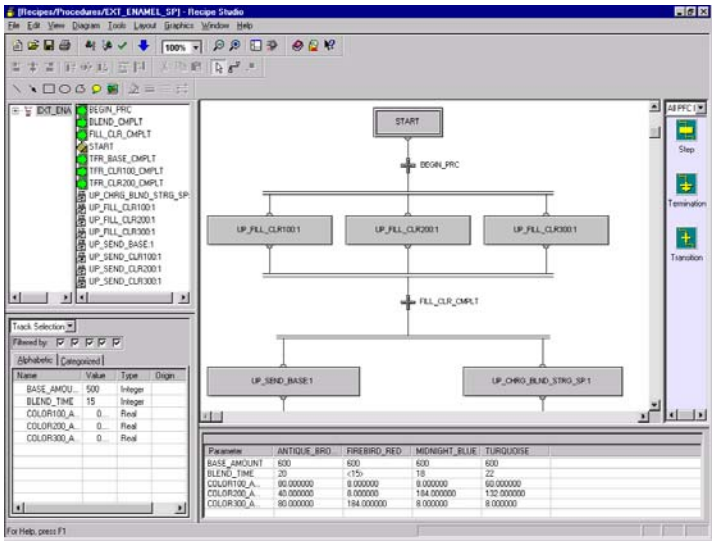
Recipe Manager NT for PROVOX

Simplify life where you can. Start with batch recipe management. Recipe Manager NT (RMNT) for the PROVOX system includes easy-to-use tools that amplify your power to simply and effectively manage batch recipes. Recipe Manager NT for the PROVOX system embraces industry standards and offers unprecedented integration and functionality.

- Same recipe management for both PROVOX and DeltaV systems
- Reduces engineering costs
- Improves time to market
- Simplifies regulatory compliance
- Sequences phase to phase communication
- Performs equipment arbitration and allocation
- Facilitates manual phase control
- Generates and stores batch events
- Intuitive operator interface
- Online recipe execution modification



Recipe Studio provides an easy-to-use graphical user interface for recipe development.

The Recipe for Success is Simple

Add it up: graphical recipe management tools plus an easy-to-use integration tool that taps into the power of the PROVOX system. The result: simple success. Everything you need to configure PROVOX batch recipes from a Windows NT platform.

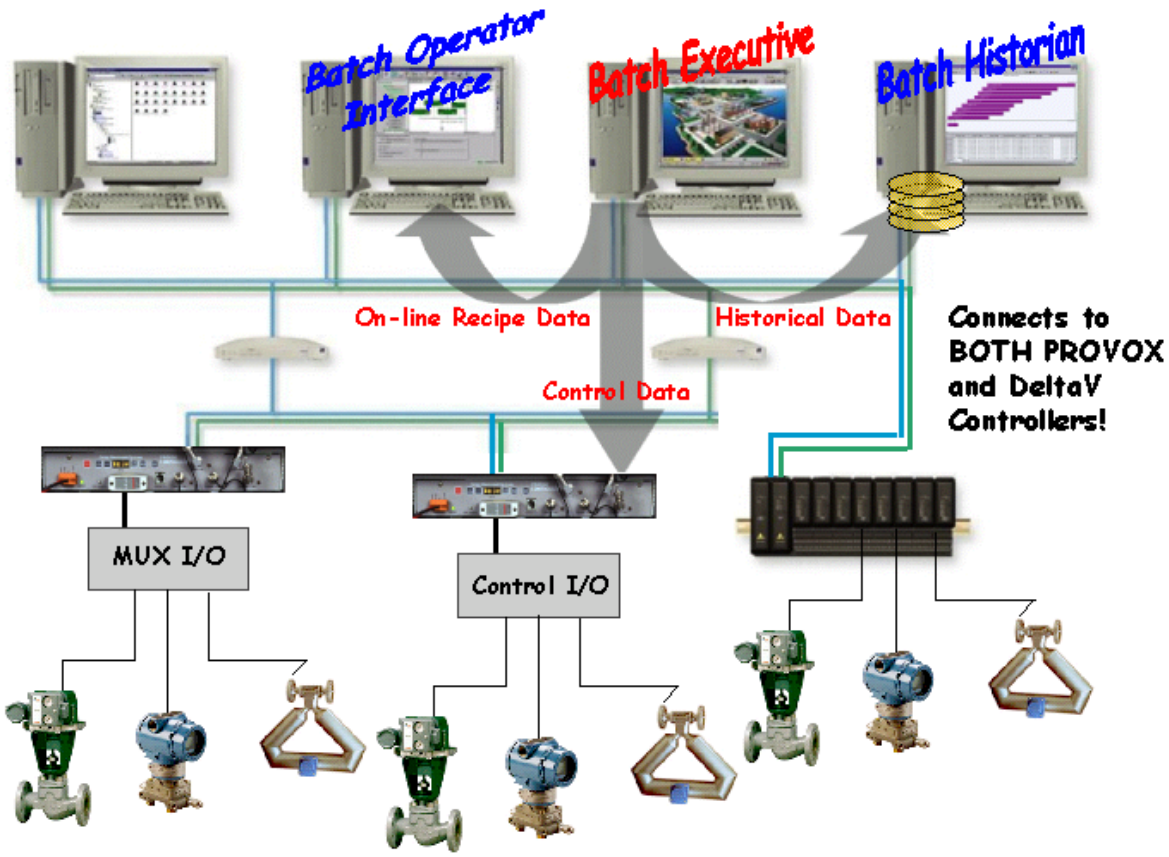
You not only work in the familiar Windows environment, you can be confident of successful operation. The PROVOX Unit Operations Controller (UOC) has a track record as a safe and reliable batch-processing environment. It has built-in features for common resource management and abnormal condition handling-features that you would have to create in other control environments.

EMERSON
Process Management

Batch Executive—Overview

The Batch Executive in Recipe Manager NT manages everything from recipe execution to history collection. It is responsible for carrying out batch procedures, coordinating communication between phases, and allocating equipment and other resources required by a batch.

In addition, it passes recipe data to phases running in the Unit Operation Controllers and reads back report data from the phases. These events, along with all other recipe execution activities, are automatically generated and collected by the Batch Executive to provide detailed batch historical records.



The Batch Executive processes and serves recipe data, control data and historical data.

Batch Executive—Benefits

Sequences and coordinates recipe execution. The Batch Executive controls recipes and manages the communication between recipe logic running on the batch server and phases running in the PROVOX controller. Recipe and phase status information is served to the Batch Operator Interface for batch viewing and manipulation.

Performs equipment arbitration and allocation. Equipment is automatically allocated during recipe execution. Arbitration information is served to the Batch Operator Interface where the operator may adjust the priority of equipment in the allocation queue if desired.

Synchronizes phase-to-phase communication. Inter-phase communication messages are processed by the Batch Executive and served to the Batch Operator Interface for viewing.

Facilitates manual phase control. The Batch Executive facilitates manual control of phases without executing an entire procedure. This provides an additional level of batch control to the power user.

Generates and stores batch events. Batch history is automatically generated by the Batch Executive during the execution of a recipe. The events are stored to files that can be read by the Batch Historian or viewed from the Batch Operator Interface.

Batch Executive—Product Description and Specification

The Batch Executive acts as a multi-batch process server that interfaces to the various tools within the Recipe Manager NT suite of applications. Recipes, formulas, and parameters developed in Recipe Studio, as well as, associated equipment defined in the Explorer are downloaded to the Batch Executive after recipe configuration. The number of recipes that the Batch Executive may support is limited only by disk space.

During execution of the control recipe, the Batch Executive processes all recipe management actions such as skipping and repeating steps, holding, stopping, aborting, restarting the recipe, and managing process parameters. The Batch Executive also handles *phase coordination* and communication with basic control functions running in the Unit Operations Controller. A built-in monitor automatically detects any loss of communication that occurs between the Batch Executive and the controllers and immediately notifies the operator. Recipes and phases are placed in a safe state until communication is reestablished. A Warm Restart option allows recipes to be restarted right where they left off.

The Batch Executive uses a First In First Out (FIFO) queue to handle equipment arbitration. A user at the Batch Operator Interface has the ability to manipulate the priority of equipment requested by batches within the resource allocation request list.

The Batch Executive collects and records batch events in recipe journal files. These journal files are stored on the workstation where the Batch Executive resides and are only limited in size by the available hard disk space. The files can also be viewed at the Batch Operator Interface.

To ensure a secure operating environment, the Batch Executive runs as an NT Service. Recipes continue to run even without a user logged on to the Batch Executive workstation; allowing only individuals with the proper privileges to access to the Batch Executive

Batch Operator Interface—Overview

Do you need a recipe execution interface with intuitive batch displays based on industry standards such as S88.01 and IEC1131-3? Looking for an easy-to-use yet powerful recipe management tool at both macro and microscopic levels within your batch?

Take a look at the Batch Operator Interface. It has the capability for a user to schedule batches, manage batch equipment**,** *modify batch execution on-line*, and view event journal information all from one interface.

Batch Operator Interface simplifies batch with graphical views of the procedural hierarchy.

Batch Operator Interface—Benefits

Intuitive recipe execution interface. The Batch Operator Interface has been developed to be an intuitive, easy-to-use batch control user interface. It uses industrial standards such as the S88.01 procedural hierarchy, IEC 1131-3 Sequential Function Charts, and tabular views to illustrate the control recipe. Dynamic coloring is also used to convey unit procedure, operation, and phase state/ status information.

Resource management capability. Complex equipment arbitration is handled automatically by the Batch Executive. The user can also manually intervene from the Batch Operator Interface and allocate resources for certain recipes.

On-line recipe execution modification. A user can *skip and repeat steps* during recipe execution as well as manually control phases. Plus, operator interactions are tracked and recorded by the Batch Executive to provide accurate history of batch execution.

Integrated with the PROVOX system.
The run-time interface between the Batch Executive and the Unit Operations Controllers is the PROVOX Phase Logic Interface (PPLI). The PPLI Configuration is designed to easily allow you to create the links between the Recipe Manager NT phases and the operations and sequences in the controller.

Batch Operator Interface—Running Batches

Recipes are displayed graphically using the S88.01 Procedural Model along with IEC 1131-3 sequential function charts (SFC) to illustrate the steps within procedures, unit procedures, and operations. A user may “drill down” into a recipe by double clicking on a step. For example, double clicking on an operation step within a unit procedure will bring up the SFC for that operation. Step names and descriptions can be displayed along with comments that have been configured for the recipe. Transitions also have the option of displaying their configured name, description or condition expression. Together, these features make on-line recipe viewing easy.

The Batch Operator Interface allows a user flexible control over executing recipes. For any active batch, a user has the ability to stop, hold, restart, and abort the batch. It is possible to skip and repeat steps within the recipe as well. All of these actions, along with creating batches and acknowledging messages, can be set up to verify the identity and security level of the user attempting to perform the action. For additional security, a secondary approval option is available.

The Arbitration display provides users with the ability to manage equipment resources. Even though equipment arbitration is handled automatically by the Batch Executive, a dedicated equipment arbitration screen offers details about equipment being used by active batches as well as other resources that may be waiting to acquire equipment. From this arbitration screen, users can manually acquire a piece of equipment or reorder the priority list, allowing resources to be made available to a particular batch.

Phase execution may be manually controlled. An operator can acquire and execute a single phase without initiating an entire recipe. Manually executed phases are given a batch ID and the associated batch event data is automatically collected and stored.

In addition to recipe, equipment, and phase control, a user can be prompted to enter data for use by the recipe or manually enter an ad hoc comment to be included with the batch’s history. Such actions can take advantage of the built in verification and approval options. Allowable data types include real, integer, Boolean, string or enumerated entries.

Additional information such as prompt, alarm, and phase summaries is also available and, the tight integration with the Operator Interface provides the user with visual indicators and one button access to batch alarms and messages.

Configuration

If you are adding RMNT to an existing PROVOX batch installation, here are the key configuration steps to get you up and running:

- Define your recipes using the graphical easy-to-use DeltaV Explorer and DeltaV Recipe Studio
- Copy existing PROVOX operations to RMNT operation template (provided with RMNT)
- Use the PROVOX Phase Logic Interface (PPLI) configuration program (provided with RMNT) to map recipe level parameters into operation registers.

Specifications and Limitations

Operator Interface: Recipe Manager NT can support up to 5 Batch Operator Interfaces for each batch executive.

Operation Template: A RMNT compatible operation template is provided along with the RMNT software. New PROVOX operation code should be developed using the template for use with RMNT. Existing PROVOX operations may require modification to conform to the RMNT specific template format.

Software Compatibility: RMNT 3.2 is a software package (no hardware included) that is compatible with DeltaV v5.3 and v6.3.x.

Batch Historian: The Batch Historian provides automated collection of recipe execution data for both DeltaV and PROVOX, and process event data for DeltaV. Batch Historian collection of PROVOX

process event data requires additional configuration. License sold separately.

Campaign Manager: Creates and manages a campaign by specifying the recipe, formula, equipment, and number of batches to be run within the campaign. License sold separately.

Summary

Recipe Manager NT provides a high performance Batch Executive and an intuitive Batch Operator Interface to help you create, manage and run batches simply and effectively on either PROVOX or DeltaV platforms.

Ordering Information

Description	Model Number
Recipe Manager NT Server Software	FSAPS311-3 – Consult your local sales office for ordering details.
Recipe Manager NT Client Software	FSAPS311-4 – Consult your local sales office for ordering details.

To locate a sales office near you, visit our website at: www.EasyDeltaV.com/reach

…or call us at:
Asia Pacific: 65.777.8211
Europe, Middle East: 41.41.768.6111
North America, Latin America: +1 800.833.8314 or +1 512.832.3774

For large power, water, and wastewater applications contact Power and Water Solutions at:
www.emersonprocess-powerwater.com

…or call us at:
Asia Pacific: 65.777.8211
Europe, Middle East, Africa: 48.22.630.2443
North America, Latin America: +1 412.963.4000