

Mitsubishi Electric FA Website e-learning Motion Control Software SWM-G Basic Supplementary Document

[Title] Explanation of the sample program "03.Basic Motion"

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[Version] -

[Relevant Model] Motion Control Software SWM-G

This document is a supplementary document for the e-learning Motion Control Software SWM-G Basic course which is available on the Mitsubishi Electric FA website.

The contents of this document are intended to supplement the above e-learning course. For information which is not described in this document, refer to the e-learning course.

This document explains the sample program "03.Basic Motion" included in SWM-G.

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Knowledge of C++ required for the control of SWM-G

The following items are required for the control of SWM-G.

Item	Function overview	Use scene in SWM-G
Data pass by reference	When pointer data is set to a function argument, the updated value in the function is retained even after the function processing is completed.	<ul style="list-style-type: none"> When referring to monitor data When referring to parameter

- When referring to SWM-G monitor data

[How to reference]

- By executing the "GetStatus" API, the monitor information in the monitor data structure is updated to the latest state.
- By making the argument an address reference format (pointer), the updated value can be retained after the API processing is completed.

[Program example]

```

Define the data for status check (monitor).
CoreMotionStatus stMotionStatus; //Monitor data structure
//Obtain the current monitor information (Execute the API to obtain the monitor data).
ssclib_cm.GetStatus(&stMotionStatus); ←
//Set the start address of the monitor data structure to the argument. → The monitor data structure is updated.
//Check the system status (Example: Display the communication cycle).
printf("Cycle Time Milliseconds = %d ¥n", stMotionStatus.cycleTimeMilliseconds); ←
//Check the axis monitor (Example: Display the command position and FB position of axis 0).
printf("Commnd Position = %f ¥n", stMotionStatus.axesStatus[0].posCmd);
printf("Actual Position = %f ¥n", stMotionStatus.axesStatus[0].actualPos); ←

```

Obtain the system/axis status.
(Update all monitor information to the latest state)

Display the updated system monitor.
(Example: Network status)

Display the updated axis monitoring.
(Example: Command position FB position)

SWM-G basic program

This section describes the basic program flow of SWM-G using the sample program "03_MotorControl.cpp" included in SWM-G as an example.

Storage destination of the sample program "03_MotorControl.cpp"

C:\Program Files\MotionSoftware\SWM-G\Samples\C++\Src\1_BasicMotion\03_MotorControl\03_MotorControl

- Basic program flow

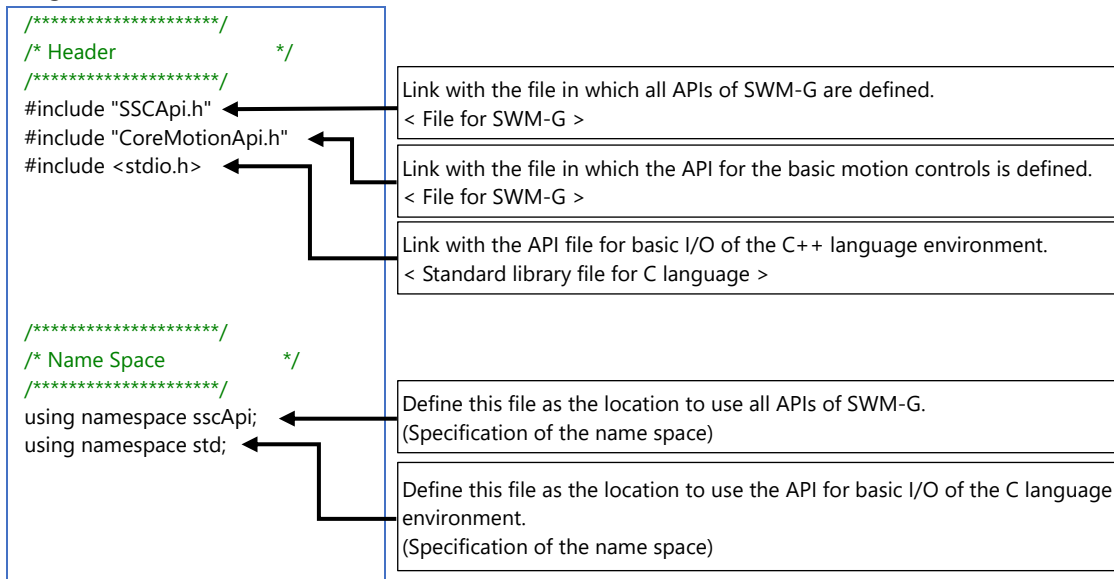
The motion control program is configured based on the following flow.

Processing order	Description	Processing status
1	Linkage of relevant files Variable definition	Preparation processing
2	Device generation • Generate SWM-G objects for each task.	
3	Network connection	
4	Servo ON • Check the status.	Application processing
5	Home position return • Perform the operation as necessary.	
6	Various motion controls	
7	Servo OFF	
8	Network disconnection	End processing
9	Device closing	
10	Memory allocation	

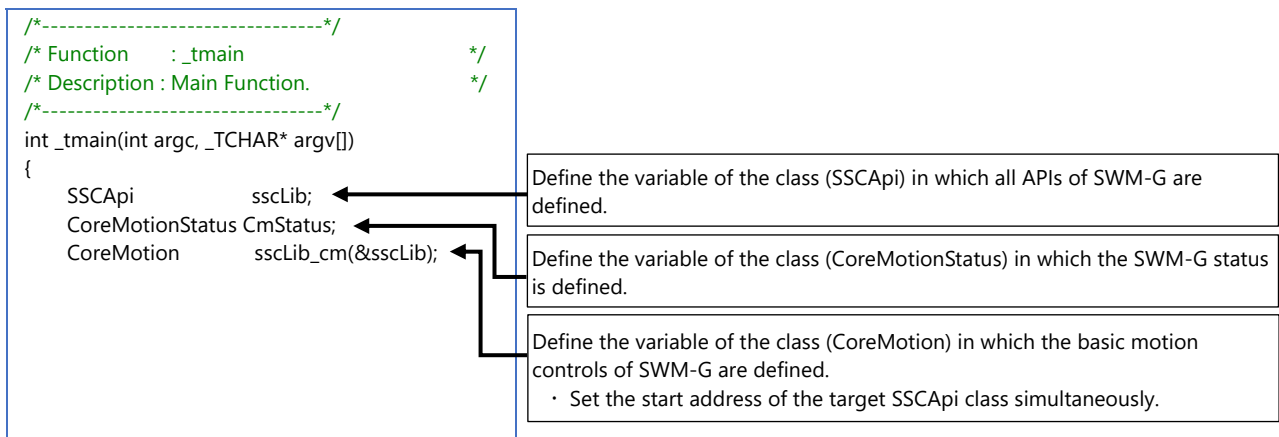
Description of program details

This section describes the details of the sample program "03_MotorControl.cpp".

● Linkage of relevant files

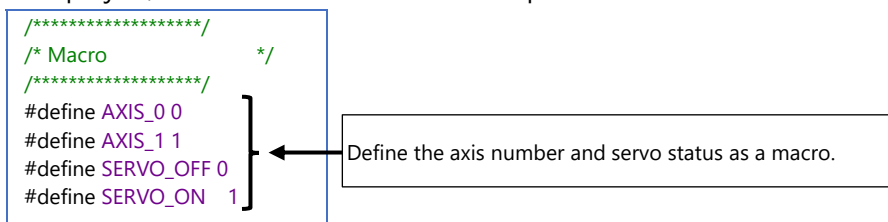


● Variable definition

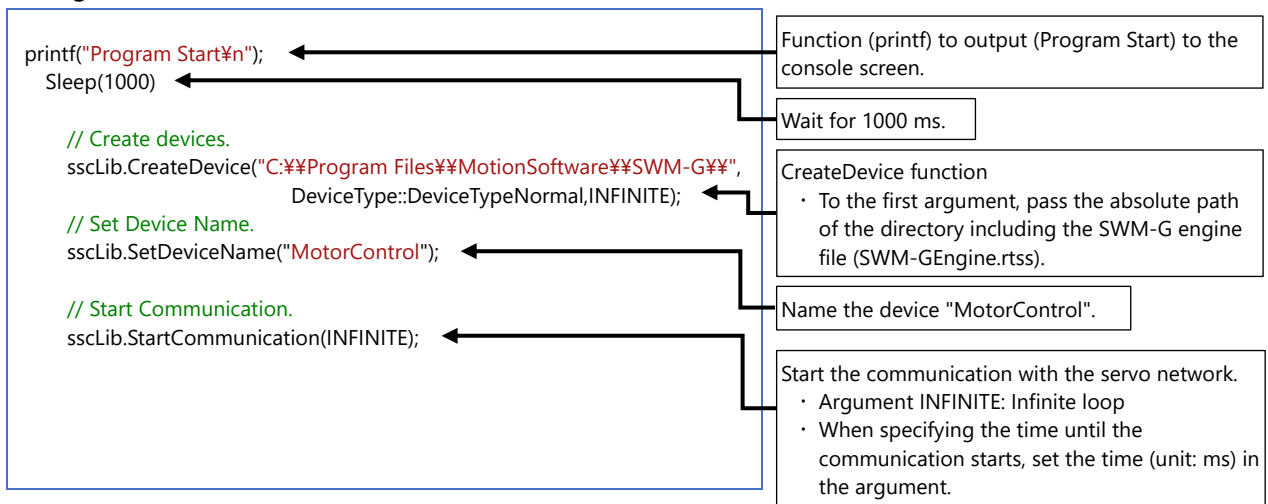


● Macro setting

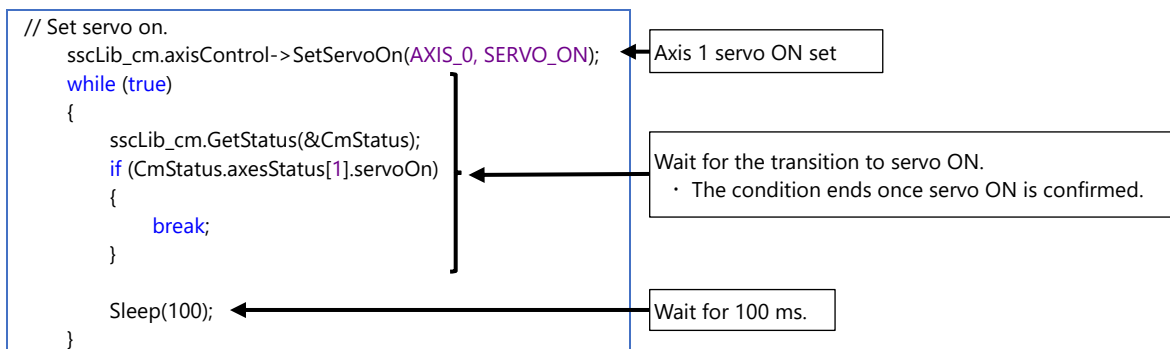
In this project, the axis numbers and servo amplifier statuses are converted into macros.



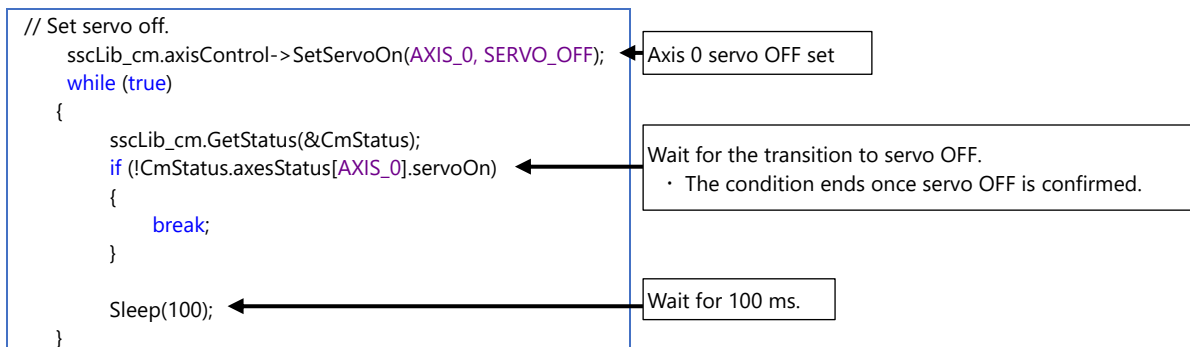
● Device generation and network connection



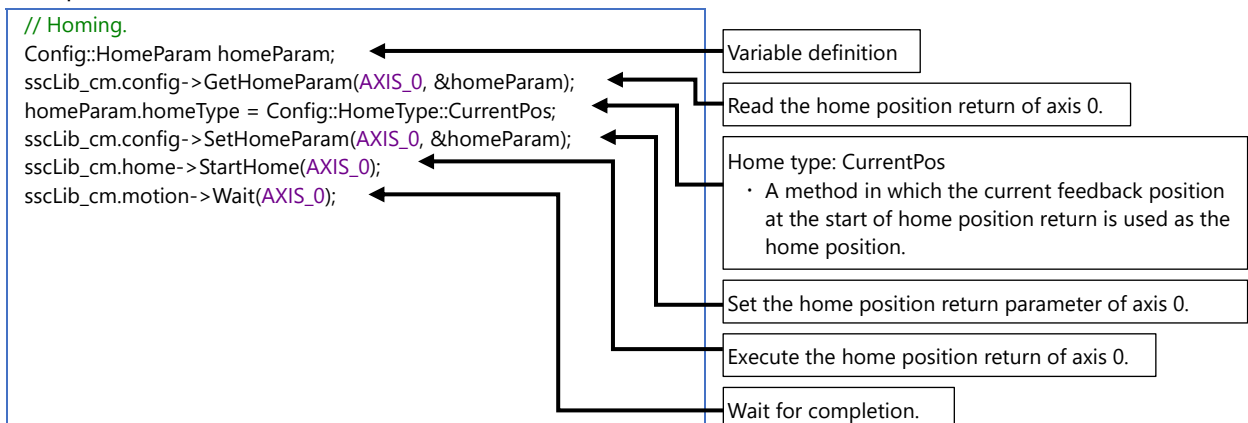
● Servo ON



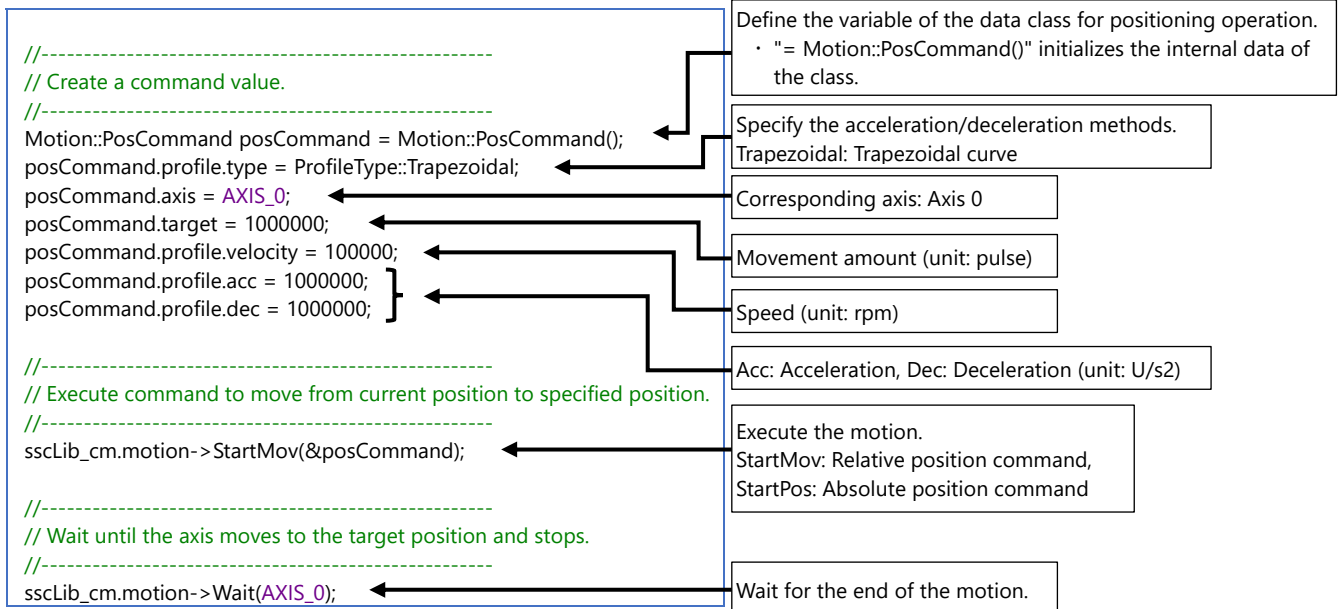
● Servo OFF



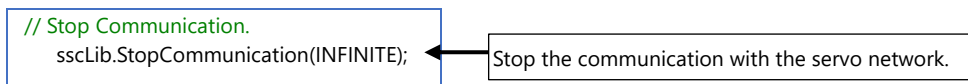
● Home position return



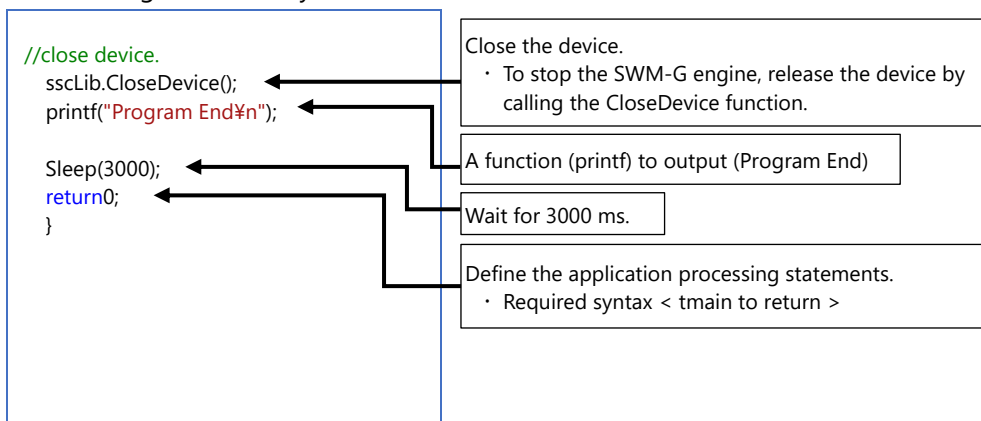
● Various motion controls



● Network disconnection



● Device closing and memory allocation



Revision

Version	Date	Description
-	August 2024	First edition