# Using Nate’s custom OES on MC01/2

**Normal use of OES system**

Quick Start

To edit the OES configuration, open the file: (**make sure you promptly close it when finished**)

Y:\Experiment Summaries\MC sputter tools OES\OES configuration.xlsx

To manually start measuring OES, double-click the file on the desktop:

Measure OES 3.0.py – Shortcut

or the file

C:\OESdata\Measure OES 3.0.py

Or, you can start the auto-run with the shortcut

auto backup files, read schedule and start measurements.py - Shortcuton the desktop. The data is stored locally at

C:\OESdata

And is backed up at

Y:\Experiment Summaries\MC sputter tools OES\data\raw from tool

as well as in the run folder, as long as it was detected from the schedule file.

To re-plot old data, run the file

C:\OESdata\Plot OES 3.1.py

To plot data before 8/5/2015 (without reprocessing anything), run the file

C:\OESdata\Plot old OES 3.1.py

Normal operation

The OES programs for MC01/2 are setup to automatically scan the latest schedule file in Y:\ProcessFE (latest DailyWhiteBoard xlsx file) every morning at 5 am. If the format of this file changes, it could throw off the automatic scanning program.

An outline of the automated tasks is:

* 5am: (Windows task scheduler) Windows runs the file: C:\OESdata\auto backup files, read schedule and start measurements.py, which makes sure the files in C:\OESdata are backed up to Y:\Experiment Summaries\MC sputter tools OES\data\raw from tool
* This file then runs the file: C:\OESdata\Check the schedule file for what is happening on the tool today, w
* If the schedule says ‘PC’, ‘BE’, or is blank, start the C:\OESdata\monitorProcessStart.py file, scanning for plasma being on in zones for PC, BE, or all zones, depending on what the schedule says
* Once the plasma has been on for a few minutes, start measuring OES, the plot comes up after all zones have been measured once
* After the process start has been detected, the measurement stops if the plasma has been off for 5 minutes. It should then save the data in the run folder. When the plot is closed, it will save the image in the run folder as well. The data and image will be saved locally under C:\OESdata, and at Y:\Experiment Summaries\MC sputter tools OES\data\raw from tool

Changing OES settings

The file

Y:\Experiment Summaries\MC sputter tools OES\OES configuration.xlsx

contains settings that can be changed for the OES measurement system. For example, the integration time, number of scans, zones that are measured, and coefficients for the Cu3 calculation can be changed in the configuration file. Make sure to promptly close the file after editing, as it could prevent the system from automatically running if it tries to access the file while it is being edited.

Starting OES measurements manually

To manually start measuring OES (if the auto-start fails), double-click the shortcut on the desktop

Measure OES 3.0.py – Shortcut

Or double-click the actual file:

C:\OESdata\Measure OES 3.0.py

It will ask for BE or PC process and a run number, it should be able to handle formats like S00555, 00555, or 555, but I always just enter the number without the 0’s or S, like ‘555’.

You can also re-plot old data by using the

plot oes 3.1.py

or

plot old oes 3.1.py

for runs before around 460.

Manually running the auto-run process

The auto-scan program can be run by double-clicking

C:\OESdata\auto backup files, read schedule and start measurements.py

But if something goes wrong with the program, it will just close the command prompt that pops up. For that reason, I prefer to open a command prompt (press the windows key, type ‘cmd’, then press enter), then type:

cd C:\OESdata

python auto backup files, read schedule, and start measurements.py

This will allow you to see the debug messages printed to the console (command window).

‘cd’ means ‘change directory’. ‘cd ..’ will take you up one directory. You can press the ‘tab’ key after ‘cd’ and a space to cycle through available choices of directories to change to.

File Locations

Files from both tools are backed up to:

Y:\Experiment Summaries\MC sputter tools OES\data\raw from tool

after every run, and if a run number was detected from the schedule file, they will be backed up to the run folder too, along with a picture of the OES plot.

Process Data—concatenate with XRF data

There are a few files that can be used to concatenate the OES data to XRF and efficiency data. First, you have to download the latest efficiency data from the datasystem. Use the query:

export eff data and run parameters

That is available under the ‘operator’ user name. Export any dates that are not already in the folder:

Y:\Nate\all eff data\addenda

Make sure to export the data ‘to excel file’, open the file, and **re-save as a MS-DOS csv**. There is a bug in the Nuvosun datasystem (surprise!) and exported csv files are actually corrupted. This step is necessary, because I retrieve the dates of runs from the efficiency data file. Then run the file

Y:\Experiment Summaries\MC sputter tools OES\process-data\add OES to db - with updating.py

Which will add all the raw OES spectra to a single csv file in

Y:\Experiment Summaries\MC sputter tools OES\data\databases

Then run the program

Y:\Experiment Summaries\MC sputter tools OES\process-data\concat pc OES to xrf.py

There is also a file called concat pc OES to eff 2.0.py for concatenation to efficiency and IV data. As of now it’s crashing, it may or may not work.

Stopping auto-run

The OES automation can be fully stopped by going to start->task scheduler (or press the windows key, type task scheduler), then delete or edit the ‘OES backup’ process.