



ETS LIMITED

EUROPEAN COMMISSION

DIRECTORATE-GENERAL
CLIMATE ACTION

EU Registry

Time Validation Plan

Contact:

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1. TIME SYNCHRONISATION

The time synchronisation service used by the EU Registry is the one set in place by the European Commission for serving all its computers. This service is actually a NTP (Network Time Protocol) version 4.2 and it uses a clock strata architecture.

The first clock stratum is the atomic clock hosted in Frankfurt (Germany), this clock broadcast the current time over radio waves accordingly with the DCF77 protocol.

The second clock stratum is a set of UNIX servers which synchronize their time by receiving the radio signal emitted by the stratum 1 clock. Each building of the European Commission has 2 of those servers, which also synchronise their time between the two of them with the NTP protocol.

The third clock stratum is composed of a set of NTP distribution servers which synchronise their time between themselves and the whole set of second clock stratum servers with NTP. Those servers are split into 2 pools of machines identified by pool1.ntp.cc.cec.eu.int and pool2.ntp.cc.cec.eu.int. Each pool's machines are hosted in distinct buildings from the machines of the other pool.

The fourth clock stratum is composed of the standard machines used to host the applications of the European Commission such as the EU Registry. They synchronise their time through NTP with two stratum 3 server, one from each pool, which guarantees that each machine synchronise with stratum 3 servers located in different buildings.

2. SCHEDULE AND DRIFT TOLERANCE

Each machine of the fourth clock stratum refreshes its time every 5 minutes. The time drift tolerated for a stratum 4 machine is 3.2×10^{-5} second. The NTP daemon are automatically monitored and if a time drift superior to the tolerated value is experienced, an alert will be dispatched to a unit dedicated to the resolution of time synchronisation issues which will investigate it.

3. OUT OF CONTROL TIME VALIDATION

If the process of time validation is no longer working properly, this is considered as a catastrophic failure of the host environment. The crisis management procedure described in **[Joint Business Continuity Plan]** is triggered and the crisis management team should decide to immediately switch off all the impacted application including the EU registry. If the DRP site is un-affected then it will take over the operations. The normal operations will not be resumed until the issue with the time validation is solved.