Introduction

This document is going to review the general syntax and flow for using the drive configuration features in *ADVANCED* Motion Controls' DriveLibrary 1.1.0. This guide expects that the user has gone through the DriveLibrary Quick Start Guide and knows how to set up and configure a DriveLibrary project. The process of changing the Current Loop Gains is going to be used as an example for using the drive configuration features.

Loading the Header Files and Declaring the Namespaces

Many of the functions in DriveLibrary use the namespace shorthand "mdm" to refer to the drive model namespace, and "ctrlNS" refers to the axis control namespace. The full namespace is as follows:

```
namespace mdm = amc::motion::drive::model;

namespace ctrlNS = amc::motion::control;
```

For all the various functions there is a distinct header file that will be used. To change the Current Loop Gains, the following header files will need to be included:

```
#include "AMC/Motion/Control/AxisSetup.h"

#include "AMC/Motion/Drive/Model/Control/CurrentLoop.h"
```

Creating an Axis Setup Object

To use the drive configuration functions, there is an object distinct from the axis that you will need to use. This object is created from the axis, and therefore requires an axis to be initialized before an axis setup object can be created. To create an axis setup object, use the following statement:

```
ctrlNS::AxisSetup* axis_1_setup =
        ctrlNS::AxisSetup::PrepareSetup(&axis_1);
```

The creation of this object follows the same flow for nearly all drive configuration functions. The return is a pointer to the new object.

This new axis setup object can now be used to utilize all the drive configuration functions.

Get Current Loop Gains

To update the gains in the current loop, you first need to get a pointer to the Current Loop Gains:

```
mdm::control::CurrentLoop* axis_1_current_loop =
        axis_1_setup->getCurrentLoop();
```

Once you have a pointer, the process follows much like updating a database. You will update the values then write them down to the drive.

Update Current Loop Gains

The Current Loop gains allow you to set all gains for AC Induction and DC Brushless motors. For DC Brush/Brushless applications, you will only change or modify the Torque Integral and Torque Proportional Gains. To modify them, use the SetTorqueProportionalGain and SetTorqueIntegralGain methods available through the current loop object.:

```
axis_1_current_loop->SetTorqueProportionalGain(1);
axis_1_current_loop->SetTorqueIntegralGain(0);
```

Write Changes to the Drive

Once the new values have been provided, they need to be written to the drive. The axis setup object provides an update gains function which updates all gain values that have been changed or modified to the drive:

```
axis_1_setup->updateGains();
```

Release Axis Setup Object

After all the values have been written, you need to release the axis setup object so the axis can accomplish motion.

```
ctrlNS::AxisSetup::RemoveSetup(&axis_1);
```

Conclusion

All the other axis setup methods follow a similar pattern of using the axis setup to get the current values from the drive, update them, and write the new values down. It is recommended to refer to the DriveLibrary API Manual for all details on method names, object types, and header files needed for specific operations.