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| CHANGE REQUEST |
| Meeting ID:\* | SDS#39 |
| Source:\* | Convida Wireless Catalina Mladin, Convida Wireless, Mladin.Catalina@convidawireless.comConvida Wireless Dale Seed, Convida Wireless, Seed.Dale@convidawireless.com |
| Date:\* | 2019-02-10 |
| Contact:\* | Catalina Mladin, Convida, Mladin.Catalina@convidawireles.com |
| Reason for Change/s:\* | Provides updates on solution to Key Issue for time synchronization  |
| CR against: Release\* | Release 4 |
| CR against: WI\* | [x]  Active <WI-0046> [ ]  MNT / < Work Item number(optional)>Is this a companion CR? Yes [ ]  No [ ] Companion CR number: (Note to Rapporteur - use latest agreed revision)Is this a mirror CR? Yes [ ]  No [ ] Mirror CR number: (Note to Rapporteur - use latest agreed revision)[ ]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TR-0026 |
| Clauses/Sub Clauses \* | Clause 10.XX |
| Type of change: \* | [ ]  Editorial change[ ]  Bug Fix or Correction[ ]  Change to existing feature or functionality[x]  New feature or functionalityOnly ONE of the above shall be ticked |
| Impacted other TS/TR(s) | <TS/TR number>, <Version Number>, and <Description on which aspect should be reflected in this TS/TR> |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [x]  NO [ ] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2017 (Do not modify) |

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GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

## Introduction

This solution addresses aspects of the Key Issue on Time Synchronization in TR-0026. Specifically, it introduces a new *currentTime* attribute to the <CSEBase> resource to enable client-only devices that host a oneM2M AE the capability to sample the current time of their Registrar CSE. This enables an AE to more easily synchronize its current time to the current time of its Registrar CSE in a client-only on-demand fashion.

R01:

* Remove “local”
* Add text stating that nodes hosting oneM2M entities should keep their time synchronized to Coordinated Universal Time (UTC) using mechanisms such as NTP or GPS whenever possible. However, for cases when this is not feasible the proposed oneM2M service layer time synchronization methods can be used.

-----------------------Start of change 1-------------------------------------------

1.

## 10.XX Solution J: Time Synchronization using *currentTime*

### 10.XX.1 Solution Description

This solution addresses Key Issue 7 which highlights that services requiring time-sensitive operations rely on the various Service Layer entities being time-synchronized. This solution complements the time synchronization beacon-based solution and is targeted towards deployments involving constrained IoT devices that only support client functionality and not server functionality. Client-only devices cannot receive requests and therefore receiving of synchronization beacons is not ideal for these types of devices. When hosting a oneM2M AE on these types of devices a lightweight client-only mechanism is a better fit for synchronizing an AE’s current time to the current time of its Registrar CSE.

This solution proposes introducing a new *currentTime* attribute to the <CSEBase> resource to provide Registrees of a CSE the capability to retrieve the current time of their Registrar CSE. After retrieving their Registrar’s current time, a Registree can then synchronize its time to its Registrar’s time.

Note that nodes hosting oneM2M entities should keep their time synchronized to Coordinated Universal Time (UTC) using mechanisms such as NTP or GPS whenever possible. However if this is not possible, then this proposed oneM2M time synchronization method can be used.

### 10.XX.2 Solution Applicability

This solution applies to Key Issue 7

### 10.XX.3 Solution Details

To implement this solution, a new *currentTime* attribute is proposed for the <CSEBase> resource type as described in Table 10.XX.3‑1.

Table 10.8.3‑1: <CSEBase> Resource Attributes

| New Attributes | Multiplicity | RW/RO/WO | Description |
| --- | --- | --- | --- |
| *currentTime* | 0..1 | RW | The current time value on the node hosting this CSE. When the CSE receives a retrieve request targeting this attribute or the <*CSEBase*> resource, it can trigger an action to sample its current time (e.g. make an OS call to get system time) and respond with this value. An Originator retrieving this attribute can use this time value to adjust and synchronize its time value to that of its Registrar CSE.  |

-----------------------End of change 1-------------------------------------------

CHECK LIST

* Does this Change Request include an informative introduction containing the problem(s) being solved, and a summary list of proposals.?
* Does this CR contain changes related to only one particular issue/problem?
* Have any mirror CRs been posted?
* Does this Change Request make **all** the changes necessary to address the issue or problem? E.g. A change impacting 5 tables should not include a proposal to change only 3 tables?Does this Change Request follow the drafting rules?
* Are all pictures editable?
* Have you checked the spelling and grammar?
* Have you used change bars for all modifications?
* Does the change include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change? (Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.)
* Are multiple changes in this CR clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.?