



Reading TRANSP output with MDS+ in MATLAB

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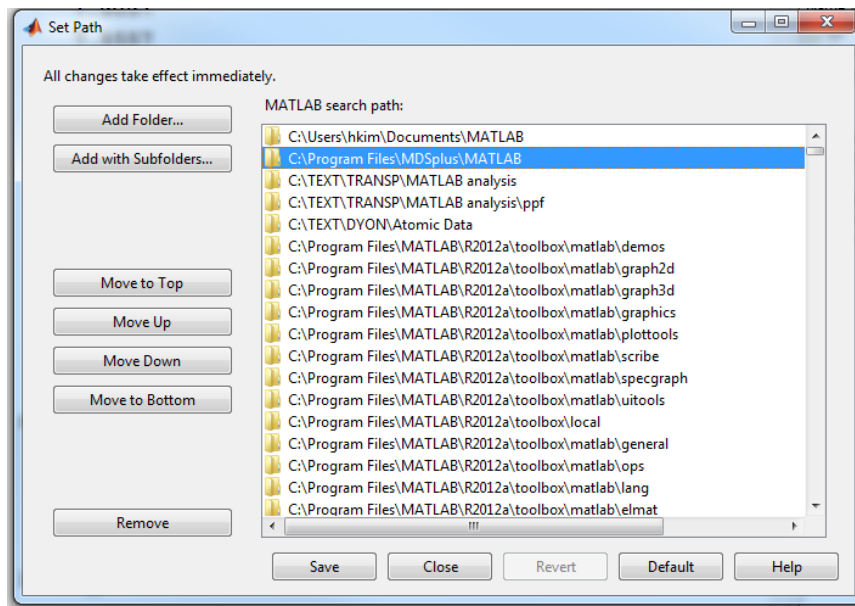


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MDSPLUS installation for MATLAB



- **Download MDSplus:**
Go to <http://www.mdsplus.org>, click on "Software", then "Downloads", and then select the appropriate version.
- Add the directory where MDSplus files are installed to Set Path in Matlab



- Further information is available
<http://users.jet.efda.org/pages/mdsplus/pages/rp-mdsplus.html>

MATLAB script to read TRANSP data



```
mdsconnect('mdsplus.jet.efda.org')
```

```
shot=50623
```

```
run_ID='Z95'
```

```
time=48
```

```
shotID=[num2str(shot),run_ID]
```

```
%%To read 1 dimensional TRANSP output data
```

```
Q0=mdsvalue(['_SIG=tr_readfun("JET.00","",shotID,"","Q0")']) %safety factor at magnetic axis (t)
```

```
[TRANSP_t, status]= mdsvalue('dim_of(_sig,0)') %time - 40
```

```
figure(1)
```

```
plot(TRANSP_t+40,Q0,'r','LineWidth',3)
```

```
xlabel('time [sec]')
```

```
ylabel('safety factor at magnetic axis')
```

```
legend(num2str(shot))
```

```
%%To read 2 dimensional TRANSP output data
```

```
Te=mdsvalue(['_SIG=tr_readpro("JET.00","",shotID,"","TE")']) %electron temperature (rho,t) in eV
```

```
[TRANSP_x, status]= mdsvalue('dim_of(_sig,0)') %square root of normalized toroidal flux
```

```
[TRANSP_t, status]= mdsvalue('dim_of(_sig,1)') %time - 40
```

```
index_t=min(find(TRANSP_t >= time-40)) %index of the time for plotting
```

```
figure(2)
```

```
plot(TRANSP_x,Te(:,index_t)/1e3,'r','LineWidth',3)
```

```
xlabel('\rho')
```

```
ylabel('T_e [KeV]')
```

```
legend([num2str(shot), ' at ', num2str(time), '[sec]'])
```

TRANSP data plot in MATLAB

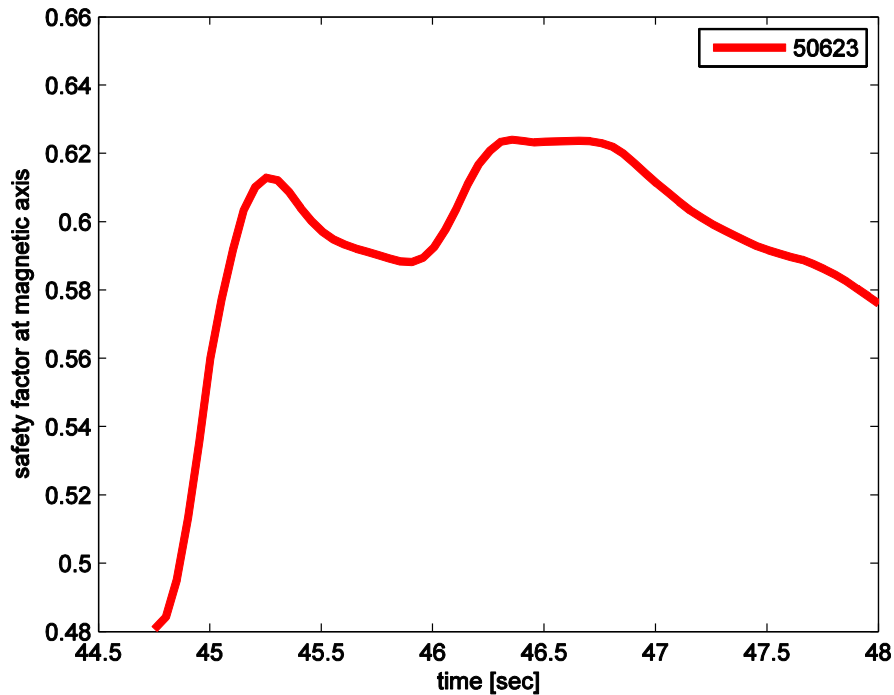


Figure 1. 1 dimensional TRANSP data $q_0(t)$

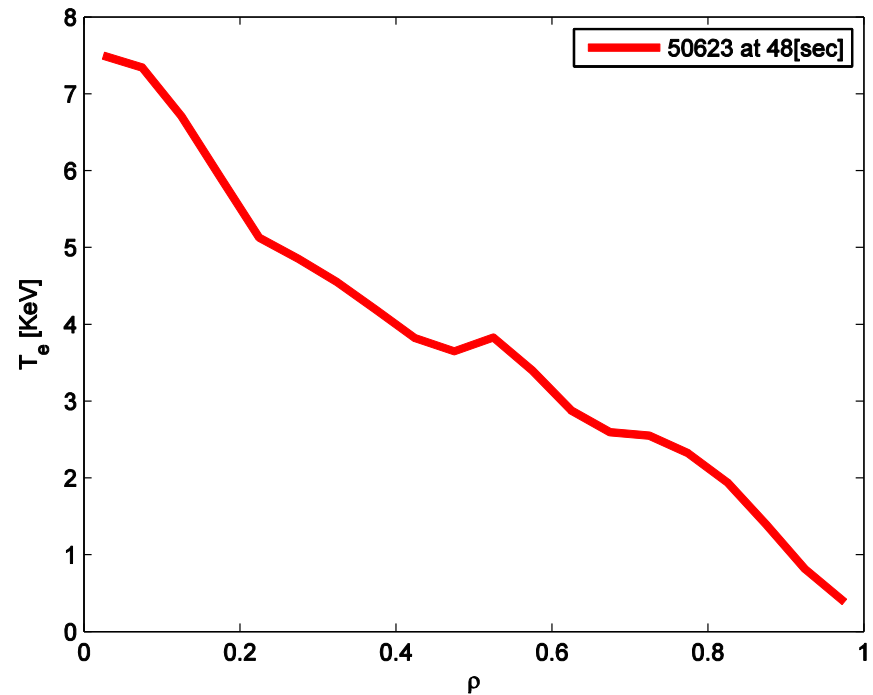


Figure 2. 2 dimensional TRANSP data $T_e(\rho,t)$