

# Full Beanshell script

```
// these 4 values are intended to be edited by the user
int slicesBeforeSpecial = 2; // how many slices before starting the shorter scan region
int slicesSpecial = 1; // how many slices in the eye region with the shorter scan
double msCutFromSlice = 0; // how many ms to cut from the first part of the scan
double msShortSlice = 3; // how many ms to leave the laser on for the shorter scan region
```

```
// variables that should not need to be edited by user
// would like to define these variables as final, but this is
// not amenable to script which can run multiple times
String plcName = "PLogic:E:36";
String propPosition = "PointerPosition";
String propCellType = "EditCellType";
String valLUT3 = "3 - 3-input LUT";
String valOneshotNRT = "14 - one shot (NRT)";
String valDelayNRT = "15 - delay (NRT)";
String propCellConfig = "EditCellConfig";
String propCellInput1 = "EditCellInput1";
String propCellInput2 = "EditCellInput2";
String propCellInput3 = "EditCellInput3";
String propCellInput4 = "EditCellInput4";
String propUpdates = "EditCellUpdateAutomatically";
String valNo = "No";
```

```
int addrTTL1 = 42;
int addrAcq = 1;
int addrInvert = 64;
int addrEdge = 128;
int addrDelayGate = 6;
int addrGate = 7;
int addrDelayEyes = 9;
int addrEyes = 11;
int addrSlicesTrig = 16;
int addrLaser = 10;
int laserLookupTable = 216;
```

```
int ticsBeforeGate = Math.round(msCutFromSlice*4);
int ticsGate = Math.round(msShortSlice*4);
```

```
// turn off updates to speed communication
String valUpdatesOriginal = mmc.getProperty(plcName, propUpdates);
mmc.setProperty(plcName, propUpdates, valNo);
```

```
// do programming of 5 logic cells
mmc.setProperty(plcName, propPosition, addrDelayEyes);
mmc.setProperty(plcName, propCellType, valDelayNRT);
mmc.setProperty(plcName, propCellConfig, slicesBeforeSpecial);
mmc.setProperty(plcName, propCellInput1, addrAcq + addrEdge);
mmc.setProperty(plcName, propCellInput2, addrTTL1 + addrInvert + addrEdge);
mmc.setProperty(plcName, propCellInput3, addrAcq + addrInvert);
```

```
mmc.setProperty(plcName, propPosition, addrEyes);
mmc.setProperty(plcName, propCellType, valOneshotNRT);
mmc.setProperty(plcName, propCellConfig, slicesSpecial);
mmc.setProperty(plcName, propCellInput1, addrDelayEyes);
mmc.setProperty(plcName, propCellInput2, addrTTL1 + addrInvert + addrEdge);
mmc.setProperty(plcName, propCellInput3, addrAcq + addrInvert);
```

```
mmc.setProperty(plcName, propPosition, addrDelayGate);
mmc.setProperty(plcName, propCellType, valDelayNRT);
mmc.setProperty(plcName, propCellConfig, ticsBeforeGate);
mmc.setProperty(plcName, propCellInput1, addrTTL1);
mmc.setProperty(plcName, propCellInput2, addrInvert + addrEdge);
mmc.setProperty(plcName, propCellInput3, addrTTL1 + addrInvert + addrEdge);
```

```
mmc.setProperty(plcName, propPosition, addrGate);
mmc.setProperty(plcName, propCellType, valOneshotNRT);
mmc.setProperty(plcName, propCellConfig, ticsGate);
mmc.setProperty(plcName, propCellInput1, addrDelayGate);
mmc.setProperty(plcName, propCellInput2, addrInvert + addrEdge);
mmc.setProperty(plcName, propCellInput3, addrTTL1 + addrInvert + addrEdge);
```

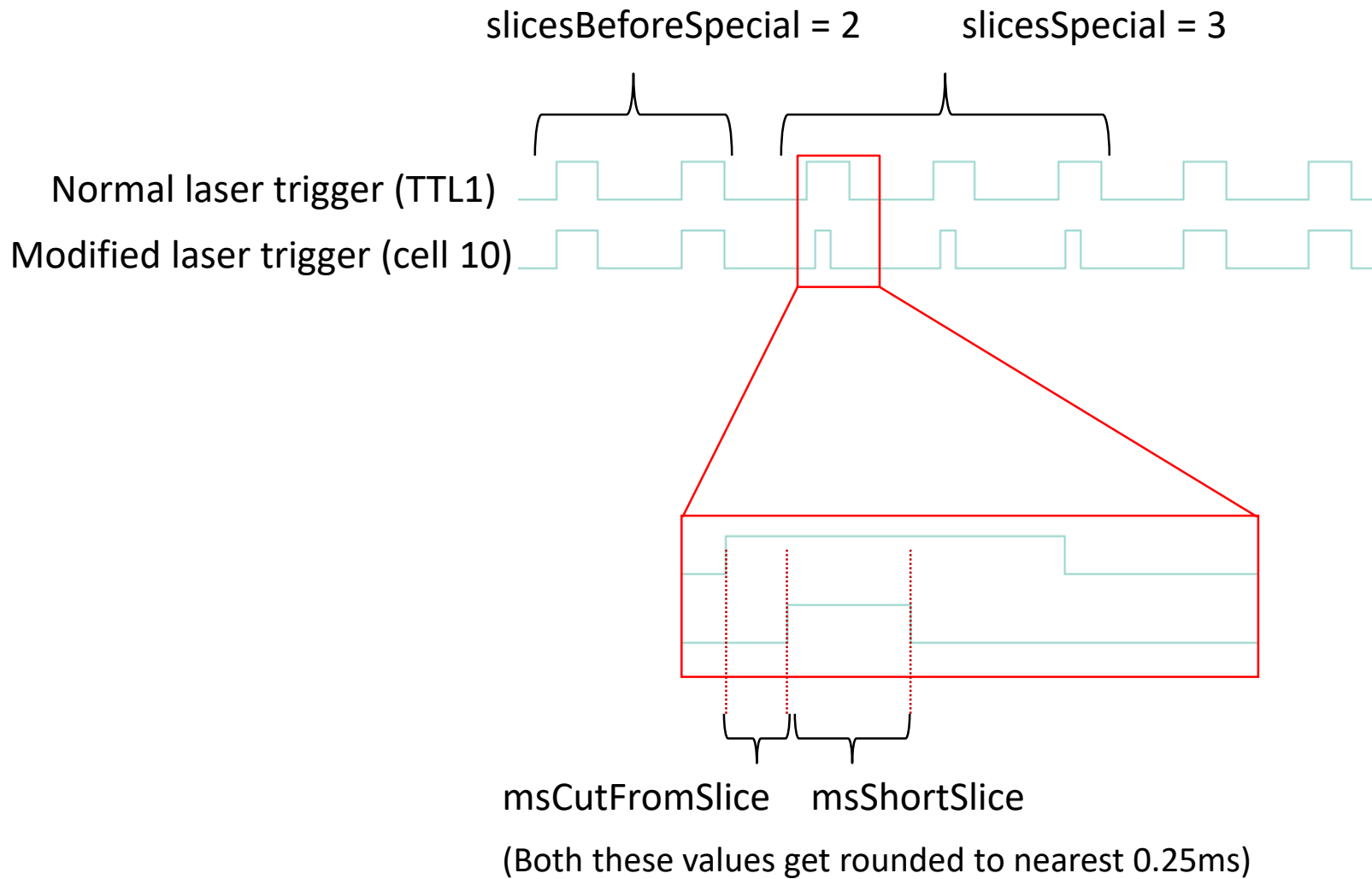
```
mmc.setProperty(plcName, propPosition, addrLaser);
mmc.setProperty(plcName, propCellType, valLUT3);
mmc.setProperty(plcName, propCellConfig, laserLookupTable);
mmc.setProperty(plcName, propCellInput1, addrEyes);
mmc.setProperty(plcName, propCellInput2, addrGate);
mmc.setProperty(plcName, propCellInput3, addrTTL1);
```

```
// restore updates
mmc.setProperty(plcName, propUpdates, valUpdatesOriginal);
```

```
// these 4 values are intended to be edited by the user
```

```
int slicesBeforeSpecial = 2; // how many slices before starting the shorter scan region
int slicesSpecial = 1; // how many slices in the eye region with the shorter scan
double msCutFromSlice = 1.5; // how many ms to cut from the first part of the scan
double msShortSlice = 2.5; // how many ms to leave the laser on for the shorter scan region
```

## Beanshell script: user-edited section



Cell 10 is automatically connected to appropriate laser line according to the “OutputChannel” property of the PLC-based diSPIM shutter in Micro-Manager

Addresses:

Acq = 1

Acq edge = 129

!Acq = 65

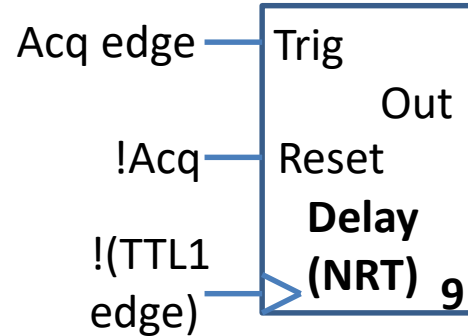
TTL1 = 42

TTL1 edge = 170

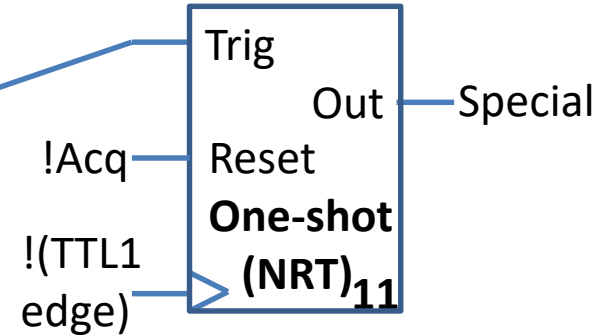
!(TTL1 edge) = 234

1 tic = 0.25 sec evaluation  
cycle period (set by micro-  
mirror firmware)

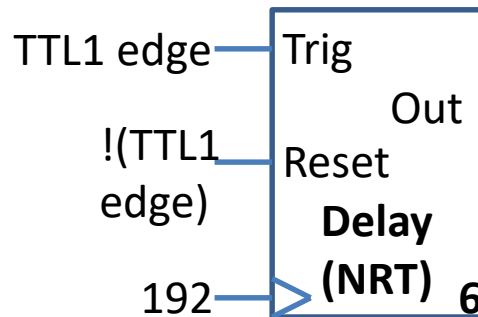
Config = #  
slices before  
special mode



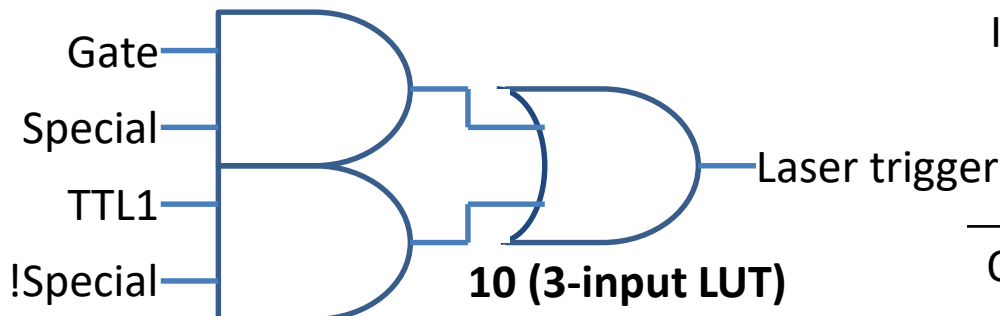
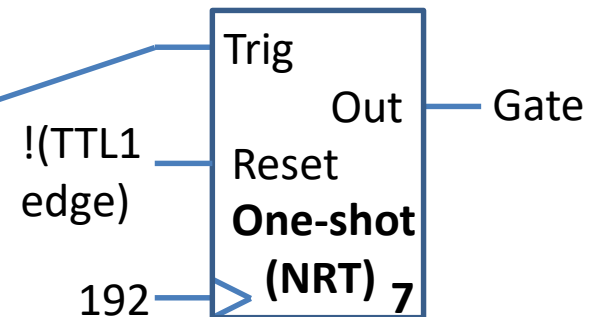
Config = #  
slices during  
special mode



Config = # tics  
before gate



Config = # tics  
gate duration



In#1 = Special	1	0	1	0	1	0	1	0
In#2 = Gate	1	1	0	0	1	1	0	0
In#3 = TTL1	1	1	1	1	0	0	0	0
Out = 216	1	1	0	1	1	0	0	0