Automation Script Overview

- GUI is found at rfpanel > RF Test Stand > Operator > Auto Conditioning > !
- Epics Control
  - Epics can be used to terminate any instance of a running script
  - Epics allows only one conditioning script to be running at a time
- Four types of vacuum behavior are evaluated
  - Spiked vacuum (Adv Params > Vac Behavior > Mid/Max Delta) is an increase of vacuum over a short duration of roughly 0.5 seconds
  - Erratic vacuum is where the relative vacuum pressure across a range of time samples (determined by Adv Params > Erratic > Samples) exceeds the limit imposed at Adv Params > Erratic > Vac Range
  - Rising vacuum is determined by comparing the value of the vacuum when the mod anode is about to be incremented with the value of the vacuum when the mod anode was last incremented. This value is compared with the value in Adv Params > Vac Buffer
  - High vacuum is determined if vac exceeds 'Maximum Vac Pressure'
- Example values for vacuum / coupler parameters
  - Erratic vac: Adv Params > Vac Behavior > Erratic > Vac Range = 3e-9
  - Erratic vac: Adv Params > Vac Behavior > Erratic > Samples = 240
  - Rising vac: Adv Params > Vac Behavior > Vac Buffer = 5e-9
  - High vac: Maximum Vac Pressure = 2e-8
  - Coupler: Coupler Temperature > Warning Value = 120
  - Coupler: Coupler Temperature > Maximum Value = 130
- Time delays are imposed when conditioning needs to be slowed to a predetermined rate
  - Coupler temperature exceeds Coupler Temp > Warning Value
  - Vacuum is erratic, spiked, rising, or too high
  - Time delays have three levels: minor, moderate, and major
    - Minor: Adv Params > Vac Behavior > Vac Buffer
    - Moderate: Adv Params > Vac Behavior > Mid Delta
      Adv Params > Vac Behavior > Erratic > Vac Range
    - Major: Adv Params > Vac Behavior > Max Delta
      Maximum Vac Pressure
      Coupler Temp > Warning Value
- Restart is initiated only for vacuum faults and certain types of arcs
- Emergency shutoff of rf
  - Coupler temperature exceeds 'Coupler Temp > Maximum Value'
  - Beam current is less than 4 A
- Miscellaneous notes
  - At no time is the power supply turned on or off
  - Kalmus amplifier must be manually set to a new value in order to reduce the beam current
  - Each instance of the conditioning script GUI is unique. The inputs from one instance can not be viewed by opening another instance of the GUI