To a discussion of leak detection and investigation techniques, see **Detecting Wave Leaks** on page IV-206.

Free Wave Names

By default, the name of a free wave is _free_. If you use free waves in programming, you may find that the lack of specific names makes debugging difficult. If you break into the debugger, you see a lot of waves named _free_ and you can't tell which is used for what purpose.

In Igor Pro 9.00 and later, you can override the default and provide specific names for free waves using **Make**/FREE=1 and **NewFreeWave**. This improves debuggability and also helps in investigating leaks using the **WaveTracking** operation.

This example shows how to use Make/FREE=1 to specify the name of a free wave:

```
Function FreeWaveName1()
   // Creates a wave reference named tempw, wave name is _free_
   Make/FREE tempw
   Print NameOfWave(tempw)       // Prints _free_

   // Creates a wave reference named tempw, wave name is also tempw
   Make/FREE=1 tempw2
   Print NameOfWave(tempw2)      // Prints tempw2
End
```

You can also give a name to a free wave using the optional name string input to NewFreeWave:

```
Function FreeWaveName2()
   // Creates a wave reference named tempw, wave name is _free_
   Wave tempw = NewFreeWave(4,2)
   Print NameOfWave(tempw)       // Prints _free_

   // Creates a wave reference named tempw, wave name is myFreeWave
   Wave tempw = NewFreeWave(4,2,"myFreeWave")
   Print NameOfWave(tempw)       // Prints myFreeWave
End
```

Igor does not use the name of a free wave but in user procedure code there could be an assumption that free waves are named '_free_'. In that rare case, specifying the name of a free wave could expose a bug. The fix is to use WaveType to determine if a wave is free instead of the wave name.

Even if you didn't give a name to a free wave explicitly, there are tricky ways for a free wave to have a name other than '_free_'. One such way is to create a wave inside a free data folder, and then kill the free data folder:

```
Function/WAVE WaveInFreeDF()
   DFREF saveDF = GetDataFolderDFR()
   DFREF freeDF = NewFreeDataFolder()
   SetDataFolder freeDF    // Free data folder is current data folder
   Make jack               // Wave in free data folder
   SetDataFolder saveDF    // Free data folder is no longer current data folder
   return jack
   // At this point the free data folder is killed because freeDF
   // goes out of scope and consequently jack becomes a free wave
End

Function Tricky()
   Wave w = WaveInFreeDF()
   Print NameOfWave(w)     // Prints jack
   Print WaveType(w, 3)    // Prints 1 meaning free wave
End
```