

FX Loader - Blog

Decimal Places and Significant Figures



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Difference between Decimal Places and Significant Figures

When rounding to a specified number of significant figures, the process is similar to rounding to a number of decimal places. The difference is that any leading zeros do not count as significant figures.

It is probably easier to see the difference by considering the examples below:

Original number	Round to 5 decimal places	Round to 5 significant figures
0.4857316	0.48573	0.48573
0.0024683	0.00247	0.0024683
0.000024683	0.00002	0.000024683

Why is this relevant to FX rates?

For many currency pairs it doesn't really matter whether the rate is rounded by decimal places (dp) or significant figures (sf). Take USD>EUR as an example: on 25-Jun-18 OANDA published that rate as 0.85654363040776.

This is 0.856544 when rounded to 6 dp, and 0.856544 when rounded to 6 sf

i.e. the rate is the same whether it is rounded by decimal places or significant figures.

However, rounding methods become more important when dealing with currency pairs in which one currency has a much higher value than the other. One example of this is VND>GBP: on 25-Jun-18 OANDA published that rate as 0.00003294063435.

This is 0.000033 when rounded to 6 dp, and 0.0000329406 when rounded to 6 sf

There is now a difference between the rates, albeit a small one (0.18%).

Rounding to 5 dp/sf gives 0.00003 and 0.000032941. The difference is now around 9.8% i.e. the rate which is rounded by dp becomes more inaccurate as the number of dp decreases.

Finally, consider what happens if you round to 4dp/sf instead:

The rate is 0.0000 when rounded to 4 dp, and 0.00003294 when rounded to 4 sf

Clearly, an FX rate of zero is meaningless, very inaccurate, and can lead to system errors – computers don't seem to like multiplying or dividing by 0!!

How does FXLoader deal with this?

In order to obtain more accurate rates, we advise rounding to at least 6dp for most currency pairs, but to round by significant figures for any rates which are less than 0.1.

FXLoader is very flexible in this regard – you can configure specific rounding values for an individual currency when it is a 'From' currency only; or when it is a 'To' currency only; or both. You can even configure rounding values to apply to one specific currency pair.