Subject: Re: no backwards compatibility in IDL 5.6
Posted by Mark Hadfield on Thu, 27 Feb 2003 19:00:08 GMT
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So, as I understand it, the situation is this:

- For real x & y, ATAN(x) returns the inverse tangent of x and ATAN(x,y) returns the inverse tangent of y/x.

- In versions 5.4 and earlier, ATAN also accepted a complex argument: ATAN(COMPLEX(x,y)) returns the inverse tangent of y/x. Looking at the version 5.4 documentation, one would have to say that this is undocumented, but it was supported over several versions and used by many people.

- In version 5.5, ATAN was overhauled. The IDL 5.5 "What's New" makes interesting reading:

  "In IDL 5.5, new support has been added allowing complex input to ACOS, ASIN, and ATAN. Previously, the inverse transcendental functions ACOS and ASIN did not accept complex input. The ATAN function accepted complex input, Z=X+iY, but incorrectly converted the complex number into the 2-argument ATAN(y, x) form and returned a real result. For ATAN, support has been added for input of two complex arguments....The ATAN function now computes the complex arctangent for complex input. Previously, for a complex number Z=X+iY , internally ATAN(Z) would split Z into its real and imaginary components and compute ATAN(Y, X). IDL code that uses this undocumented behavior should be changed by replacing calls to ATAN(Z) with ATAN(IMAGINARY(Z), REAL_PART(Z))."

- In version 5.6, RSI responded to user feedback by introducing the /PHASE keyword to recover the old, allegedly incorrect behaviour.

So yes, the critics are right: backwards incompatibility has been impaired. But the damage was done in 5.5 and the changes in 5.6 represent an attempt to restore the old behaviour (but you have to add a keyword).

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