WESTERN POWER DISTRIBUTION

OPEN LV

OPENING UP
THE SMART GRID

**FEEDBACK ON STANDARD
GUIDELINES FOR APPLICATION
DEVELOPMENT
CENTRE FOR SUSTAINABLE
ENERGY, OCTOBER 2018**

ea technology

RIIO

NIC| NETWORK INNOVATION COMPETITION

Report Title	:	**Feedback on the Standard Guidelines for Application Development**
Report Status	:	Draft
Project Ref	:	WPD/EN/NIC/02 - OpenLV
Date	:	XX.XX.XX

Document Control		
	Name	Date
Prepared by:	Andrew Gonnet & Bridget Newbery	22.10.18
Reviewed by:	Name	XX.XX.XX
Recommended by:	Name	XX.XX.XX
Approved (WPD):	Name	XX.XX.XX

Revision History		
Date	Issue	Status
20.11.18	1.1	revised
XX.XX.XX	X.X	STATUS

1   Summary

This document provides feedback on the documentation providing guidance on application development based on the experiences of the developers who worked on the m2collation app for the OpenLV Method 2 trials between May and September 2018. The following documentation has been reviewed:

1   Developing with the LV-CAP Virtual Machine, Version 2622-MANUK-S0001-V02.03.01

2   LV Common Application Platform, Public API

3   OpenLV Measurement Points (pdf) *and* 2689-PUBLC-S002-V01.01.00 OpenLV Data Point List.xlsx

4   Gridkey OpenLV Data centre System Overview

2   Developing with the LV-CAP Virtual Machine, Version 2622-MANUK-S0001-V02.03.01

General comments:
This document is about how to use the Virtual Machine and how to run an application on it. However, no guidance is provided about the skeleton app. A separate document, or a section within this document, providing specific guidance (where relevant) on how to use the skeleton app would be useful. Docker commands are referenced with an assumption of a level of prior knowledge by the reader which may not be the case, so more explanation of the commands being used would also be helpful.

Section 6
- In Section 6.1, the given commands work, but explanations are limited and there seem to be some discrepancies between the instructions in this document and those provided in 'LV Common Application Platform Public API', making it confusing to interpret

- For example, Steps 7 and 8 in section 6.1 use examples which are not consistent with the definitions on page 13 of 'LV Common Application Platform Public API'. In step 7, <APID> is used to mean a string that does not include the "application version" while the <APID> definition in 'LV Common Application Platform Public API' does include "application version'[1].

- In section 6.2, Step 3 uses a timestamp. Guidance on how to get the timestamp would be helpful.

---

[1] This is defined within the document but could be clearer.

Section 8

- 8.1.3 is about Signing Development Certificates. When the build scripts provided with the skeleton application are run, the passphrase in this section is important but lacks detail on building with the skeleton app, including building a release version.

- For the m2collation app development, information about building a release version was provided via a phone call and email explanation instead.

Section 9

- It's not explicit in 9.1 and 9.2 (MQTT message traffic) that there are two types of messages which can be created: single values and lists of values.

- It would be useful to state here that the format of output needs to be in one if the formats set out in the document 'LV Common Application Platform Public API' and reference Section 9 of this document.

Suggestions:

- Reference the Doxygen Files for guidance on how to modify the skeleton app to make a new application, including:

  o how to build it

  o where to build it

  o how to alter the source for a new application and where new application code goes

  o how to release it

  o references for library software used in the skeleton

- Assume less docker knowledge (e.g. explain the steps really clearly in terms of what the commands do, generate, and why that's needed in the next step. For example, referencing the Docker Home page would be useful.

- Explicitly cross reference explanations provided in "LV Common Application Platform, Public API" throughout the document, ensuring consistency between the two documents.

- Provide additional guidance on specific elements where needed, including:

  o 6.2 - timestamp

  o 9.1 and 9.2 - MQTT message traffic

Actions taken:

- The reason that the guidance about the skeleton app is not included in this document is that the skeleton is not always provided with the Virtual Machine. However, information about the skeleton app, including how to use it to build a new application, is now being provided in Doxygen Files provided with the app.

- Information about building a release version has now been included in the Test Document.

3 LV Common Application Platform, Public API

General comments:
Overall this document gives a good background and usefully explains what names are used for what, and how things are set up (for example 'Application ID'). It's a helpful guide to using the document 'developing with the LV-CAP', especially sections 4.2 and 9.

Specific points:

- Some of the descriptions are not clear.

- For example. 4.2, p. 13 states "*Vendor, Application name and Instance are combined to form the instance ID (<IID>).*" and "*The Application Version is deliberately omitted from the <IID>.*" In some cases the Version number does need to be added to the end of the string and in other cases it's not needed, leading to confusion.

Suggestions:

- Flag sections 4.2 and 9 as being particularly useful.

- Ensure consistency and clarity, especially around 'Application Version' and 'Instance number'.

- Provide examples where possible.

4 OpenLV Measurement Points

General comments:
This document is essential but a bit more information would make it more useful.

Specific points:

- In Section 3.1 (feeder count monitoring), the text beginning "The system can be expanded…." was unclear. When a busbar (also called Transformer secondary) is being monitored and there are 5 outgoing feeders, does the 5th feeder come out on the busbar topic?

- The Measurement Points spreadsheet is not referenced in the document but does have the full list topic names and units, which are useful.

- An accompanying Excel spreadsheet (Method 2 Substation Details-FromTimButler.xlsx) listing substation and feeder names was provided to support development of the m2 collation app. This was really useful for coding. There may be some typos in the busbar / feeder column.

Suggestions:

- Clarify the point queried in section 3.1.

- Combine the Measurement Points document and spreadsheet, or ensure they each reference the other.

- Recommend new app developers request (or are provided with) an accompanying spreadsheet listing the substation and feeder names and numbers.

5 Gridkey OpenLV Data Centre System Overview

General comments:
This is the documentation provided by Lucy Gridkey.

Specific points:

- Page 2 – the filepaths do not work

- Systems overview – this is useful background

- Section 4 (API): it's not explained how to convert a username and password into the string which is needed.

- Page 8 (list Keyspaces) in Figure 4, what does 'dno' mean?

- 'Retrieve Raw Data' – it doesn't explain that the string for retrieving sub topic names uses the name you get by running the previous command.

- In the string where it ends {topic} the part of the filepath to include needs to be clear. An example would be useful. E.g. If your application name is [this] then the string would be [this].

- Figure 5 is unreadable.

- The 4th bullet point under 'Retrieve Raw Data' is confusing. The sub topic name is wrong: "bar-voltage-product-by-day-T-30-30-720" is missing the 'middle bit' (i.e. the app name).

- It's not clear when to use the topic name or the word 'response', or if "response" is the topic name.

- The topic needs to have the application name in it, but the example doesn't, and because Figure 5 can't be seen clearly it's difficult to find an example.

Suggestions:

- Check that all the strings, filepaths and instructions are correct.

- Examples would help with clarity.