection available.

The DMT Web Client shows its connectivity status at any given point on the upper right side of each of its screens.

Status: Online / **Status:** Offline

Figure 85: DMT Web Client connectivity status information

The user should bear in mind, however, that cleaning the browser cache will remove all the information locally saved, and should therefore do it only, if at all, when all the surveys have been uploaded to the server.



7.14. Stale Data

As the data in the DMT Web Client is held in local storage in case of offline use, it is possible for a survey to exist as different versions on the server and in the browser. If such a situation is detected, a warning box will show up at the top of the DMT Web Client giving the option to download the more recent version held on the server. If this is done, any local changes will be overwritten so appropriate care should be taken with this option.

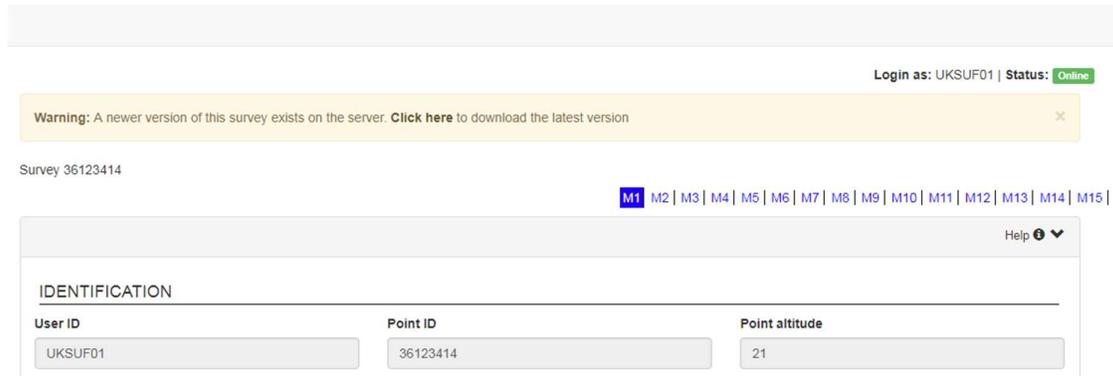


Figure 86: DMT Web Client stale data

7.15. Read only mode

The DMT Web Client is read only when accessed by XC.



DMT Map



8. DMT Map

8.1. Access to DMT Map

8.1.a. From the survey progress board

Button	Description
1	Connect on DMT Viewer
2	Click on 'Survey management' menu
3	Select 'Survey progress'
4	Go to table mode and select point(s) to be displayed.
5	(Optional) Select point(s) to be displayed
6	Click on 'DMT Map' button.
7	The DMT Map window is opened. If point(s) were selected, they will appear in the list inside the DMT Map window

All / All - Point level = 5 Point status = 1 (Total record count : 2)

All points

POINT	USER_ID	COUNTRY	IN_DATABASE	PI_EXT	LEVEL	STATUS	WORKFLOW	1-Date	2-Start time	3-End time	7-Obse	
1	33022296	ESSU002	ES	Yes	No	5	1	00000				
2	33082296	ESSU083	ES	Yes	No	5	1	00000	2017-03-13	08:13:36	11:17:08	1

Figure 87: DMT Map – Point selection from Survey management menu

8.1.b. From the dashboard

Button	Description
1	Connect on DMT Viewer
2	Click on 'Dashboard' menu
3	Select 'Survey progress'
4	From dashboard menu, click on one type of chart to select 'Table' mode
5	(Optional) Select point(s) to be displayed
6	Click on 'DMT Map' button



7

The DMT Map window is opened. If point(s) were selected, they will appear in the list inside the DMT Map window

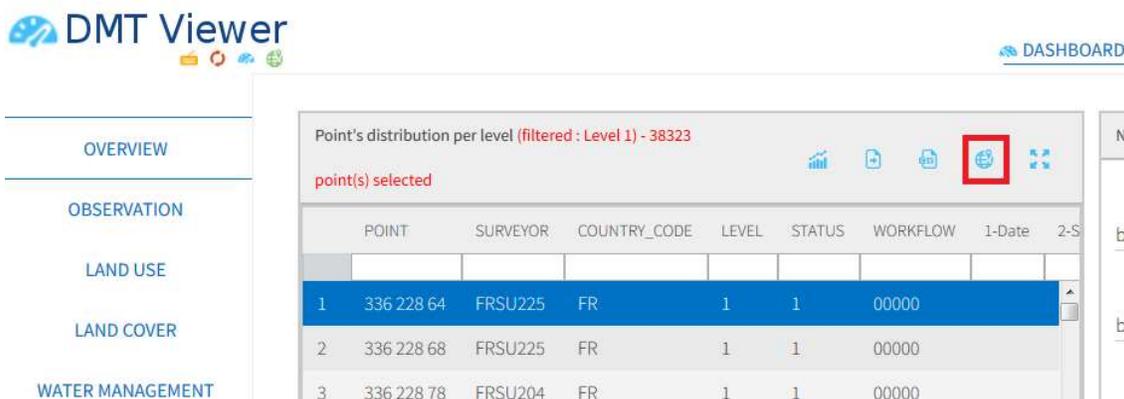


Figure 88: DMT Map – Point selection from Dashboard menu

8.1.c. From the requester

Button	Description
1	Connect on DMT Viewer
2	Click on 'Requester' menu
3	Select one predefined queries in the tree view
4	(Optional) Select point(s) to be displayed
5	Click on 'DMT Map' button
6	The DMT Map window is opened. If point(s) were selected, they will appear in the list inside the DMT Map window

Some queries do not allow to link the result with the DMT Map software. In this case, the 'DMT Map' button does not appear.

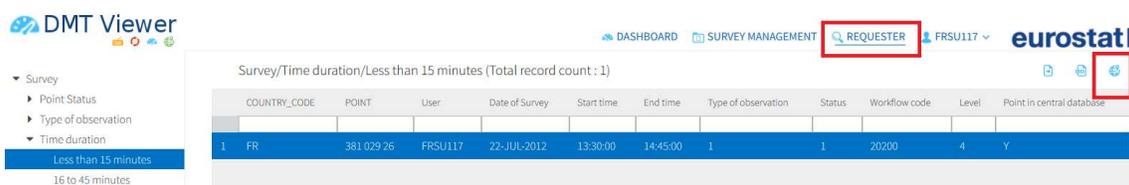


Figure 89: DMT Map – Point selection from Requester menu



8.1.d. Multiple point selection

As has been mentioned, it is possible to select more than one point before clicking on the DMT Map button. Doing so will add all the selected points to the DMT Map view. It will also create an additional entry representing this multiple selection showing the location of the points and their observation type.

8.1.e. Points without KML file

After selection and click on 'DMT Map' button, system checks if the kml file is found on the storage system. If the kml file is not found, the following message is displayed, and the point not loaded in DMT Map.

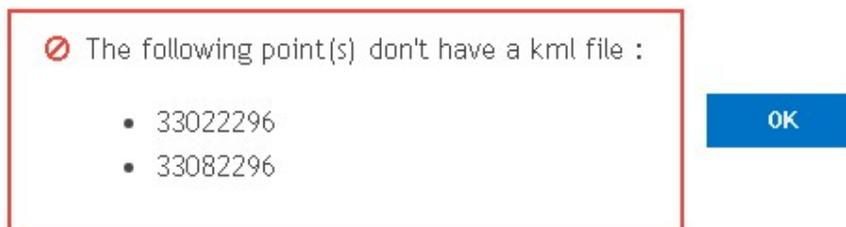


Figure 90: DMT Map – Kml file missing; points not displayed

If the kml file is found, GIS information related to the point(s) selected is displayed in DMT Map.

8.2. DMT Map User Interface

Open DMT Map and display point to be controlled.

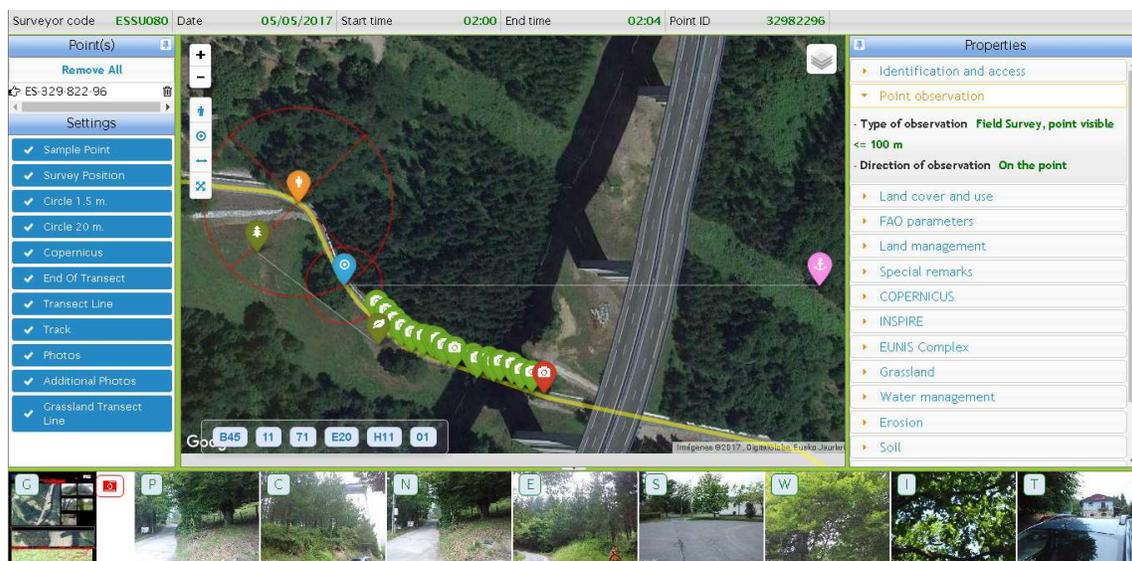


Figure 91: DMT Map – User interface after point selection

DMT Map is composed by 6 zones:

- A header banner to the top of the window



- A point selector zone on the top left (button to quality control is available here)
- A settings selector zone on the bottom left
- Data collected during the survey to the right (slider)
- Banner for ground document and photos to the bottom of the window
- GIS information related to the selected point to the centre

8.2.a. Header banner

This banner contains the following information:

- Surveyor code in charge of the point
- Date of survey
- Start time of the survey
- End time of the survey
- Id of the point

Surveyor code	ESSU080	Date	06/05/2015	Start time	10:30	End time	10:45	Point ID	32982296
---------------	---------	------	------------	------------	-------	----------	-------	----------	----------

Figure 92: DMT Map – Header banner

8.2.b. Point selector zone

Point(s) selected from DMT Viewer is(are) displayed in this zone.

a) *Removing a point from the list*

Button	Description
1	Enter DMT Map
2	Click on a point on the point selector
3 	Click the 'Remove' button to the right of the point

b) *Removing all points from the list*

Button	Description
1	Enter DMT Viewer
2	'Remove all' button on the top of the selector point zone
	A confirmation message is displayed, and information removed if button 'OK' is pressed

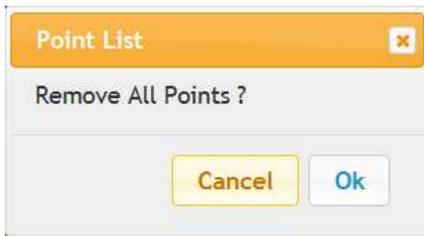


Figure 93: DMT Map – Remove all points (confirmation window)

8.2.c. Settings selector zone

The settings selector to the bottom allows to predefine whether the elements available in the GIS visualization window are displayed or not.

The following information can be displayed or hidden:

- Sample point: display/hide an indicator on the official position of the point (sample)
- Survey position: display/hide the position recorded in DMT Web Client by the surveyor
- Circle 1.5 m: display/hide a circle (1.5 m radius) centred on the point sample position
- Circle 20 m: display/hide a circle (20 m radius – extended window) centred on the point sample position
- Copernicus: display/hide a circle (50 radius) with an inscribed cross, centred on the survey position.
- End of transect: display/hide an indicator on the official position of the end of the transect (250 m to the East)
- Transect line: display/hide a white line between the sample point and the end of transect
- Track: display/hide the GPS track recorded by the surveyor
- Photos: display/hide an indicator where the photos were taken
- Additional photos: display/hide an indicator where additional photos were taken
- Grassland transect line: display/hide a white line defined by the grassland transect starting and end points.



Figure 94: DMT Map – Settings selector (visible elements)

Hidden information is displayed in red in the setting zone. In the example, end of transect indicator will not be visible on the GIS interface.

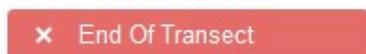


Figure 95: DMT Map – Settings selector (element not visible)

8.2.d. Survey data (right slider)

The survey data zone is composed by a vertical accordion, subdivided in categories. Each subcategory refers to a part of the questionnaire (DMT Client tabs).

Non-relevant information is displayed in black colour. Non-common values are displayed in orange, to assist the controller on his work.





Figure 96: DMT Map – Different colours for non-common values

8.2.e. Banner photos

As presented here below, on the bottom of the window are displayed thumbnails of photos taken during the survey and the ground document of the point. There are two options:

- Clicking on the thumbnails opens a full-size view of the photo in the current window, on top of the map.
- Click the 'Current Photos' or 'Previous photos' button to open a full-size view of the photos in a new browser tab.



Figure 97: DMT Map – Photo's banner

Photos can be navigated using the arrows on the right and left side in the full-size view. It is also possible to click and drag the thumbnail band locate on the bottom of the window to navigate the list of photos available.

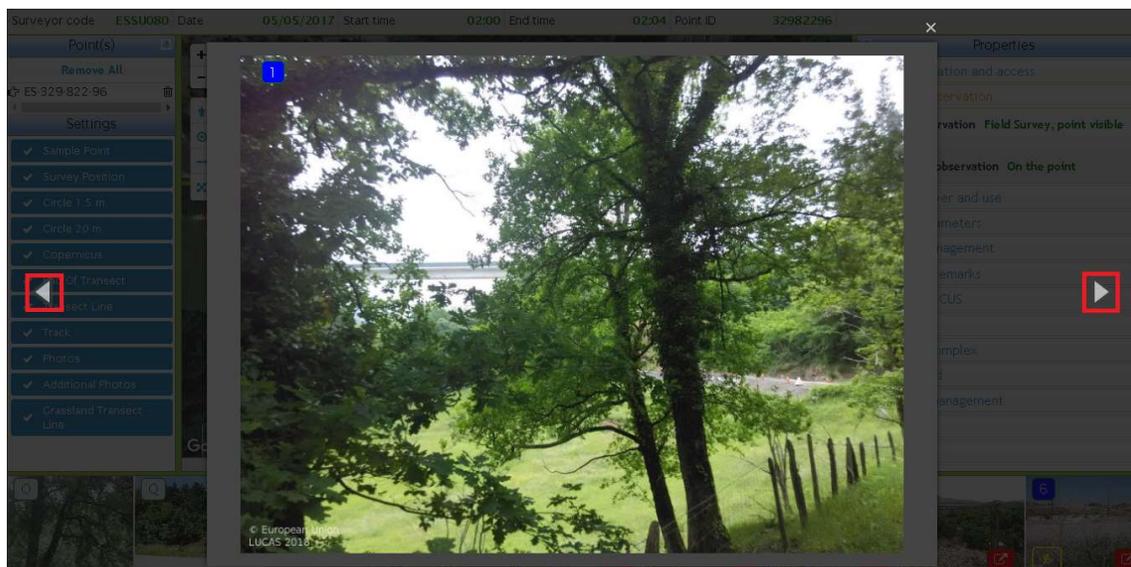


Figure 98: DMT Map – Full photo view navigation, on top of the map

Some icons are displayed over the thumbnails and photos:

Button	Description
 	Type is shown at the top left corner, using a letter for standard photos or a number for additional photos
2	G = Ground document P = Point photo C = Crop photo N, E, S, W = North, East, South or West photos K = Copernicus photo



I = Irrigation photo
L = Soil photo
X = Soil standard photo
Y = Soil bulk photo
Z = Soil biodiversity photo
D = Soil organic depth point photo
B, H, J, V = Soil organic depth North, East, South or West photo
A = Grassland with unclear age photo
M = Grass transect photo
U = Grass transect start photo
Q = Grass transect end photo
R = Grass transect from above photo
Number (from 1 to 9) = additional photos

On double click on the top left icon, the GIS window is centred on the position of the photo



This icon is displayed at the bottom left when the photo was taken at more than 10 kms to the point (sample)



This icon is displayed at the bottom right when the photo was not taken in the area currently displayed on the GIS window. Change the zooming to visualize where the photo was taken.



This icon is displayed at the top right when photo is not geotagged, and is therefore not possible to localize on the GIS window.

8.2.f. Previous photos quick comparison

Where previous photos are available, a 'Previous' button will appear at the top right of the DMT Map. This will open a quick view of the current and previous photos for P, N, E, S and W photos. No previous Ground Documents have been supplied to import into the DMT so the previous G record will be empty. Note that these photos can not be enlarged, nor can the 2018 Ground Document be downloaded.

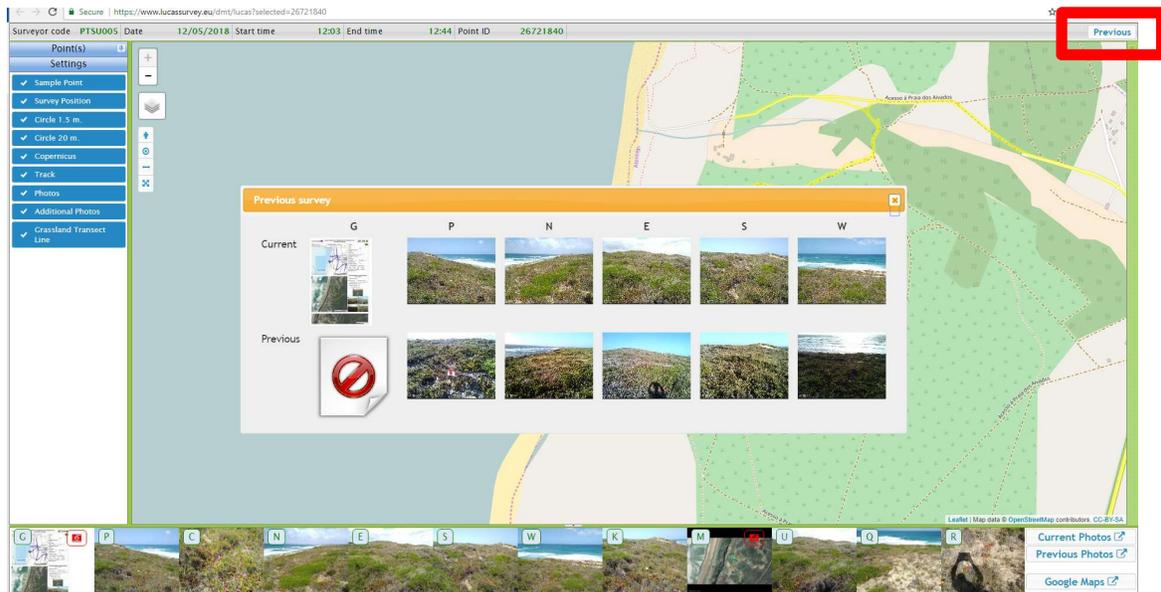


Figure 99: DMT Map – Previous photos quick comparison

8.2.g. GIS Window

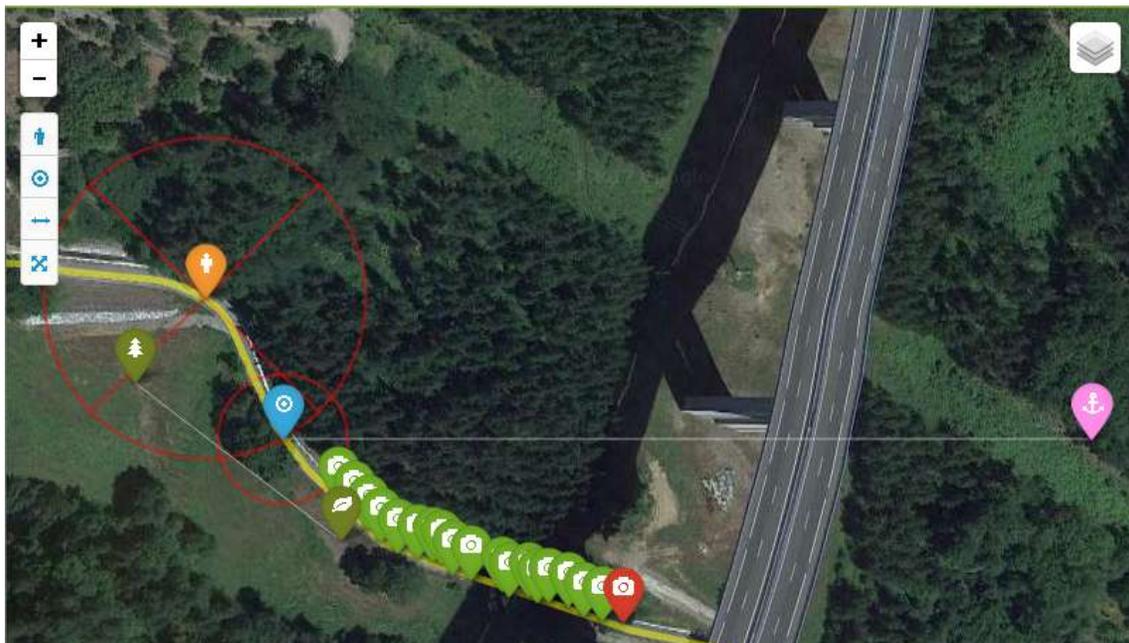


Figure 100: DMT Map – GIS window

The following information is displayed on the GIS window:

- Sample point (blue icon)
- Surveyor position when the data was collected (orange icon)
- Surveyor GPS track (yellow line)
- End of transect point (pink icon)



- Transect virtual line (white line)
- Transect sequence recorded by the surveyor
- Photos location (green icons)
- Additional photos location (red icons)
- 5 and 20-meter radius circles (red circles centred in theoretical point)
- Copernicus circle and cross (red circle and cross centred on surveyor location)
- Grassland transect start and end points (dark green icons), and line.

Additional buttons are available:

Button	Description
	Changing zoom of GIS window
	Centre window on the surveyor position
	Centre window on the sample position
	Displays the entire transect in the GIS window
	Adapt zooming to display position of all photos taken by the surveyor for the selected point
	Change between map types for the GIS window (Copernicus Satellite or OpenStreetMap)

8.2.h. Multiple point selection visualization

When a selection of multiple point is added to the map, a line representing this set will appear in the point selector. Choosing this option will show the location of each of the points in the GIS window.

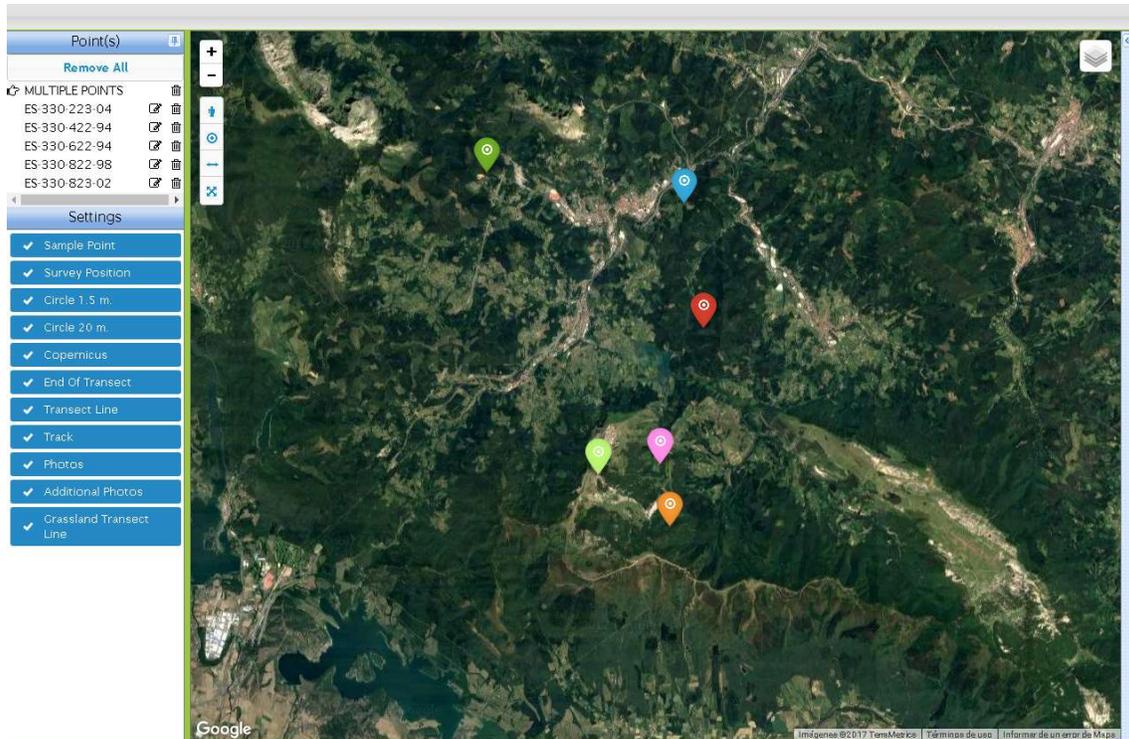


Figure 101: DMT Map – Multiple point selection display

The observation type of the point's survey will determine the colours of these pins, as follows:

- Green: Field Survey, point visible ≤ 100 m
- Light green: Field Survey, point visible > 100 m
- Orange: Photo-interpretation in the field
- Pink: Point not visible, PI not possible
- Red: Out of national territory OR Out of EU 28
- Blue: Photo-interpretation in the office
- Light gray: No information

To know which points the selection encompasses, hovering the mouse pointer over the "MULTIPLE POINTS" line will bring up a tooltip, containing these identifiers.



Figure 102: DMT Map – Multiple point selection tooltip

In addition to that, the user can visualize the respective point identifier and the code for the user that uploaded the survey clicking on any of the pins shown in the GIS window.

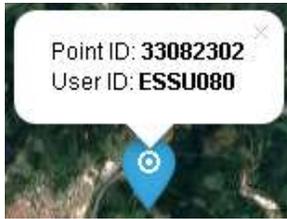


Figure 103: DMT Map – Point ID and User ID

8.3. DMT Map visual quality control

Visual quality check of the points is done on the DMT Map. Check document C4 for more information on the items that are to be controlled during visual quality check (VQC) as these instructions deal only with the entry of the comments related to quality control.

While all the different elements of the DMT map described above are relevant for the analysis, this chapter deals with the specific steps to accept/reject a point after the visual analysis. Note, after a point has been accepted/rejected, it will be removed from the DMT Map.

Once on DMT map, follow the steps indicated below.

Button	Description
1	Go to the top left window of DMT Map
2 	Click on the editing icon in front of the point you want to control
	Click on 'Start' button to begin the visual quality control procedure (ideally do it when you start the visual control, not only when you start entering comments, to get a more accurate evaluation of the time needed to assess the point)
	Add the quality control comments from the drop-down list
	For each comment, a free text can be added (not mandatory for structured comments, but mandatory for E_99 comments)
	Click on the submit button to enter the comment. It will show on the list below. Use the bar on the right-hand side to scroll down on a longer list.
 	At the end of the visual quality control register the final decision (Accept point / Reject point). Points are removed from the DMT Map after accept/reject.
	The point will be sent to the relevant user in the workflow. The controller will receive a message "Point level does not match user level".
	Duration of the control will be displayed



 To control a new point, click on "Back to point list"

UKROF00 on 2018-03-21 12:35:25 Point VQC started	RO visual quality control comments are coloured light green
UKCOF00 on 2018-03-21 11:47:59 Point VQC started	CO visual quality control comments are coloured light blue
EUXCF00 on 2018-03-20 14:24:09 Point VQC started	XC visual quality control comments are coloured light red

Note: it is **NOT** possible to Accept in visual quality control a point that has outstanding automatic quality control.

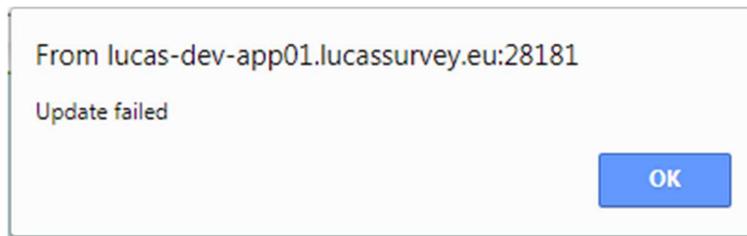


Figure 104: Update failed message for a point that has outstanding AQC when attempting to Accept.

It is possible to Reject in visual quality control a point that has outstanding automatic quality control

8.4. Use of Google Earth

This functionality is available to RO, CO and XC and will open the KML for ALL points in Google Earth that are available at each RO, CO and XC level.

The KML files used by the DMT Map can also be opened in Google Earth by directly opening the KML API end point. Download Google Earth <https://www.google.com/earth/download/gep/agree.html>. Open Google Earth and go to 'Add' from the menu and select the 'Network Link' option. Enter the following details:

Name – LUCAS

Link - (depending on environment):

- Functional Testing - <https://testing.lucassurvey.eu/dmt/api/v2/kml>
- Training - <https://training.lucassurvey.eu/dmt/api/v2/kml>
- Production - <https://www.lucassurvey.eu/dmt/api/v2/kml>

When prompted, enter your RO, CO or XC user name and password. The data can be refreshed in Google Earth as required.

Please note that use of Google Earth is unsupported and the help files within Google Earth should be used to become familiar with it.





DMT REST API



9. DMT REST API

The LUCAS 2018 DMT Suite provides a set of Web Services that offer tools that allow the contractors the possibility develop their own applications for data gathering and uploading.

This section details the different Web Services offered, the address to access them and their input and output parameters

Note depending on the environment you are working in, the Address sections will require prefixing with either:

<https://testing.lucasurvey.eu>

<https://training.lucasurvey.eu>

<https://www.lucasurvey.eu>

9.1. Full set of INIT files download

This Services allows the download of a zip file containing all the initial information for a point/set of points: JSON file with the point data, Ground Document and photographs taken during the previous campaign, if any.

9.1.a. Address

GET [/dmt/services/rest/download/initFiles](#)

9.1.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.1.c. Output parameters

Only one of the following:

- application/octet-stream, containing
 - .json file with the same name as the identifier of the point. It contains the initial data for the point. See JSON schema description included further down this document.
 - [0 - n] .jpg files. This are the photographs uploaded for the point in the previous DMT survey.
 - [Optional] .pdf file with the same name as the identifier of the point, plus the character "G". This is the Ground Document of the point.
- application/json: JSON object detailing errors during data download.
-



9.2. Ground Document download

This service allows the download of the Ground Document(s) for a point/set of points

9.2.a. Address

[GET /dmt/services/rest/download/groundDocuments](#)

9.2.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.2.c. Output parameters

Only one of the following:

- application/octet-stream, containing
 - grounddocuments.zip: Zip file containing the ground documents for the points specified in the input parameter. The file contains a folder for each point; the name of each folder will be the identifier of the point whose data it contains. If none of the points have a ground document, a file named no-data.json indicating this is included instead. The contents of the folders are:
 - .pdf file with the same name as the identifier of the point, plus the character "G". This is the Ground Document of the point.
- application/json: JSON object detailing errors during data download.

9.3. Previous Photos download

This service allows the download of the photographs taken during the previous campaign for a point/set of points.

9.3.a. Address

[GET /dmt/services/rest/download/previousPhotos](#)

9.3.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.3.c. Output parameters

Only one of the following:

- application/octet-stream, containing
 - previousphotos.zip: Zip file containing the photographs uploaded for the points in the previous DMT survey. The file contains a folder for each point; the name of each folder will be the identifier of the point whose data it contains. If none of the points have



photos uploaded in the previous survey a file named no-data.json indicating this is included instead. The contents of the folders are:

- [0 - n] .jpg files. These are the photographs uploaded for the point in the previous DMT survey.
- application/json: JSON object detailing errors during data download.

9.4. Point data download

This service allows the download of the data for a point/set of points.

9.4.a. Address

[GET /dmt/services/rest/download/points](#)

9.4.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.4.c. Output parameters

- application/json: JSON object with the information of the points entered through the input parameter. Every point is represented by its own object inside the array defined in the JSON object. See JSON schema description included further down this document. Alternatively, the JSON object can contain the detail of errors found during data download.

9.5. Photos download

This service allows the download of the photographs taken for a point/set of points during the current campaign.

9.5.a. Address

[GET /dmt/services/rest/download/photos](#)

9.5.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.5.c. Output parameters

Only one of the following:

- application/octet-stream, containing



- photos.zip: Zip file containing the photographs uploaded for the points specified in the input parameter. The file contains a folder for each point; the name of each folder will be the identifier of the point whose data it contains. The contents of the folders are:
 - A .json file with the same name as the identifier of the point. It contains the data related to the photos. See JSON schema description included further down this document
 - [0 - n] .jpg files. This are the photographs uploaded for the point.
- application/json: JSON object detailing errors during data download.

9.6. Full dataset download

This service allows the download of the data and photographs taken for a point/set of points during the current campaign.

9.6.a. Address

[GET /dmt/services/rest/download/fullDataset](#)

9.6.b. Input parameters

- *pointIds*: array of point identifiers, separated by commas.

9.6.c. Output parameters

Only one of the following:

- application/octet-stream, containing
 - fullDataset.zip: Zip file containing the data and photographs uploaded for the points specified in the input parameter. The file contains a folder for each point; the name of each folder will be the identifier of the point whose data it contains. The contents of the folders are:
 - .json file with the same name as the identifier of the point. It contains the data uploaded for the point. See JSON schema description included further down this document.
 - [0 - n] .jpg files. This are the photographs uploaded for the point.
- application/json: JSON object detailing errors during data download.

9.7. Survey upload

This service allows the upload of the survey data and photographs taken. All the files containing the data will be uploaded inside a single .zip file.

9.7.a. Address

[GET /dmt/services/rest/upload/zip](#)



9.7.b. Input parameters

- multipart/form-data, containing
 - *zipFile*: Zip file with the same name as the identifier of the point to be uploaded. The zip file should containing the following files:
 - .json file with the same name as the identifier of the point to be uploaded. See JSON schema description included further down this document.
 - [0 - n] .jpg files. These files are the photographs specified inside the JSON structure also included in the zip file.

9.7.c. Output parameters

- application/json: JSON object indicating whether the uploading was correct, and the warnings/errors found during the upload.

9.8. Daily Track upload

This service allows the upload of gpx files containing the data for a Daily Track for a given date.

9.8.a. Address

[POST /dmt/services/rest/upload/dailyTrack](#)

9.8.b. Input parameters

- multipart/form-data, containing
 - *gpxDate*: date for which the daily track is uploaded. the date must be defined in the following format: yyyy-MM-dd.
 - *gpxFiles*: Array of .gpx files defining the daily track for the specified date.

9.8.c. Output parameters

- application/json: JSON object indicating whether the uploading was correct, and the warnings/errors found during the upload.

9.9. Upload data validation

This service checks the JSON data structure to be downloaded to verify its structure.

9.9.a. Address

[POST /dmt/services/rest/tools/xsdValidation](#)



9.9.b. Input parameters

- None.

9.9.c. Output parameters

- application/json: JSON object indicating whether the JSON structure is valid, and the errors found if it is not.

9.10. Image metadata reader

This service obtains the EXIF metadata found inside a photograph's jpg file.

9.10.a. Address

POST [/dmt/services/rest/tools/image/metadata](#)

9.10.b. Input parameters

- multipart/form-data, containing
 - *images*: Array of images the metadata is to be read from.

9.10.c. Output parameters

- application/json: JSON object with the metadata for each of the photos. See JSON schema description included further down this document.

9.11. Survey

This service obtains the list of points assigned to a user for survey.

9.11.a. Address

GET [/dmt/services/rest/survey](#)

9.11.b. Input parameters

- multipart/form-data, containing
 - *images*: Array of images the metadata is to be read from.

9.11.c. Output parameters

- application/json: JSON object with the information of the survey points including:
 - Point ID
 - Survey Level
 - Survey Date



- Survey Status

9.12. Single point data download

This service allows the download of the data for a point.

9.12.a. Address

[GET /dmt/services/rest/survey](#)

9.12.b. Input parameters

- *pointId*: point identifier.

9.12.c. Output parameters

- application/json: JSON object with the information of the point entered through the input parameter. See JSON schema description included further down this document. Alternatively, the JSON object can contain the detail of errors found during data download.

9.13. Survey Upload

This service allows the upload of the survey data and photographs taken for a single point. All the files containing the data will be uploaded inside a single .zip file.

9.13.a. Address

[POST /dmt/services/rest/survey/upload](#)

9.13.b. Input parameters

- *pointId*: point identifier.
- multipart/form-data, containing
 - .json file with the form name "jsonData". See JSON schema description included further down this document.
 - [0 - n] .jpg files all with form name "images". These files are the photographs specified inside the JSON structure also included in the zip file.

9.13.c. Output parameters

- application/json: JSON object indicating whether the uploading was correct, and the warnings/errors found during the upload.



9.14. Provisioning

Lists the table contents and where applicable, the language.

We do not recommend using this end point as it is only used when building the DMT for deployment.

9.14.a. Address

GET </dmt/services/rest/form>

9.14.b. Input parameters

- *table*: Table Name.
- *language*: Language Id from T_LANGUAGE .

9.14.c. Output parameters

- application/json: JSON object listing the contents of the table.

9.15. Point Summaries

An endpoint provided to allow the downloading of static point data in bulk.

9.15.a. Address

GET /dmt/api/v2/points

Filtered list of point summaries

GET /dmt/api/v2/points/{id}

Single point summary

9.15.b. Input parameters

The first form of this endpoint takes the following query parameters to filter the set of returned points. It should be noted that for SU level users, any provided value for *user* will be ignored and the current user's Id used instead and for CO level and below, a provided *country* value will likewise be ignored in lieu of the current user's country code.

Parameter Name	Type	Description
country	Two letter NUTS country code	Return only points within the specified country. If this parameter is not specified for a user of XC level or higher, points from all countries will be returned. For lower level users this parameter has no effect and the points returned will always be restricted to the user's own country



user	User Id	Return only points assigned to the specified user. If this parameter is not specified for a user of RO level or higher, all points assigned to any or no user will be returned. For SU level users this parameter has no effect and the points returned will always be restricted to those assigned to the user.
level	Integer between 0 and 5	Return only points currently at the specified level. Defaults to the current user's level, an explicit value of 0 can be used to show points at all levels.
pageSize	Integer	Due to the large number of points in the database, only this many points will be returned with any given call. The <i>offset</i> parameter can be used to page through the full result set. Defaults to 50000 which is enough to view the full set of points for any one country without paging.
offset	Integer	The number of points (ordered by Id) to skip before outputting the current page of results. Defaults to 0.

9.15.c. Output

As described under the *pageSize* input parameter, by default there is a limit to the number of results returned by any single call. The total number of points that match the provided filters is returned in the non-standard X-total-count: header. In addition, link to the next and previous 'page' of results are provided in [Link](#): headers with the rel values of 'next' and 'prev' if appropriate.

The body of the response is a JSON array of objects with the following properties

Property Name	Type	Description
id	String	The 8-digit point Id
user_id	String	The User Id of the assigned surveyor or <i>null</i> if the point has not been assigned.
country	Two letter NUTS country code	The country the point is in.
last_modified	ISO 8601 date string	The (UTC) date-time at which the point's survey was last modified or <i>null</i> if a survey has not yet been submitted for the point.
survey_date	ISO 8601 date string	The date-time provided in the 'Date' Field (F-7 M1) of the survey of <i>null</i> if no date has been entered
status	Integer between 1 and 5	The current survey status of the point survey as described in 6.3.a.a)
level	Integer between 1 and 5	The current level of the point survey as described in 6.3.a.b)
latitude	Double	The latitude of the point.
longitude	Double	The longitude of the point.



photo_interpretation	Boolean	Whether the point is a PI Extension point
ex_ante	Boolean	Whether the point is an Ex-ante PI point
copernicus	Boolean	Whether the point is a Copernicus point
grassland	Boolean	Whether the point is a Grassland point
erosion	Boolean	Whether the point is a Grassland point
soil	Boolean	Whether the point is a Soil point
soil_organic	Boolean	Whether the point is an Organic Horizon point
soil_bio	Boolean	Whether the point is a Bio point
soil_bulk10	Boolean	Whether the point is a Bulk 0-10 point
soil_bulk20	Boolean	Whether the point is a Bulk 10-20 point
soil_bulk30	Boolean	Whether the point is a Bulk 20-30 point

9.16. AQC Errors

Provides translated AQC errors for a point

9.16.a. Address

GET /dmt/api/v2/points/{id}/aqc

Results as a JSON array.

GET /dmt/api/v2/points/{id}/aqc.csv

Results as a csv file.

9.16.b. Input parameters

Both forms take an optional *language* query parameter consisting of the two-letter code for the language you wish to receive results in. If not specified, the language configured for the current user is used, defaulting to English if no language has been configured.

9.16.c. Output

The body of the response is either a JSON array of objects with the following properties or a csv file with the following headings

Property Name	Type	Description
point_id	String	The 8-digit point Id
control_id	String	An opaque Id for the AQC rule which was violated
user_id	String	The User Id of the logged in user when the upload that generated the error was received.



module	String	The module(s) within which the violating field(s) were found. If multiple modules are present, they are presented as a comma separated list.
field	String	The field(s) which referenced by the violated rule. If multiple fields are present, they may be presented either as a comma separated list or a dash ('-') separated range or a combination of the two (e.g. '32,42-44').
message	String	The error message in the selected language, falling back to English if no translation for the selected language has been provided.

9.17. KML

Provides KML files for a point

9.17.a. Address

GET /dmt/api/v2/kml

Returns a kml file containing <NetworkLink> elements for all points accessible by the current user that link to the endpoints below:

GET /dmt/api/v2/kml /{id}.kml

Returns a kml file containing survey data/locations for a point.

GET /dmt/api/v2/gpx/{id}.kml

Returns a kml file containing the gps track related to a point.

9.17.b. Input parameters

The {id} path parameter is the 8-digit id for a point.

9.17.c. Output

KML files suitable for viewing with Google Earth Pro (the web version of google earth does not support NetworkLink end points protected be HTTP Basic Auth and so will not work with the first endpoint)

9.18. VQC

Provides VQC files for a point



9.18.a. Address

GET /dmt/api/v2/points/{id}/vqc

Returns a JSON array of VQC errors and comments.

9.18.b. Input parameters

The {id} path parameter is the 8-digit id for a point.

9.18.c. Output

Returns a JSON array of records, each record having a Point Id, User Id, Comment 1, Comment 2, Creation Date, and Level (RO, CO, XC, EU).

Property Name	Type	Description
pointId	String	The 8-digit point Id
user	String	The user ID of the user who gave the VQC
level	String	The level of the user who gave the VQC (RO, CO, XC, EU)
dateCreated	Date	The date and time at which the VQC was provided
comment1	String	A short message of whether the point was accepted / rejected, or a VQC Error from T_COMMENT
comment2	String	Will contain a user-written VQC summary (if any)

9.19. VQC start

9.19.a. Address

POST /dmt/services/map/vqc/point/{id}/start

9.19.b. Input parameters

The {id} path parameter is the 8-digit id for a point.

No expected body content.

9.19.c. Output

None.

9.20. VQC comment



9.20.a. Address

POST /dmt/services/map/vqc/{id}/comment

9.20.b. Input parameters

The {id} path parameter is the 8-digit id for a point.

/comment accepts a body of a JSON object, which can contain an “observation” and “comment”.

Observation – free text reason for acceptance / rejection

Comment – VQC comment code, e.g. EA99, Other overall quality problems

9.20.c. Output

None.

9.21. VQC accept/reject

9.21.a. Address

POST /dmt/services/map/vqc/point/{id}/status?status={status}

9.21.b. Input parameters

The {id} path parameter is the 8-digit id for a point.

The {status} path parameter is a number, 2 to accept the point, 4 to reject.

No expected body content.

9.21.c. Output

None.

9.22. JSON schema

The data uploaded/downloaded via the services here detailed handle the point and survey data inside JSON files whose structure must comply with the schema here presented. Note that individual services may not include the full structure, only parts of it.

9.22.a. JSON schema description

```
{
  "dataroot": [{
    "T_SURVEY_TRANSFER": {
```



```
"POINT_ID": {
  "type": "int",
  "required": true
},
"SURVEY_DATE": {
  "type": "dateTime",
  "required": false
},
"SURVEY_START_TIME": {
  "type": "string",
  "required": false
  "maxLength": 11
},
"SURVEY_END_TIME": {
  "type": "string",
  "required": false
  "maxLength": 11
},
"SURVEY_CAR_LATITUDE": {
  "type": "double",
  "required": false
},
"SURVEY_CAR_EW": {
  "type": "string",
  "required": false
  "maxLength": 1
},
"SURVEY_CAR_LONGITUDE": {
  "type": "double",
  "required": false
},
"SURVEY_OBS_TYPE": {
  "type": "string",
  "required": false
  "maxLength": 1
},
"SURVEY_GPS_PROJ": {
  "type": "string",
  "required": false
  "maxLength": 1
},
"SURVEY_GPS_LAT": {
  "type": "double",
  "required": false
},
"SURVEY_GPS_EW": {
  "type": "string",
  "required": false
  "maxLength": 1
},
"SURVEY_GPS_LONG": {
  "type": "double",
  "required": false
},
"SURVEY_GPS_ALTITUDE": {
  "type": "int",
  "required": false
},
"SURVEY_GPS_PREC": {
  "type": "int",
  "required": false
},
"SURVEY_OBS_DIST": {
  "type": "int",
  "required": false
}
```



```
},
  "SURVEY_OBS_DIRECT": {
    "type": "string",
    "required": false
    "maxLength": 38
  },
  "SURVEY_PARCEL_AREA_HA": {
    "type": "string",
    "required": false
    "maxLength": 38
  },
  "SURVEY_LC1": {
    "type": "string",
    "required": false
    "maxLength": 4
  },
  "SURVEY_LC1_SPEC": {
    "type": "string",
    "required": false
    "maxLength": 5
  },
  "SURVEY_LC1_PERC": {
    "type": "int",
    "required": false
  },
  "SURVEY_LC2": {
    "type": "string",
    "required": false
    "maxLength": 4
  },
  "SURVEY_LC2_SPEC": {
    "type": "string",
    "required": false
    "maxLength": 5
  },
  "SURVEY_LC2_PERC": {
    "type": "int",
    "required": false
  },
  "SURVEY_TREE_HEIGHT_SURVEY": {
    "type": "string",
    "required": false
    "maxLength": 38
  },
  "SURVEY_TREE_HEIGHT_MATURITY": {
    "type": "string",
    "required": false
    "maxLength": 38
  },
  "SURVEY_FEATURE_WIDTH": {
    "type": "string",
    "required": false
    "maxLength": 38
  },
  "SURVEY_LU1": {
    "type": "string",
    "required": false
    "maxLength": 4
  },
  "SURVEY_LU1_TYPE": {
    "type": "string",
    "required": false
    "maxLength": 5
  },
},
```



```
"SURVEY_LU1_PERC": {
  "type": "int",
  "required": false
},
"SURVEY_LU2": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_LU2_TYPE": {
  "type": "string",
  "required": false
  "maxLength": 5
},
"SURVEY_LU2_PERC": {
  "type": "int",
  "required": false
},
"SURVEY_GRAZING": {
  "type": "string",
  "required": false
  "maxLength": 38
},
"SURVEY_SPECIAL_STATUS": {
  "type": "string",
  "required": false
  "maxLength": 38
},
"SURVEY_LC_LU_SPECIAL_REMARK": {
  "type": "string",
  "required": false
  "maxLength": 38
},
"SURVEY_INSPIRE_PLCC1": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC2": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC3": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC4": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC5": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC6": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC7": {
  "type": "int",
  "required": false
},
"SURVEY_INSPIRE_PLCC8": {
  "type": "int",
  "required": false
},
}
```



```
"SURVEY_WM": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_WM_TYPE": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_WM_SOURCE": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_WM_DELIVERY": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_STD_TAKEN": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_STD_LABEL": {
  "type":"string",
  "required":false
  "maxLength":5
},
"SURVEY_LNDMNG_PLOUGH": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_CROP_PERC": {
  "type":"string",
  "required":false
  "maxLength":22
},
"SURVEY_SOIL_STONES_PERC": {
  "type":"int",
  "required":false
},
"SURVEY_TRANSECT": {
  "type":"string",
  "required":false
  "maxLength":4000
},
"SURVEY_LM_PLOUGH_SLOPE": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_LM_PLOUGH_DIRECT": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_LM_STONE_WALLS": {
  "type":"string",
  "required":false
  "maxLength":38
},
},
```



```
"SURVEY_LM_GRASS_MARGINS": {
  "type": "string",
  "required": false
  "maxLength": 38
},
"SURVEY_CPRN_CANDO": {
  "type": "int",
  "required": false
},
"SURVEY_CPRN_LC1N": {
  "type": "int",
  "required": false
},
"SURVEY_CPRN_LC1N_NEXT": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_CPRNC_LC1E": {
  "type": "int",
  "required": false
},
"SURVEY_CPRN_LC1E_NEXT": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_CPRNC_LC1S": {
  "type": "int",
  "required": false
},
"SURVEY_CPRN_LC1S_NEXT": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_CPRNC_LC1W": {
  "type": "int",
  "required": false
},
"SURVEY_CPRN_LC1W_NEXT": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_CPRN_URBAN": {
  "type": "string",
  "required": false
  "maxLength": 38
},
"SURVEY_CPRN_IMPERVIOUS_PERC": {
  "type": "int",
  "required": false
},
"SURVEY_EUNIS_COMPLEX": {
  "type": "string",
  "required": false
  "maxLength": 5
},
"SURVEY_GRASS_ORIENTATION": {
  "type": "string",
  "required": false
  "maxLength": 4
},
"SURVEY_GRASS_SLOPE": {
```



```
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_SITE_MOISTURE": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_SURFACE": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_ANIMAL_PATHS": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_FERTILIZ": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_FERTILIZ_TYPE": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_GRASSLAND_TYPE": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_MEADOW_GROWTH": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_MEADOW_MOWN": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_PASTURE_GRAZING": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_PASTURE_GRAZED": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_PASTURE_CATTLE": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_GRASS_PASTURE_HORSES": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_GRASS_PASTURE_SHEEP": {
        "type":"boolean",
        "required":false
    }
}
```



```
},
"SURVEY_GRASS_PASTURE_GOATS": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_DONKEYS": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_PIGS": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_GEESE": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_DEER": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_OTHER": {
  "type":"boolean",
  "required":false
},
"SURVEY_GRASS_PASTURE_NN": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_GRASS_OTHER_TYPE": {
  "type":"int",
  "required":false
},
"SURVEY_GRASS_FALLOW_AGE": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_GRASS_AGE": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_GRASS_INSTALLATION": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_GRASS_TRNSCT_START": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_GRASS_TRNSCT_SHIFT": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_GRASS_TRNSCT_SHIFT_DIST": {
  "type":"int",
  "required":false
},
"SURVEY_GRASS_TRNSCT_DIRECTION": {
  "type":"string",
```



```
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_TRNSCT_LENGTH": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_GPS_LAT_START": {
        "type":"double",
        "required":false
    },
    "SURVEY_GRASS_GPS_EW_START": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_GRASS_GPS_LON_START": {
        "type":"double",
        "required":false
    },
    "SURVEY_GRASS_GPS_LAT_END": {
        "type":"double",
        "required":false
    },
    "SURVEY_GRASS_GPS_EW_END": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_GRASS_GPS_LON_END": {
        "type":"double",
        "required":false
    },
    "SURVEY_GRASS_VIGOUR_VEG": {
        "type":"string",
        "required":false
        "maxLength":3
    },
    "SURVEY_GRASS_GRMHRB_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_BARE_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_GRMHRB_GRAM_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_GRMHRB_FORBS_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_GRMHRB_LEGUM_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_GRMHRB_MOSS_PERC": {
        "type":"int",
```



```
        "required":false
    },
    "SURVEY_GRASS_GRMHRB_LICHE_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_BARE_BARE_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_BARE_ROCKS_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_BARE_LITTER_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_ORCHAR_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_OLDTRE_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_SHRUB_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_DWARF_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_OTHER_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_WOODY_DEAD_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAYER1_H_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAYER2_H_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAYER3_H_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAYER4_H_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAYER5_H_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_HERB_LAY_HETEROG": {
        "type":"string",
        "required":false
    }
```



```
        "maxLength":38
    },
    "SURVEY_GRASS_HERB_LAY_HET_REAS": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_FLOWERING_FORBS_N": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_FLOWER_DENSITY": {
        "type":"string",
        "required":false
        "maxLength":38
    },
    "SURVEY_GRASS_RICHNESS_SPEC1": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC2": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC3": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC4": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC5": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC6": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC7": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC8": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC9": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC10": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC11": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC12": {
        "type":"int",
        "required":false
    },
    },
```



```
"SURVEY_GRASS_RICHNESS_SPEC13": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC14": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC15": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC16": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC17": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC18": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC19": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC20": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC21": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC22": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC23": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC24": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC25": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC26": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC27": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC28": {
  "type": "int",
  "required": false
},
"SURVEY_GRASS_RICHNESS_SPEC29": {
```



```
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC30": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC31": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC32": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC33": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC34": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC35": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC36": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC37": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC38": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC39": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC40": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_RICHNESS_SPEC41": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC1_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC2_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC3_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC4_PERC": {
```



```
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC5_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC6_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC7_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC8_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC9_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC10_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC11_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC12_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_STRUC_SPEC13_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_LEGUME_TOTAL_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_CANDO": {
        "type": "int",
        "required": false
    },
    "SURVEY_EROSION_SIGNS": {
        "type":"string",
        "required":false
        "maxLength":3
    },
    "SURVEY_EROSION_SHEET": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_EROSION_SHEET_P": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_SHEET_N": {
        "type":"boolean",
        "required":false
    },
    },
```



```
"SURVEY_EROSION_SHEET_E": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_SHEET_S": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_SHEET_W": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_SHEET_NR": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_EROSION_SHEET_N_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_SHEET_E_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_SHEET_S_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_SHEET_W_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_RILL": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_EROSION_RILL_P": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_RILL_N": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_RILL_E": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_RILL_S": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_RILL_W": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_RILL_NR": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_EROSION_RILL_N_DIST_M": {
```



```
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_RILL_E_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_RILL_S_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_RILL_W_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_GULLY": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_EROSION_GULLY_P": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_GULLY_N": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_GULLY_E": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_GULLY_S": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_GULLY_W": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_GULLY_NR": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_EROSION_GULLY_N_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_GULLY_E_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_GULLY_S_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_GULLY_W_DIST_M": {
        "type":"int",
        "required":false
    },
    "SURVEY_EROSION_MASS": {
        "type":"string",
        "required":false
        "maxLength":1
    }
```



```
},
"SURVEY_EROSION_MASS_P": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_MASS_N": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_MASS_E": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_MASS_S": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_MASS_W": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_MASS_NR": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_EROSION_MASS_N_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_MASS_E_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_MASS_S_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_MASS_W_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_DEP": {
  "type":"string",
  "required":false
  "maxLength":1
},
"SURVEY_EROSION_DEP_P": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_DEP_N": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_DEP_E": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_DEP_S": {
  "type":"boolean",
  "required":false
},
"SURVEY_EROSION_DEP_W": {
```



```
        "type":"boolean",
        "required":false
    },
    "SURVEY_EROSION_DEP_NR": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    },
    "SURVEY_EROSION_DEP_N_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_DEP_E_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_DEP_S_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_DEP_W_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    },
    "SURVEY_EROSION_WIND_P": {
        "type":"boolean",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_N": {
        "type":"boolean",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_E": {
        "type":"boolean",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_S": {
        "type":"boolean",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_W": {
        "type":"boolean",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_NR": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    },
    "SURVEY_EROSION_WIND_N_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_E_DIST_M": {
        "type":"int",
        "required":false
    },
    },
    "SURVEY_EROSION_WIND_S_DIST_M": {
        "type":"int",
        "required":false
    }
```



```
},
"SURVEY_EROSION_WIND_W_DIST_M": {
  "type":"int",
  "required":false
},
"SURVEY_EROSION_RILLGULLY_N": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_BIO_TAKEN": {
  "type":"boolean",
  "required":false
},
"SURVEY_SOIL_BIO_LABEL": {
  "type":"string",
  "required":false
  "maxLength":5
},
"SURVEY_SOIL_BLK_0_10_TAKEN": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_BLK_0_10_LABEL": {
  "type":"string",
  "required":false
  "maxLength":5
},
"SURVEY_SOIL_BLK_10_20_TAKEN": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_BLK_10_20_LABEL": {
  "type":"string",
  "required":false
  "maxLength":5
},
"SURVEY_SOIL_BLK_20_30_TAKEN": {
  "type":"string",
  "required":false
  "maxLength":38
},
"SURVEY_SOIL_BLK_20_30_LABEL": {
  "type":"string",
  "required":false
  "maxLength":5
},
"SURVEY_SOIL_BLK_0_10_CO_P": {
  "type":"boolean",
  "required":false
},
"SURVEY_SOIL_BLK_0_10_CO_N": {
  "type":"boolean",
  "required":false
},
"SURVEY_SOIL_BLK_0_10_CO_E": {
  "type":"boolean",
  "required":false
},
"SURVEY_SOIL_BLK_0_10_CO_S": {
  "type":"boolean",
  "required":false
}
```



```
},
"SURVEY_SOIL_BLK_0_10_CO_W": {
  "type": "boolean",
  "required": false
},
"SURVEY_SOIL_BLK_0_10_CO_NR": {
  "type": "string",
  "required": false
  "maxLength": 1
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_P": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_N": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_E": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_S": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_W": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_0_10_CO_RE_NR": {
  "type": "string",
  "required": false
  "maxLength": 1
},
},
"SURVEY_SOIL_BLK_10_20_CO_P": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_N": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_E": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_S": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_W": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_NR": {
  "type": "string",
  "required": false
  "maxLength": 1
},
},
"SURVEY_SOIL_BLK_10_20_CO_RE_P": {
  "type": "boolean",
  "required": false
},
},
"SURVEY_SOIL_BLK_10_20_CO_RE_N": {
```



```
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_10_20_CO_RE_E": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_10_20_CO_RE_S": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_10_20_CO_RE_W": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_10_20_CO_RE_NR": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_SOIL_BLK_20_30_CO_P": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_N": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_E": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_S": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_W": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_NR": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_SOIL_BLK_20_30_CO_RE_P": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_RE_N": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_RE_E": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_RE_S": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_BLK_20_30_CO_RE_W": {
        "type":"boolean",
        "required":false
    }
```



```
},
"SURVEY_SOIL_BLK_20_30_CO_RE_NR": {
  "type": "string",
  "required": false
  "maxLength": 1
},
"SURVEY_SOIL_BLK_0_10_MST_W_G": {
  "type": "int",
  "required": false
},
"SURVEY_SOIL_BLK_0_10_DRY_W_G": {
  "type": "int",
  "required": false
},
"SURVEY_SOIL_BLK_10_20_MST_W_G": {
  "type": "int",
  "required": false
},
"SURVEY_SOIL_BLK_10_20_DRY_W_G": {
  "type": "int",
  "required": false
},
"SURVEY_SOIL_BLK_20_30_MST_W_G": {
  "type": "int",
  "required": false
},
"SURVEY_SOIL_BLK_20_30_DRY_W_G": {
  "type": "int",
  "required": false
},
},
"SURVEY_SOIL_OWN_RQST_RESULTS": {
  "type": "string",
  "required": false
  "maxLength": 3
},
},
"SURVEY_SOIL_NAME": {
  "type": "string",
  "required": false
  "maxLength": 255
},
},
"SURVEY_SOIL_ADDRESS": {
  "type": "string",
  "required": false
  "maxLength": 255
},
},
"SURVEY_SOIL_PHONE": {
  "type": "string",
  "required": false
  "maxLength": 255
},
},
"SURVEY_SOIL_EMAIL": {
  "type": "string",
  "required": false
  "maxLength": 255
},
},
"SURVEY_SOIL_ORG_CULTIVATED": {
  "type": "string",
  "required": false
  "maxLength": 3
},
},
"SURVEY_SOIL_ORG_DEPTH_CANDO": {
  "type": "int",
  "required": false
},
},
"SURVEY_SOIL_ORG_DEPTH_P_CM": {
```



```
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_N_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_E_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_S_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_W_CM": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_P_40_CM": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_N_40_CM": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_E_40_CM": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_S_40_CM": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_SOIL_ORG_DEPTH_W_40_CM": {
        "type":"boolean",
        "required":false
    },
    "SURVEY_STATUS": {
        "type":"int",
        "required":true
    },
    "SURVEY_WORKFLOW": {
        "type":"string",
        "required":false
        "maxLength":10
    },
    "SURVEY_DATA_BLOCKED": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_LEVEL": {
        "type":"int",
        "required":true
    },
    "SURVEY_EXPORTED": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_GRASS_EUNIS_HABITAT": {
        "type":"string",
```



```
        "required":false
        "maxLength":5
    },
    "SURVEY_GRASS_STRUCT_OTHER_PERC": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_EXP_DATE": {
        "type":"dateTime",
        "required":false
    },
    "SURVEY_SOIL_BIO_EXP_DATE": {
        "type":"dateTime",
        "required":false
    },
    "SURVEY_CALC_DIST": {
        "type":"int",
        "required":false
    },
    "SURVEY_SOIL_ORG_TAKEN": {
        "type":"string",
        "required":false
        "maxLength":1
    },
    "SURVEY_GRASS_RICHNESS_FURTHER": {
        "type":"int",
        "required":false
    },
    "SURVEY_CPRN_LC": {
        "type":"string",
        "required":false
        "maxLength":4
    },
    "SURVEY_CPRN_LC1N_BRDTH": {
        "type":"int",
        "required":false
    },
    "SURVEY_CPRN_LC1E_BRDTH": {
        "type":"int",
        "required":false
    },
    "SURVEY_CPRN_LC1S_BRDTH": {
        "type":"int",
        "required":false
    },
    "SURVEY_CPRN_LC1W_BRDTH": {
        "type":"int",
        "required":false
    },
    "SURVEY_GRASS_CANDO": {
        "type":"string",
        "required":false
        "maxLength":22
    }
},
"T_POINT_TRANSFER": {
    "POINT_ID": {
        "type":"int",
        "required":true
    },
},
"USER_ID": {
    "type":"string",
    "required":false
    "maxLength":50
},
},
```



```
"POINT_NUTS0": {
  "type":"string",
  "required":true
  "maxLength":2
},
"POINT_NUTS1": {
  "type":"string",
  "required":false
  "maxLength":3
},
"POINT_NUTS2": {
  "type":"string",
  "required":false
  "maxLength":4
},
"POINT_NUTS3": {
  "type":"string",
  "required":false
  "maxLength":5
},
"POINT_LAT": {
  "type":"double",
  "required":false
},
"POINT_LONG": {
  "type":"double",
  "required":false
},
"POINT_ALTITUDE": {
  "type":"int",
  "required":false
},
"POINT_SOIL": {
  "type":"boolean",
  "required":false
},
"POINT_ASSIGN": {
  "type":"boolean",
  "required":false
},
"POINT_TRANSECT_LENGTH": {
  "type":"boolean",
  "required":false
},
"POINT_IMG_FILE": {
  "type":"string",
  "required":false
  "maxLength":255
},
"POINT_IMG_COORD_1_LAT": {
  "type":"double",
  "required":false
},
"POINT_IMG_COORD_1_LONG": {
  "type":"double",
  "required":false
},
"POINT_IMG_COORD_2_LAT": {
  "type":"double",
  "required":false
},
"POINT_IMG_COORD_2_LONG": {
  "type":"double",
  "required":false
}
```



```
},
"POINT_IMG_COORD_3_LAT": {
  "type": "double",
  "required": false
},
"POINT_IMG_COORD_3_LONG": {
  "type": "double",
  "required": false
},
"POINT_IMG_COORD_4_LAT": {
  "type": "double",
  "required": false
},
"POINT_IMG_COORD_4_LONG": {
  "type": "double",
  "required": false
},
"POINT_EO_TRANSECT_LONG": {
  "type": "double",
  "required": false
},
"POINT_EO_TRANSECT_LAT": {
  "type": "double",
  "required": false
},
"POINT_XC_VISUAL_QC": {
  "type": "boolean",
  "required": false
},
"POINT_EX_ANTE": {
  "type": "boolean",
  "required": false
},
"POINT_IN_CENTRAL_DB": {
  "type": "boolean",
  "required": false
},
"POINT_LOCKED": {
  "type": "boolean",
  "required": false
},
"PI_EXTENSION": {
  "type": "boolean",
  "required": false
},
"POINT_COPERNICUS": {
  "type": "boolean",
  "required": false
},
"POINT_GRASSLAND": {
  "type": "boolean",
  "required": false
},
"POINT_GRASS_REGION": {
  "type": "string",
  "required": false,
  "maxLength": 10
},
"POINT_EROSION": {
  "type": "boolean",
  "required": false
},
"POINT_SOIL_ORGANIC": {
  "type": "boolean",
  "required": false
}
```



```
    },
    "POINT_SOIL_BULK_0_10": {
      "type": "boolean",
      "required": false
    },
    },
    "POINT_SOIL_BULK_10_20": {
      "type": "boolean",
      "required": false
    },
    },
    "POINT_SOIL_BULK_20_30": {
      "type": "boolean",
      "required": false
    },
    },
    "POINT_SOIL_BIO": {
      "type": "boolean",
      "required": false
    },
    },
    "POINT_TRANSECT": {
      "type": "string",
      "required": false
      "maxLength": 2000
    },
    },
    "X0_COPER": {
      "type": "double",
      "required": false
    },
    },
    "X1_COPER": {
      "type": "double",
      "required": false
    },
    },
    "Y0_COPER": {
      "type": "double",
      "required": false
    },
    },
    "Y1_COPER": {
      "type": "double",
      "required": false
    },
    },
    "POINT_GRASS_SUBREGION": {
      "type": "string",
      "required": false
      "maxLength": 10
    },
    },
    "POINT_GRASS_CLUSTER": {
      "type": "string",
      "required": false
      "maxLength": 8
    }
  },
  },
  "T_SURVEY_COMMENT_TRANSFER" [{
    "POINT_ID": {
      "type": "int",
      "required": true
    },
    },
    "COMMENT_CODE": {
      "type": "string",
      "required": true
      "maxLength": 50
    },
    },
    "USER_ID": {
      "type": "string",
      "required": true
      "maxLength": 255
    }
  ],
  },
```



```
"COMMENT_DATE": {
  "type": "dateTime",
  "required": false
},
"COMMENT_DETAIL": {
  "type": "string",
  "required": false
  "maxLength": 2000
},
"FIELD_ID_AUTO": {
  "type": "int",
  "required": false
}
}],
"T_PHOTO_TRANSFER_XML": [{
  "POINT_ID": {
    "type": "int",
    "required": true
  },
  "PHOTO_ID": {
    "type": "int",
    "required": true
  },
  "PHOTO_ID_TYPE": {
    "type": "int",
    "required": true
  },
  "PHOTO_COMMENT": {
    "type": "string",
    "required": false,
    "maxLength": 255
  },
  "PHOTO_STATUS": {
    "type": "int",
    "required": false
  },
  "PHOTO_ANON": {
    "type": "boolean",
    "required": false
  },
  "PHOTO_GPS_LAT": {
    "type": "double",
    "required": false
  },
  "PHOTO_GPS_EW": {
    "type": "string",
    "required": false,
    "maxLength": 1
  },
  "PHOTO_GPS_LONG": {
    "type": "double",
    "required": false
  },
  "PHOTO_GPS_ALTITUDE": {
    "type": "int",
    "required": false
  },
  "PHOTO_GPS_DIST": {
    "type": "double",
    "required": false
  },
  "PHOTO_FILENAME": {
    "type": "string",
    "required": false,
    "maxLength": 50
  }
}
```



```
    },
    "PHOTO_FILESIZE": {
      "type": "int",
      "required": false
    },
    },
    "PHOTO_ORIENTATION": {
      "type": "int",
      "required": false
    },
    },
    "PHOTO_SIZE_X_Y": {
      "type": "string",
      "required": false,
      "maxLength": 50
    },
    },
    "PHOTO_TAKENDATE": {
      "type": "dateTime",
      "required": false
    },
    },
    "PHOTO_TAKETIME": {
      "type": "dateTime",
      "required": false
    },
    },
    "PHOTO_WARNING": {
      "type": "int",
      "required": false
    },
    },
  }
}
```

9.22.b. Data upload Json Example

```
{
  "dataroot": [
    {
      "T_SURVEY_TRANSFER_XML": {
        "POINT_ID": 33722284,
        "SURVEY_LEVEL": 1,
        "SURVEY_END_TIME": "09:40",
        "SURVEY_WORKFLOW": "00000",
        "SURVEY_STATUS": 1,
        "SURVEY_START_TIME": "09:00",
        "USER_ID": "ESSUF01",
        "POINT_ALTITUDE": 383,
        "POINT_EX_ANTE": false,
        "SURVEY_DATE": "2017-07-03T00:00:00.000+02:00",
        "SURVEY_OBS_TYPE": "1",
        "SURVEY_OBS_DIRECT": "1",
        "SURVEY_LC1": "A11",
        "SURVEY_LC1_SPEC": "8",
        "SURVEY_LC1_PERC": 20,
        "SURVEY_LC2": "8",
        "SURVEY_LC2_SPEC": "8",
        "SURVEY_LC2_PERC": 0,
        "SURVEY_LU1": "U370",
        "SURVEY_LU1_TYPE": "8",
        "SURVEY_LU1_PERC": 20,

```



```
"SURVEY_LU2": "8",
"SURVEY_LU2_TYPE": "8",
"SURVEY_LU2_PERC": 0,
"SURVEY_PARCEL_AREA_HA": "1",
"SURVEY_GRAZING": "2",
"SURVEY_SPECIAL_STATUS": "4",
"SURVEY_LC_LU_SPECIAL_REMARK": "9",
"POINT_SOIL": false,
"POINT_SOIL_ORGANIC": false,
"POINT_SOIL_BULK_0_10": false,
"POINT_SOIL_BULK_10_20": false,
"POINT_SOIL_BULK_20_30": false,
"POINT_SOIL_BIO": false,
"SURVEY_SOIL_BLK_0_10_LABEL": "",
"SURVEY_SOIL_BLK_0_10_CO_N": false,
"SURVEY_SOIL_BLK_0_10_CO_W": false,
"SURVEY_SOIL_BLK_0_10_CO_RE_N": false,
"SURVEY_SOIL_BLK_0_10_CO_RE_W": false,
"SURVEY_SOIL_BLK_0_10_CO_P": false,
"SURVEY_CAR_LATITUDE": "42",
"SURVEY_CAR_EW": "2",
"SURVEY_CAR_LONGITUDE": "2",
"SURVEY_GPS_PROJ": "1",
"SURVEY_GPS_LAT": "42.941765788",
"SURVEY_GPS_EW": "2",
"SURVEY_GPS_LONG": "-8.119963987",
"SURVEY_CALC_DIST": "0",
"SURVEY_GPS_PREC": "4",
"SURVEY_GPS_ALTITUDE": "380",
"SURVEY_OBS_DIST": "3"
}
},
{
  "T_POINT_TRANSFER_XML": {
    "POINT_NUTS0": "ES",
    "POINT_TRANSECT": "0",
    "POINT_ALTITUDE": 383,
    "POINT_SOIL_BIO": false,
    "POINT_NUTS3": "ES111",
    "POINT_NUTS2": "ES11",
    "POINT_NUTS1": "ES1",
    "POINT_EROSION": false,
    "POINT_LAT": 42.941765788,
    "POINT_SOIL_BULK_10_20": false,
    "POINT_SOIL_BULK_20_30": false,
    "POINT_TRANSECT_LENGTH": false,
    "POINT_SOIL_ORGANIC": false,
    "POINT_IN_CENTRAL_DB": false,
    "POINT_ASSIGN": false,
    "USER_ID": "ESSUF01",
    "PI_EXTENSION": false,
    "POINT_LONG": -8.119963987,
```



```
        "POINT_GRASSLAND": false,
        "POINT_COPERNICUS": false,
        "POINT_SOIL": false,
        "POINT_ID": 33722284,
        "POINT_EO_TRANSECT_LONG": -8.116890658,
        "POINT_XC_VISUAL_QC": false,
        "POINT_SOIL_BULK_0_10": false,
        "POINT_EO_TRANSECT_LAT": 42.941765788,
        "POINT_LOCKED": false,
        "POINT_EX_ANTE": false
    }
},
{
    "T_SURVEY_COMMENT_TRANSFER_XML": [
        {
            "POINT_ID": 33722284,
            "COMMENT_DATE": "2015-05-06T20:18:20.000+02:00",
            "USER_ID": "ESSUF01",
            "COMMENT_CODE": "AB06",
            "COMMENT_DETAIL": "AB06 - Impenetrable vegetation /
poisonous plants"
        },
        {
            "POINT_ID": 33722284,
            "COMMENT_DATE": "2015-05-06T20:18:20.000+02:00",
            "USER_ID": "ESSUF01",
            "COMMENT_CODE": "AC01",
            "COMMENT_DETAIL": "Fuel leak"
        }
    ]
},
{
    "T_PHOTO_TRANSFER_XML": [
        {
            "POINT_ID": "33722284",
            "PHOTO_ID": "1",
            "PHOTO_ID_TYPE": "1",
            "PHOTO_STATUS": "1",
            "PHOTO_FILENAME": "PHOTO#1.jpg"
        },
        {
            "POINT_ID": "33722284",
            "PHOTO_ID": "2",
            "PHOTO_ID_TYPE": "2",
            "PHOTO_STATUS": "1",
            "PHOTO_FILENAME": "PHOTO#2.jpg"
        }
    ]
}
]
```

Figures

Figure 1: DMT 2018 Suite – Overall architecture – Production Environment.....	13
Figure 2: DMT 2018 – User’s code by role	16
Figure 3: DMT Viewer – Connection window.....	16
Figure 4: DMT Viewer – no login nor password entered	17
Figure 5: DMT Viewer – Invalid access	17
Figure 6: DMT Viewer – Sign out.....	17
Figure 7: DMT Viewer – Recover password screen.....	18
Figure 8: DMT Viewer – User is not valid.	18
Figure 9: DMT Viewer – Main menu	21
Figure 10: DMT Viewer – Dashboard on the main menu.....	24
Figure 11: Dashboard menu, overview tabulation.....	24
Figure 12: Overview – National and Eurostat news	26
Figure 13: Filter method on table mode	27
Figure 14: Filter mode - Hide area of the chart.....	28
Figure 15: Filter mode – select area to be extracted	28
Figure 16: Filter mode – List of filtered points.....	29
Figure 17: Export process – Export All.....	30
Figure 18: Export process – Select export destination (available options depend on local configurations)	30
Figure 19: Export process – Export Sélection	31
Figure 20: DMT Viewer – Survey management on the main menu	32
Figure 21: DMT Viewer – Survey management menu	32
Figure 22: DMT Viewer – Survey setup	33
Figure 23: DMT Viewer – Detail of the data already initialized.	34
Figure 24: Open or save a CSV file.....	35
Figure 25: Error message on csv upload.....	39

Figure 26: Error message on csv upload.....	39
Figure 27: Information message on csv upload in case OK.....	39
Figure 28: 69 users before upload process	39
Figure 29: 70 users after upload process; 1 additional user inserted from csv file	40
Figure 30: DMT Viewer – survey progress.....	40
Figure 31: Survey progress window	41
Figure 32: Data download buttons.....	41
Figure 33: Attempt to download data for an excessive number of points	42
Figure 34: DMT Viewer→Survey Management->Survey Progress after clicking selected square.	42
Figure 35: Download selected list of points	43
Figure 36: Access to the DMT Web Client.....	44
Figure 37: Photo visual quality control window.....	45
Figure 38: Weekly Reports	46
Figure 39: Weekly Report pop-up	47
Figure 40: Generate weekly report	47
Figure 41: DMT Viewer Requester	48
Figure 42: DMT Viewer Requester menu for CO, XC and EC users	48
Figure 43: Requester window	48
Figure 44: Query builder interface	54
Figure 45: Successfully saved query	55
Figure 46: Custom query inside Requester interface.....	56
Figure 47: Custom query hierarchy	56
Figure 48: Login drop down menu	57
Figure 49: User profile visualization and preferred language edition.....	58
Figure 50: DMT Web Client splash window with filter	60
Figure 51: DMT web client data entry form: same form displays differently in different devices	61
Figure 52: Help button	62
Figure 53: Field tooltips.....	62

Figure 54: Some fields are pre-filled	63
Figure 55: Date can be entered through a calendar	63
Figure 56: Drop down list	63
Figure 57: Narrow the list down by typing some characters	64
Figure 58: Drop-down list elements may depend on the previous selection in a parent field: in the example above, when choosing "other cereals" for LC1 the plant species are limited to sorghum, buckwheat, etc.	64
Figure 59: Delete drop-down list elements by clicking on the cross.....	64
Figure 60: Use the arrows to enter/increase/decrease values in numeric fields	65
Figure 61: In multiple choice fields, select the appropriate boxes only.....	65
Figure 62: Type a combination of characters to obtain the relevant list of comments.....	65
Figure 63: Comment detail field and comment button to add the full comment.	66
Figure 64: Entered comment list.	66
Figure 65: Use the photo uploader to upload the needed photos. Always insert the corresponding photo type.	67
Figure 66: Photos marked as already uploaded.....	67
Figure 67:M15 before and after Upload.	68
Figure 68:Left – Photo uploaded or user selected not taken, right default behaviour after upload....	69
Figure 69: Access to the photo anonymization tool.....	69
Figure 70: On the anonymizer service window click on browse	70
Figure 71: Navigate to the photos location and select a photo to be anonymized (different screen according to local settings).....	70
Figure 72: The photo will open. Drag the mouse over the image to create a rectangle. Note you will not be able to move the rectangle after.....	71
Figure 73: Drag and drop the mouse over the image to create a rectangle.....	71
Figure 74: Repeat as needed. Re-load in case you want to start over.....	72
Figure 75: Save the picture only when finished. Metadata (namely location tags) is kept if the original photo has it.....	72
Figure 76: Accessing the daily GPS track service.....	73
Figure 77: Upload of a daily GPS track.	73
Figure 78: Daily GPS track successfully uploaded.	73

Figure 79: Accessing the visual quality control comments.	74
Figure 80: Visual quality control comments.....	74
Figure 81: DMT viewer survey progress window (red points)	75
Figure 82: DMT viewer survey progress window (red points selection): validation error list button ..	76
Figure 83: DMT viewer survey progress window (red points selection): get error report button	76
Figure 84: DMT Web Client AutoQC.....	76
Figure 85: DMT Web Client connectivity status information.....	77
Figure 86: DMT Web Client stale data.....	78
Figure 87: DMT Map – Point selection from Survey management menu.....	80
Figure 88: DMT Map – Point selection from Dashboard menu	81
Figure 89: DMT Map – Point selection from Requester menu	81
Figure 90: DMT Map – Kml file missing; points not displayed	82
Figure 91: DMT Map – User interface after point selection	82
Figure 92: DMT Map – Header banner.....	83
Figure 93: DMT Map – Remove all points (confirmation window)	84
Figure 94: DMT Map – Settings selector (visible elements).....	85
Figure 95: DMT Map – Settings selector (element not visible).....	85
Figure 96: DMT Map – Different colours for non-common values	86
Figure 97: DMT Map – Photo’s banner	86
Figure 98: DMT Map – Full photo view navigation, on top of the map	86
Figure 99: DMT Map – Previous photos quick comparison	88
Figure 100: DMT Map – GIS window.....	88
Figure 101: DMT Map – Multiple point selection display	90
Figure 102: DMT Map – Multiple point selection tooltip.....	90
Figure 103: DMT Map – Point ID and User ID	91
Figure 104: Update failed message for a point that has outstanding AQC when attempting to Accept.	92