

## XCD2 Sample Scripts

### 1. XCD2 Sample Script for a Linear Stage to Home on Hard Stop with NanoCommander

```
////////////////////////////////////  
// XCD2 sample homing script for a linear Stage to home at hard stop.  
// Stage is connected on Axis 0 of XCD2 controller.  
// Please make sure that the stage is tuned and configured properly per the tuning  
// instructions shown in the XCD2 Firmware manual before running this script.  
////////////////////////////////////  
  
XAXIS = 0      // We're working with Axis 0  
  
delay 2000  
  
// Set slow VEL and ACC for homing  
VEL = 10      // mm/s  
ACC = 100    // mm/sec^2  
MTL = 20000 // Allow enough time for motion to complete  
  
set FPOS = 0  
  
// V1 = Small buffer region to home away from hard stop.  
// (This is used as a safety mechanism so we are not positioned  
// right against the hard stop).  
V1 = 0.5  
  
enable        // Turn output on  
delay 100     // Allow some time to settle  
nmove -1000   // start moving towards (-) hard stop  
while abs(PE) < 0.5  
end  
disable  
  
// Set current position to -V1 so the  
// zero position is V1 away from hard stop  
set FPOS = -V1  
  
delay 100  
  
// Move to the zero position  
enable  
delay 100  
move 0        // Move to origin  
delay 2000    // Allow some time to settle into position  
kill
```

disable

## 2. XCD2 Sample Script for a Linear Stage Demo Routine with NanoCommander

```
////////////////////////////////////  
// XCD2 Controller with linear stage connected on Axis 0 of XCD2 controller  
// Please make sure that the stage is tuned and configured properly per the tuning  
// instructions shown in the XCD2 Firmware manual before running this script.  
////////////////////////////////////
```

delay 2000

XAXIS = 0 // we're working with axis 0

// Use sloe VEL and ACC for homing

VEL = 10

ACC = 100

enable

delay 100

// Use the XCD2 automated homing routine

// to home 0.5 mm away from hard stop

home 0, -0.5

V1 = 0 // Set the zero positoin as our left travel limit

delay 2000

nmove 100 // Go to positive hard stop

while abs(PE) < 0.5

end

disable

// Set V2 = Positive trave limit 0.5 mm from hard stop

V2 = FPOS - 0.5

delay 1000

enable

delay 100

move 0 // Got back to zero position

delay 2000

// V0 = Loop state control variable

// 1: Fast moves between travel limits

// 2: Step moves between travel limits

```

// 3: Slow moves between travel limits

V0 = 1

// Infinite Loop
while 1
    delay 10

    // Fast back/forth moves between travel limits (V2 and V1)
    // Uses the move command for motion
    if V0 = 1
        V0 = 2

        // Fast VEL and ACC
        VEL = 100
        ACC = 1000

        for V5 = 1 to 5
            move V2
            move V1
        end
        delay 1000
    end

    // Step moves between travel limits at V6 size steps
    if V0 = 2
        V0 = 3
        V6 = 1 // Step size in mm

        // Fast VEL and ACC
        VEL = 100
        ACC = 1000

        // 1mm steps toward (+) travel limit
        V7 = FPOS // Remember current position
        while V7 <= (V2 - 1)
            delay 100
            move (V7 + V6)
            V7 = FPOS
        end
        delay 1000

        // 1mm steps toward (-) travel limit
        V7 = FPOS // Remember current position
        while V7 >= (V1 + 1)
            delay 100
            move V7 - V6
            V7 = FPOS
        end
    end
end

```

```
        end
        delay 1000
    end

    // Slow back/forth moves between travel limits (V1 and V2)
    // Uses the nmove/while S_BUSY technique to go to position
    if V0 = 3
        V0 = 1
        VEL = 5          // Slow velocity
        MTL = 60000     // Increase motion time limit
        for V5 = 1 to 1
            nmove V2
            while S_BUSY
            end
            nmove V1
            while S_BUSY
            end
        end
        delay 1000
    end

    delay 2000

end
```