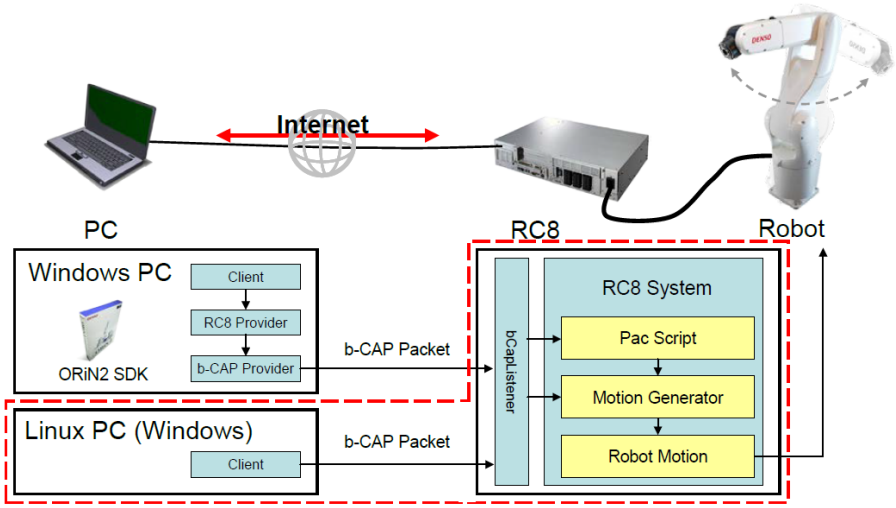
RC8 Provider

For DENSO Robot RC8

Version 1.1.5

User's Guide

(b-CAP Client Command Reference)



Version	Date	Content
1.1.5	2016-03-31	First Edition

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5.2.1 CaoWorkspace::AddController method

Example – Create CaoController

```
int fd;                             //Socket Pointer
HRESULT hr;                         //Command Status
uint32_t hCtrl;                     //Controller Handler

//Open Client Socket
hr = bCap_Open_Client("tcp:" TARGET_RC8_IP, 1000, 3, &fd);
if (SUCCEEDED(hr))
{
 /* Send SERVICE_START Packet */
 bCap_ServiceStart(fd, NULL);
 //Get Controller Handler
 BSTR ctrl_name, ctrl_prov, ctrl_mach, ctrl_opt;       //Arguments:
 ctrl_name = SysAllocString(L"");                      //Name
 ctrl_prov = SysAllocString(L"CaoProv.DENSO.VRC");     //Provider
 ctrl_mach = SysAllocString(L"localhost");             //Machine
 ctrl_opt = SysAllocString(L"");                       //Option

 /* Connect to RC8 */
 hr = bCap_ControllerConnect(fd, ctrl_name, ctrl_prov, ctrl_mach, ctrl_opt, &hCtrl);

 if (SUCCEEDED(hr))
  printf("bCap_ControllerConnect Succeeded...\n");
 else
  printf("bCap_ControllerConnect Failed...\n");

 //Release Variables
 SysFreeString(ctrl_name);
 SysFreeString(ctrl_prov);
 SysFreeString(ctrl_mach);
 SysFreeString(ctrl_opt);
}
else
 printf("bCap_Open_Client Failed...\n");
```

5.2.2.1 When you establish multiple connections with RC8 controller

5.2.2 CaoController::AddFile method

Example – Get the content of a Pro1.pcs file

```
//Get File Handler
uint32_t hFile;                         //File Handler
BSTR file_name, file_opt;               //Arguments:
file_name = SysAllocString(L"Pro1.pcs"); //Name
file_opt = SysAllocString(L"");         //Option

/* Obtain File Reference */
hr = bCap_ControllerGetFile(fd, hCtrl, file_name, file_opt, &hFile);
```

```
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetFile Succeeded...\n");
else
 printf("bCap_ControllerGetFile Failed...\n");

//Release Variables
SysFreeString(file_name);
SysFreeString(file_opt);
```

5.2.3 CaoController::AddRobot method

Example

```
uint32_t hRobot;                        //Robot Handler
//Get Robot Handler
BSTR rob_name, rob_opt;                 //Arguments:
rob_name = SysAllocString(L"Robot0");   //Name
rob_opt = SysAllocString(L"ID=0");      //Option

/* Obtain Robot Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
```

5.2.4 CaoController::AddTask method

Example

```
//Get Task Handler
uint32_t hTask;                         //Task Handler
BSTR task_name, task_opt;               //Arguments:
task_name = SysAllocString(L"Pro1");    //Name
task_opt = SysAllocString(L"");         //Option

/* Obtain Task Reference */
hr = bCap_ControllerGetTask(fd, hCtrl, task_name, task_opt, &hTask);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetTask Succeeded...\n");
else
 printf("bCap_ControllerGetTask Failed...\n");

//Release Variables
SysFreeString(task_name);
SysFreeString(task_opt);
```

5.2.5 CaoController::AddVariable method

Example – Access to the 128th I/O variable

```
//Get Variable Handler
uint32_t hVariable;                     //Variable Handler
BSTR var_name, var_opt;                 //Arguments:
var_name = SysAllocString(L"IO128");    //Name
var_opt = SysAllocString(L"");          //Option

/* Obtain Variable Reference */
hr = bCap_ControllerGetVariable(fd, hCtrl, var_name, var_opt, &hVariable);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetVariable Succeeded...\n");

 //Write to Controller Variable
 VARIANT write_value;
 VariantInit(&write_value);
 write_value.boolVal = 1;
 write_value.vt = VT_BOOL;

 /* Write Value to Controller */
 hr = bCap_VariablePutValue(fd, hVariable, write_value);
 if (SUCCEEDED(hr))
 {
  printf("bCap_VariablePutValue Succeeded...\n");
  VARIANT read_value;
  VariantInit(&read_value);

  /* Read Value from Controller */
  hr = bCap_VariableGetValue(fd, hVariable, &read_value);
  if (SUCCEEDED(hr))
  {
   printf("bCapVariableGetValue Succeeded...\n");
   printf("%S value is %d \n", var_name, read_value.boolVal);
  }
  else
   printf("bCapVariableGetValue Failed...\n");

  //Release Variables
  VariantClear(&read_value);
 }
 else
  printf("bCapVariablePutValue Failed...\n");

 //Release Variable Handler
 bCap_VariableRelease(fd, &hVariable);

 //Release Variables
 VariantClear(&write_value);

}
else
 printf("bCap_ControllerGetVariable Failed...\n");

//Release Variables
SysFreeString(var_name);
SysFreeString(var_opt);
```

```
//Example #2-----------------------------------
var_name = SysAllocString(L"IO*"); //Name
var_opt = SysAllocString(L"");     //Option

/* Obtain Variable Reference */
hr = bCap_ControllerGetVariable(fd, hCtrl, var_name, var_opt, &hVariable);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerVariable Succeeded...\n");

 //Specify Variable Index ID
 VARIANT var_id;
 VariantInit(&var_id);
 var_id.intVal = 129;
 var_id.vt = VT_I4;

 /* Set Variable Inde ID */
 hr = bCap_VariablePutID(fd, hVariable, var_id);
 if (SUCCEEDED(hr))
 {
  printf("bCap_VariablePutID Succeeded...\n");

  //Write to Controller Variable
  VARIANT write_value;
  VariantInit(&write_value);
  write_value.boolVal = 1;
  write_value.vt = VT_BOOL;

  /* Write Value to Controller */
  hr = bCap_VariablePutValue(fd, hVariable, write_value);

  if (SUCCEEDED(hr))
  {
   printf("bCap_VariablePutValue Succeeded...\n");
   VARIANT read_value;
   VariantInit(&read_value);

   /* Read Value from Controller */
   hr = bCap_VariableGetValue(fd, hVariable, &read_value);
   if (SUCCEEDED(hr))
   {
    printf("bCapVariableGetValue Succeeded...\n");
    printf("%S value is %d \n", var_name, read_value.boolVal);
   }
   else
    printf("bCapVariableGetValue Failed...\n");

   //Release Variables
   VariantClear(&read_value);
  }
  else
   printf("bCapVariablePutValue Failed...\n");

  //Release Variables
  VariantClear(&write_value);
```

```
 }
 else
  printf("bCap_VariablePutID Failed...\n");
}
else
 printf("bCap_ControllerVariable Failed...\n");

//Release Variables
SysFreeString(var_name);
SysFreeString(var_opt);
VariantClear(&var_id);
```

5.2.6 CaoController::AddExtension method

Example

```
//Get Extension Handler
uint32_t hExtension;                    //Extension Handler
BSTR ext_name, ext_opt;                 //Arguments:
ext_name = SysAllocString(L"Hand0");    //Name
ext_opt = SysAllocString(L"");          //Option

/* Obtain Extension Reference */
hr = bCap_ControllerGetExtension(fd, hCtrl, ext_name, ext_opt, &hExtension);

if (SUCCEEDED(hr))
 printf("bCap_ControllerGetExtension Succeeded...\n");
else
 printf("bCap_ControllerGetExtension Failed...\n");

//Release Variables
SysFreeString(ext_name);
SysFreeString(ext_opt);
```

5.2.7 CaoController::get_Name property

Example – Display the automatically assigned controller name

```
//Get Controller Name
BSTR ctrl_name;
hr = bCap_ControllerGetName(fd, hCtrl, &ctrl_name);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetName Succeeded...\n");
 printf("Controller Name: %S \n", ctrl_name);
}
else
 printf("bCap_ControllerGetName Failed...\n");

//Release Variables
SysFreeString(ctrl_name);
```

5.2.8 CaoController:: get_FileNames property

Example – List the following file names in the root folder

```
//Get File Names
BSTR file_opt;                          //Arguments:
file_opt = SysAllocString(L"");         //Option
```

```
VARIANT file_names;
VariantInit(&file_names);

/* Get List of Files on RC8 */
hr = bCap_ControllerGetFileNames(fd, hCtrl, file_opt, &file_names);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetFileNames Succeeded...\n");

 //Print File List
 SAFEARRAY* file_list = NULL;
 file_list = V_ARRAY(&file_names);

 BSTR* file_name = NULL;
 hr = SafeArrayAccessData(file_list, (void**)&file_name);
 if (SUCCEEDED(hr))
 {
  long ubound, lbound;
  hr = SafeArrayGetUBound(file_list, 1, &ubound);
  hr = SafeArrayGetLBound(file_list, 1, &lbound);

  long cnt_elements = ubound - lbound + 1;

  printf("RC8 File List: \n");
  for (int i = 0; i < cnt_elements; i++)
  {
   printf("\t - %d: %S \n", i, file_name[i]);
  }
  SafeArrayUnaccessData(file_list);
 }

 //Release Variables
 SafeArrayDestroy(file_list);
}
else
 printf("bCap_ControllerGetFileNames Failed...\n");

//Release Variables
SysFreeString(file_opt);
VariantClear(&file_names);
```

5.2.9 CaoController:: get_TaskName property

Example – List task names

```
//Get Task Names
BSTR task_opt;                          //Arguments:
VARIANT task_names;
task_opt = SysAllocString(L"");         //Option
VariantInit(&task_names);               //Task List

/* Get List of Tasks on RC8 */
hr = bCap_ControllerGetTaskNames(fd, hCtrl, task_opt, &task_names);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetTaskNames Succeeded...\n");

 //Print Task List
```

```
 SAFEARRAY* task_list = NULL;
 task_list = V_ARRAY(&task_names);

 BSTR* task_name = NULL;
 hr = SafeArrayAccessData(task_list, (void**)&task_name);

 if (SUCCEEDED(hr))
 {
  long ubound, lbound;
  hr = SafeArrayGetUBound(task_list, 1, &ubound);
  hr = SafeArrayGetLBound(task_list, 1, &lbound);

  long cnt_elements = ubound - lbound + 1;
  printf("RC8 Task List: \n");
  for (int i = 0; i < cnt_elements; i++)
  {
   printf("\t - %d: %S \n", i, task_name[i]);
  }
  SafeArrayUnaccessData(task_list);
 }
}
else
 printf("bCap_ControllerGetTaskNames Failed...\n");

//Release Variables
SysFreeString(task_opt);
VariantClear(&task_names);
```

5.2.10 CaoController:: get_VariableNames property

5.2.11 CaoController:: Execute method

Example

```
//ExecuteTask
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ClearError"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Clear Error on RC8 */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded... \n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.1 CaoController::Execute("ClearError") command

Example

```
//Execute
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ClearError"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Clear Error on RC8 */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded... \n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.2 CaoController::Execute("GetErrorDescription") command

Example

```
BSTR exe_comm;                                      //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetErrorDescription");  //Command Name
VariantInit(&exe_param);                            //Command Parameters
VariantInit(&exe_result);                           //Command Result

//Error Description Parameters
exe_param.intVal = 0x83500003;    //Error Code
exe_param.vt = VT_I4;

/* Get Error Description */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 printf("Error Description for Code 83500003: %S", exe_result.bstrVal);
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.3 CaoController::Execute("KillAll") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"KillAll");  //Command Name
VariantInit(&exe_param);                //Command Parameters
```

```
VariantInit(&exe_result);                //Command Result

/* Kill All Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.4 CaoController::Execute("KillAllTsr") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"KillAllTsr");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Kill All TSR Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.5 CaoController::Execute("RunAllTsr") command

Example

```
BSTR exe_comm;                           //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"RunAllTsr"); //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

/* Run All TSR Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.6 CaoController::Execute("SuspendAll") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SuspendAll"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Suspend All Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.7 CaoController::Execute("StepStopAll") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"StepStopAll");      //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* StepStop All Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.8 CaoController::Execute("ContinueStartAll") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ContinueStartAll"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Continue Start All Programs */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.9 CaoController::Execute("GetErrorLogCount") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetErrorLogCount"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Get total number of erros in Error Log */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 printf("Error Log Count: %ld \n", exe_result.intVal);
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.10 CaoController::Execute("GetErrorLog") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetErrorLogCount"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Get total number of erros in Error Log */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

//Release Variable
SysFreeString(exe_comm);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 int error_ubound = exe_result.intVal;
 exe_comm = SysAllocString(L"GetErrorLog");     //Command Name

 printf("RC8 Error Log:_____ \n");
 printf("No. | Date | Call | Code | Message \n");

 for (int i = 0; i < error_ubound; i++)
 {
  exe_param.intVal = i;     //Error Log Index
```

```
  exe_param.vt = VT_I4;

  /* Get Error Information based on Index */
  hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
  if (SUCCEEDED(hr))
  {
   //Print Error Info
   SAFEARRAY* log_list = NULL;
   log_list = V_ARRAY(&exe_result);

   VARIANT* error_log;
   hr = SafeArrayAccessData(log_list, (void**)&error_log);

   if (SUCCEEDED(hr))
   {
    printf("%d | ", i);
    printf("%d/%d/%d | ", error_log[1].intVal, error_log[2].intVal, error_log[4].intVal);
    printf("%d | ", error_log[14].intVal);
    printf("%X | ", error_log[13].intVal);
    printf("%S \n", error_log[12].bstrVal);

    SafeArrayUnaccessData(log_list);
   }
  }
  else
   printf("bCap_ControllerExecute Failed... \n");
 }
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.11 CaoController::Execute("GetOprLogCount") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetOprLogCount");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Get total number of operations in Operation Log */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 printf("Operation Log Count: %d \n", exe_result.intVal);
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
```

```
VariantClear(&exe_result);
```

5.2.11.12 CaoController::Execute("GetOprLog") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetOprLogCount");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Get total number of operatoins in Operation Log */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

//Release Variable
SysFreeString(exe_comm);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 int error_ubound = exe_result.intVal;
 exe_comm = SysAllocString(L"GetOprLog"); //Command Name

 printf("RC8 Operation Log:_____ \n");
 printf("No. | Date | Call | Code | Message \n");

 for (int i = 0; i < error_ubound; i++)
 {
  exe_param.intVal = i;     //Operation Log Index
  exe_param.vt = VT_I4;

  /* Get Error Information based on Index */
  hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
  if (SUCCEEDED(hr))
  {
   //Print Operation Info
   SAFEARRAY* log_list = NULL;
   log_list = V_ARRAY(&exe_result);

   VARIANT* opr_log;
   hr = SafeArrayAccessData(log_list, (void**)&opr_log);

   if (SUCCEEDED(hr))
   {
    printf("%d | ", i);
    printf("%d/%d/%d | ", opr_log[1].intVal, opr_log[2].intVal, opr_log[4].intVal);
    printf("%d | ", opr_log[10].intVal);
    printf("%X | ", opr_log[0].intVal);
    printf("%S \n", opr_log[11].bstrVal);

    SafeArrayUnaccessData(log_list);
   }
  }
  else
   printf("bCap_ControllerExecute Failed... \n");
 }
}
```

```
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.13 CaoController::Execute("GetPublicValue") command

Example – Reading Variable

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetPublicValue");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"Pro1");            //Task Name
param_data[1] = SysAllocString(L"pblValue");        //Variable Name
SafeArrayUnaccessData(exe_param.parray);

/* Reading a Variable (Single Dimension) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

////Release Variable
for (int i = 0; i < 2; i++)
 SysFreeString(param_data[i]);

if (SUCCEEDED(hr))
{
 printf("hCap_ControllerExecute Succeeded...\n");
 printf("Variable Value: %d\n", exe_result.intVal);
}
else
 printf("hCap_ControllerExecute Failed...\n");
```

Example – Reading one element array

```
//Populate parameter option
VARIANT *param_data2;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 5);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data2);
param_data2[0].bstrVal = SysAllocString(L"Pro1");
param_data2[0].vt = VT_BSTR;
param_data2[1].bstrVal = SysAllocString(L"pblArrays");
param_data2[1].vt = VT_BSTR;
param_data2[2].intVal = 1;
param_data2[2].vt = VT_I4;
param_data2[3].intVal = 2;
param_data2[3].vt = VT_I4;
param_data2[4].intVal = 2;
param_data2[4].vt = VT_I4;
```

```
/* Reading a Variable (Element from an Array) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

//Release Variable
for (int i = 0; i < 2; i++)
 SysFreeString(param_data2[i].bstrVal);

if (SUCCEEDED(hr))
{
 printf("hCap_ControllerExecute Succeeded...\n");
 printf("Variable Value From Array: %d\n", exe_result.intVal);
}
else
 printf("hCap_ControllerExecute Failed...\n");
```

Example – Reading one dimensional array as a batch

```
//Populate parameter option
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"Pro1");                //Task Name
param_data[1] = SysAllocString(L"pblArray");            //Variable Name
SafeArrayUnaccessData(exe_param.parray);

/* Reading a Variable (Array) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

//Release Variable
for (int i = 0; i < 2; i++)
 SysFreeString(param_data[i]);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* array_list = NULL;
 array_list = V_ARRAY(&exe_result);

 uint32_t* public_array;
 hr = SafeArrayAccessData(array_list, (void**)&public_array);
 if (SUCCEEDED(hr))
 {
  long ubound, lbound;
  hr = SafeArrayGetUBound(array_list, 1, &ubound);
  hr = SafeArrayGetLBound(array_list, 1, &lbound);

  long cnt_elements = ubound - lbound + 1;
  printf("ArrayValue: \n");

  for (int i = 0; i < cnt_elements; i++)
   printf("\t -%d: %d\n", i, public_array[i]);

  SafeArrayUnaccessData(array_list);
 }
}
else
 printf("bCap_ControllerExecute Failed... \n");
```

Example – Reading P-type variable

```
//Populate parameter option
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"Pro1");              //Task Name
param_data[1] = SysAllocString(L"pbPValue");          //Variable Name
SafeArrayUnaccessData(exe_param.parray);

/* Reading a Variable (Position) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);

//Release Variable
for (int i = 0; i < 2; i++)
 SysFreeString(param_data[i]);

if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* pos_list = NULL;
 pos_list = V_ARRAY(&exe_result);

 float* pos_array;
 hr = SafeArrayAccessData(pos_list, (void**)&pos_array);
 if (SUCCEEDED(hr))
 {
  long ubound, lbound;
  hr = SafeArrayGetUBound(pos_list, 1, &ubound);
  hr = SafeArrayGetLBound(pos_list, 1, &lbound);

  long cnt_elements = ubound - lbound + 1;
  printf("ArrayValue: \n");

  for (int i = 0; i < cnt_elements; i++)
   printf("\t -%d: %f\n", i, pos_array[i]);

  SafeArrayUnaccessData(pos_list);
 }
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
VariantClear(&exe_param);
VariantClear(&exe_result);
SysFreeString(exe_comm);
```

5.2.11.14 CaoController::Execute("SetPublicValue") command

Example – Writing Variable

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetPublicValue");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result
```

```
//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1234;
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"Pro1");
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"pblValue");
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Writing to a Variable (Single Dimension) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed...\n");
```

Example – Writing one element of array

```
//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 6);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1234;
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"Pro1");
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"pblArrays");
param_data[2].vt = VT_BSTR;
param_data[3].intVal = 1;
param_data[3].vt = VT_I4;
param_data[4].intVal = 2;
param_data[4].vt = VT_I4;
param_data[5].intVal = 2;
param_data[5].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* Writing to a Variable (Element from an Array) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed...\n");
```

Example – Writing one dimensional array as batch

```
//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);

//Build PublicVariable Array
uint32_t *iArray;
param_data[0].vt = VT_I4 | VT_ARRAY;
param_data[0].parray = SafeArrayCreateVector(VT_I4, 0, 3);
hr = SafeArrayAccessData(param_data[0].parray, (void**)&iArray);
```

```
for (int i = 0; i < 3; i++)
 iArray[i] = i;

SafeArrayUnaccessData(param_data[0].parray);
param_data[1].bstrVal = SysAllocString(L"Pro1");
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"pblArray");
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Writing to a Variable (Array) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed...\n");
```

Example – Writing P-type variable

```
//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);

//Build PublicPositionVariable Array
float *fVals;
param_data[0].vt = VT_R4 | VT_ARRAY;
param_data[0].parray = SafeArrayCreateVector(VT_R4, 0, 7);
hr = SafeArrayAccessData(param_data[0].parray, (void**)&fVals);
fVals[0] = 1.0;
fVals[1] = 2.0;
fVals[2] = 3.0;
fVals[3] = 1.0;
fVals[4] = 2.0;
fVals[5] = 3.0;
fVals[6] = -1;
SafeArrayUnaccessData(param_data[0].parray);
param_data[1].bstrVal = SysAllocString(L"Pro1");
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"pbPValue");
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Writing to a Variable (Position Variable) */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed...\n");

//Release Variables
VariantClear(&exe_param);
VariantClear(&exe_result);
SysFreeString(exe_comm);
```

5.2.11.15 CaoController::Execute("SysState") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SysState");  //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

/* Get RC8 Systate */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 printf("Systate Return Value: %X \n", exe_result.intVal);
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.16 CaoController::Execute("SysInfo") command

Example

```
BSTR exe_comm;                          //Arguments
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SysInfo");   //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

/*Parameter Settings*/
exe_param.intVal = 0;              //Manufacturing Number
exe_param.vt = VT_I4;              //Integer Type

/* Get RC8 SysInfo */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");
 printf("Manufacturing Number: %S \n",exe_result.bstrVal);
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.17 CaoController::Execute("SetAllDummyIO") command

Example

```
BSTR exe_comm;                                  //Arguments
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetAllDummyIO");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/*Parameter Settings*/
exe_param.intVal = 0;             //Reset Dummy IO
exe_param.vt = VT_I4;             //Integer Type

/* Send SetAllDummyIO Command */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ControllerExecute Succeeded...\n");
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.18 CaoController::Execute("GetCurErrorCount") command

Example

```
BSTR exe_comm;                                  //Arguments
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetCurErrorInfo");  //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/*Set Parameters */
exe_param.intVal = 0;
exe_param.vt = VT_I4;

/* Send GGetCurErrorInfo Command */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* error_list = NULL;
 error_list = V_ARRAY(&exe_result);

 VARIANT* error_info;
 hr = SafeArrayAccessData(error_list, (void**)&error_info);
 if (SUCCEEDED(hr))
 {
  printf("Current Error Information: \n");
  printf("\t - Error Code: %X \n", error_info[0].intVal);
  printf("\t - Error Message: %S \n", error_info[1].bstrVal);
  printf("\t - Sub Code: %X \n", error_info[2].intVal);
  printf("\t - FileID&LineNo: %X \n", error_info[3].intVal);
```

```
  printf("\t - Program name: %S \n", error_info[4].bstrVal);
  printf("\t - Line number: %d \n", error_info[5].intVal);
  printf("\t - FileID: %d \n", error_info[6].intVal);

  SafeArrayUnaccessData(error_list);
 }
}
else
 printf("bCap_ControllerExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.11.19 CaoController::Execute("GetCurErrorInfo") command

Example

```
BSTR exe_comm;                                  //Arguments
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetCurErrorInfo");  //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/*Set Parameters */
exe_param.intVal = 0;
exe_param.vt = VT_I4;

/* Send GGetCurErrorInfo Command */
hr = bCap_ControllerExecute(fd, hCtrl, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* error_list = NULL;
 error_list = V_ARRAY(&exe_result);

 VARIANT* error_info;
 hr = SafeArrayAccessData(error_list, (void**)&error_info);
 if (SUCCEEDED(hr))
 {
  printf("Current Error Information: \n");
  printf("\t - Error Code: %X \n", error_info[0].intVal);
  printf("\t - Error Message: %S \n", error_info[1].bstrVal);
  printf("\t - Sub Code: %X \n", error_info[2].intVal);
  printf("\t - FileID&LineNo: %X \n", error_info[3].intVal);
  printf("\t - Program name: %S \n", error_info[4].bstrVal);
  printf("\t - Line number: %d \n", error_info[5].intVal);
  printf("\t - FileID: %d \n", error_info[6].intVal);

  SafeArrayUnaccessData(error_list);
 }
}
else
 printf("bCap_ControllerExecute Failed... \n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.12 CaoFile::AddFile method

Example – Display the size of Pro1.pcs file in the User folder

```
//Get File Handler
BSTR file_name, file_opt;                                   //Arguments:
file_name = SysAllocString(L"User\\");          //Name
file_opt = SysAllocString(L"");                             //Option

/* Obtain File Reference */
hr = bCap_ControllerGetFile(fd, hCtrl, file_name, file_opt, &hFile);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetFile Succeeded...\n");

 BSTR file_name2;                                                   //Arguments:
 file_name2 = SysAllocString(L"Pro1.pcs");      //Name

 /* Add File */
 hr = bCap_FileGetFile(fd, hFile, file_name2, file_opt, &hFile2);
 if (SUCCEEDED(hr))
 {
  printf("bCap_FileGetFile Succeeded... \n");

  //Get File Size
  uint32_t *file_size;
  hr = bCap_FileGetSize(fd, hFile2, &file_size);
  if (SUCCEEDED(hr))
  {
   printf("bCap_FileGetSize Succeeded... \n");
   printf("Program Size: %d \n", file_size);
  }
  else
   printf("bCap_FileGetSize Failed... \n");
 }
 else
  printf("bCap_FileGetFile Failed... \n");

 //Release Variables
 SysFreeString(file_name2);
}
else
 printf("bCap_ControllerGetFile Failed...\n");

//Release Variables
SysFreeString(file_name);
SysFreeString(file_opt);
```

5.2.13 CaoFile::AddVariable method

Example – Get the CRC of the Pro1.pcs file

```
//Get File Handler
BSTR file_name, file_opt;                 //Arguments:
file_name = SysAllocString(L"Pro1.pcs"); //Name
file_opt = SysAllocString(L"");          //Option

/* Obtain File Reference */
hr = bCap_ControllerGetFile(fd, hCtrl, file_name, file_opt, &hFile);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetFile Succeeded... \n");
 BSTR var_name, var_opt;                  //Arguments:
 var_name = SysAllocString(L"@CRC");      //Name
 var_opt = SysAllocString(L"");           //Option

 /* Obtain File Variable Handler */
 hr = bCap_FileGetVariable(fd, hFile, var_name, var_opt, &hVariable);
 if (SUCCEEDED(hr))
 {
  printf("bCap_FileGetVariable Succeeded... \n");

  /* Read CRC Value */
  VARIANT read_value;
  hr = bCap_VariableGetValue(fd, hVariable, &read_value);
  if (SUCCEEDED(hr))
  {
   printf("bCap_VariableGetValue Succeeded... \n");
   printf("CRC Value: %X \n");
  }
  else
   printf("bCap_VariableGetValue Failed... \n");

  //Release Variables
  VariantClear(&read_value);
 }
 else
  printf("bCap_FileGetVariable Failed... \n");

 //Release Variables
 SysFreeString(var_name);
 SysFreeString(var_opt);
}
else
 printf("bCap_ControllerGetFile Failed... \n");

//Release Variables
SysFreeString(file_name);
SysFreeString(file_opt);
```

5.2.14. CaoFile::get_VariableNames property

5.2.15. CaoFile::get_FileNames property

5.2.16. CaoFile::get_Size property

Example – Get the size of Pro1.pcs file

```
//Get File Handler
BSTR file_name, file_opt;                              //Arguments:
file_name = SysAllocString(L"Pro1.pcs"); //Name
file_opt = SysAllocString(L"");                        //Option

/* Obtain File Reference */
hr = bCap_ControllerGetFile(fd, hCtrl, file_name, file_opt, &hFile);
if (SUCCEEDED(hr))
{
 //Get File Size
 uint32_t file_size;
 hr = bCap_FileGetSize(fd, hFile, &file_size);
 if (SUCCEEDED(hr))
 {
  printf("bCap_FileGetSize Succeeded... \n");
  printf("Program Size: %d \n", file_size);
 }
 else
  printf("bCap_FileGetSize Failed... \n");
}
else
 printf("bCap_ControllerGetFile Failed... \n");

//Release Variables
SysFreeString(file_name);
SysFreeString(file_opt);
```

5.2.17. CaoFile::get_Value property

Example – Get contents of Pro1.pcs file

```
//Get File Handler
BSTR file_name, file_opt;                 //Arguments:
file_name = SysAllocString(L"Pro1.pcs"); //Name
file_opt = SysAllocString(L"");           //Option

/* Obtain File Reference */
hr = bCap_ControllerGetFile(fd, hCtrl, file_name, file_opt, &hFile);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetFile Succeeded... \n");
 VARIANT file_value;

 /*Get File Contents */
 hr = bCap_FileGetValue(fd, hFile, &file_value);
 if (SUCCEEDED(hr))
 {
  printf("bCap_FileGetValue Succeeded... \n");
  printf("Pro1 Contents: \n%S", file_value.bstrVal);
 }
 else
  printf("bCap_FileGetValue Failed... \n");

 //Release Variables
 VariantClear(&file_value);
```

```
}
else
 printf("bCap_ControllerGetFile Succeeded... \n");

//Release Variables
SysFreeString(file_name);
SysFreeString(file_opt);
```

5.2.18. CaoFile::put_Value property

5.2.19. CaoRobot::Accelerate method

Example

```
//Acceleration = 50%, Deceleration = No Change
hr = bCap_RobotAccelerate(fd, hRobot, 0, 50, -1);
if (SUCCEEDED(hr))
 printf("bCap_RobotAccelerate Succeeded...\n");
else
 printf("bCap_RobotAccelerate Failed...\n");

//Acceleration = 50%, Deceleration = No Change
hr = bCap_RobotAccelerate(fd, hRobot, 0, -1, 60);
if (SUCCEEDED(hr))
 printf("bCap_RobotAccelerate Succeeded...\n");
else
 printf("bCap_RobotAccelerate Failed...\n");
```

5.2.20. CaoRobot::AddVariable method

Example – Refer to the current robot position (P type)

```
//Get Robot Handler
BSTR rob_name, rob_opt;                          //Arguments:
rob_name = SysAllocString(L"Arm0");       //Name
rob_opt = SysAllocString(L"");            //Option

/* Obtain Robot Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetRobot Succeeded...\n");

 //Get Robot Variable Handler
 BSTR var_name, var_opt;           //Arguments:
 var_name = SysAllocString(L"@CURRENT_POSITION");
 var_opt = SysAllocString(L"");

 /* Obtain Robot Varaible Reference */
 hr = bCap_RobotGetVariable(fd, hRobot, var_name, var_opt, &hVariable);
 if (SUCCEEDED(hr))
 {
  printf("bCap_RobotGetVariable Succeeded...\n");
  /* Read Current Position Value */
  VARIANT read_value;
  hr = bCap_VariableGetValue(fd, hVariable, &read_value);
  if (SUCCEEDED(hr))
  {
   printf("bCap_VariableGetValue Succeeded... \n");
   //Print Operation Info
```

```
   SAFEARRAY* pos_list = NULL;
   pos_list = V_ARRAY(&read_value);

   double* pos_array;
   hr = SafeArrayAccessData(pos_list, (void**)&pos_array);
   if (SUCCEEDED(hr))
   {
    printf("Current Position Value:\n");
    printf("\t -X: %f\n",pos_array[0]);
    printf("\t -Y: %f\n",pos_array[1]);
    printf("\t -Z: %f\n",pos_array[2]);

    SafeArrayUnaccessData(pos_list);
   }
  }
  else
   printf("bCap_VariableGetValue Failed... \n");

  //Release Variables
  VariantClear(&read_value);
 }
 else
  printf("bCap_RobotGetVariable Failed...\n");

 //Release Variables
 SysFreeString(var_name);
 SysFreeString(var_opt);
}
else
 printf("bCap_ControllerGetRobot Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
```

5.2.21. CaoRobot::get_VariableNames property

5.2.22. CaoRobot::Halt method

5.2.23. CaoRobot::Change method

Example

```
//Get Robot Handler
BSTR rob_name, rob_opt;                    //Arguments:
rob_name = SysAllocString(L"Arm0");        //Name
rob_opt = SysAllocString(L"");             //Option

/* Obtain Robot Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot);
if (SUCCEEDED(hr))
{
 printf("bCap_ControllerGetRobot Succeeded... \n");
 //ExecuteTask
 BSTR exe_comm;                            //Arguments:
 VARIANT exe_param, exe_result;
 exe_comm = SysAllocString(L"TakeArm");    //Command Name
 VariantInit(&exe_param);                  //Command Parameters
 VariantInit(&exe_result);                 //Command Result
```

```
//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 0;         //Arm Group Number
param_data[1] = 0;         //Keep Value
SafeArrayUnaccessData(exe_param.parray);

/* Take Arm */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded... \n");

 /* ChangeTool */
 hr = bCap_RobotChange(fd, hRobot, L"Tool1");
 if (SUCCEEDED(hr))
  printf("bCap_RobotChange Succeeded... \n");
 else
  printf("bCap_RobotChange Failed... \n");

 /* ChangeWork */
 hr = bCap_RobotChange(fd, hRobot, L"Work1");
 if (SUCCEEDED(hr))
  printf("bCap_RobotChange Succeeded... \n");
 else
  printf("bCap_RobotChange Failed... \n");

 /* Move */
 VARIANT move_pos;
 move_pos.bstrVal = SysAllocString(L"P10");
 move_pos.vt = VT_BSTR;
 hr = bCap_RobotMove(fd, hRobot, 1, move_pos, L"");
 if (SUCCEEDED(hr))
  printf("bCap_RobotMove Succeeded...\n");
 else
  printf("bCap_RobotMove Failed... \n");

 //Release Variables
 VariantClear(&move_pos);

 /* Givearm */
 exe_comm = SysAllocString(L"GiveArm");  //Command Name
 VariantInit(&exe_param);                        //Command Parameters
 VariantInit(&exe_result);                       //Command Result

 hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
 if (SUCCEEDED(hr))
  printf("bCap_RobotExecute Succeeded... \n");
 else
  printf("bCap_RobotExecute Failed... \n");
}
else
 printf("bCap_ControllerGetRobot Failed... \n");
```

```
 //Release Variables
 SysFreeString(exe_comm);
 VariantClear(&exe_param);
 VariantClear(&exe_result);
}
else
 printf("bCap_ControllerGetRobot Succeeded... \n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
```

5.2.24. CaoRobot::Drive method

5.2.25. CaoRobot::Move method

Example 1

```
BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@P P1");    //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"NEXT");             //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");
```

Example 2

```
move_int = 3;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P1, @E P2");//Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");
```

Example 3

```
move_int = 2;                     //Move Interpolation

//Move Position
move_pos.bstrVal = SysAllocString(L"@0 P(307.1856, -157.8244, 107.0714, 160, 0, 0, 1)");
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");    //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
```

```
else
 printf("bCap_RobotMove Failed... \n");
```

Example 4

```
move_int = 4;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@E 2");     //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");
```

Example 5

```
move_int = 1;                                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@P P10 EX((7,30.5))");      //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"NEXT");                             //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");
```

Example 6

```
move_int = 3;                                                       //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@E P20 EXA((7,30.8),(8,90.5))"); //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                                     //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

//Release Variables
SysFreeString(move_opt);
VariantClear(&move_opt);
```

5.2.26. CaoRobot::Rotate method

Example 1

```
VARIANT rot_surface, rot_pivot;                         //Arguments
float rot_angle;
BSTR rot_opt;
rot_surface.bstrVal = SysAllocString(L"V1, V2, V3");    //Rotation Surface
rot_surface.vt = VT_BSTR;
rot_angle = 45.8;                                       //Angle (deg)
rot_pivot.bstrVal = SysAllocString(L"V4");              //Rotation Center
rot_pivot.vt = VT_BSTR;
```

```
rot_opt = SysAllocString(L"@E");                        //Rotation Option (Pass)

/* Rotate */
hr = bCap_RobotRotate(fd, hRobot, rot_surface, rot_angle, rot_pivot, rot_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotRotate Succeeded...\n");
else
 printf("bCap_RobotRotate Failed... \n");
```

Example 2

```
rot_surface.bstrVal = SysAllocString(L"V(0,0,1), V(0,1,0), V(0,0,0)");//Rotation Surface
rot_surface.vt = VT_BSTR;
rot_angle = 30.0;                                                    //Angle (deg)
rot_pivot.bstrVal = SysAllocString(L"V(0,0,0)");                     //Rotation Center
rot_pivot.vt = VT_BSTR;
rot_opt = SysAllocString(L"@E, Pose=1, Next");                 //Rotation Option (Pass)

/* Rotate */
hr = bCap_RobotRotate(fd, hRobot, rot_surface, rot_angle, rot_pivot, rot_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotRotate Succeeded...\n");
else
 printf("bCap_RobotRotate Failed... \n");
```

Example 3

```
rot_surface.bstrVal = SysAllocString(L"XY");            //Rotation Surface
rot_surface.vt = VT_BSTR;
rot_angle = 90.0;                                       //Angle (deg)
rot_pivot.bstrVal = SysAllocString(L"V(0,0,0)");        //Rotation Center
rot_pivot.vt = VT_BSTR;
rot_opt = SysAllocString(L"@P");                        //Rotation Option (Pass)

/* Rotate */
hr = bCap_RobotRotate(fd, hRobot, rot_surface, rot_angle, rot_pivot, rot_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotRotate Succeeded...\n");
else
 printf("bCap_RobotRotate Failed... \n");
```

Example 4

```
rot_surface.bstrVal = SysAllocString(L"XYH");           //Rotation Surface
rot_surface.vt = VT_BSTR;
rot_angle = -45.0;                                      //Angle (deg)
rot_pivot.bstrVal = SysAllocString(L"V(250,0,0)");      //Rotation Center
rot_pivot.vt = VT_BSTR;
rot_opt = SysAllocString(L"@150");                      //Rotation Option (Pass)

/* Rotate */
hr = bCap_RobotRotate(fd, hRobot, rot_surface, rot_angle, rot_pivot, rot_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotRotate Succeeded...\n");
else
 printf("bCap_RobotRotate Failed... \n");

//Release Variables
VariantClear(&rot_surface);
VariantClear(&rot_pivot);
SysFreeString(rot_opt);
```

5.2.27. CaoRobot::Speed method

Example

```
//TakeArm Command has to be sent before Speed

int32_t speed_axis = -1;          //Axis Number
float speed_val = 85;             //Speed Value (%)
hr = bCap_RobotSpeed(fd, hRobot, speed_axis, speed_val);
if (SUCCEEDED(hr))
 printf("bCap_RobotSpeed Succeeded...\n");
else
 printf("bCap_RobotSpeed Failed...\n");
```

5.2.28. CaoRobot::Execute method

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetSrvJntData");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;
param_data[1] = 6;
SafeArrayUnaccessData(exe_param.parray);

/* Execute GetJntData */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"ExtSpeed");  //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
float *param_data2;
exe_param.vt = VT_R4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_R4, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data2);
param_data2[0] = 50.0;
param_data2[1] = 25.0;
param_data2[2] = 25.0;
SafeArrayUnaccessData(exe_param.parray);

/* Execute ExtSpeed */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.1. CaoRobot::Execute("TMul") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"TMul");     //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"T10");
param_data[1] = SysAllocString(L"T20");
SafeArrayUnaccessData(exe_param.parray);

/* Calculate by specifying the T type index */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"T(400,500,400,1,0,0,0,1,0,5)");
param_data[1] = SysAllocString(L"T(100,0,0,1,0,0,0,1,0,-1)");
SafeArrayUnaccessData(exe_param.parray);

/* Calculate the T type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.2. CaoRobot::Execute("TInv") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"TInv");     //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T10");
exe_param.vt = VT_BSTR;

/* Inverse Matrix of T10 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T(400,500,400,1,0,0,0,1,0,5)");
exe_param.vt = VT_BSTR;

/* Inverse Matrix of T10 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.3. CaoRobot::Execute("TNorm") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"TNorm");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T10");
exe_param.vt = VT_BSTR;

/* Normalization of T10 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T(400,500,400,1,0,0,0,1,0,5)");
exe_param.vt = VT_BSTR;

/* Calculate by specifying the T type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.4. CaoRobot::Execute("J2T") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"J2T");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"J10");
exe_param.vt = VT_BSTR;

/* Transform J10 value to T type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"J(90,90,90,0,0,0)");
exe_param.vt = VT_BSTR;

/* Transform J10 value to T type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.5. CaoRobot::Execute("T2J") command

Example

```
BSTR exe_comm;                      //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"T2J"); //Command Name
VariantInit(&exe_param);            //Command Parameters
VariantInit(&exe_result);           //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T10");
exe_param.vt = VT_BSTR;

/* Transform T10 value to J type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T(400,400,500,1,0,0,0,1,0,5)");
exe_param.vt = VT_BSTR;

/* Transform by specifying the T type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.6. CaoRobot::Execute("J2P") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"J2P");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"J10");
exe_param.vt = VT_BSTR;

/* Transform J10 value to P type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"J(90,90,90,0,0,0)");
exe_param.vt = VT_BSTR;

/* Transform by specifying the J type data element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.7. CaoRobot::Execute("P2J") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"P2J");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"P10");
exe_param.vt = VT_BSTR;

/* Transform P10 value to J type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"P(400,400,500,1,0,0,0,1,0,5)");
exe_param.vt = VT_BSTR;

/* Transform by specifying the P type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.8. CaoRobot::Execute("T2P") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"T2P");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T10");
exe_param.vt = VT_BSTR;

/* Transform T10 value to P type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"T(400,400,500,1,0,0,0,1,0,5)");
exe_param.vt = VT_BSTR;

/* Transform by specifying the T type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.9. CaoRobot::Execute("P2T") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"P2T");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"P10");
exe_param.vt = VT_BSTR;

/* Transform P10 value to T type data */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Populate Parameter Option
exe_param.bstrVal = SysAllocString(L"P(400,400,500,180,0,180,5)");
exe_param.vt = VT_BSTR;

/* Transform by specifying the P type element directly */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.10. CaoRobot::Execute("Dev") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Dev");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"P10");
param_data[1] = SysAllocString(L"P(100,200,300,180,0,180)");
SafeArrayUnaccessData(exe_param.parray);

/* Calculate the positions of P10 + P(100,200,300,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.11. CaoRobot::Execute("DevH") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DevH");     //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
BSTR *param_data;
```

```
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"P10");
param_data[1] = SysAllocString(L"P(100,200,300,180,0,180)");
SafeArrayUnaccessData(exe_param.parray);

/* Calculate the positions of P10 + Tool Coordinate P(100,200,300,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.12. CaoRobot::Execute("OutRange") command

Example – Move if the motion range is not exceeded

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"OutRange");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.bstrVal = SysAllocString(L"P(400,400,300,180,0,180,5)");
exe_param.vt = VT_BSTR;

/* Execute OutRange Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.13. CaoRobot::Execute("MPS") command

Example – Transform an absolute speed to a relative speed

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MPS");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.fltVal = 200.0;
exe_param.vt = VT_R4;
```

```
/* Calculate MPS of 200.0 mm/sec */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//TakeArm Command has to be sent before Speed
int32_t speed_axis = -1;                  //Axis Number
float speed_val = exe_result.fltVal;      //Speed Value (%)
hr = bCap_RobotSpeed(fd, hRobot, speed_axis, speed_val);
if (SUCCEEDED(hr))
 printf("bCap_RobotSpeed Succeeded...\n");
else
 printf("bCap_RobotSpeed Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.14. CaoRobot::Execute("RPM") command

Example

```
BSTR exe_comm;                            //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"RPM");        //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;
param_data[0].vt = VT_I4;
param_data[1].fltVal = 60.0;
param_data[1].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* Axis 1, 60.0 RPM */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//TakeArm Command has to be sent before Speed
int32_t speed_axis = -1;                  //Axis Number
float speed_val = exe_result.fltVal;      //Speed Value (%)
hr = bCap_RobotSpeed(fd, hRobot, speed_axis, speed_val);
if (SUCCEEDED(hr))
 printf("bCap_RobotSpeed Succeeded...\n");
else
 printf("bCap_RobotSpeed Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.15. CaoRobot::Execute("DPS") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DPS");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.fltVal = 50.0;
exe_param.vt = VT_R4;

/* Move by 50 deg/sec (When in rotation) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//TakeArm Command has to be sent before Speed
int32_t speed_axis = -1;                //Axis Number
float speed_val = exe_result.fltVal;    //Speed Value (%)
hr = bCap_RobotSpeed(fd, hRobot, speed_axis, speed_val);
if (SUCCEEDED(hr))
 printf("bCap_RobotSpeed Succeeded...\n");
else
 printf("bCap_RobotSpeed Failed...\n");

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;
param_data[0].vt = VT_I4;
param_data[1].fltVal = 50.0;
param_data[1].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* Move the first axis by 50 deg/sec */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//TakeArm Command has to be sent before Speed
speed_axis = -1;                    //Axis Number
speed_val = exe_result.fltVal;      //Speed Value (%)
hr = bCap_RobotSpeed(fd, hRobot, speed_axis, speed_val);
if (SUCCEEDED(hr))
 printf("bCap_RobotSpeed Succeeded...\n");
```

```
else
 printf("bCap_RobotSpeed Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.16. CaoRobot::Execute("CurPos") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Curpos");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.17. CaoRobot::Execute("DestPos") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestPos");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.18. CaoRobot::Execute ("CurPosEx") command

Example

```
BSTR exe_comm;                              //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurPosEx");     //Command Name
VariantInit(&exe_param);                    //Command Parameters
```

```
VariantInit(&exe_result);                          //Command Result

/* Timestamp + Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.19. CaoRobot::Execute("DestPosEx") command

Example

```
BSTR exe_comm;                             //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestPosEx"); //Command Name
VariantInit(&exe_param);                   //Command Parameters
VariantInit(&exe_result);                  //Command Result

/* Timestamp + Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.20. CaoRobot::Execute("HighCurPosEx") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"HighCurPosEx");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Timestamp + Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.21. CaoRobot::Execute("CurJnt") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurJnt");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.22. CaoRobot::Execute("DestJnt") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestJnt");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.23. CaoRobot::Execute("CurJntEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurJntEx");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Timestamp + Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.24. CaoRobot::Execute("DestJntEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestJntEx"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Timestamp + Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.25. CaoRobot::Execute("HighCurJntEx") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"HighCurJntEx");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Timestamp + Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.26. CaoRobot::Execute("CurTrn") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurTrn");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result
```

```
/* Get Current Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.27. CaoRobot::Execute("DestTrn") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestTrn");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.28. CaoRobot::Execute("CurTrnEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurTrnEx");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Timestamp + Get Current Position (T type) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.29. CaoRobot::Execute("DestTrnEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DestTrnEx"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Timestamp + Get Target Position */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.30. CaoRobot::Execute("HighCurTrnEx") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"HighCurTrnEx");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Timestamp + Get Current Position (T Type) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.31. CaoRobot::Execute("CurFig") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurFig");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Figure */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.32. CaoRobot::Execute("CurSpd") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurSpd");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Speed */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.33. CaoRobot::Execute("CurAcc") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurAcc");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Acceleration */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.34. CaoRobot::Execute("CurDec") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurDec");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result
```

```
/* Get Current Deceleration */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.35. CaoRobot::Execute("CurJSpd") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurJSpd");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Joint Speed */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.36. CaoRobot::Execute("CurJAcc") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurJAcc");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Joint Accelearation */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.37. CaoRobot::Execute("CurJDec") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurJDec");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Get Current Joint Deceleration */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.38. CaoRobot::Execute("StartLog") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"StartLog"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Start Log */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.39. CaoRobot::Execute("StopLog") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"StopLog");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Stop Log */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.40. CaoRobot::Execute("ClearLog") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ClearLog"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Clera Log */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.41. CaoRobot::Execute("Motor") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Motor");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;
param_data[1] = 0;
SafeArrayUnaccessData(exe_param.parray);

/* Turn on motor and wait for completion of Motor On Process */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.42. CaoRobot::Execute("ExtSpeed") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ExtSpeed");  //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
float *param_data;
exe_param.vt = VT_R4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_R4, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 50.0;
param_data[1] = 25.0;
param_data[2] = 25.0;
SafeArrayUnaccessData(exe_param.parray);

/* External Speed = 50%, Acceleration = 25%, Deceleration = 25% */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.fltVal = 50.0;
exe_param.vt = VT_R4;

/* External Speed = 50% (Acceleration, Deceleration are set automatically) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.43. CaoRobot::Execute("TakeArm") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Takearm");   //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 0;
```

```
param_data[1] = 0;
SafeArrayUnaccessData(exe_param.parray);

/* Init the internal speed to 100, the current tool to 0 and the current work to 0 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 0;
param_data[1] = 1;
SafeArrayUnaccessData(exe_param.parray);

/* When the internal speed is 50, the current tool is 1, and the current work is 0
   Not initialize the internal speed, current tool and current work, and then get the
   control authority */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.44. CaoRobot::Execute("GiveArm") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GiveArm");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* When a program that has executed Takearm is terminated,
   the robot halts before GiveArm is executed
   To terminate the program after completion of Next motion
   explicitly execute GiveArm command */

/* Wait until next motion Completes  Log */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.45. CaoRobot::Execute("Draw") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Draw");     //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                       //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"V0");  //Distance (Position Data Type)
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Draw P, V0 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

param_data[0].intVal = 2;                               //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"V(100,100,100)");//Distance (Position Data Type)
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Draw L, V(100,100,100) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.46. CaoRobot::Execute("Approach") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Approach");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
```

```
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 4);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                                   //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P1");              //Reference Position
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"@P 100");          //Approach Length
param_data[2].vt = VT_BSTR;
param_data[3].bstrVal = SysAllocString(L"S=50");            //Motion Option
param_data[3].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Approach P, P1, @P 100, S=50 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

param_data[0].intVal = 2;                                   //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(400,200,350,180,0,180,5)");//Ref Position
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"@E 56.8");         //Approach Length
param_data[2].vt = VT_BSTR;
param_data[3].bstrVal = SysAllocString(L"S=30, NEXT"); //Motion Option
param_data[3].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Approach L, P(400,200,350,180,0,180,5), @P 100, S=30, Next */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.47. CaoRobot::Execute("Depart") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Depart");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                                   //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"@P 100");          //Depart Length
```

```
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"S=50");       //Motion Option
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Depart P, @P 100, S=50 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

param_data[0].intVal = 2;                              //Interpolation Method
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"@E 56.8");    //Depart Length
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"S=30, NEXT"); //Motion Option
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Depart P, @E 56.8, S=30, Next */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.48. CaoRobot::Execute("DriveEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DriveEx");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"@0 (1,10), (2,10)");  //Axis Number and Distance
param_data[1] = SysAllocString(L"S=10, Next");         //Motion Option
SafeArrayUnaccessData(exe_param.parray);

/* DriveEx Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.49. CaoRobot::Execute("DriveAEx") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DriveAEx");  //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"@0 (1,10), (2,10)");  //Axis Number and Distance
param_data[1] = SysAllocString(L"S=10, Next");         //Motion Option
SafeArrayUnaccessData(exe_param.parray);

/* DriveAEx Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.50. CaoRobot::Execute("RotateH") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"RotateH");   //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"@P 32.5");     //Axis Number and Distance
param_data[1] = SysAllocString(L"S=50");        //Motion Option
SafeArrayUnaccessData(exe_param.parray);

/* DriveAEx Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.51. CaoRobot::Execute("Arrive") command

Example

```
BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@P P1");    //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"NEXT");             //Move Option

/* Move P, @P P1, Next */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotMove Succeeded...\n");
 BSTR exe_comm;                                 //Arguments:
 VARIANT exe_param, exe_result;
 exe_comm = SysAllocString(L"Arrive");          //Command Name
 VariantInit(&exe_param);                       //Command Parameters
 VariantInit(&exe_result);                      //Command Result

 //Populate parameter option
 exe_param.fltVal = 50.0;
 exe_param.vt = VT_R4;

 /* Arrive Command */
 hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
 if (SUCCEEDED(hr))
  printf("bCap_RobotExecute Succeeded...\n");
 else
  printf("bCap_RobotExecute Failed...\n");

 //Release Variables
 SysFreeString(exe_comm);
 VariantClear(&exe_param);
 VariantClear(&exe_result);
}
else
 printf("bCap_RobotMove Failed... \n");

//Release Variables
VariantClear(&move_pos);
```

5.2.28.52. CaoRobot::Execute("MotionSkip") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
```

```
exe_comm = SysAllocString(L"MotionSkip");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 0;   //Arm group number
param_data[1] = 1;   //Operation Continuation Pattern
SafeArrayUnaccessData(exe_param.parray);

/* DriveAEx Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.53. CaoRobot::Execute("MotionComplete") command

Example

```
BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P1");       //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"NEXT");             //Move Option

/* Move P, P1, Next 'Asyncronous Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded...\n");

 BSTR exe_comm;                                 //Arguments:
 VARIANT exe_param, exe_result;
 exe_comm = SysAllocString(L"MotionComplete");  //Command Name
 VariantInit(&exe_param);                       //Command Parameters
 VariantInit(&exe_result);                      //Command Result

 //Populate parameter option
 uint32_t *param_data;
 exe_param.vt = VT_I4 | VT_ARRAY;
 exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
 hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
 param_data[0] = -1; //Arm group number
 param_data[1] = 1;  //Mode
 SafeArrayUnaccessData(exe_param.parray);
```

```
 do
 {
  //Procesing during Motion
  hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
 } while (!exe_result.boolVal);

 //Release Variables
 SysFreeString(exe_comm);
 VariantClear(&exe_param);
 VariantClear(&exe_result);
}
else
 printf("bCab_RobotExecute Failed...\n");

//Release Variables
VariantClear(&move_pos);
```

5.2.28.54. CaoRobot::Execute("CurTool") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurTool");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* CurTool Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.55. CaoRobot::Execute("GetToolDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetToolDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Tool Number
exe_param.vt = VT_I4;

/* GetToolDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded...\n");
```

```
 //Print Operation Info
 SAFEARRAY* result_list = NULL;
 result_list = V_ARRAY(&exe_result);

 double* result_array;
 hr = SafeArrayAccessData(result_list, (void**)&result_array);
 if (SUCCEEDED(hr))
 {
  printf("Tool Definition: \n");
  printf("X: %f Y: %f Z: %f \n", result_array[0], result_array[1], result_array[2]);
  printf("Rx: %f Ry: %f Rz: %f \n", result_array[3], result_array[4], result_array[5]);

  SafeArrayUnaccessData(result_list);
 }
}
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.56. CaoRobot::Execute("SetToolDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetToolDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                       //Tool Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P2");  //Tool Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* TOOL 1, P2 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 2;                                           //Tool Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(100,200,300,180,0,180)"); //Tool Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);
```

```
/* TOOL 1, P(100,200,300,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.57. CaoRobot::Execute("CurWork") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurWork");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* CurWork Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.58. CaoRobot::Execute("GetWorkDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetWorkDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Work Number
exe_param.vt = VT_I4;

/* GetWorkDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* result_list = NULL;
 result_list = V_ARRAY(&exe_result);

 double* result_array;
```

```
 hr = SafeArrayAccessData(result_list, (void**)&result_array);
 if (SUCCEEDED(hr))
 {
  printf("Work Definition: \n");
  printf("X: %f Y: %f Z: %f \n", result_array[0], result_array[1], result_array[2]);
  printf("Rx: %f Ry: %f Rz: %f \n", result_array[3], result_array[4], result_array[5]);
  printf("ATTR= %f \n", result_array[6]);
  SafeArrayUnaccessData(result_list);
 }
}
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.59. CaoRobot::Execute("SetWorkDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetWorkDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                       //Tool Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P2");  //Tool Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Work 1, P2 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 2;                                           //Tool Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(100,200,300,180,0,180)"); //Tool Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* Work 1, P(100,200,300,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.60. CaoRobot::Execute("WorkAttribute") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"WorkAttribute");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate Parameter
exe_param.intVal = 1;
exe_param.vt = VT_I4;

/* Work Atrribute Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.61. CaoRobot::Execute("GetAreaDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetAreaDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Area Number
exe_param.vt = VT_I4;

/* GetAreaDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded...\n");

 //Print Operation Info
 SAFEARRAY* result_list = NULL;
 result_list = V_ARRAY(&exe_result);

 double* result_array;
 hr = SafeArrayAccessData(result_list, (void**)&result_array);
```

```
 if (SUCCEEDED(hr))
 {
  printf("Area Definition: \n");
  printf("X: %f Y: %f Z: %f \n", result_array[0], result_array[1], result_array[2]);
  printf("Rx: %f Ry: %f Rz: %f \n", result_array[3], result_array[4], result_array[5]);
  printf("Dx: %f Dy: %f Dz: %f \n", result_array[6], result_array[7], result_array[8]);
  printf("IOx: %f Error: %f Time: %f \n", result_array[9], result_array[11],
result_array[12]);
  printf("DRx: %f DRy: %f DRz: %f \n", result_array[13], result_array[14],
result_array[15]);
  printf("Position: %f Margin: %f \n", result_array[10], result_array[16]);

  SafeArrayUnaccessData(result_list);
 }
}
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.62. CaoRobot::Execute("SetAreaDef") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetAreaDef");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 6);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                       //Area Number
param_data[0].vt = VT_I4;
aram_data[1].bstrVal = SysAllocString(L"P0");   //Position and Rotation
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"V0");  //Area Size
param_data[2].vt = VT_BSTR;
param_data[3].intVal = 24;                      //I/O number
param_data[3].vt = VT_I4;
param_data[4].intVal = 0;                       //Variable storage number
param_data[4].vt = VT_I4;
param_data[5].intVal = 0;                       //Area detection setting
param_data[5].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* Set Area Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 2;                                    //Area Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(400,250,140,180,0,180)"); //Pos and Rotation
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"V(200,125,70)");    //Area Size
param_data[2].vt = VT_BSTR;
param_data[3].intVal = 24;                                   //I/O number
param_data[3].vt = VT_I4;
param_data[4].intVal = 0;                                    //Variable storage number
param_data[4].vt = VT_I4;
param_data[5].intVal = 0;                                    //Area detection setting
param_data[5].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* Set Area Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.63. CaoRobot::Execute("SetArea") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetArea");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Area Number
exe_param.vt = VT_I4;

/* Set Area Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.64. CaoRobot::Execute("ResetArea") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
```

```
exe_comm = SysAllocString(L"ResetArea");  //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Area Number
exe_param.vt = VT_I4;

/* Reset Area Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.65. CaoRobot::Execute("AreaSize") command

Example

```
BSTR exe_comm;                            //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"AreaSize");   //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Area Number
exe_param.vt = VT_I4;

/* Area Size Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
{
 printf("bCap_RobotExecute Succeeded...\n");
 //Print Operation Info
 SAFEARRAY* result_list = NULL;
 result_list = V_ARRAY(&exe_result);

 double* result_array;
 hr = SafeArrayAccessData(result_list, (void**)&result_array);
 if (SUCCEEDED(hr))
 {
  printf("Area Size: \n");
  printf("X: %f Y: %f Z: %f \n", result_array[0], result_array[1], result_array[2]);
  SafeArrayUnaccessData(result_list);
 }
}
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.66. CaoRobot::Execute("GetAreaEnabled") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetAreaEnabled");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate Parameter
exe_param.intVal = 1;       //Area Number
exe_param.vt = VT_I4;

/* GetAreaEnabled Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.67. CaoRobot::Execute("SetAreaEnabled") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetAreaEnabled");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Area Number
param_data[0].vt = VT_I4;
param_data[1].boolVal = 1;         //Enable/Disable Option
param_data[1].vt = VT_BOOL;
SafeArrayUnaccessData(exe_param.parray);

/* Set Area 1 Enabled */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.68. CaoRobot::Execute("AddPathPoint") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"AddPathPoint");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 2;                                           //Path Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(400,200,140,180,0,180)"); //PoseData
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* AddPathPoint 2, P(400,200,140,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.69. CaoRobot::Execute("ClrPathPoint") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ClrPathPoint");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.intVal = 2;       //Path Number
exe_param.vt = VT_I4;

/* AddPathPoint 2, P(400,200,140,180,0,180) */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.70. CaoRobot::Execute("GetPathPoint") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetPathPoint");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 2;   //Path Number
param_data[1] = 1;   //Path Point number
SafeArrayUnaccessData(exe_param.parray);

/* GetPathPoint Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.71. CaoRobot::Execute("LoadPathPoint") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"LoadPathPoint");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.intVal = 2;       //Path Number
exe_param.vt = VT_I4;

/* LoadPathPoint Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.72. CaoRobot::Execute("GetPathPointCount ") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetPathPointCount");        //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

//Populate parameter option
exe_param.intVal = 2;       //Path Number
exe_param.vt = VT_I4;

/* LoadPathPoint Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.73. CaoRobot::Execute("GetRobotTypeName") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetRobotTypeName"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* Get Robot Type Name Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.74. CaoRobot::Execute("ArchMove") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ArchMove"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
```

```
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 4);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].bstrVal = SysAllocString(L"P10"); //Target Position
param_data[0].vt = VT_BSTR;
param_data[1].fltVal = 50.0;                    //Height
param_data[1].vt = VT_R4;
param_data[2].fltVal = 30.0;                    //Arch Start Position
param_data[2].vt = VT_R4;
param_data[3].fltVal = 30.0;                    //Arch Stop Position
param_data[3].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* ArchMove Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.75. CaoRobot::Execute("CrtMotionAllow") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CrtMotionAllow");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;   //Set/Reset Option
param_data[0].vt = VT_I4;
param_data[1].fltVal = 1.0; //Positional precision (mm)
param_data[1].vt = VT_R4;
param_data[2].fltVal = 1.0; //Postural precision (deg)
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* CrtMotionAllow ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
```

```
move_pos.bstrVal = SysAllocString(L"@C J2");     //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                  //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

//Populate parameter option
exe_param.bstrVal = 0;
exe_param.vt = VT_I4;

/* CrtMotionAllow OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.76. CaoRobot::Execute("EncMotionAllow") command

Example

```
BSTR exe_comm;                                   //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"EncMotionAllow");    //Command Name
VariantInit(&exe_param);                         //Command Parameters
VariantInit(&exe_result);                        //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;   //Set/Reset Option
param_data[0].vt = VT_I4;
param_data[1].fltVal = 1.0; //Positional precision (mm)
param_data[1].vt = VT_R4;
param_data[2].fltVal = 1.0; //Postural precision (deg)
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* EncMotionAllow ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                   //Arguments:
VARIANT move_pos;
```

```
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@E J2");    //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

//Populate parameter option
exe_param.bstrVal = 0;
exe_param.vt = VT_BOOL;

/* EncMotionAllow OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.77. CaoRobot::Execute("EncMotionAllowJnt") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"EncMotionAllowJnt");        //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 4);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Set/Reset Option
param_data[0].vt = VT_I4;
param_data[1].fltVal = 7;          //Axis Number
param_data[1].vt = VT_R4;
param_data[2].fltVal = 0.01;       //Allowable angle
param_data[2].vt = VT_R4;
param_data[3].fltVal = 1.0;        //Mode Value
param_data[3].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* EncMotionAllowJnt ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
  printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@E J2 EXA(7,30.5)");        //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                                 //Move Option

/* Start Robot Motion */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

//Populate parameter option
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 0;          //Set/Reset Option
param_data[0].vt = VT_I4;
param_data[1].fltVal = 7;          //Axis Number
param_data[1].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* EncMotionAllowJnt OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.78. CaoRobot::Execute("ErAlw") command

Example

```
//Example 1-----------------------------------------------------------
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ErAlw");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Set/Reset
param_data[0].vt = VT_I4;
param_data[1].intVal = 1;          //Axis Number
param_data[1].vt = VT_I4;
```

```
param_data[2].fltVal = 0.01;       //Setting Value (deg or mm)
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* ErAlw Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Example 2-----------------------------------------------------------
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Set/Reset
param_data[0].vt = VT_I4;
param_data[1].intVal = 2;          //Axis Number
param_data[1].vt = VT_I4;
param_data[2].fltVal = 0.01;       //Setting Value (deg or mm)
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* ErAlw Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Example 3-----------------------------------------------------------
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 0;          //Set/Reset
param_data[0].vt = VT_I4;
param_data[1].intVal = 0;          //Axis Number
param_data[1].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* ErAlw Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.79. CaoRobot::Execute("ForceCtrl") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceCtrl"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result
```

```
//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;   //Set/Reset Option
param_data[1] = 1;   //Force Control Number
SafeArrayUnaccessData(exe_param.parray);

/* ForceCtrl ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.intVal = 0;       //Set/Reset Option
exe_param.vt = VT_I4;

/* ForceCtrl OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.80. CaoRobot::Execute("ForceParam") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceParam");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                       //Set/Reset Option
param_data[0].vt = VT_I4;
param_data[1].intVal = 1;                       //Coordinates
param_data[1].vt = VT_I4;
param_data[2].bstrVal = SysAllocString(L"P10"); //Force
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* ForceParam Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.81. CaoRobot::Execute("ForceValue") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceValue");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;   //Data Number
param_data[1] = 0;   //Mode
SafeArrayUnaccessData(exe_param.parray);

/* ForceValue Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.82. CaoRobot::Execute("ForceWaitCondition") command

Example

```
BSTR exe_comm;                                      //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceWaitCondition");   //Command Name
VariantInit(&exe_param);                            //Command Parameters
VariantInit(&exe_result);                           //Command Result

//Populate parameter option
BSTR *param_data;
exe_param.vt = VT_BSTR | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_BSTR, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = SysAllocString(L"P0");    //Position
param_data[1] = SysAllocString(L"P1");    //Force
SafeArrayUnaccessData(exe_param.parray);
```

```
/* ForceWaitCondition Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.83. CaoRobot::Execute("ForceSensor") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceSensor");      //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Set/Reset Option

/* ForceSensor Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.84. CaoRobot::Execute("ForceChangeTable") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ForceChangeTable"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Table Number

/* ForceChangeTable Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.85. CaoRobot::Execute("GetSrvData") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetSrvData");       //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 2;       //Data Number

/* GetSrvData Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.86. CaoRobot::Execute("GetSrvJntData") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetSrvJntData");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
aram_data[0] = 2;    //Data Number
param_data[1] = 1;   //Axis Number
SafeArrayUnaccessData(exe_param.parray);

/* GetSrvJntData Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
```

```
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.87. CaoRobot::Execute("GrvCtrl") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GrvCtrl");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Set/Reset Option

/* GrvCtrl ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Set/Reset Option

/* GrvCtrl OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.88. CaoRobot::Execute("CurLmt") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GrvCtrl");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Set/Reset Option

/* GrvCtrl ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"CurLmt");     //Command Name

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Set Reset
param_data[0].vt = VT_I4;
param_data[1].fltVal = 1;          //Axis Number
param_data[1].vt = VT_R4;
param_data[2].fltVal = 10.5;       //Setting Value
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* CurLmt(On, 1, 10.5) Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;          //Set Reset
param_data[0].vt = VT_I4;
param_data[1].fltVal = 2;          //Axis Number
param_data[1].vt = VT_R4;
param_data[2].fltVal = 50.3;       //Setting Value
param_data[2].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* CurLmt(On, 2, 50.3) Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 0;   //Set Reset
param_data[0].vt = VT_I4;
param_data[1].fltVal = 0;   //Axis Number
param_data[1].vt = VT_R4;
SafeArrayUnaccessData(exe_param.parray);

/* CurLmt(Off, 0) Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
```

```
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"GrvCtrl");    //Command Name

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Set/Reset Option

/* GrvCtrl OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.89. CaoRobot::Execute("Zforce") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GrvCtrl");    //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Set/Reset Option

/* GrvCtrl ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"Zforce");     //Command Name

//Populate parameter option
exe_param.vt = VT_R4;
exe_param.intVal = 50.0;    //Thrust Force

/* Zforce Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"GrvCtrl");    //Command Name

//Populate parameter option
exe_param.vt = VT_I4;
```

```
exe_param.intVal = 0;       //Set/Reset Option

/* GrvCtrl OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.90. CaoRobot::Execute("GrvOffset") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GrvOffset"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Set/Reset Option

/* GrvOffset ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Set/Reset Option

/* GrvOffset OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.91. CaoRobot::Execute("HighPathAccuracy") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"HighPathAccuracy"); //Command Name
VariantInit(&exe_param);                        //Command Parameters
```

```
VariantInit(&exe_result);                          //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Set/Reset Option

/* HighPathAccuracy ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Set/Reset Option

/* HighPathAccuracy OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.92. CaoRobot::Execute("MotionTimeout") command

Example

```
BSTR exe_comm;                                     //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MotionTimeOut");     //Command Name
VariantInit(&exe_param);                           //Command Parameters
VariantInit(&exe_result);                          //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;          //Set/Reset
param_data[1] = 1000;       //Timeout Period
SafeArrayUnaccessData(exe_param.parray);

/* MotionTimeout Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.93. CaoRobot::Execute("SingularAvoid") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SingularAvoid");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 2;       //Mode

/* SingularAvoid ON Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"@0 P2");    //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Move P, @0 P2 Command */
hr = bCap_RobotMove(fd, hRobot, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Mode

/* SingularAvoid OFF Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
SysFreeString(move_opt);
VariantClear(&exe_param);
VariantClear(&exe_result);
VariantClear(&move_pos);
```

5.2.28.94. CaoRobot::Execute("SpeedMode") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SpeedMode"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Mode Number

/* SpeedMode Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.95. CaoRobot::Execute("PayLoad") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"PayLoad");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 2000;                          //Payload
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"V(0,100,150)");//Payload Center of Gravity
param_data[1].vt = VT_BSTR;
param_data[2].bstrVal = SysAllocString(L"V(0,10,10)");//Payload Center of Gravity Inertia
param_data[2].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* PayLoad Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
```

```
VariantClear(&exe_result);
```

5.2.28.96. CaoRobot::Execute("GenerateNonStopPath ") command

Example

```
       //Hard to replicate example on RC8 Provider
       //May need to do additional Testing
```

5.2.28.97. CaoRobot::Execute("RobInfo") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"RobInfo");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Index Number

/* RobInfo Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.98. CaoRobot::Execute("SyncTimeStart") command

Example

```
//Get Robot Handler
BSTR rob_name, rob_opt;                 //Arguments:
rob_name = SysAllocString(L"Robot0");   //Name
rob_opt = SysAllocString(L"ID=0");      //Option

/* Obtain Robot0 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot0);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

rob_name = SysAllocString(L"Robot1");   //Name
rob_opt = SysAllocString(L"ID=1");      //Option

/* Obtain Robot1 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot1);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");
```

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SyncTimeStart");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* SyncStart Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P1");       //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Instruct that Master Robot to Move to P1 */
hr = bCap_RobotMove(fd, hRobot0, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

move_int = 2;                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P3");       //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                 //Move Option

/* Instruct that Slave Robot to Move to P3 */
hr = bCap_RobotMove(fd, hRobot1, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

exe_comm = SysAllocString(L"SyncTimeEnd");      //Command Name

/* SyncEnd Command: Start synchronous motion */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
SysFreeString(exe_comm);
SysFreeString(move_opt);
VariantClear(&exe_param);
VariantClear(&exe_result);
VariantClear(&move_pos);
```

5.2.28.99. CaoRobot::Execute("SyncTimeEnd") command

Example

```
//Get Robot Handler
BSTR rob_name, rob_opt;                    //Arguments:
rob_name = SysAllocString(L"Robot0");      //Name
rob_opt = SysAllocString(L"ID=0");         //Option

/* Obtain Robot0 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot0);
if (SUCCEEDED(hr))
       printf("bCap_ControllerGetRobot Succeeded...\n");
else
       printf("bCap_ControllerGetRobot Failed...\n");

rob_name = SysAllocString(L"Robot1");      //Name
rob_opt = SysAllocString(L"ID=1");         //Option

/* Obtain Robot1 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot1);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

BSTR exe_comm;                                    //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SyncTimeStart");      //Command Name
VariantInit(&exe_param);                          //Command Parameters
VariantInit(&exe_result);                         //Command Result

/* SyncStart Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                    //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 1;                                     //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P1");         //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                   //Move Option

/* Instruct that Master Robot to Move to P1 */
hr = bCap_RobotMove(fd, hRobot0, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

move_int = 1;                                     //Move Interpolation
move_pos.bstrVal = SysAllocString(L"P3");         //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                   //Move Option
```

```
/* Instruct that Slave Robot to Move to P3 */
hr = bCap_RobotMove(fd, hRobot1, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

exe_comm = SysAllocString(L"SyncTimeEnd");      //Command Name

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Motion Option

/* SyncEnd Command: Start synchronous motion with Next Option */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
SysFreeString(exe_comm);
SysFreeString(move_opt);
VariantClear(&exe_param);
VariantClear(&exe_result);
VariantClear(&move_pos);
```

5.2.28.100. CaoRobot::Execute("SyncMoveStart") command

Example

```
//Get Robot Handler
BSTR rob_name, rob_opt;                  //Arguments:
rob_name = SysAllocString(L"Robot0");    //Name
rob_opt = SysAllocString(L"ID=0");       //Option

/* Obtain Robot0 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot0);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

rob_name = SysAllocString(L"Robot1");    //Name
rob_opt = SysAllocString(L"ID=1");       //Option

/* Obtain Robot1 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot1);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SyncMoveStart");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
```

```
VariantInit(&exe_result);                          //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 1);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;          //RobotID of the follower Robot
SafeArrayUnaccessData(exe_param.parray);

/* SyncMoveStart Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                                  //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 2;                                                   //Move Interpolation
move_pos.bstrVal = SysAllocString(L"J(0,45,90,0,45,0,0,0)");  //Move Position
move_pos.vt = VT_BSTR;
move_opt = SysAllocString(L"");                                 //Move Option

/* Instruct the leader robot to move to the specified postion */
hr = bCap_RobotMove(fd, hRobot0, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

exe_comm = SysAllocString(L"SyncMoveEnd");      //Command Name
VariantClear(&exe_param);                       //Clears Parameter Variant

/* Start the cooperative motion of Robot0 and Robot 1 */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
SysFreeString(exe_comm);
SysFreeString(move_opt);
VariantClear(&exe_param);
VariantClear(&exe_result);
VariantClear(&move_pos);
```

5.2.28.101. CaoRobot::Execute("SyncMoveEnd") command

Example

```
//Get Robot Handler
BSTR rob_name, rob_opt;                  //Arguments:
rob_name = SysAllocString(L"Robot0");    //Name
rob_opt = SysAllocString(L"ID=0");       //Option
```

```
/* Obtain Robot0 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot0);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

rob_name = SysAllocString(L"Robot1");     //Name
rob_opt = SysAllocString(L"ID=1");        //Option

/* Obtain Robot1 Reference */
hr = bCap_ControllerGetRobot(fd, hCtrl, rob_name, rob_opt, &hRobot1);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetRobot Succeeded...\n");
else
 printf("bCap_ControllerGetRobot Failed...\n");

BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SpeedMode");                //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Mode Number

/* SpeedMode Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

exe_comm = SysAllocString(L"SyncMoveStart");    //Command Name

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 1);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 1;          //RobotID of the follower Robot
SafeArrayUnaccessData(exe_param.parray);

/* SyncMoveStart Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

BSTR move_opt;                                              //Arguments:
VARIANT move_pos;
uint32_t move_int;
move_int = 2;                                               //Move Interpolation
move_pos.bstrVal = SysAllocString(L"J(0,45,90,0,45,0,0,0)"); //Move Position
move_pos.vt = VT_BSTR;
```

```
move_opt = SysAllocString(L"");                                  //Move Option

/* Instruct the leader robot to move to the specified postion */
hr = bCap_RobotMove(fd, hRobot0, move_int, move_pos, move_opt);
if (SUCCEEDED(hr))
 printf("bCap_RobotMove Succeeded...\n");
else
 printf("bCap_RobotMove Failed... \n");

exe_comm = SysAllocString(L"SyncMoveEnd");       //Command Name

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;

/* Start the cooperative motion of Robot0 and Robot 1 with next option */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(rob_name);
SysFreeString(rob_opt);
SysFreeString(exe_comm);
SysFreeString(move_opt);
VariantClear(&exe_param);
VariantClear(&exe_result);
VariantClear(&move_pos);
```

5.2.28.102. CaoRobot::Execute("SetBaseDef") command

Example

```
BSTR exe_comm;                              //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetBaseDef"); //Command Name
VariantInit(&exe_param);                    //Command Parameters
VariantInit(&exe_result);                   //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                           //Base Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P2");   //Base Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* SetBaseDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
exe_comm = SysAllocString(L"SetWorkDef"); //Command Name

//Populate parameter option
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;                                          //Work Number
param_data[0].vt = VT_I4;
param_data[1].bstrVal = SysAllocString(L"P(100,200,300,180,0,180)"); //Work Definition
param_data[1].vt = VT_BSTR;
SafeArrayUnaccessData(exe_param.parray);

/* SetWorkDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.103. CaoRobot::Execute("GetBaseDef") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetBaseDef"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Base Number

/* GetBaseDef Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.104. CaoRobot::Execute("SetHandIO") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetHandIO");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result
```

```
//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 64;         //The smallest Hand I/O number
param_data[1] = 8;          //Values to be set
param_data[2] = 4;          //Setting Range
SafeArrayUnaccessData(exe_param.parray);

/* SetHandIO Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.105. CaoRobot::Execute("GetHandIO") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetHandIO"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 48;         //The smallest Hand I/O number
param_data[1] = 4;          //Setting Range
SafeArrayUnaccessData(exe_param.parray);

/* GetHandIO Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.106. CaoRobot::Execute("StartServoLog") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"StartServoLog");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* StartServoLog Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.107. CaoRobot::Execute("ClearServoLog") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"ClearServoLog");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* ClearServoLog Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.108. CaoRobot::Execute("StopServoLog") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"StopServoLog");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* StopServoLog Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.109. CaoRobot::Execute("GetCtrlLogMaxTime") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetCtrlLogMaxTime");        //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

/* GetCtrlLogMaxTime Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.110. CaoRobot::Execute("SetCtrlLogMaxTime") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetCtrlLogMaxTime");        //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 10;      //Logging duration to be set

/* SetCtrlLogMaxTime Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.111. CaoRobot::Execute("GetCtrlLogInterval") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetCtrlLogInterval");       //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

/* GetCtrlLogInterval Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.112. CaoRobot::Execute("SetCtrlLogInterval ") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"SetCtrlLogInterval");       //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

//Populate parameter option
exe_param.vt = VT_I4;
exe_param.intVal = 8;       //Logging interval to be set

/* SetCtrlLogInterval Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.113. CaoRobot::Execute("DetectOn ") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DetectOn"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
uint32_t *param_data;
```

```
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 5);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 8;          //Input Signal port number to use as trigger
param_data[1] = 257;        //Data type to store
param_data[2] = 2;          //The smallest index number of the global variables to store
param_data[3] = 10;         //Number of data to be stored in the global variable
param_data[4] = 11;         //Index number of the integer type global variable to store
                            //the count of

//input signals which becomes triggers during the command enabled
SafeArrayUnaccessData(exe_param.parray);

/* DetectOn Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.114. CaoRobot::Execute("DetectOff ") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"DetectOff"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 8;   //Port number to be disabled its function
param_data[1] = 0;   //Input signal detection edge
SafeArrayUnaccessData(exe_param.parray);

/* DetectOff Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.115. CaoRobot::Execute("GetPluralServoData ") command

Example

```
BSTR exe_comm;                                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetPluralServoData");       //Command Name
VariantInit(&exe_param);                                //Command Parameters
VariantInit(&exe_result);                               //Command Result

/* GetPluralServoData Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.28.116. CaoRobot::Execute("AngularTrigger ") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"AngularTrigger");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 4);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].intVal = 1;   //Valid/Invalid
aram_data[0].vt = VT_I4;
param_data[1].intVal = 1;   //Target Joint
param_data[1].vt = VT_I4;
param_data[2].intVal = 24;  //I/O Number to turn ON/OFF
param_data[2].vt = VT_I4;
param_data[3].dblVal = 10;  //Motion distance
param_data[3].vt = VT_R8;
SafeArrayUnaccessData(exe_param.parray);

/* AngularTrigger Command */
hr = bCap_RobotExecute(fd, hRobot, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_RobotExecute Succeeded...\n");
else
 printf("bCap_RobotExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.29. CaoTask::AddVariable method

5.2.30. CaoTask::get_VariableNames property

5.2.31. CaoTask::Start method

5.2.32. CaoTask::Stop method

5.2.33. CaoTask::Execute method

Example

```
//Get Task Handler
BSTR task_name, task_opt;                 //Arguments:
task_name = SysAllocString(L"Pro1");      //Name
task_opt = SysAllocString(L"");           //Option

/* Obtain Task Reference */
hr = bCap_ControllerGetTask(fd, hCtrl, task_name, task_opt, &hTask);

if (SUCCEEDED(hr))
 printf("bCap_ControllerGetTask Succeeded...\n");
else
 printf("bCap_ControllerGetTask Failed...\n");

BSTR exe_comm;                            //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetStatus"); //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

/* Get Task Status */
hr = bCap_TaskExecute(fd, hTask, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_TaskExecute Succeeded... \n");
else
 printf("bCap_TaskExecute Failed... \n");

//Release Variables
SysFreeString(task_name);
SysFreeString(task_opt);
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.33.1. CaoTask::Execute("GetStatus") command

Example

```
BSTR exe_comm;                            //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetStatus"); //Command Name
VariantInit(&exe_param);                  //Command Parameters
VariantInit(&exe_result);                 //Command Result

/* Get Task Status */
hr = bCap_TaskExecute(fd, hTask, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_TaskExecute Succeeded... \n");
```

```
else
 printf("bCap_TaskExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.33.2. CaoTask::Execute("GetThreadPriority") command

5.2.33.3. CaoTask::Execute("SetThreadPriority") command

5.2.34. CaoVariable::get_Value property

5.2.35. CaoVariable::put_Value property

5.2.36. CaoExtension::Execute method

Example

```
//Get Extension Handler
BSTR ext_name, ext_opt;                    //Arguments:
ext_name = SysAllocString(L"Hand0");       //Name
ext_opt = SysAllocString(L"");             //Option

/* Obtain Extension Reference */
hr = bCap_ControllerGetExtension(fd, hCtrl, ext_name, ext_opt, &hExtension);
if (SUCCEEDED(hr))
 printf("bCap_ControllerGetExtension Succeeded...\n");
else
 printf("bCap_ControllerGetExtension Failed...\n");

//Release Variables
SysFreeString(ext_name);
SysFreeString(ext_opt);
```

5.2.36.1. Hand object - CaoExtension::Execute("Chuck") command

Example

```
BSTR exe_comm;                             //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Chuck");       //Command Name
VariantInit(&exe_param);                   //Command Parameters
VariantInit(&exe_result);                  //Command Result

//Populate Parameter Option
exe_param.vt = VT_I4;
exe_param.intVal = 0;       //Point Number

/* Chuck Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
```

```
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.2. Hand object - CaoExtension::Execute("UnChuck") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"UnChuck");  //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Point Number

/* UnChuck Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.3. Hand object - CaoExtension::Execute("Motor") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Motor");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Motor Status

/* Motor Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.4. Hand object - CaoExtension::Execute("Org") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Org");      //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Org Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.5. Hand object - CaoExtension::Execute("MoveP") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveP");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate Parameter Option
exe_param.vt = VT_I4;
exe_param.intVal = 1;       //Point Number

/* MoveP Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.6. Hand object - CaoExtension::Execute("MoveA") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveA");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
```

```
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].fltVal = 5.00;       //Position
param_data[0].vt = VT_R4;
param_data[1].intVal = 20;         //Speed
param_data[1].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* MoveA Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.7. Hand object - CaoExtension::Execute("MoveR") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveR");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].fltVal = -3.00;      //Position
param_data[0].vt = VT_R4;
param_data[1].intVal = 100;        //Speed
param_data[1].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* MoveR Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.8. Hand object - CaoExtension::Execute("MoveAH") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveAH");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].fltVal = 2.50;       //Position
param_data[0].vt = VT_R4;
param_data[1].intVal = 100;        //Speed
param_data[1].vt = VT_I4;
param_data[2].intVal = 100;        //Force
param_data[2].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* MoveAH Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.9. Hand object - CaoExtension::Execute("MoveRH") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveRH");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0].fltVal = 2.50;       //Position
param_data[0].vt = VT_R4;
param_data[1].intVal = 100;        //Speed
param_data[1].vt = VT_I4;
param_data[2].intVal = 100;        //Force
param_data[2].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);
```

```
/* MoveRH Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.10. Hand object - CaoExtension::Execute("MoveH") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveH");    //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 3);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 50;         //Speed
param_data[1] = 100;        //Force
param_data[2] = 1;          //Direct
SafeArrayUnaccessData(exe_param.parray);

/* MoveH Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.11 Hand object – CaoExtension::Execute(“MoveZH”) command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"MoveZH");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

//Populate parameter option
VARIANT *param_data;
exe_param.vt = VT_VARIANT | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_VARIANT, 0, 5);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
```

```
param_data[0].fltVal = 1.00;       //ZON1
param_data[0].vt = VT_R4;
param_data[1].fltVal = 4.00;       //ZON2
param_data[1].vt = VT_R4;
param_data[2].intVal = 50;         //Speed
param_data[2].vt = VT_I4;
param_data[3].intVal = 100;        //Force
param_data[3].vt = VT_I4;
param_data[4].intVal = 1;          //Direct
param_data[4].vt = VT_I4;
SafeArrayUnaccessData(exe_param.parray);

/* MoveZH Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.12 Hand object – CaoExtension::Execute("Stop") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"Stop");     //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* Stop Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.13 Hand object – CaoExtension::Execute("CurPos") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"CurPos");   //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* CurPos Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
```

```
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.14 Hand object – CaoExtension::Execute("GetPoint") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"GetPoint");  //Command Name
VariantInit(&exe_param);                 //Command Parameters
VariantInit(&exe_result);                //Command Result

//Populate parameter option
uint32_t *param_data;
exe_param.vt = VT_I4 | VT_ARRAY;
exe_param.parray = SafeArrayCreateVector(VT_I4, 0, 2);
hr = SafeArrayAccessData(exe_param.parray, (void**)&param_data);
param_data[0] = 0;   //Point Number
param_data[1] = 2;   //Point Data Element
SafeArrayUnaccessData(exe_param.parray);

/* GetPoint Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded...\n");
else
 printf("bCap_ExtensionExecute Failed...\n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.15 Hand object – CaoExtension::Execute("get_EmgState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_EmgState");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_EmgState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");
```

```
//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.16 Hand object – CaoExtension::Execute("get_ZonState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_ZonState");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_ZonState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.17 Hand object – CaoExtension::Execute("get_OrgState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_OrgState");     //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_OrgState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.18 Hand object – CaoExtension::Execute("get_HoldState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_HoldState");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result
```

```
/* get_HoldState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.19 Hand object – CaoExtension::Execute("get_InposState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_InposState");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_InposState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.20 Hand object – CaoExtension::Execute("get_Error") command

Example

```
BSTR exe_comm;                          //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_Error"); //Command Name
VariantInit(&exe_param);                //Command Parameters
VariantInit(&exe_result);               //Command Result

/* get_Error Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.21 Hand object – CaoExtension::Execute("get_BusyState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_BusyState");    //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_BusyState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```

5.2.36.22 Hand object – CaoExtension::Execute("get_MotorState") command

Example

```
BSTR exe_comm;                                  //Arguments:
VARIANT exe_param, exe_result;
exe_comm = SysAllocString(L"get_MotorState");   //Command Name
VariantInit(&exe_param);                        //Command Parameters
VariantInit(&exe_result);                       //Command Result

/* get_MotorState Command */
hr = bCap_ExtensionExecute(fd, hExtension, exe_comm, exe_param, &exe_result);
if (SUCCEEDED(hr))
 printf("bCap_ExtensionExecute Succeeded... \n");
else
 printf("bCap_ExtensionExecute Failed... \n");

//Release Variables
SysFreeString(exe_comm);
VariantClear(&exe_param);
VariantClear(&exe_result);
```