# Overview

This document details the use of software tool MPLAB® Integrated Programming Environment (IPE) for programming CAN Servo-Nodes. The IPE provides a method to perform programming and serial number control of embedded software.

Steps listed below as “***optional***” are needed if unique serial number for each CAN Servo-Node are desired. The IPE maintains a Serialized Quick Turn Programming (SQTP) file for recording used and available serial numbers. This SQTP file is updated by the IPE tool during the programming operation to identify that a serial number was used to program a target. The SQTP file must be maintained within a Version Control System (VCS) to guarantee that unique serial numbers are maintained for different target devices.

# Programming Steps

1. Open the MPLAB IPE tool.
2. Select: *Settings >> Advanced Mode*.
3. Enter password (‘microchip’ is default) and press: *Log on*.
4. On the left side of the Screen, select: *Operate*.
5. From the “Family” drop-down, select: *16-bit DSCs (dsPIC33).*
6. From the “Device” drop-down, select: *dsPIC33EV256GM102*.
7. From the “Tool” drop-down, select the programming tool being used to program the target.
8. Click the button: *Apply*.
9. Click the button: *Connect*.
10. If presented with the cautionary pop-up window on device voltage, select: *Yes*.
11. To the right of the “Source” label select button: *Browse*.
12. Navigate to and select the required file to download to the target, for example:  
    *C:\Users\Jon Watson\Documents\GitHub\dspic33-servo-can-node.X\dist\default\production\dspic33-servo-can-node.X.production.hex*
13. (***optional***) To the right of the “SQTP” label select button: *Browse*.
14. (***optional***) Select the SQTP file which includes serial number information, for example:  
    *C:\Users\Jon Watson\Documents\GitHub\dspic33-servo-can-node.X\ipe\DSPIC33EV256GM102\_SQTP.num*
15. Program the target by selecting button: *Program*.
16. (***optional***) Update the SQTP file within a selected VCS.

The programming operation is complete. The below figure provides an example screenshot of the MPLAB IPE tool following the programming steps being completed:

