



Australian Government  
Department of Industry,  
Innovation and Science

National Measurement Institute

# Case study: engaging with the financial markets in Australia

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All documents referred to in this presentation  
are publicly available

# Time in Australia



The Orroral Satellite Laser Ranging Observatory

Prior to August 1998, the Australian Surveying and Land Information Group (AUSLIG) computed a timescale TA(AUS), which contributed to UTC.

This responsibility was handed over to us (CSIRO National Measurement Laboratory).

This new responsibility was formally recognized in an amendment to the National Measurement Act (1960).

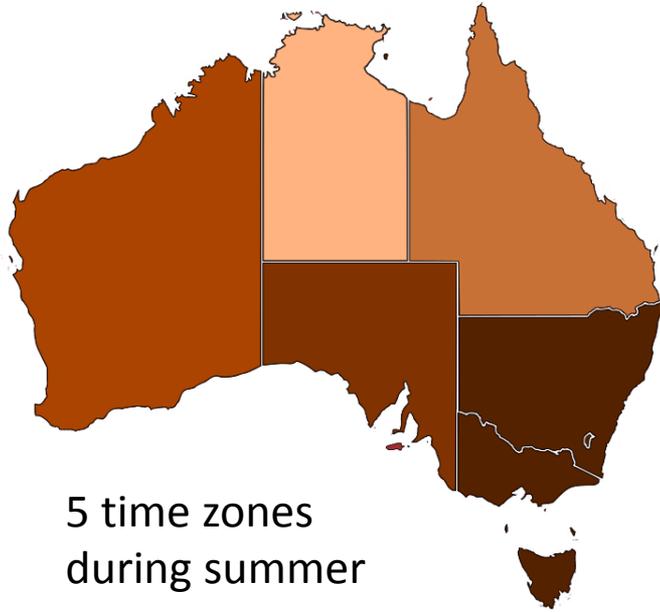
# National Measurement Act (1960)



## 8AA Co-ordinated Universal Time

The Organisation is to maintain, or cause to be maintained, Co-ordinated Universal Time (UTC) as determined by the International Bureau of Weights and Measures.

# UTC(AUS) and local time



5 time zones  
during summer

Local time is defined by each State or Territory's legislation as an offset from UTC(AUS).

NSW Standard Time Act (1987) *defines:*

***Co-ordinated Universal Time*** means Co-ordinated Universal Time (UTC) as determined by the International Bureau of Weights and Measures and maintained under section 8AA of the [National Measurement Act 1960](#) of the Commonwealth.

and then *states:*

Standard time in New South Wales is 10 hours in advance of Co-ordinated Universal Time.

# Other references to UTC(AUS)



## *Telecommunications*

Australian Communications Industry Forum Code of Practice:

ACIF C518:2006 Call charging and billing accuracy

[www.acma.gov.au](http://www.acma.gov.au)



## *Transportation*

Transport for NSW

Time Synchronisation of Industrial Automation and Control Systems

“In infrastructure and premises, metrological traceability shall be established for IACS with safety-related functions to UTC (AUS)”

[www.transport.nsw.gov.au](http://www.transport.nsw.gov.au)

# Market integrity rules: Initial consultation



The Australian Securities and Investment Commission (ASIC) is Australia's integrated corporate, markets, financial services and consumer credit regulator

## August 2010

- Contacted by ASIC regarding synchronisation.
- Wanted to define standards for acquiring a reference time and then maintaining the accuracy of that time.
- Application was matching of share trades in different markets.

Much discussion, visited ASIC to make presentation ...

# Market integrity rules: Release of draft and consultation paper

**Nov 2011** Draft market integrity rules and a consultation paper (CP145) released for comment

(1) A market operator must set the clock the market operator uses for recording the time and date in their trading, supervision or reporting systems so that it is synchronised to the time standard notified by ASIC in accordance with rule L3-3, within the allowable tolerance notified by ASIC in accordance with that rule

Very non-specific and no reference to UTC(AUS) or NMI (but CP145 did mention NMI and proposed that we would be the recommended source of time).

Some enquiries from market operators at this point

# Market integrity rules: Responses to consultation paper and release

**April 2011**

Report 237 “Response to submissions on CP-145 Australian equity market structure: Proposals” released

Generally, the submissions supported the proposal in CP-145 to nominate UTC(AUS) as the required source of time.

## 9.3.1 Market operators to synchronise clocks

(1) A Market operator must set the clock the Market operator uses for recording the time and date in its trading, compliance monitoring and reporting systems so that it is synchronised to within 20 milliseconds of the UTC(AUS).

(2) Where a Market operator relies on another person to provide any aspect of their trading, compliance monitoring or reporting systems that records the time and date, the Market operator must take reasonable steps to ensure that person synchronises the clock used for that purpose to within 20 milliseconds of the UTC(AUS).

Maximum penalty: \$1,000,000

# Market integrity rules: Release and interactions with market operators

After release of new Market Integrity Rules, many enquiries from market operators and we were very busy for a few weeks but ...

NTP was good enough (and free)

# Lessons ?

The IT department has a limited budget, just like every one else  
(We were asking \$20K for hardware, \$10K per year reporting)

Did we sell this the wrong way?

Compliance cost, not IT?

Risk management?

# Consultation paper 168

## October 2011 New draft MIR and consultation paper released

### 6.3.1 Market Operators to synchronise clocks

(1) A Market Operator must set the clock the Market Operator uses for recording the time and date in its trading, compliance monitoring and reporting systems so that it:

(a) is precise to 1 microsecond; and

(b) is synchronised to within 1 millisecond of the UTC(AUS) maintained by the NMI.

(2) Where a Market Operator relies on another person to provide any aspect of their trading, compliance monitoring or reporting systems that records the time and date, the Market Operator must take reasonable steps to ensure that person synchronises the clock used for that purpose is maintained by that person so that it is:

(a) precise to 1 microsecond; and

(b) synchronised to within 1 millisecond of the UTC(AUS) maintained by the NMI.

Maximum penalty: \$1,000,000

## June 2012 Report 290 released

New synchronisation requirements rejected on the basis that the costs would outweigh the benefits

# Success story: providing time to the Australian Securities Exchange (ASX)

ASX is the first and largest market operator in Australia



Use GPSCV link for providing traceable time of day

# Working with a market operator



Intensive testing before installation  
(found some bugs in third party equipment)

Network security  
Had to customise our systems to meet requirements  
Access very strictly controlled

Critical systems so supporting them is labour intensive  
Software updates needed to be tested before  
installation  
Needed to purchase equipment to duplicate installed  
configuration

All maintenance of systems must be done outside of  
working hours

# MiFID II and the future

Markets in Financial Instruments Directive II (MiFID II) is the framework of EU legislation around the operation of investment intermediaries providing services around financial instruments (shares, bonds, ...)

Effective January 2018

RTS-25 Annex specifies market operators must have UTC traceability:

Gateway to gateway latency	UTC accuracy	Timestamp precision
> 1 ms	1 ms	< 1 ms
<= 1 ms	100 $\mu$ s	< 100 $\mu$ s

Useful guide to MiFID II at [www.esma.europa.eu](http://www.esma.europa.eu)

“Transaction reporting, order record keeping and clock synchronisation under MiFID II”

Thank you for your attention!

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