Edge Turbulence Data Base (EDB)
Documentation of writing and reading routines

I. INTRODUCTION

This document provides instructions how to prepare data for and how to read datafrom the edge turbulence data base. The routines mentioned here are written in the IDL language and will be available from the edb web site. All signals in the edb are labeled by the date of the experiment, the shot number, the type of signal (ion-saturation or floating potential), the corresponding probe tip number and the radial position. The example routines are adapted for experimental data from the TJ-K device. To write or read other data, a few lines need to be changed in the *expl_drive_wuf1.pro* or *expl_drive_ruf1.pro*, respectively.

II. WRITE DATA TO THE EDB

To supply data from your experiment to the edb, you need to select some signals, store it in the appropriate data format and send it to the administrator. The administrator will check the format and enter the new data into the data base for public access.

To save signals in the data base format, follow the following instructions:

- Open the file *edb_start.idl*
  - Adjust the path to your local settings (where the edb routines are stored)
  - Add lines to compile your private data reading routines
  - Uncomment the line *expl_drive_wuf1*
  - Save your changes
- Create a directory, where the signal traces will be stored */edb/device/date(yyyymmdd)#shotnumber*
- Open the file *expl_drive_wuf1.pro*
  - Adjust the following input values for the data set:

target_dir (string), gives the path to the location where the data will be stored: *.../edb/device/*

device (string), is the short name of the device from which you want to supply data

year (integer), year, when signal was recorded

month (integer), month, when signal was recorded

day (integer), day, when signal was recorded

shot_nb (integer), official shot number of the corresponding

sig_type (string), indicator if ion-saturation curren ('isa') or floating potential ('ufl') was measured

sig_nb (integer), privat number corresponding to the measuring probe tip (private here means it's arbitrary, but should be consistent to your device and experiment)

comment (string), privat comments on signal, experiment and machine conditions

– Specify the following meta data for a specific signal trace:

sig_pos (integer), private number corresponding to the current probe tip position (0-99)

ds (float), perpendicular distance of probe tip to the separatrix (in mm)

ds_err (float), error in perpendicular distance of probe tip to the separatrix (in mm)

z (float), vertical position of probe tip (in mm)

z_err (float), vertical error of probe tip position (in mm)

R (float), radial position of probe tip (in mm)

R_err (float), radial error of probe tip position (in mm)

time (float), time (s) at data point number $nx/2 + 1$ (for reciprocating probes)

dt (float), time delay (s) between following data points (1/acquisition rate)

R_sep (float), radial position (mm) of the separatrix (closest to the probe)

nx (integer), number of measured values in the signal trace

data (float array with nx elements), the signal trace measured with the langmuir probe tip

- Save your changes in *expl_drive_wuf1.pro*

- Run the modified IDL script *edb_start.idl*
- The data should now be written into the specified directory
- Copy this data directory with all its content to the public folder ... of the Edge Turbulence Data Base (edb)
- Write an email to the administrator (*ramisch@ipf.uni-stuttgart.de*) of the edb, telling him about the new available data

III. READ DATA FROM THE EDB

Follow the instructions below to read data from the edb into your IDL program:

- Open the file *edb_start.idl*
  - Adjust the path to your local settings (where the edb routines are stored)
  - Uncomment the line *expl_drive_ruf1*
  - Save your changes
- Open the file *expl_drive_ruf1.pro*
  - Adjust the following input values for the requested signal trace:

    target_dir (string), gives the path to the edb: *.../edb/device/*

    device (string), is the short name of the device from which you want to supply data

    year (integer), year, when signal was recorded

    month (integer), month, when signal was recorded

    day (integer), day, when signal was recorded

    shot_nb (integer), official shot number of the corresponding

sig_type (string), indicator if ion-saturation curren ('isa') or floating potential ('ufl') was measured

sig_nb (integer), privat number corresponding to the measuring probe tip (private here means its arbitrary, but should be consistent to your device and experiment)

sig_pos (integer), private number corresponding to the current probe tip position (0-99)

- Save the file *expl_drive_ruf1.pro*

- Run the modified IDL script *edb_start.idl*

- The data should now be read from the edb and presented on your screen.

- To suppress the output, uncomment the key word *NO_SHOW* in the file *expl_drive_ruf1.pro* for the program *edb_ruf1.pro*.