Online tag changes to Allen Bradley ControlLogix/CompactLogix/GuardLogix PLC running firmware v33 can cause incorrect tags to be written in the PLC

SUMMARY

Impacted Products:

- Communication Drivers Pack 2020 R2 (ABCIP OI Server v8.0)
- ABCIP OI Server G-2.0 (v7.0)

Issue Summary:

OI ABCIP downloads a local tag database file containing information about connected Logix PLC tags. Logix firmware v33 has introduced a change that is causing OI ABCIP to not re-synchronize that tag database file properly when tags are added or removed while in online mode.

- While ABCIP OI Server is running, online changes to the PLC that involve tag additions or deletions can result in writes to PLC tags changing unintended tag values
- If tags are only being added during online updates to the PLC then there should not be any safety concern, but new tags will not be accessible from OI ABCIP until one of the "Tag Database Re-sync" steps are executed below
- This issue is a potential safety concern when tag(s) are deleted from the PLC, new tag(s) are added, then a client attempts to write to tags that were deleted. The value will be incorrectly be written to one of the new tags.

SITUATION

Example scenario:

- Start OI ABCIP, let it connect to a v33 controller and allow it to complete any tag database uploads which are outstanding.
- Delete tag "Test1" from PLC (Note the PLC Programming Software will not allow delete if it is already subscribed).
- .Subscribe tag "Test1" from a SuiteLink of OPC Client which gets Quality=0x7(BAD)
  - This tag is not present in the PLC, but is still in the local tag database file created by OI ABCIP. It can be subscribed, but read attempts to the PLC fail which results in bad quality; however, it can still be written to from a client.
- Add new tag "Test2" to PLC.
- Write a value to "Test1" using a SuiteLink or OPC Client via OI ABCIP and it improperly writes to "Test2" in the PLC.

ACTION

Workaround:

If tags are being deleted during online updates to the PLC then the customer should perform any one of the following manual "Tag Database Re-Sync" steps below before attempting any online tag adds:

- Deactivate then Activate OI ABCIP in the SMC.

  OR

- Right click the OI ABCIP PLC hierarchy node in the SMC and execute Reset.

  OR

- Execute an offline download of the PLC program to the PLC.

Long-term solution:

Development is investigating the feasibility of a hotfix to enable ABCIP to synchronize its local tag database file properly without manual intervention. This document will be updated with the details of the fix if it becomes available.

AVEVA