

## Leap Second Addition

A leap second is on the way 30 June 2015 23:59:60 UTC.

What is a leap second?

It is a second which is added to or subtracted from Coordinated Universal Time (UTC) in order to synchronize atomic clocks with astronomical time to within 0.9 seconds.

Why do leap seconds exist?

Historically, the second was defined in terms of the rotation of the Earth as 1/86,400 of a mean solar day. The definition eventually changed in 1967 by the Thirteenth General Conference on Weights and Measures to the duration of 9,192,631,770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the cesium 133 atom.

The Earth is constantly undergoing a deceleration which causes the Earth's rotational time to slow with respect to the atomic clock time. Hence the need for a leap second.

How do Arbiter Systems' GPS/GNSS products apply the leap second?

Arbiter Systems' GPS/GNSS products will follow the standard procedure for adding the leap second. The display and timing outputs will show:

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.  
06/30/2015 23:59:58  
06/30/2015 23:59:59  
06/30/2015 23:59:60 (leap second)  
07/01/2015 00:00:00  
07/01/2015 00:00:01  
.  
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The previous leap second was added 30 June 2012.

More information:

<http://tycho.usno.navy.mil/leapsec.html>

<http://www.timeanddate.com/time/leapseconds.html>