# Creating User Frames

Introduction

This document will cover creating User Frames manually and programmatically.

User Frames can be very beneficial to a robot system. Whether you are taking an offline program to a real cell, moving an existing cell, or adjusting relative jobs, user frames can help. There are two main ways to create a User Frame, manually and programmatically.

Manual Creation

Manual creation of a User Frame involves teaching three positions and the controller will use those to create the frame. The first thing that needs to be done is affix a pointer to the robot and teach a Tool Center Point (TCP.) If you need instructions on creating a TCP, please refer to the 5-point Calibration and Auto Weight white paper or refer to the controller Instructions manual.
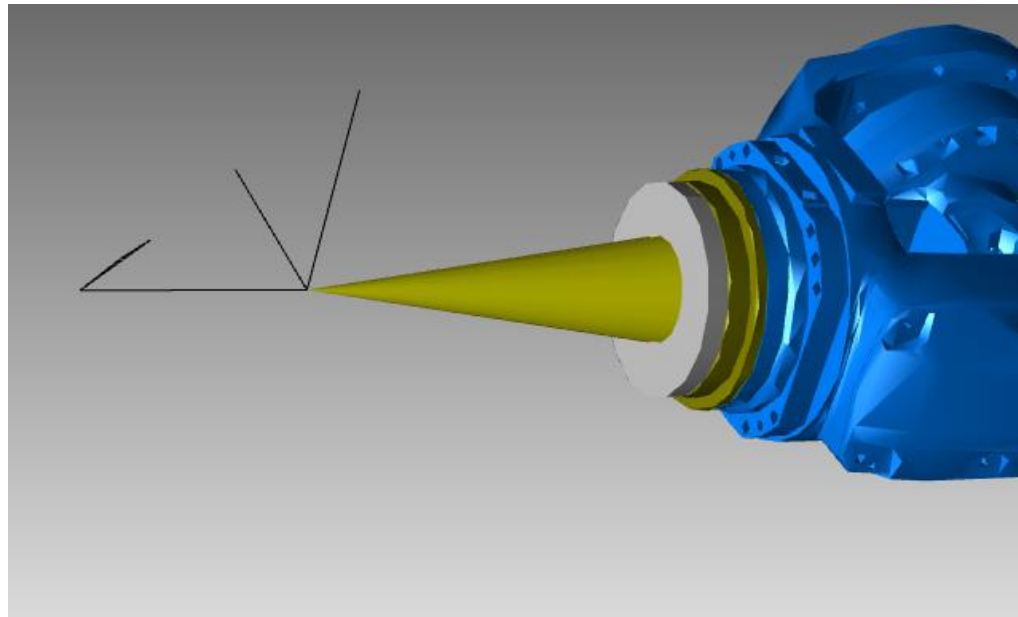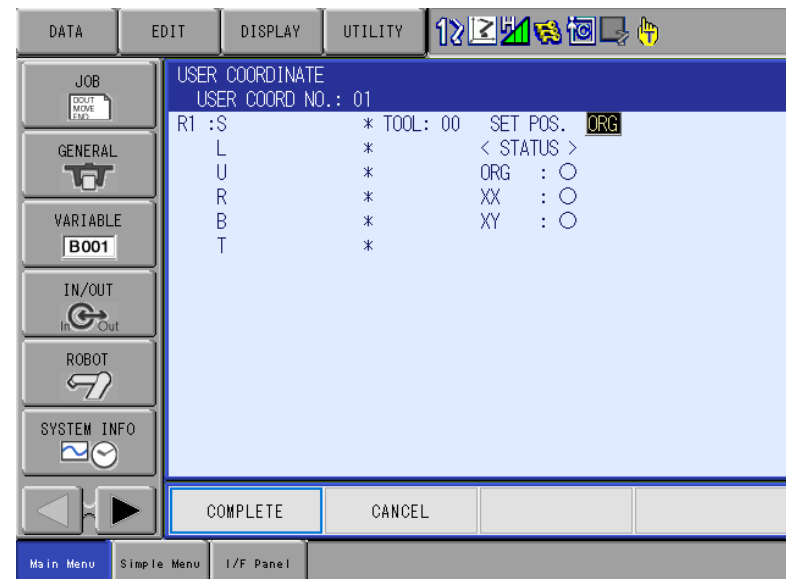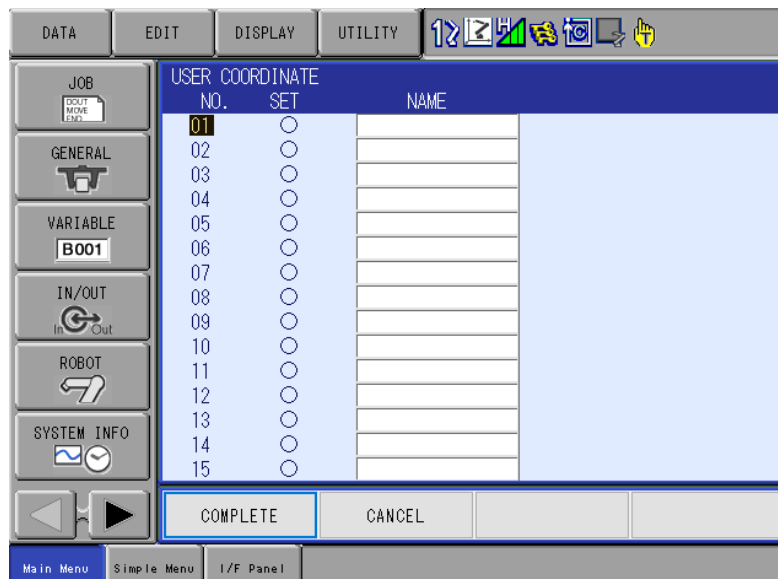
To create the frame, you will need to enter USER COORDINATE menu located in the ROBOT menu.
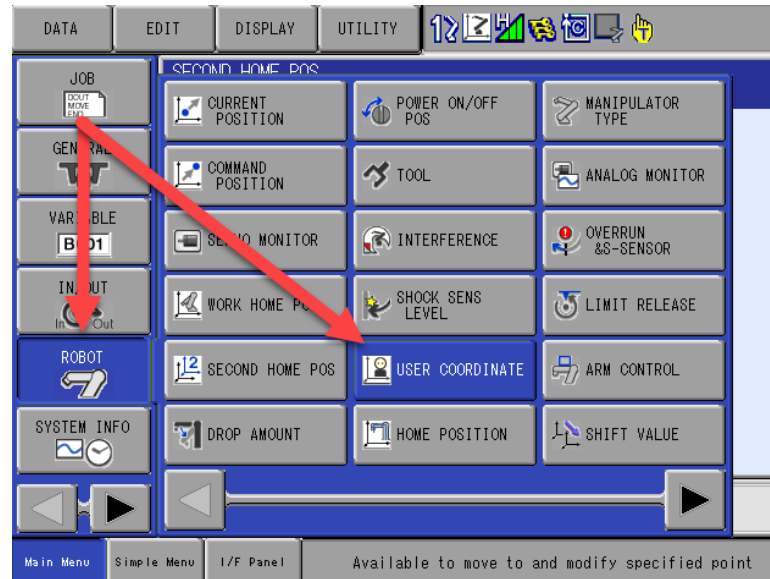
Select the User Frame you wish to create, and press select on the file to enter the setup screen.
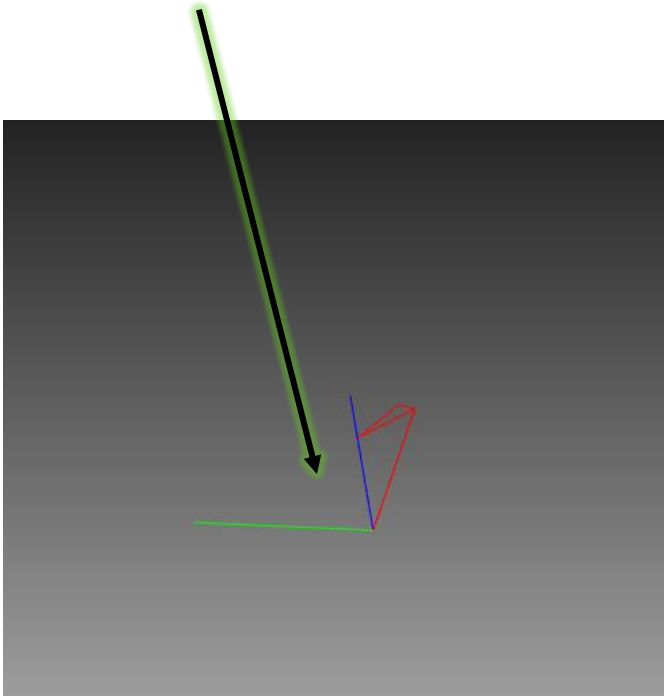
You will need to move the pointer TCP to three different locations and record them by pressing MODIFY+ENTER. You have the Origin, XX, and XY to define.
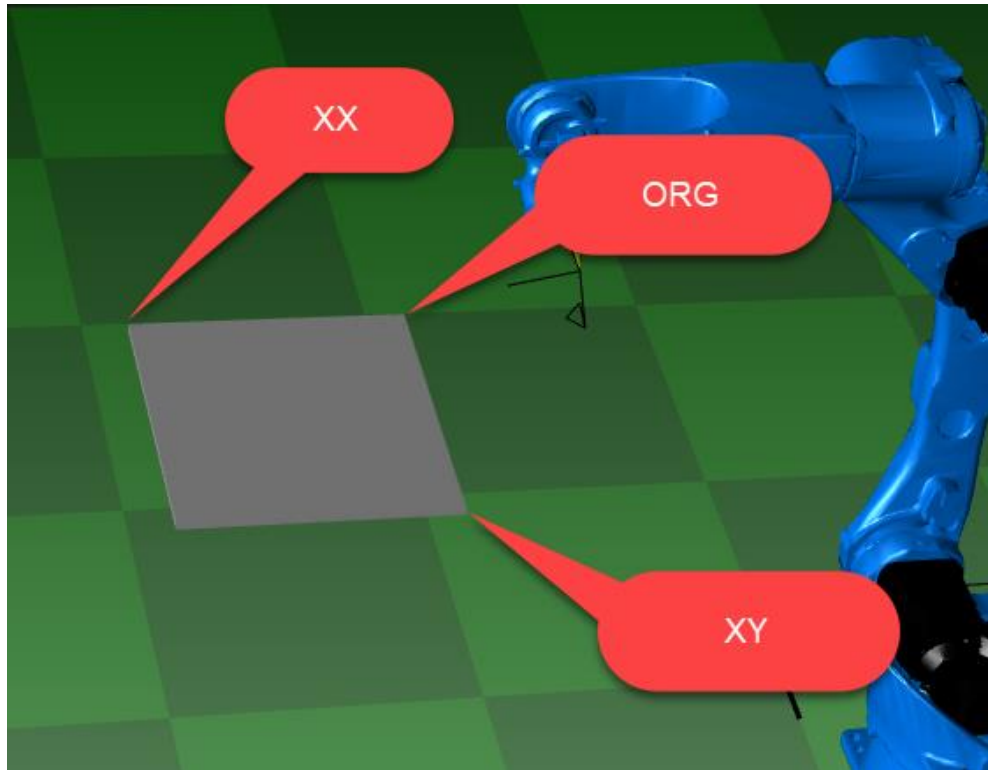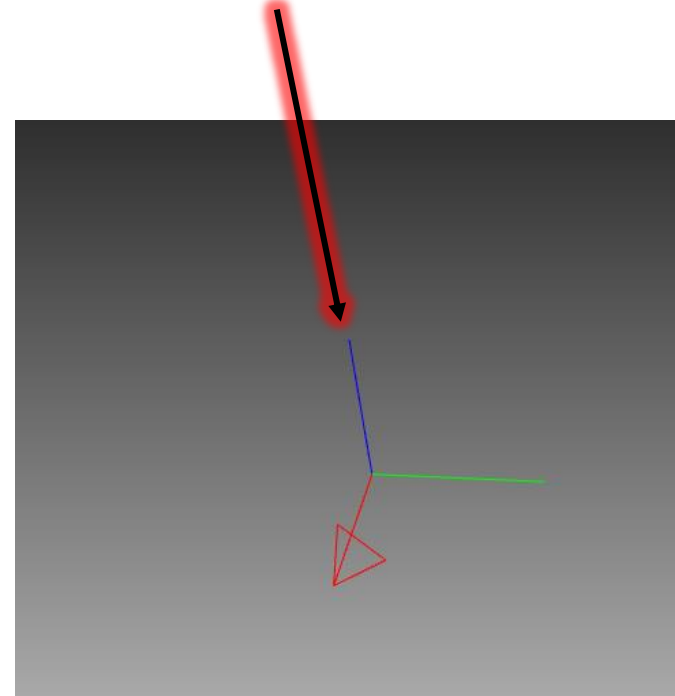

*Please note the right-hand rule. The XY should be to the left of the origin, otherwise the frame will be created inverted.

Correctly orientated User Frame

Inverted User Frame

Programmatic (INFORM) Creation

While creating user frames manually can be very useful, sometimes creating user frames during job playback can be equally useful.

Just like manually teaching, you still need three positions to create a frame programmatically. There are multiple ways you can capture positions to use in frame creation: searching, calculating, getting current position, vision, etc.

No matter the method used to capture positional data, you will use the MFRAME (Make Frame) command to turn those positions into a User Frame. When using the MFRAME command you will need to enter in the User Frame you wish to make, and the position variables being used to define the ORG, XX, and XY.


```
JOB CONTENT: MASTER
J:USERFRAME-CREATION              S:0000
CONTROL GROUP: R1            TOOL: **
0000        NOP
0001        MFRAME UF#(5) PX120 PX121 PX122
0002        END




MOVJ VJ=0.78
```

```
DETAIL EDIT
MFRAME
PUT TO        UF#()  5  ▼
ORG POS       PX120  ▼
XX POS        PX121  ▼
XY POS        PX122  ▼




MFRAME UF#(5) PX120 PX121 PX122
```

*Please note: the controller will attempt to create the frame with the information given. User Frame orientation will depend on the data that you input.