

## Migrating Discontinued SLC PLCs and PanelViews

By the end of 2014 Rockwell will have discontinued numerous legacy hardware products including PanelView Standard HMIs (series 300, 300 Micro, 550, 600, and 1000), all PLC-5s (with the exception of L40C and all L80s), and the SLC L542W and L543P controllers. Additionally, PanelBuilder software used to configure and load the discontinued PanelViews is not supported on any operating systems beyond Windows XP, which Microsoft ceased support of in April 2014. Without security patches from Microsoft, continued support of Windows XP PCs will become a growing security risk.

As spare hardware and Windows XP PCs become less widely available, future support of these automation systems will become increasingly difficult. It is the recommendation of Panacea Technologies that these systems be migrated to newer hardware which is supported by newer development tools and current Windows operating systems.

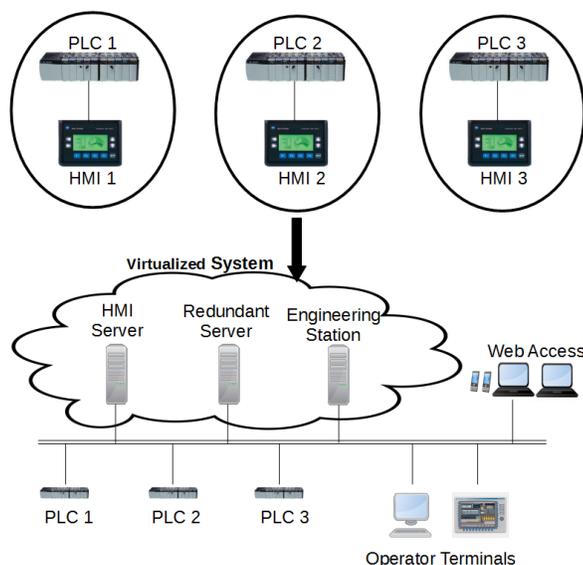
## Potential Migration Paths

### *For Smaller Installations*

For facilities with a small number of PLCs and PanelViews, one option is to individually migrate systems to CompactLogix and a modern PanelView such as Plus 6. Although this approach offers a straightforward upgrade path, it lacks the benefits a more centralized configuration could provide.

### *For Larger Installations– Multiple Applications*

For facilities with a large number of PLCs and PanelViews, Panacea Technologies has developed a reference architecture to facilitate migration to a SCADA environment. This provides increased functionality and simplified maintenance, while minimizing operator retraining requirements. The various migrated applications can all be managed by creating a centralized configuration.



Centralized Architecture for Migrations

Common styles for alarms, security, and general HMI architecture can be implemented throughout the migrated applications. Individual migrated applications can be organized by assigning them to different areas within the centralized configuration, and can be individually deployed to operator stations or multiple area applications on a single station as per business needs. PlantPAX can be integrated into the same system in the future.

### For Larger Installations– Single Application

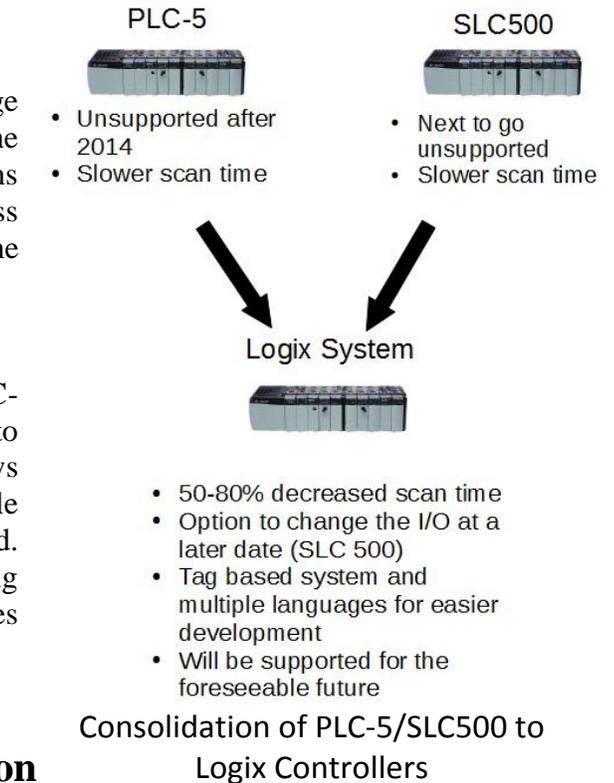
An alternative to the Multiple Applications approach is to merge the migrated applications into a single area application within the same centralized configuration. Access to different graphic screens is setup using security credentials per areas and other business needs. PlantPAX can also be integrated into the solution in the future.

### PLC-5 and SLC PLC Migration

Using standard Rockwell migration tools such as Translate PLC-5/SLC, Panacea can migrate PLC-5 and SLC-500 controllers to CompactLogix or ControlLogix controllers. CompactLogix allows for a more cost effective migration of smaller systems, while ControlLogix can be used if controller consolidation is desired. Logix systems also allow for controller redundancy, improving reliability. Use of the Rockwell standard conversion tools reduces migration, testing, and validation time and costs.

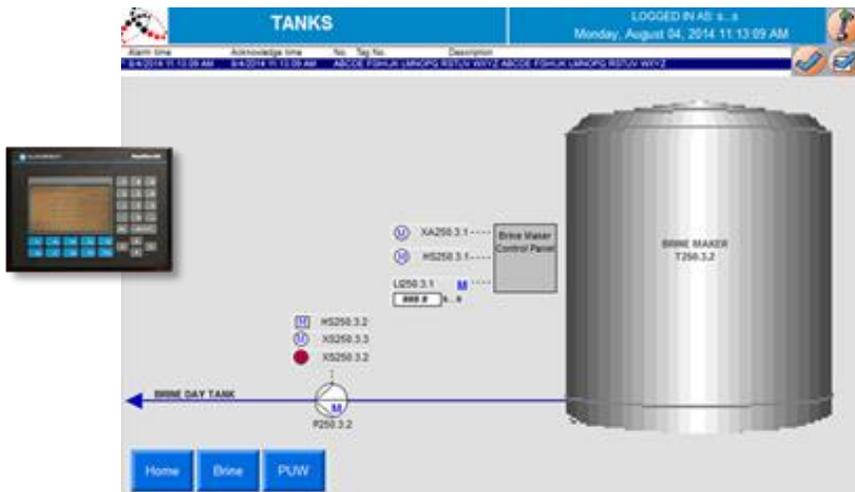
## Panacea’s Reference Architecture for Migration

Panacea Technologies recommends migrating PanelView displays to a FactoryTalk Site Edition (SE) based SCADA system on a virtualized infrastructure. A major advantage of using FactoryTalk SE over other SCADA software is that existing PanelView graphics can be directly migrated using built-in tools from Rockwell, thus providing operators with the same look-and-feel as existing PanelViews. Other benefits of a centralized SCADA, such as improved security, a centralized historian, redundancy, etc. can also be implemented. Using



Panacea’s standard framework, centralized alarming and security as well as standard navigation can easily be put in place. With FactoryTalk ViewPoint, access to plant data and screens using web browsers can also be provided.

Using our standard architecture, the SCADA server is deployed on a virtualized platform and thin clients are used on the factory floor to replace PanelViews. Rockwell’s built-in migration capabilities are used to convert the existing PanelView displays, and tags are remapped to the migrated PLCs. Use of Rockwell’s standard conversion tools reduces migration, testing, and validation



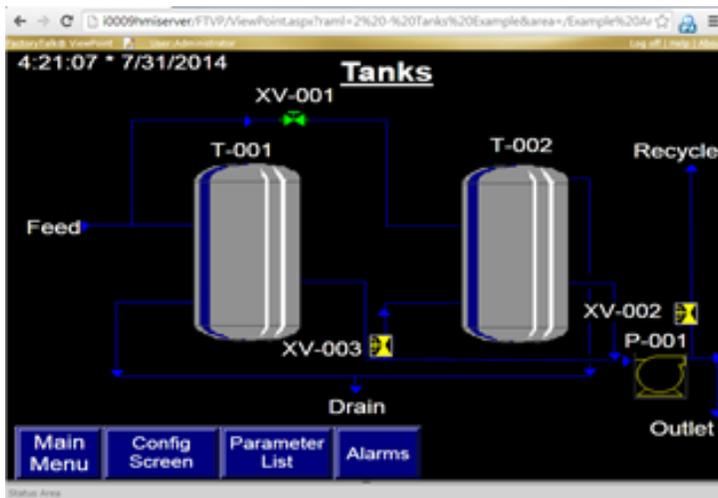
PanelView Migration to Enhanced Display

time and costs. Additionally, by utilizing converted PanelView displays operator training costs are reduced.

In many facilities control systems are currently set up as “islands”, where each PLC/HMI pair is configured and functions independently. Such an architecture tends to be a burden to manage and maintain over time. Utilizing Panacea Technologies’ reference architecture during a system migration alleviates this burden by establishing a centralized SCADA system.

## Benefits of Migrating to a Centralized SCADA

- Several individual old PanelView HMI applications can be migrated and integrated into a single FactoryTalk View SE Network Distributed configuration. Within this new single configuration, consolidation can be achieved by organizing the migrated application by functional areas. Operator Stations can be configured to display a single area application or multiple separate applications. This architecture is most suitable if specific operator terminals need access to only certain area application while retaining flexibility for supervisors and engineers to run multiple applications on their stations.
- A single HMI application can be created by merging all the individual applications together and by assigning area / role based access to specific graphics. This option requires additional upfront engineering efforts, but is suitable if operator stations need access to graphics from other areas.
- Every area within the single FactoryTalk SE configuration can be hosted on a HMI server or pair of redundant HMI servers. Area applications run on a centralized server while the operator stations use remote sessions to view the runtime graphics and alarms.
- Hosting the area application on a single HMI server helps streamline the scanning of data from different controllers.



FactoryTalk ViewPoint (Web) Display

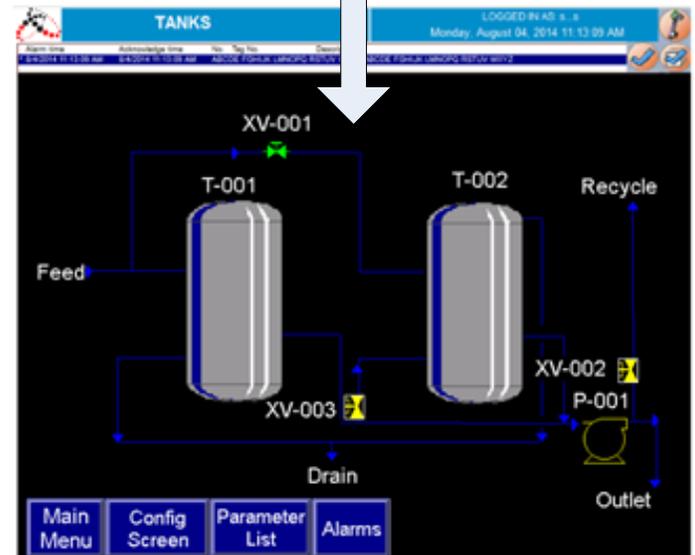
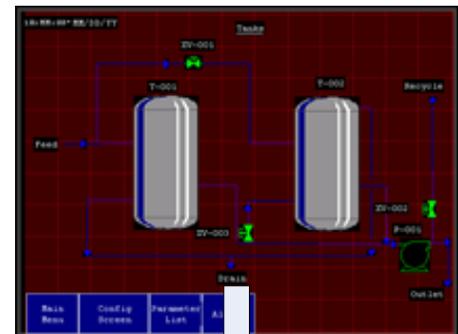
- A redundant HMI Server pair can be configured which increases reliability.
  - Historian and other third party software can use the HMI server as a source for data.
  - For extremely large applications, areas within the application can run on separate HMI servers or redundant pairs of servers. Additionally, the OPC server can also be set up to run on its own server or pair of redundant servers – thus providing maximum reliability.
- Operator stations can be configured to display graphics and alarms from multiple areas. If an operator station fails the process can be kept running using other stations, thus reducing downtime. Multiple applications and areas can also be displayed simultaneously on each station.
  - Centralized alarms and events enable operators and engineers to view, acknowledge, and archive the alarms and events for all the areas in a common environment. Engineers can get plant-wide visibility while operators can be limited to area visibility.
  - Centralized security using Rockwell Administration or Windows Domain security can be implemented. Centralized security also grants secure access to support engineers for maintenance and source control of the application (21 CFR Part 11 compliant).
  - Individual or multiple area graphics can be accessed securely via a web browser using FactoryTalk ViewPoint. This dramatically increases the visibility of plant operations and potentially enables remote support. Web access can be restricted by using various security levels and controls.

## Benefits of Using Thin Client Technology to Replace the PanelViews

- In the referenced architecture, the FactoryTalk SE configuration containing the migrated applications is hosted on a centralized HMI server or servers. Thin clients, which can load graphics and data from the HMI server, are used as operator stations instead of full-fledged HMI stations or PanelViews.
- In the event the thin client operator station fails, the replacement takes minutes since thin clients require little to no software installation or configuration. All required data is hosted on the HMI server.
- The thin client stations can be set up to access a particular area or all the areas. This gives operators and engineers more visibility of the plant from various locations. In contrast, without such migration PanelViews are accessible only from the local station.
- Access through devices such as smartphones, notepads, etc. could be provided. Operators would be enabled to walk around the plant viewing various graphics from a single smart device.

## Benefits of Virtualization

- With a VMware virtualization system, virtual machines can be distributed across multiple hardware servers. If one server fails, affected virtual machines can be automatically transferred to other available servers. This provides high availability and mitigates the impact of system failures on production.
- If a virtual machine crashes, a prior snapshot of the machine can be automatically started up.
- Maintenance and upgrades of physical servers and storage hardware can be achieved without requiring any production downtime.
- Automatic installation of OS patches on the machines improves security of the infrastructure.
- Templates of regularly created virtual machines, such as engineering stations, can be created and archived. Templates can be used to create additional engineering stations with few clicks, thus reducing engineering and qualification times.
- The virtual infrastructure can be managed remotely allowing flexibility and quick support in case of emergencies.



Older PanelView graphic converted to FactoryTalk View SE

**Panacea Technologies Inc. is a VMware® Partner, and Rockwell System Integrator Partner.**

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