PRO V&V	**ENGINEER CHANGE ORDER (ECO) ANALYSIS FORM**
Manufacturer:	Unisyn Voting Solutions
System:	OpenElect Voting Optical (OVO), Version 2.2.1
ECO Number:	SCO-3476
ECO Description:	Scanner Enable/Disable

Overview:
This OVO modification addresses the possibility of inserting a ballot during the transition to jammed ballot handling on the OVO. This introduces a potential race condition that can result in a cast ballot being returned to the user.

This proposal encompasses minor changes to 6 files, extending the implementation of methods that remove and restore the reference to the module that accepts ballot data in the event of jam error code from the scanner and restoring it when the jam condition is no longer active. Per Unisyn, this was originally implemented in the AbstractReaderClient.java file but was reimplemented as two methods in ReaderDriver.java (hideReadListener() and restoreReaderListener()) so that it could be used by multiple modules. An additional flag and delay were added to ensure that no data is sent from the scanner to the software while the jam is being handled.

Products Affected: OpenElect Voting Optical (OVO), Version 2.2.1

Per Unisyn, the new Software version for the OVO will be 2.2.2.

Supporting Documentation:
2.2.2 SCO *(Unisyn ECO)*
04-00594 OpenElect 2.2.2 Release Notes *(Change Release Notes)*
04-00469 OVS_Final_QA_Report_QAUpdate *(QA Report)*
04-00460 OVS System Operations Guide Warehouse *(TDP Document)*
03-00456_2.2.2_OVO_QA_TestPlan *(QA Test Cases)*
OE2.2.2_OVO_RCA Scanner Enable_Disable .pdf *(Unisyn Root Cause Analysis)*

Engineering Recommendation:
Pro V&V utilized NOC 19-01 during the ECO review. Source Code Review, Technical Documentation Review, Functional Testing and Accuracy Test performed by Pro V&V for final recommendation. Pro V&V reviewed and sampled Unisyn-submitted test cases for functional testing. Accuracy Testing was performed utilizing each supported ballot size.

Based on testing performed, Pro V&V determined the change did not adversely affect the system functionality, performance, accessibility, usability, safety, or security of the system. The system tested was verified to be accurate during testing with the actual results matching the expected results. No issues were encountered during testing.

The Source Code Review was performed by doing a manual comparison review using ExamDiffPro software. The previously certified source code (version 2.2.1) was used as the baseline for the comparison against the newly updated source code with the fix incorporated (version 2.2.2). Pro V&V verified the only changes made to the newly submitted source code were the minor changes to six files, as described in the submitted supporting documentation, and updating the version number.

Pro V&V determined the modification was successfully implemented and no additional testing is required. Pro V&V determined the modification successfully addressed the issue.

This recommendation is based on the software change having the following general characteristics: (1) Update a discrete component of the system and do not impact overall system functionality; (2) Do not modify the counting or tally logic of a component or the system (formatting changes to reports are allowable); (3) Do not affect the accuracy of the component or system; (4) Do not negatively impact the functionality, performance, accessibility, usability, safety, or security of a component or system; (5) Do not alter the overall configuration of the certified system; and (6) Can be reviewed and/or tested by VSTL personnel in a short amount of time (approximately less than 100 hours).

All test artifacts (revised code, generated hash values of source code and trusted builds, and as-run test cases) were submitted to the EAC for review along with this ECO Analysis.

Engineering Analysis: De Minimis – No Additional Testing Required

Reviewer:	**Approver:**
Wendy Owens	Michael L. Walker
Printed Name	Printed Name
Wendy Owens	Michael L. Walker
Signature	Signature
07/25/2022	07/25/2022
Date	Date