

# EUROLAS Data Center (EDC) - Recent Developments

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The screenshot shows the EUROLAS Data Center (EDC) website. At the top, there is a header with the text "EUROLAS Data Center (EDC)". Below the header is a large photograph of the facility in Wetzell, Germany, featuring several large satellite dishes and buildings. A caption below the photo reads "Wetzell, Germany".

Below the photo is a "News" section with the following entries:

- 2018-09-03 The satellite PAZ (1802001) was added to the EDC satellite database.
- 2018-08-16 The satellite Glonass-138 (1805301) was added to the EDC satellite database.
- 2018-08-03 The satellites BeiDou-3M1 (1706901), BeiDou-3M2 (1706902), BeiDou-3M3 (1801802), BeiDou-3M9 (1802901) and BeiDou-3M10 (1802902) were added to the EDC satellite database.
- 2018-07-25 The status of station Svetloe, Russia (1888) was changed to validated.
- 2018-07-25 The satellite Tiangong-2 (1605701) was added to the EDC satellite database.

Below the news section is a "Live Tracking Status" section with a table. The table has columns for "Station", "Date", "Satellite", and "Status". The first row shows the date "2018-10-11 09:11:11".

# Motivation

- Automation is becoming increasingly important in the ILRS
- Not only stations, but also data and operation centers work on automation
- Data flow and its procedures have to be investigated and improved
- Developments regarding the following topics have been performed at the EDC
  - Site Logs
  - Station History Logs
  - New CRD/CPF format (Version 2.0)

# Site Logs – Implementation Schedule

Site logs provide important and detailed information about stations changes of hardware, software, personal etc. which are essential for analysts of SLR data

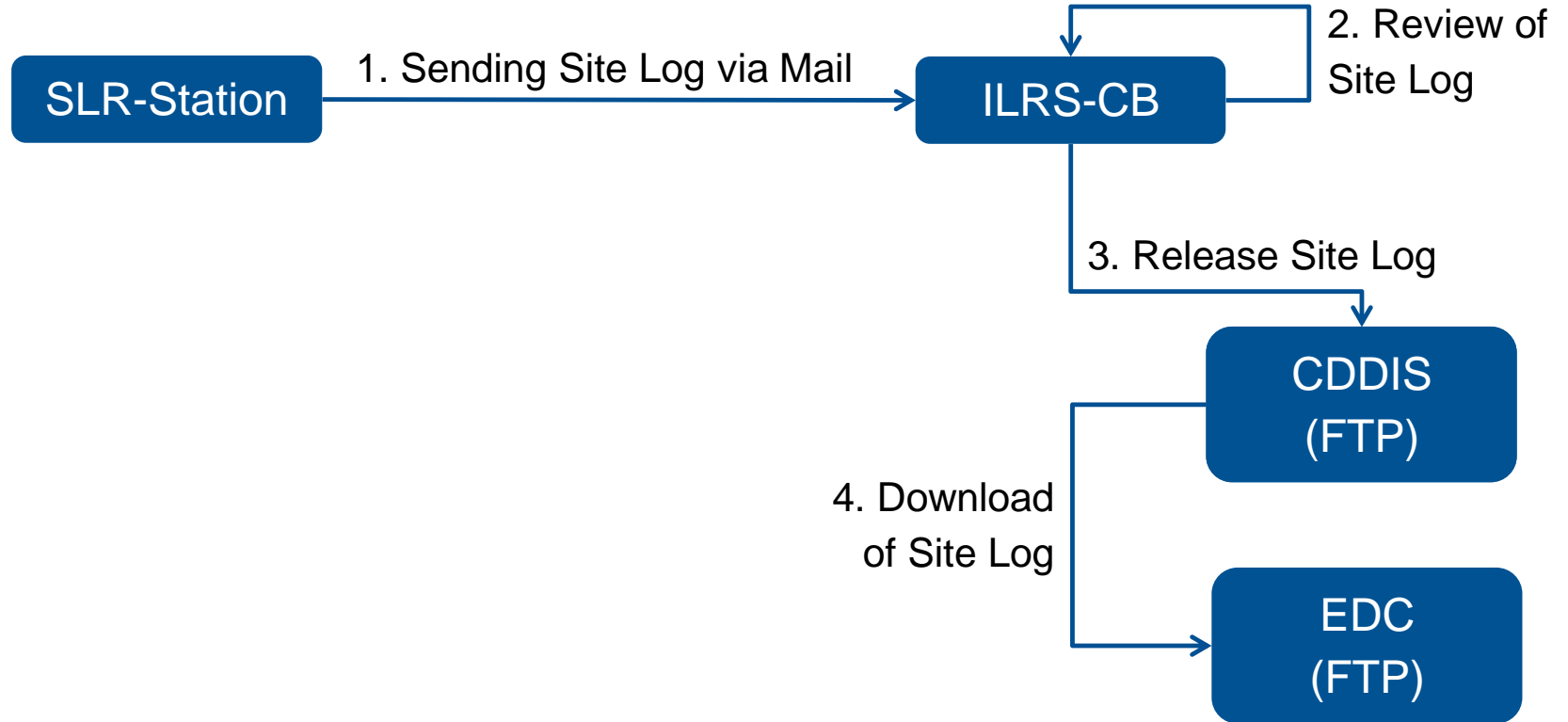
- until August 2018** • Development of the new site log format (v2)
- September 2018** • New site log format has been released
  - 18 fields were updated // 100 fields were added
  - Latest 89 site logs have been converted from v1 to v2
    - Site log structure has been adapted to the new v2 format
    - Existing default values have been removed
    - Obvious errors have been corrected

# Site Logs – Implementation Schedule

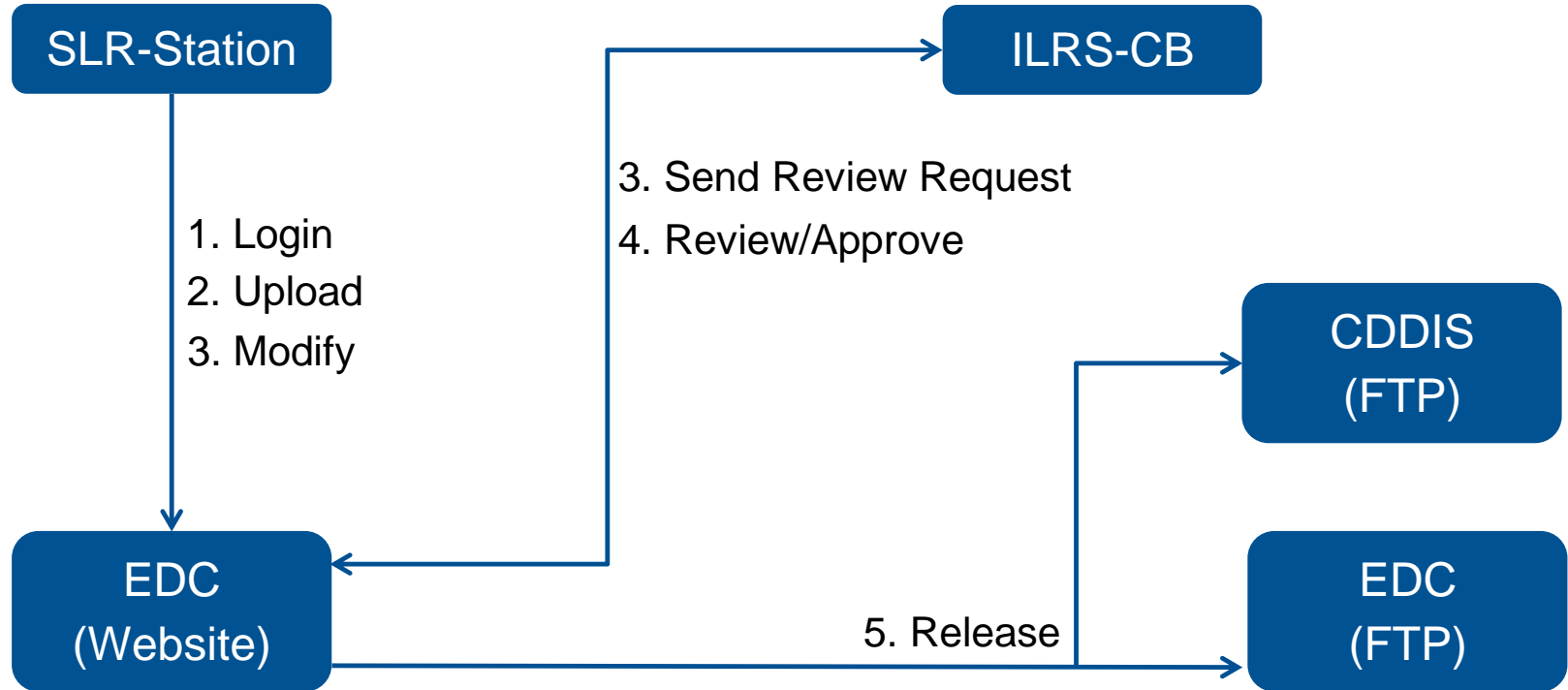


- October 2018**
  - “Site Log Manager” at the EDC-website has been released
  - Stations can use their FTP account to log in on the EDC-Website
  - <ftp://edc.dgfi.tum.de/pub/slr/slrlog/v2/>
- January 2019**
  - Station managers will be informed to review, fix remaining errors and update their site logs
  - All converted site logs should be validated
  - In case of small format errors the review and release of site logs will be performed by the EDC without the ILRS CB
- February 2019**
  - Switch to the operational review process by the ILRS CB

# Site Logs – Current Procedure (Version 1.0)



# Site Logs – New Procedure (Version 2.0)



# Site Logs – New “Site Log Manager”

Back to EDC-Website New Upload Copy Documentation | Download Preview Changes Delete Review You are logged in as edc\_7827 My Profile Logout

Selected Site Log: **Wetzzell, Germany (SOSW), SOSW (7827) - 2014-04-30 (Not Reviewed)**

- 0. Form 6
- 1. Identification of the Ranging System Reference Point (SRP) 12
- 2. Site Location Information 14
- 3. General System Information
- 3.01 System Name 11
- 4. Telescope Information
- 4.01 Receiving Telescope Type 32
- 5. Laser System Information
- 5.01 Laser Type 39
- 6. Receiver System
- 6.01.01 Primary Chain 36
- 6.01.02 Primary Chain 36
- 6.02.01 Secondary Chain 36
- 6.03.01 Tertiary Chain 36
- 7. Tracking Capabilities
- 7.01 Satellites 44 1
- 8. Calibration
- 8.01 Calibration Type 20 1
- 9. Time and Frequency Standards
- 9.01.01 Frequency Standard Type 10 1
- 9.02.01 GNSS Timing Receiver 5
- 9.03.01 One-way System Calibration 5
- 10. Preprocessing Information
- 10.01 On-site NP Generation 9
- 11. Aircraft Detection
- 11.01 Detection Type 8
- 12. Meteorological Instrumentation
- 12.01.01 Pressure Sensor Model 10

9.02.01 GNSS Timing Receiver [←](#)

## 9. Time and Frequency Standards

### 9.01.01 Frequency Standard Type

[Add new section](#)

Field	Value
9.01.01 Frequency Standard Type :	<input type="text" value="H-MASER"/> <small>Example(s): 'H-MASER', 'CESIUM', 'RUBIDIUM', 'QUARTZ', etc. Format: 'string'</small>
Model :	<input type="text" value="EFOS-18"/> <small>Format: 'string'</small>
Manufacturer :	<input type="text" value="Observatoire Cantonal de Neuchatel"/> <small>Format: 'string'</small>
Short Term Stab. [e-12]:	<input type="text" value="0.15"/> <small>Format: 'decimal'</small>
Long Term Stab. [e-12]:	<input type="text" value="0.002"/> <small>Format: 'decimal'</small>
Time Reference :	<input type="text" value="GPS"/> <small>Allowed value(s): ''; 'N.A.'; 'GPS'; 'GPS+GLONASS'; 'UTC'; 'USNO'; 'CESIUM' Format: 'list'</small>
Synchronization :	<input type="text" value="GPS"/> <small>Example(s): 'TV', 'GPS', 'FIBEROPTICS', 'TRAVEL', etc. Format: 'string'</small>
Epoch Accuracy [ns]:	<input style="border: 2px solid red;" type="text" value="&lt; 100"/> <small><b>Error: Invalid value '&lt; 100'</b> Format: 'decimal_range' Format description: Range of decimal numbers Example(s): - '' (Value not set) - 'N.A.' (Not available)</small>

# Site Logs

## Status of site logs for **40 operational** stations

[x] : Number of format errors

1824/GLSL [4]	1888/SVEL [4]	7105/GODL [32]	7407/BRAL [6]	7827/SOSW [3]
1868/KOML	1889/ZELL [4]	7110/MONL [7]	7501/HARL [5]	7838/SISL [16]
1873/SIML [5]	1890/BADL [4]	7119/HA4T [20]	7503/HRTL [6]	7839/GRZL [21]
1874/MDVS [4]	1891/IRKL [5]	7124/THTL [1]	7810/ZIML [48]	7840/HERL
1879/ALTL [3]	1893/KTZL [1]	7237/CHAL [16]	7811/BORL [5]	7841/POT3 [12]
1884/RIGL [25]	7045/APOL [13]	7249/BEIL [11]	7819/KUN2 [10]	7845/GRSM
1886/ARKL [7]	7080/MDOL [39]	7394/SEJL [13]	7821/SHA2 [9]	7941/MATM [50]
1887/BAIL [3]	7090/YARL [30]	7403/AREL [17]	7825/STL3 [14]	8834/WETL [6]

## Status of site logs for **four quarantine** stations

7395/GEOL	7816/UROL	7358/GMSL [29]	7824/SFEL [20]
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No errors

Format errors

Structure errors



# Site Logs

Status of site logs for **45 inactive** stations (where site log using format version 1.0 is available)

1831/LVIL [10]	7231/WUHL [2]	7357/BEIA [1]	7820/KUNL [3]	7835/GRSL [10]
1863/MAID	7308/KOGC [12]	7359/DAEK [8]	7822/THTF [8]	7836/POTL [11]
1864/MAIL	7328/KOGL [9]	7370/BURF	7823/SFEF [6]	7837/SHAL [4]
1870/MDVL [2]	7335/KASL [7]	7405/CONL [10]	7826/STRK [23]	7843/ORRL
7040/OCTL [14]	7337/MIUL [9]	7406/SJUL [5]	7828/PARF	7846/GRSF [10]
7041/LLCD	7339/TATL [9]	7548/CGLL	7829/GRAF	7848/AJAF
7125/GO1L	7343/BEIT [6]	7594/WETT [11]	7830/CHAF [8]	7849/STRL [8]
7130/GO4T [1]	7355/URUL [4]	7604/BREF [6]	7831/HLWL [4]	7865/STAL [19]
7210/HALL [6]	7356/LHAL [3]	7806/METL [3]	7832/RIYL	7939/MATL [2]

No errors

Format errors

Structure errors

[x] : Number of format errors

# Station History Logs

- Stations history logs provide chronological information of station upgrades
- Log-files are available on
  - <ftp://edc.dgfi.tum.de/slr/slrhst/>
  - <ftp://cddis.gsfc.nasa.gov/slr/slrlog/slrhst/>
- Currently, 24 station history logs of 44 active stations are available
- Stations can use their FTP account to log in on the EDC-Website

*Station History Log of Station Matera (matm\_hst\_20181024.log)*

```

79417701 2017 338 00:00 0 6.01.10 PMT replacement
79417701 2014 245 00:00 0 6.01.09 PMT replacement
79417701 2014 205 00:00 0 6.01.08 PMT replacement
79417701 2014 080 00:00 0 6.01.07 PMT replacement
79417701 2013 101 00:00 0 9.02.02 Gps receiver ...
79417701 2012 283 00:00 0 6.01.06 PMT replacement
79417701 2010 144 00:00 0 6.01.05 PMT replacement
79417701 2009 259 00:00 0 6.01.04 PMT replacement
79417701 2008 172 00:00 0 6.01.03 PMT replacement
79417701 2008 018 00:00 0 5.02 Pumping laser ...
79417701 2007 050 00:00 0 6.01.02 PMT replacement
79417701 2005 293 00:00 0 6.01.01 PMT replacement
79417701 2004 285 00:00 0 99 Telescope azimuth ...
79417701 2003 254 00:00 0 99 Laser Diode Replacement
79417701 2002 010 00:00 0 99 Baseline configuration
79417701 2000 010 00:00 0 99 Starting installation
  
```

# Station History Logs

EUROLAS Data Center (EDC)  
Deutsches Geodätisches Forschungsinstitut  
Technische Universität München

You are logged in as edc My Profile Logout

150 Jahre  
culture of  
excellence

TUM

Welcome > My EDC > Station History Log

### Station History Log

Please select station history log:

Potsdam, Germany (7841)

[New Entry](#) [Edit](#) [Upload File](#) [Download](#) [Empty Log](#)

This station history log has been released on **2017-03-08!**

SOD	Year	DOY	TOD	Data Impact	Sub-system	Description
78418701	2017	062	12:00	2	06.01	A033-ET Event Timer replacing A032-ET
78418701	2016	362	16:00	0	04.01	New daylight filter with higher peak transmission inserted
78418701	2016	175	12:00	1	05.02	Pump diode module for regenerative amplifier exchanged; 10 dB attenuator re-inserted into start channel (change in calibration mean value)
78418701	2016	145	14:00	0	04.01	Optical components of telescopes cleaned (negative achromat Tx, entrance window and coupling mirror Rx)
78418701	2016	083	12:00	1	05.02	Repaired pump diode for external amplifier and new coupling fibre installed, maximum output power 530 mW
78418701	2016	056	17:00	1	05.02	Pump diode for external amplifier and coupling fibre failed, laser operations continued with minimum output power (50 mW)
78418701	2016	033	10:00	1	05.02	Repaired HV power supply for Pockels cell inserted, operations resumed
78418701	2016	018	06:00	1	05.02	HV power supply for Pockels cell failed, tracking suspended
78418701	2015	296	10:00	0	04.01	Interpolator unit in Rx azimuth axis replaced, tracking resumed
78418701	2015	291	20:00	0	04.01	Interpolator unit in Rx azimuth axis faulty, tracking suspended
78418701	2015	204	10:00	1	05.02	Drop in start photodiode amplitude, 10 dB attenuator removed from start channel (change in

# Site History Logs

Status of station history logs for **40 operational** stations

1824/GLSL	1888/SVEL	7105/GODL	7407/BRAL	7827/SOSW
1868/KOML	1889/ZELL	7110/MONL	7501/HARL	7838/SISL
1873/SIML	1890/BADL	7119/HA4T	7503/HRTL	7839/GRZL
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1886/ARKL	7080/MDOL	7394/SEJL	7821/SHA2	7941/MATM
1887/BAIL	7090/YARL	7403/AREL	7825/STL3	8834/WETL

Status of station history logs for **four quarantine** stations

7395/GEOL	7816/UROL	7358/GMSL	7824/SFEL	Available
				Not Available

# New format for CRD and CPF (v2)

**July 2018** • Released CPF v2 manual, sample code, and test data on CDDIS

**September 2018** • Released CRD v2 manual, sample code, and test data on CDDIS

## Implementation phase for producing

- CPF (v2) by the prediction providers
- CRD (v2) by the stations

**January 2020** • All prediction providers should be producing v2 CPFs

**July 2020** • Almost all stations should be producing v2 CRDs

# New format for CRD and CPF

- The existing tool on the EDC website for checking CRD/CPF has been updated
- It allows users to upload their CRD and CPF files in order to check for format errors (v1 and v2)
- Documentation of applied quality checks
  - <http://edc.dgfi.tum.de/oc/crd/v2/>
  - <http://edc.dgfi.tum.de/oc/cpf/v2/>
- The access is immediately available for all registered users of the EDC-website

### CRD-UPLOAD

CRD-File:	<input type="button" value="Durchsuchen..."/>	Keine Datei ausgewählt.
Data Type:	<input type="button" value="Normal-Point"/>	▼
Pass Type:	<input type="button" value="Single-Pass"/>	▼
Format Version:	<input type="button" value="2"/>	▼
<input type="button" value="Upload &amp; Check CRD-File"/>		

[http://edc.dgfi.tum.de/tools/crd\\_check/](http://edc.dgfi.tum.de/tools/crd_check/) (login required)

### CPF-UPLOAD

CPF-File:	<input type="button" value="Durchsuchen..."/>	Keine Datei ausgewählt.
Format Version:	<input type="text" value="2"/>	
<input type="button" value="Upload &amp; Check CPF-File"/>		

[http://edc.dgfi.tum.de/tools/cpf\\_check/](http://edc.dgfi.tum.de/tools/cpf_check/) (login required)

# Conclusion / Outlook

- New tools will contribute to improve the automation processes in the ILRS
- The “Site Log Manager” centralizes the update procedure and review process of site logs on the EDC-website.
- Station history logs can easily be updated on the EDC-Website
- The CRD/CPF format checker provides a useful tool for stations and prediction providers in the implementation process of the new format version 2.0

For more information join the **DFPSC** or/and **Clinic Session 4**