

## Summary

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	<i>TITLE :</i> Summary		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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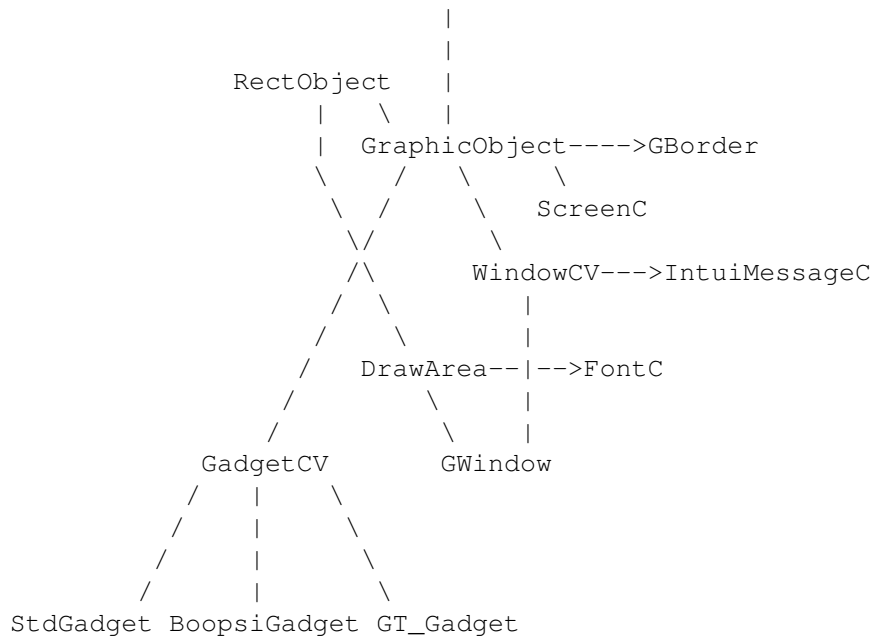
<b>REVISION HISTORY</b>
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NUMBER	DATE	DESCRIPTION	NAME

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A--->B : "A uses B"-relation

```

A
|   : "B is derived from A"-relation
B
  
```

### 1.3 a++application

Every A++ application that uses IntuiObjects, that is every application with an Intuition@ graphical user interface, has the same pattern:

```

void APPmain() // NOTE: int main(argc,argv) is defined in 'APPmain.cxx'
{
    // create objects that represent the application (any objects you like)
    // (of course you can create and destroy objects anywhere in your
    // application.)
    ...
    // enter the main event loop
    while (running) // control the loop yourself
    {
        SignalResponder::WaitSignal();
        // each received signal is processed within WaitSignal().
        // WaitSignal() returns after each signal.
        // Usually you will not do anything here in this loop.
        // Action takes place in event callbacks on objects.
        // "Think object-oriented!"
    }
}
  
```

The C standard main function is defined in "APPmain.cxx" which is within the A++ link library ("aplusplus.lib").

By simply adding a SignalResponder for the CTRL-C\_BREAK signal, that breaks

the loop, the program can be terminated at any point by sending a BREAK signal to it, either with pressing CTRL-C in the standard input window (CLI) or by use of the 'break <process-no.>' command. Look at the demo programs.

## 1.4 appobject

### APPObject class

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The APPObject class is one root class for the A++ classes, actually it's the root class for most A++ classes.

It provides an object status report and introduces a runtime type inquiry mechanism. All derived classes have to support this runtime type inquiry, too.

The APPObject plays an important role during the constructor execution of any object:

- constructors are invoked in order from base class towards derived classes. So, APPObject::APPObject is called first and sets object status to APPOBJECT\_INVALID which is no error status!
- Each derived class' constructor now has to check for the validity of the object in construction.
  - if Ok() returns TRUE do the constructor work and on successful initialisation set the object to a valid state with 'setID(id\_number)', where 'id\_number' is >0. If your constructor failed to allocate some resources etc., use 'setError(error\_number)' to set a class specific error code.
  - if Ok() returns FALSE only initialise for safe destruction (do not allocate any resources) and keep off the 'setID' method so that the error code can be read from the class using code.

The class user who creates an object should test it's validity with 'Ok()'. The macro 'APPOK()' checks a given object pointer being NULL before applying 'Ok()' to it.

On object deletion, the APPObject base class sets the object status to APPOBJECT\_INVALID, thus causing obj->Ok() to return FALSE.

```
myProcedure( )
{
    DerivedObject *obj = new DerivedObject( );

    if (obj)           // check for memory allocation failure
        if (obj->Ok())  // check validity of the created object
            // both if stmts can be replaced by 'if (APPOK(obj))'
            {
                .... // work on the object
            }
    else
    {
        cerr << "Initialisation error occurred: " << obj->error() << endl;
        delete obj;    // free the memory allocated for the object data
    }
}
```

```
}

```

Class implementors are recommended to check the base class validity within their constructor:

```
class MyClass : private InheritedClass, virtual public APPObject
{
    public:
        MyClass( )
        {
            if (Ok())    // has an error already occurred ?
            {
                // at this point the object has the class ID of the last class in ←
                the
                // inheritance list.
                if (initialise( )==FALSE)    // class initialisation
                {
                    #define MYCLASS_SOMETHING_FAILED (MY_CLASS+1)
                    _ierror(MYCLASS_SOMETHING_FAILED);
                    // set the error variable to a value and
                    // print the error string "MYCLASS_SOMETHING_FAILED" to stderr
                }
                else setID(MY_CLASS);
            }
            else // initialise only for SAFE destruction, no resource allocation
            {
            }
        }
}

```

And define a personal class ID like this

```
#define MY_CLASS xxx

```

Do not forget to set up the necessary support for the Type\_info class, the A++ Runtime-Type-Inquiry mechanism.

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