

# How to run a material scan of the detector

## Step-by-step guide

```
1. source /cvmfs/ilc.desy.de/sw/x86_64_gcc49_s16/v01-19-02/init_ilcsoft.sh  
2. ddsim --compactFile SiD_o2_v02.xml --macroFile scan.mac --runType run > materialScan.txt
```

### scan.mac

```
/control/matScan/theta 91 0 90  
/control/matScan/phi 361 0 360  
/control/matScan/scan
```

## Old sidloi3 model

(for example, from lcsim.org/detectors/sidloi3.zip)

```
/cvmfs/ilc.desy.de/clic/slicv3r0p3/scripts/slic.sh -m x.mac -g sidloi3.lcdd > sidloi3Mat.txt
```

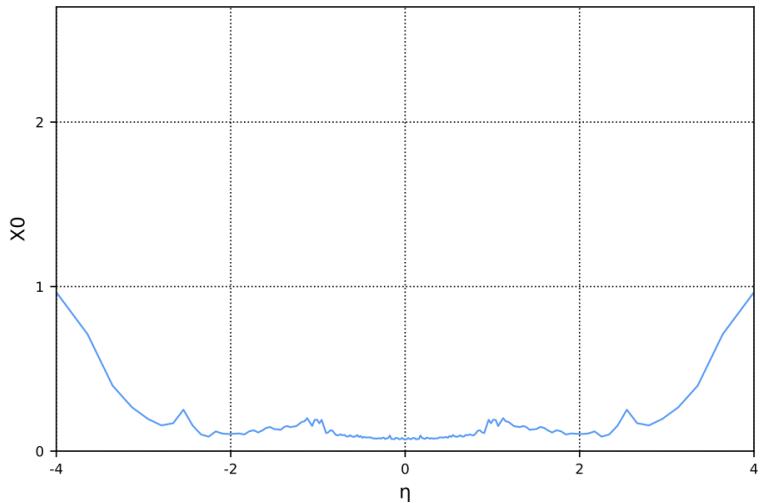
### x.mac

```
/control/matScan/region TrackingRegion  
/control/matScan/scan
```

## Example plotting script (Julia)

### matScanPlot.jl

```
using Plots  
theta = Vector{Float64}()  
x0 = Vector{Float64}()  
lambda = Vector{Float64}()  
open ARGS[1] do f  
    for line in readlines(f)  
        fields = split(line)  
        if length(fields) == 0  
            continue  
        end  
        if fields[1] != "ave."  
            continue  
        end  
        t = parse(Float64, fields[5])  
        if t % 1 != 0  
            continue  
        end  
        push!(theta, t)  
        push!(x0, parse(Float64, fields[8]))  
        push!(lambda, parse(Float64, fields[9]))  
    end  
end  
plot(theta, x0, legend=false)  
xlabel!("theta (degrees)")  
ylabel!("X0")  
savefig("t.pdf")
```



## Related articles

- [How to run a material scan of the detector](#)