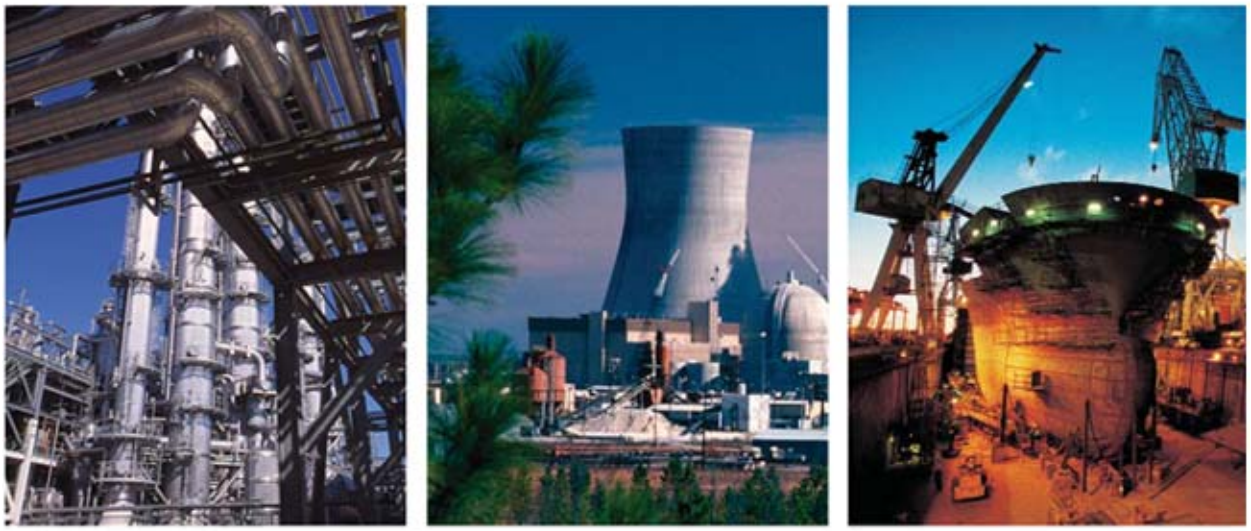
SmartPlant Instrumentation

New Features

Process, Power & Marine



INTERGRAPH

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Preface

This guide describes new features in SmartPlant Instrumentation Version 7.

Send documentation comments or suggestions to PPMdoc@intergraph.com.

New Features in SmartPlant Instrumentation Version 7

Version 7 Service Pack 2

Updating TEF Information in Custom Title Blocks

Update Title Block is a SmartPlant Foundation add-in that allows you to update published SmartPlant Instrumentation reports to the latest revisions and include issue data in the custom title blocks. Also, the add-in converts the published reports with their title blocks from SmartPlant Instrumentation native format (.brw , .ssf, and .spd files) to .pdf files.

Version 7 Main Release

General Features

INtools Name Change

Starting with Version 7, INtools® is known as SmartPlant® Instrumentation Powered by INtools.

New Plant Design Licensing Software

Intergraph® Plant Design Licensing (PD_LICE) software allows you to accurately track how many users are concurrently accessing plant design software. It also helps you comply with your Software Licensing Agreement.

PD_LICE is client/server-based software. One or more central servers can be used to maintain licensing information for all plant design software on a network. The licensing information can be on a single server, but the licenses float so any computer on the network can use them. Both the client computer and the license server must have PD_LICE installed. Because licensing has little impact on computer performance, any computer can be a license server.

Flexible Plant Hierarchy

It is now possible to define a flexible plant hierarchy in a domain and create user-defined names for the plant hierarchy levels. Previously, the plant hierarchy was limited to three levels, and the level names were fixed: Plant, Area, and Unit. Plant hierarchy definition is performed by the Domain Administrator.

HART Instruments

SmartPlant Instrumentation supports the creation and maintenance of HART (Highway Addressable Remote Transducer) instruments. HART technology is one of the first fieldbus digital communication techniques that were implemented in instrumentation. HART is a widely acceptable and recognized standard for digitally enhanced 4-20 milliamp smart instrumentation communication. This technology extends the 4-20 mA standard analog transmission with a superimposed digital signal that contains process and instrument data.

Profibus

In addition to Foundation Fieldbus, SmartPlant Instrumentation supports the creation and maintenance of Profibus systems. Profibus technology is based on a two-level bus hierarchy. Each DP bus can connect up to 32 addressable link hardware devices that link various types of input and output devices. Every link device has a unique node number.

New Property in the Units of Measure Dialog Box

A new property, Critical Pressure, is available for use with process data.

New Units of Measure

The following new units of measure are available:

- kJ/Kg °C - used to define specific heat.
- MW (Mega Watt) - used to define calibration ranges.

PowerBuilder Catalog Tables

PowerBuilder catalog tables have been moved from the Oracle SYSTEM account to the Admin schema of SmartPlant Instrumentation.

Preferences - Reset All

A new command, **Reset All**, is available in the **Preferences** dialog box. This command resets all the preferences to their default values.

Displaying Document Properties

In **SmartPlant Instrumentation Explorer** windows, it is possible to display properties of various documents.

Document Number Assignment

When generating various documents, the software now assigns a document number according to the document number naming conventions. The following documents can have naming conventions: process data, calculation, and dimensional data sheets, specifications, binder packages, and loop drawings.

Changed Documents Option for Comparing Documents

A new option, Changed Documents, allows you to compare different versions of documents where changes were made. You can compare documents where the changes occurred either since the last revision or over a specified date range.

Recording Entity Changes into the Audit Trail Repository

In the audit trail repository, the software now records information about entities associated with a supporting table value that you change. Also, when running SmartPlant Instrumentation on SQL Server or Oracle, the software records information about an entity for which you changed a specific supporting table property.

Telecom

The Telecom functionality has undergone a major change due to the introduction of a new wiring entity called **wiring equipment**. Unlike the previous version, in which telecom equipment was created using a limited "Card with Plug' wizard, this version of the software allows you to define your telecom equipment structure as it exists in reality. For example, it is possible to build PABX with their racks, switches, ports, and channels. Also, using the **Domain Explorer**, the software provides an easy way to navigate to the telecom equipment connected end points (phones) or see the associated phone numbers.

Versions of Sybase Adaptive Server Anywhere

There are two version of Sybase Adaptive Server Anywhere: full and runtime. The media for a multi-user version of SmartPlant Instrumentation only includes the runtime version of Sybase Adaptive Server Anywhere, which cannot be used as a database engine for SmartPlant Instrumentation. The media for SmartPlant Instrumentation Stand-Alone for Sybase includes a full version of Sybase Adaptive Server Anywhere database engine. The database engine is automatically installed as part of the SmartPlant Instrumentation Stand-Alone for Sybase installation when the SmartPlant Instrumentation Stand-Alone for Sybase media and serial number are used.

SmartPlant Instrumentation Explorer

The **SmartPlant Instrumentation Explorer** provides a new way of working with SmartPlant Instrumentation entities by allowing you to access and manage all the entities that exist in SmartPlant Instrumentation. SmartPlant Instrumentation features several views of the **SmartPlant Instrumentation Explorer**. The name of each explorer view reflects the function of that particular explorer view. The following explorer views are provided with SmartPlant Instrumentation:

Domain Explorer

This view of the **SmartPlant Instrumentation Explorer** allows you to create and manage your current domain entities. You can perform almost all the actions that are possible in the SmartPlant Instrumentation modules. For example, you can create new tag numbers, edit their properties, create and edit wiring entities, open the **Connection** window to make wiring connections, generate various data sheets, reports, and so forth. Also, you can copy entities from the **Reference Explorer** and in this way create entities based on reference configurations on the fly. The **Domain Explorer** displays instrumentation entities according to hierarchical structure. You can arrange the hierarchical structure of the data according to the entity types, the physical location of the entities, or the entity sequence within their parent entity.

Reference Explorer

The **Reference Explorer** allows you to create and manage all the available wiring reference entities that are created by SmartPlant Instrumentation users and that are provided with the software. Reference entities are typical wiring configurations that facilitate rapid creation of various wiring entities in your domain. Note that the **Reference Explorer** replaces the Default Panel Manager and Default Cable Manager in the Wiring module. To create wiring entities on the fly based on reference entities, drag a reference entity from the **Reference Explorer** to the **Domain Explorer** or the **Wiring Explorer**. The software also allows you to copy a wiring entity to the **Reference Explorer** from either the **Domain Explorer** or the **Wiring Explorer**.

Wiring Explorer

This view of the **SmartPlant Instrumentation Explorer** is specific to the Wiring module and it can contain wiring entities only. Note that the **Wiring Explorer** replaces the Plant Panel Manager and Plant Cable Manager in the Wiring module.

Loop Explorer

This view of the **SmartPlant Instrumentation Explorer** is specific to the Loop Drawings module and it can contain loops, instruments, and blocks. Note that the **Loop Explorer** replaces the Loop Manager in the Loop Drawings module.

Hook-Up Explorer

This view of the **SmartPlant Instrumentation Explorer** is specific to the Hook-Ups module and it can contain hook-ups, hook-up types, and hook-up items. Note that the **Hook-Up Explorer** replaces the Hook-Up Manager in the Hook-Ups module.

Document Explorer

This view of the **SmartPlant Instrumentation Explorer** is specific to the Document Binder module and it can contain documents with document numbers, specification sheets, process data sheets, enhanced reports, and external documents such as Word or Excel files.

Administration Module - Domain Administrator Activities

Access Rights Updates

Access rights that were available for selection in the **Access Rights** window but were not in use have been removed. Also, duplicate access rights that applied to the same entity or activity have been combined into one setting. Furthermore, various access rights labels were renamed to match interface changes implemented in Version 7.

The access rights FIELDBUS (domain level) and SEGMENTS (plant level) have been combined into one entry FIELDBUS SEGMENTS (plant level). The full access right setting enables the Wiring module users to create fieldbus segments in the **Segment Manager**.

Copying Custom Fields

When copying custom fields from one <plant> to another, the software now copies all of the custom fields available in the source plant. Previously, you could only copy custom fields for a specific entity/data type selected in the **Custom Fields** dialog box.

Copying Specifications by Entity Type

When copying data from one plant hierarchy level item to another, you can now either copy all specifications or select specific entity types of specifications.

Copying Tag Cases when Copying Specification Data

When copying specification data from one plant hierarchy item to another, the software now includes tag cases.

Custom Fields for Plant Hierarchy Items

You can now define custom fields for plant hierarchy items. Items on each plant hierarchy level can contain up to twenty custom field values.

Document Number Naming Conventions

It is now possible to define a document number naming convention for various documents, such as loop drawings, specifications, process data and calculation sheets, and so forth.

Generating Reports for Reserved Tags and Loops

It is now possible to generate a report that displays all the tag numbers or loop numbers that have been reserved in the projects of the current Operating owner domain.

Indicating Maximum Number of Custom Field Characters

In the **Custom Fields** dialog box, the software now indicates for each field the maximum number of characters that users can specify in SmartPlant Instrumentation. If needed, you can decrease the maximum allowed number of characters.

Loop Number Numeric Segment in the Flexible Naming Convention Standard

When defining tag number naming conventions using the Flexible standard, you can now select the LOOP NUMBER setting.

Managing Module Icon Preferences

When managing SmartPlant Instrumentation preferences, you can now restrict the ability of other users to add or remove module icons.

Plant Hierarchy Items as Naming Convention Segments

When defining naming conventions for an entity type or for a document number, you can now select names of plant hierarchy items as naming convention segments.

Report Management for Specifications and Dimensional Data Sheets

Revision archiving options and other report management options for specifications and dimensional data sheets have been moved to the **Report Management** dialog box.

Saving Revision Data per Report Type

You can now set the software to save all revision data for all reports of the specified type. To display changes reports, in the **Report Management** dialog box, select the **Save Document Data** check box.

Source <Unit> for Copying Naming Conventions

You can set a specific <unit> as a source <unit> for copying naming conventions to new units. This feature allows you to copy all the naming conventions that exist in a specific <unit> to every new <unit> that you create using the **Plant Hierarchy Explorer**.

Wiring Entities Naming Conventions

It is now possible to define naming conventions for various wiring entities. The new wiring entity types available in the **Naming Conventions** dialog box are as follows:

- Cabinet
- DCS
- I/O Card
- I/O Termination
- Junction Box
- Marshaling Rack
- PLC
- Rack
- Wiring Equipment

Also, there are many new segments that you can select when defining naming conventions of wiring entities.

Administration Module - System Administrator Activities

Enabling or Disabling the Use of the Default Plant

The System Administrator can enable or disable the use of the default plant in a domain. When the use of the default plant is disabled, the plant DEFAULT and all its hierarchy levels do not appear in the **Plant Hierarchy Explorer**.

Restricting Claims of Same Entities to One Project Only

When making definitions for an Operating owner domain, you can now restrict a Project Administrator to claim the same entity only for one specific project created in the domain. Previously, it was always possible to claim the same entity for more than one project.

Administration Module - Project Administrator Activities

Changed Documents Report

Prior to merging project data with AsBuilt, you can generate a Changed Documents report to display changes made to document revisions. The changes are shown in the report columns **Project Revision** and **AsBuilt Revision**.

Changed Entities Report

Prior to merging project data with AsBuilt, you can now select and entity type and generate a Changed Entities report. The report displays entities that have been changed in the project or AsBuilt, new entities that have been created in the project or AsBuilt, or entities that have been deleted from the project or AsBuilt.

Claiming or Merging Serial Interface Loops

It is now possible to claim or merge serial interface loops (conventional). A serial interface loop is a loop with a serial interface I/O type, which is a multiplexer containing several tags or a conventional I/O type. When performing I/O assignment of the SI (serial interface) signal, the software also creates control system tags for the input tags associated with the serial interface loop. Previously, when selecting a serial device loop for claiming or merging, the software only selected the loop tags but not the tags and wiring of the tags associated with the serial interface device.

Claiming or Merging Tag Class Data

The software now includes tag class data when claiming or merging entities.

Copying User Groups from AsBuilt

When creating a new project in an Operating owner domain, the software now prompts you to copy user groups from AsBuilt. Prior to Version 7, the project was automatically created with only one user group (that is, the group to which the project administrator belonged).

Displaying Entities Claimed for Other Projects

Before merging specific project data with AsBuilt, you can now check which entities have been claimed for other projects. To do so, in the **Project Explorer**, you select an entity type and generate a Changed Documents report. The **Claimed For** column of the Changed Documents report displays the names of the projects for which the entity associated with the document have been claimed.

Explorer Windows for Claiming and Merging Entities

You claim and merge entities using explorer windows. When defining a scope of entities for a project, you can select entities in the **AsBuilt Explorer** and copy them to the **Claim Buffer**. The **Claim Buffer** displays entities according to hierarchical structure, the way they appear in the **AsBuilt Explorer**. The software copies the entities according to preferences that you set. After you claim the entities, the software displays the claimed entities in the **Project Explorer**.

When merging project data with AsBuilt, you select entities in the **Project Explorer**, and then copy them to the **Merge Buffer**, from which you can merge all the entities in batch mode.

Keeping Track of All Claim and Merge Sessions

If you specified a path the software to create a log file and individual .psr files with information on claimed or merged entities, in the same path, the software now also creates a .zip file that includes the log file and the .psr files. This way you can keep track of all claim or merge sessions that you perform. The incrementing number of the file name is incremented by one each time you claim or merge entities.

'Merge Later' Merge Action for All Entities

From Version 7, all entities that users create in a project are automatically assigned to the Merge Later action. Therefore, when defining a scope of entities for merging with AsBuilt, for entities that you do not want to merge, you no longer need to change a merge action from Merge Now to Merge Later.

New Backup Database for AsBuilt

A special database named INtoolsab.db is the backup repository that you can use for making a project backup. You can only backup a project to the INtoolsab.db database, or to a clean copy of this database, provided that the name of the copy is also INtoolsab.db. You can use this database only for restoring data in a project.

Preferences for Claiming and Merging Entities

You can now set preferences for claiming and merging entities, and the associated sub-entities. The software saves these preferences for the entire Operating owner domain, so that the same preferences apply in all the projects and in AsBuilt. These preferences do not affect user preferences defined in the **Preferences** dialog box.

Project Export for Backup

You can now make a backup of a specific project. This is possible if you export project data to the INtoolsAB.db database or its copy. INtoolsAB.db is a new database that comes shipped with SmartPlant Instrumentation. This database already contains an Operating owner domain.

'Release Claim' Merge Action Only for Entities Existed in AsBuilt

When defining a scope of project entities for merging with AsBuilt, you can no longer assign the merge action Release Claim to new entities that users created in the project.

Browser Module

New Browser Available for Auto-Wiring Tasks

In addition to the Instrument Connection Pre-Assignment Browser, you can also use the Advanced Instrument Connection Pre-Assignment Browser for performing auto-wiring tasks.

Power Supply Fields Available in Browsers

In the Instrument Index Standard Browser, the Tag Number Browser, and the General Panel Browser, power supply data fields are now available for inclusion in the browser views.

Selecting a Wire Color for a Cross-Wire Cable

The software allows you to select a wire color for a cross-wiring cable in a Wire browser view.

Calculation Module

Case Names Calculation Reports

Calculation reports now display case names just like in process data reports.

Custom Title Blocks in Calculation Reports

Calculation reports have been redesigned so that the custom title blocks are handled in a manner similar to other reports.

Calculation Reports and Changed Process Data

If you open a calculation report for an instrument whose process data has changed, the calculation report shows an indication that the process data for the current instrument has changed and the calculation values may be out of date.

Searching for Tag Numbers

When generating a calculation report, it is now possible to search for tag numbers in the entire plant of the current domain.

Calibration Module

Delete Calibration Data

In the Calibration History option, you can now delete the entire calibration data, such as in the case where you replace an instrument.

Filter Tags for Instrument List Report by Tag Category

When retrieving tag number data for display in an Instrument List report, you can now filter the data using the tag category as a filter parameter.

Fluke Interface

A new interface is available for exporting settings from SmartPlant Instrumentation to the Fluke 743B / 744 Documenting Process Calibrators and for importing calibration results.

DBChecker Utility

Problem Description Display

The DBChecker Utility now displays defective rows and problem descriptions, and also allows you to select fixes that you want to implement.

Providing Specific SQL statements for Fixing Database Problems

The DBChecker Utility now enables you to fix problems in your database by running specific SQL statements without having to contact Intergraph Support. You can either fix the problems on the fly or create a file that contains suggestions for fixing the selected problems. It is highly recommended that you back up your database before implementing the fixes because in certain cases, the SQL scripts delete data based on the known format of the SmartPlant Instrumentation data model and data content. In most cases, the changes are irreversible. If your database contains data that does not comply with the SmartPlant Instrumentation data model, some changes may lead to unexpected results.

Dimensional Data for Piping Module

Finding a Specific Dimensional Group

In the **Select Dimensional Group** dialog box, you can now find a specific dimensional group.

IWFE Group Picture Notes

Additional notes have been provided for the picture of the IWFE group.

New Dimensional Groups in the Shipped DDP library

The following dimensional groups have been added to the DDP library that is shipped with SmartPlant Instrumentation:

- Displacer Level Instrument - Top mounted
- Displaced level instrument - Side mounted
- Displaced level instrument - Middle connection
- Displacer level instrument - Two point connection
- Level Switch
- Level Gauge
- Magnetic level Gauge

Printing Dimensional Data Sheets in Batch Mode

You can open a print preview of one or more dimensional data sheets and print dimensional data sheets in batch mode.

Printing Empty Sheet Forms

You can print empty sheets forms associated with dimensional groups. An empty sheet form is a form that does not contain any values. Such a form only displays the names of the fields and dimensional properties, and also display the dimensional group diagram.

Document Binder Module

Improved Functionality for Document Binder Module (Formerly the Spec Binder Module)

The term 'Technical Specification' has been changed to 'binder package'. In addition to specification binder packages which contain instrument specifications, you can now create general document binder packages, which can contain a various types of documents, including any SmartPlant Instrumentation document that has a document number, specification sheets (including instrument specifications), process data sheets, enhanced reports and external documents such as Word or Excel files.

Ability to Print Associated Documents

When printing specification binder packages, the software can also include associated documents in the print-out.

Domain Initialization and Backup

Changing the Password of the View-Only Domain Schema

It is now possible to change the password of the View-Only Domain schema. You can change the password when initializing a new domain. The View-Only Domain schema enables viewing data for users of report generators, such as Microsoft Access and InfoMaker.

Copying User-Defined Database Views

When initializing a domain using another domain as a source, the software now copies user-defined database views that exist in the source domain. Before initializing a new domain, in a source domain, the Domain Administrator can make a list of user-defined database views that will become available in the target domain.

Initialization from the Command Line

It is now possible to initialize a domain from the command line, by specifying additional parameters. For example, if your Operating System is Windows 2000, you specify these parameters in your Windows Server Task Scheduler.

Initialization Process Resumption

It is now possible to resume an initialization process that was not completed due to a software error.

New Backup Repository

A special database named INtools_Backup.db is the backup repository that you can use for making a domain backup. You can only backup a domain to the INtools_Backup.db database, or to a clean copy of this database, provided that the name of the copy is also INtools_Backup.db. You can use this database only for restore tasks or for initialization of a new domain.

Engineering Framework

Retrieval of Process Data

SmartPlant Instrumentation is now able to retrieve process data from SmartPlant Foundation along with instrument retrieval.

Correlate Default Plant

When retrieving a PBS document for creating a new plant in SmartPlant Instrumentation, you can specify whether the software creates the hierarchy in an entirely new plant or under an existing plant.

Multi-Tag Instrument Specifications Supported in Operating Owner Projects

The multi-tag instrument specification format that is available in AsBuilt is now also common to all of the projects in the domain.

Plant Registration and Retrieval Moved to Admin

The operations for registering and retrieving plants has been moved to Domain Administration. Previously, these tasks were performed from the main application on the **Framework** menu.

Handling of Multi-Design Tasks

When working using a multi-design basis, the software is able to handle multiple instances of the same object when retrieved using documents from different source tools.

Register Entities for Operating Owner Domain with Projects

You can now register entities for an Operating Owner domain that already has projects. Registering entities also handles the following problems where the database, for one reason or another, is not synchronized with the object registry:

1. An object was deleted, but was not marked as terminated in the object registry.
2. An object was claimed, but this is not indicated in the object registry.
3. A new object or relationship was created in SmartPlant Instrumentation, but this is not indicated in the object registry.
4. The object registry was flushed.

Enhanced Reports

Name Change for Enhanced Report Utility (formerly SmartPlant Report Generator)

The SmartPlant Report Generator has been renamed to Enhanced Report Utility. This name change reflects the broader functionality for the software that now allows you to do more than just generate reports - you can define custom symbols for various entities and you can move graphical elements to any desired position on a drawing sheet and save them there so that they will always appear in the set position whenever you generate the report.

New Layout Reports

New enhanced reports are available for specifying the following layouts: Location Layout, Panel Layout, and Rack Layout. You design the symbols for these layouts in the Symbol Editor. For Panel Layout and Rack Layout reports, you specify the starting points for the sub-entities that appears in each report (racks in the Panel Layout report and I/O cards / slots in the Rack Layout report). Using the **Generate Entity Report** command, you can select a panel in a Location Layout report and display its Panel Layout report, if available. Likewise, you can select a rack in the Panel Layout report and display its Rack Layout report, if one exists.

New Generation Method: By Custom Symbols

A new generation method, 'By Custom Symbols', is available for Enhanced SmartLoop reports and Fieldbus Loop reports. Using this method, you can specify custom symbols that you create in the Symbol Editor to represent the entities in the generated report instead of the standard symbols. Each wiring entity includes in its **Properties** dialog box a new tab, **Associated Symbols**, where you can specify the symbol for each available enhanced report. A major difference between this generation method and the other methods is that each wire is represented individually by a continuous line between both of its connections, whereas with the By Loop or By Signal methods, wires are grouped within a cable set and its cable. The new method provides greater flexibility in the representation of the loop but on the other hand, requires more preparation work and symbol creation skills.

Create Enhanced Reports by Dragging Entities

In the Enhanced Report Utility, after you associate a wiring entity with a symbol file, you can create an enhanced report drawing by displaying the **Domain Explorer** and dragging that entity onto the drawing sheet. This feature applies to reports that use the 'By Custom Symbols' generation method and also to layout reports. In addition to providing the flexibility to specify the exact location of each entity on the drawing sheet, this feature also allows you to use custom symbols to represent panels, strips, and terminals, or more complex wiring equipment entities such as I/O channels and apparatuses.

New Symbol Editor Utility

A new utility, the Symbol Editor, allows you to design custom symbols for use in layout reports and in reports that use the 'By Custom Symbols' generation method. With this utility, you can create symbols, assign an entity type to a particular symbol, and add macros to the symbol representing properties of the entity itself and of its parent entities. You can define symbols that contain other symbols with their macros. You can also place connection points on terminal symbols and add for those connection points macros for cable- and wire-related properties.

Accessing the Domain Explorer from the Enhanced Report Utility

It is now possible to display the **Domain Explorer** from the Enhanced Report Utility. This feature allows you to perform directly from the Enhanced Report Utility many of the activities that are available in SmartPlant Instrumentation, such as editing the properties of an entity, assigning custom symbols to an entity, specifying the generation method, and assigning a symbol on a drawing sheet to a particular entity.

Locating an Entity in the Domain Explorer

A new option is available that allows you to locate an entity in the **Domain Explorer**. After you select the entity on the drawing sheet, you click **Actions** > **Entity** > **Find in Domain Explorer**, and the software expands the tree view if necessary and displays the selected entity.

Opening Archived Enhanced Reports

From SmartPlant Instrumentation, you can select any entity for which it is possible to generate an enhanced report, right-click the entity, and on the shortcut menu, click **Actions** > **Open Archived Enhanced Reports**. You can then select an archived revision, if available, and open the enhanced report associated with that particular revision.

Comparing Archived Enhanced Reports

In the Enhanced Report Utility, a new command, **Actions** > **Compare Reports**, allows you to compare the current enhanced report with one that was previously archived, or to compare two archived enhanced reports.

Generating Other Enhanced Reports for a Selected Entity

In an enhanced report, you can select an entity and, using the **Generate Entity Report** command, display any other type of enhanced report that is available for that entity. For example in a Room Layout report, you can select a panel and open its Panel Layout report, if defined.

Associating Wiring Entities

When generating a loop using the 'By Custom Symbols' generation method, it is now possible to make wiring connections directly from the Enhanced Report Utility. After placing the required terminals on the drawing, you specify which terminals should be connected using the **Activate Connection Mode** command and then identify the exact wire to be used for this connection. Next, you implement the **Associate Wiring Entity** command to connect the wire between the selected terminals.

Dissociating Wiring Entities

It is now possible to disconnect existing wiring connections directly from an enhanced report.

New Save Custom Changes Command

The **Save Position** and **Save to Database** menu commands have been merged into a single command: **Save Custom Changes**. This option not only allows you to save additional macros, SmartText , and redlining items, but also to maintain the layout of the symbols on the drawing sheet each time you generate an enhanced report for a selected entity.

Enhanced Report Layouts - Maximum Title Block Size

A new option is available in the enhanced report layout properties for specifying the maximum size of the title block on the drawing sheet. This option allows you to ensure that the title block does not overlap graphical elements on the drawing sheet. The parameters you enter affect the height or width of the title block according to the specified alignment.

Enhanced Report Layouts - Row and Column Spacing

A new option is available in the enhanced report layout properties for specifying row and column spacing on the drawing sheet when working with reports that use the 'By Custom Symbols' generation method. This option provides you with the flexibility to determine the size of graphical items that the software displays in the report.

Enhanced Report Layouts - Connector Symbol Properties

A new option is available in the enhanced report layout properties for specifying the line style, width, and color used to represent connector properties. You can define separate settings for different entities such as cables, cable sets, wires, shields, and so forth.

New Single Speaker Report Layout

A layout is now available for the Enhanced Single Speaker report.

New Wiring Macros that Retrieve Related (Parent) Wiring Information

Wiring macros for a particular entity can retrieve information for its parent entities. When placing macros for wiring entities in an enhanced report or when designing custom symbols, apart from selecting the macro type and its property, users may need to select an appropriate relation that corresponds with the actual construction of the wiring arrangement in order to retrieve the desired information.

New Custom Control System Symbols by Manufacturer

A new option is available allowing you to display custom symbols for a control system according to the specific panel manufacturer in Enhanced SmartLoop reports. You can define the symbol files for the header, details, and secondary header in the **Panel Manufacturers** dialog box.

New Last Change Date Macro

A new macro available in enhanced reports allows you to display the date of the last change made to the report. To display this information, you select macro type CHANGES and macro LAST CHANGE DATE.

Multiple Language Support for Enhanced Reports

The software now supports multiple languages in enhanced reports. The following resource files, located in the RAD folder, contain the text strings for translation: SmartPlantEN.dll, ESLAboutEN.dll, and SEAbout.dll. Using a suitable editing tool, you can translate the strings to the target language, and if necessary, change the font and the font size. Afterwards, you replace the files in the RAD folder with the files containing the translated text.

Support for Regional Settings

The software now supports macro attributes using regional settings other than English, for example, decimal separators and date formats.

Option to Save to File Only

When generating enhanced reports and also for loop drawing generation, a new option is available that allows you to save the reports to a folder instead of printing them to a printer. You can set a separate default path in the **Preferences** dialog box for each generation method and override the default setting at generation time if desired.

Specify Starting Page for Printing Enhanced Reports

You can now specify the starting page when printing an enhanced report.

New Catalog File for Standard Symbols

A new Excel file, SymbolsDescription.xls, is available, with a catalog of the standard symbols available when generating enhanced reports. The catalog does not include symbols that the software displays when working in custom symbol mode.

Hook-Ups Module

Batch Deletion of Hook-Up Types

It is now possible to delete hook-up types in batch mode.

Filtering of Tags for Hook-up Tag Assignment

In the **Assign Tag Numbers to Hook-Up** dialog box, you can now filter the display of tags by tag properties, such as tag number segments, service, process data state, and so forth.

Independent Hook-Up File Location Settings

File location settings for hook-up drawings and blocks no longer depend on preferences set for file locations of CAD loop drawings. Hook-up-specific settings are now available in the **Preferences** dialog box, on the **Hook-Ups** > **File Locations** page.

Item Manufacturers Supporting Table

Item Manufacturers is a new supporting table available in the Hook-Ups module. This supporting table holds your current hook-up item manufacturer information and allows you to control the content of the **Manufacturer** lists in the **Item Properties** dialog box.

Preferences for Associating Hook-Ups with Tag Numbers

You can now set the preferences for hook-up - tag number associations as follows:

- Restrict each tag number assignment to one hook-up only.
- Restrict each tag number assignment to hook-ups of one type only.
- Allow unrestricted tag number assignment to any hook-up.

Preventing Field Modification in BOM

It is now possible to prevent users from modifying fields in the Bill of Material report print preview. In the **Preferences** dialog box, on the **Hook-Ups** > **Reports** page, you can clear the **Enable the use of edit mode** check box.

Retrieving Tag Service Settings and P&ID Reference Drawing Numbers

In a hook-up drawing, you can now retrieve tag service settings and P&ID reference drawing numbers associated with the hook-up tag numbers. To retrieve a tag service setting, you can use the TAG_SERV macro, which previously was only available for loop drawings. To retrieve the P&ID reference drawing number, you can use the TAG_P&ID macro - a new macro added in the **Instrument** macro type. In the Hook-Ups module, you can modify the name and description of this macro and assign a macro function.

Retrieving the Old Number of the Instrument Tag

The macro definition TAG_OLD is now available for hook-up drawings. You can use this macro to retrieve the old number of the instrument tag (that is, the tag number you renamed, modified, and so forth).

String Length of Hook-Up Item Number and Storage Number

The number of characters you can add for the hook-up item number and storage number strings has been increased to forty.

"Unsupported CAD version" Message

Hook-Ups module users who do not use hook-up drawing generation options no longer receive the "Unsupported CAD version" message when opening the module.

Unit of Measure Code Assignment

It is now possible to assign a unit of measure code to a hook-up item. You can set preferences to display unit of measure codes instead of names in the **Item Properties** dialog box. Previously, you could only assign unit of measure names.

Import Utility

Change in IDs Used to Determine Wiring Entity Uniqueness

Technical note: The software no longer uses multiple columns to identify wiring entities uniquely. The wiring entities that are affected include panels, strips, terminals, cables, cable sets, and wires.

Preliminary Function can use Excel Sources

When using preliminary functions for mapping instrument type data, you can use Excel files as well as DBF or text files for the data source.

New Comparison List Report

A new Comparison List report is available that displays the values of individual properties in the source and target databases where those values differ.

Map Source and Target Data by Clicking Source Fields

You can now assign source-target field mapping by placing the cursor in the target row and then selecting in turn the source fields that you want to map. This method is available in addition to being able to drag the source values to the target.

Instrument Index Module

Defining a Fieldbus Instrument Type Profile

The software allows you to define fieldbus instrument type profiles, so that fieldbus instruments that you create accurately acquire the necessary properties. You can define a DC consumption value, capacitance, minimum transmit level, as well as the default operating voltage. Other default settings include a fieldbus tag name, fieldbus device address, and device identification. Also, you set the instruments based on this profile as backup link masters.

Defining a Functional Requirement for a Loop

The software allows you to define a functional requirement for a selected loop number. Functional requirement is the combination of loop function and process function data for a specific loop.

During the early stages of a project, the loop functional requirements are known. However, the functional requirements for the project devices are not known yet. To make cost estimations during the early stages of your project, you need loop functional requirements that contain process data, such as loop number, DN, pipe specifications, and so forth. Later on in your project, you can copy these functional requirements to the real devices.

Detailed Instrument Type List Report

If an instrument type profile contains several reference cables defined on the **Wiring and Control System** tab of the **Instrument Type Profile** dialog box, the **Detailed Instrument Type List** report now includes all the specified reference cables. The report displays these reference cables in separate rows.

Renaming a Loop Drawing File

When renaming a loop, the software now automatically suggests a new loop drawing name based on the new loop name. This feature works if you select the **Rename drawing file name when renaming the loop** preference setting on the **Rename** page of the Instrument Index preferences.

Skipping Loop Creation When Creating Virtual Tags

The software now allows you to set a preference that lets you create virtual tags for Foundation Fieldbus and HART instruments without being prompted to create a new loop.

Sorting the Records in the Custom Tables

The software now allows you to sort the records in custom tables according to name or description by double-clicking a column header.

The Load (watt) Field in Telecom Tag Properties

The **Load (watt)** field on the **Telecom** tab of the **Tag Number Properties** dialog box has become a numeric field. Note that the software will not retain any non-numeric values that you type in this field.

Interfaces - SmartPlant Electrical Interface

Ability to Sort and Filter SmartPlant Electrical Panels

In the Instrument Index Standard Browser, you can filter or sort panels by using the Tag Class property to specify panels that have been created from SmartPlant Electrical data. For these panels, the property has the value 'Electrical Signal Tag'. In

the Explorer tree view, SmartPlant Electrical panels are organized in a separate folder.

Ability to Define Default Folder for XML Files

In the **Domain** dialog box in the Administration module, you can now define a default folder for the ContextMap.xml and IntoolsMap.xml files used for publishing data to TEF or to one of the interfaces that uses the SmartPlant Foundation engine.

Ability to Define Default Output XML Folder

In the **Preferences** dialog box, the option for defining a default folder for published .xml files when working in File mode has been moved to the **Framework**, **General page**.

Ability to Display SmartPlant Electrical Schematic Drawings for Tag Signals

In the Instrument Index Standard Browser view, when you select a tag number and open the **Documents** window, a new option, **SPEL Schematics**, is available. When you select this option, the software displays the SmartPlant Electrical schematic drawing associated with the signal for the selected tag number.

Ability to Publish I/O Card Terminals per Signal

In the Instrument Index Standard Browser, you can filter or sort terminals for an I/O card based on the tag signal associated with those terminals.

Ability to Display Enhanced SmartLoop Reports in SmartPlant Electrical

In SmartPlant Electrical, it is possible to display an Enhanced SmartLoop report together with the schematic for any item with a signal that can be recognized in SmartPlant Instrumentation.

Interfaces - SmartPlant P&ID Interface

Support for Case Data in the SmartPlant P&ID Interface

The SmartPlant P&ID interface can now handle source items that include case data.

Support for Data Fields with Units of Measure in the SmartPlant P&ID Interface

The SmartPlant P&ID interface can now handle source strings that comprise a numeric value and a unit of measure. SmartPlant Instrumentation is able to separate these strings into two separate fields as required when retrieving the data.

Interfaces - Yokogawa CENTUM CS 3000 Interface

Interfaces - Yokogawa CENTUM CS 3000 Interface

A new interface is available which allows you to share data between SmartPlant Instrumentation and the Yokogawa CENTUM CS 3000 plant automation and control system. You retrieve CENTUM CS 3000 I/O card configurations, then after configuring the system in SmartPlant Instrumentation, you can publish it back to the Yokogawa application. You can then publish the information to the Yokogawa application and retrieve information from CS 3000 back to SmartPlant Instrumentation.

Internal Setup

Creating Database Profiles on the Registry Entry Level

In the Internal Setup Utility, you can now create a database profile on the registry entry level of the current user so that only the current user working on this machine can connect to the SmartPlant Instrumentation database using this profile.

Loop Drawings Module

Batch Save of SmartLoop Drawings

You can now save a batch of generated SmartLoop drawings as .dxf files, using the appropriate option in the **Print Preview** window.

Disabling the Use of SmartLoop Drawing Options

When setting Loop Drawings module preferences, it is now possible to disable the use of SmartLoop drawing options in SmartPlant Instrumentation.

Displaying a Path and File Name for the Drawing Prior to Generation

When you define or modify loop drawing properties, the software now displays a source path for the drawing that you want to generate, and also displays the file name of the graphic image associated with the current loop drawing.

Displaying Notes Inserted in Entity Specifications

A loop drawing can now display notes inserted in entity specifications. To do so, you can use a new macro SPEC_NOTE. The default macro definition spec_note belongs to the SPEC NOTE macro attribute.

New Macros for Retrieving Process Data

For each process function, (control valve, flow, level, and temperature) new macro attributes have been added. The macro attributes contain new macros for process data. The following macro attributes have been added:

- Alarm High High High
- Alarm Low Low Low
- Trip Low
- Trip Low Low Low
- Trip High
- Trip High High High

Sharing Document Numbers

When defining or modifying loop drawing properties for a specific loop, the software no longer prevents you from sharing the same document number name with other loops. Previously, the document number name setting had to be unique.

Process Data Module

Adding Analyzer Tag Numbers

When adding a new analyzer tag number from the **Complex Analyzer Tag Manager**, the software filters the instrument types in the **Select Instrument Type** dialog box and displays only those instrument types that are suitable for analyzer tag numbers.

General Process Function

The software now supports process data for instruments that have the General process function.

Seat Leakage for Control Valves

There are four additional values in the **Seat Leakage** list of a control valve process data sheet.

Single Tag Reports

The software now generates single tag reports with title blocks.

Sheet Numbering

It is now possible to set sheet numbering in a process data sheet.

Title Blocks on Process Data Documents

The software now allows you to add a title block on process data documents.

Reports and Revisions

Applying Revisions per Document or per Entity

In the **Revisions** dialog box, the software now displays the revision management setting that the Domain Administrator has defined. The revision management setting determines whether the software applies revisions per document or per entity. Revision management settings are assigned per report in the Administration module, and depend on the report type. The ability to select revisions per entity applies to the relevant reports only.

Global Revision for Dimensional Data Sheets

In the **Global Revisions** dialog box, it is now possible to set and manage global revisions of dimensional data sheets.

New Changes Report Options

Changes reports can now include the date and user name if these have changed for a revision.

New Filter Options for Global Revisions

You can now filter documents for each module available under global revisions according to documents that changed since the last revision or over a specified date range. After displaying the results, you can select documents and display a changes report comparing the old and new data values or assign a new revision to the selected documents.

New Reports Available for Report Management

The following instrument index reports have been added in the **Report Management** dialog box, where the Domain Administrator can define revision management settings and revision archiving options, and apply custom title blocks to reports.

- Rated Voltage
- Frequency
- Operating Modes
- Instrument Criticality
- Number of Phases
- Custom Tables

New Revision Save Options in Report Management

Revision save options for Document Binder Module and Construction Module reports are now available in the **Report Management** dialog box.

Performance of Global Revisions for Panel-Strip Reports

The performance of global revisions for Panel-Strip reports has been improved.

Revision Level Based on Report Management Settings

In the Global Revisions dialog box on the tabs for the modules, the software now uses the revision management setting that the Domain Administrator has defined. The revision management setting determines whether the software applies revisions per document or per entity. Revision management settings are assigned per report in the Administration module, and depend on the report type.

Revision Name Length

The number of characters you can use in a revision name has been increased from four to eight.

Save as Excel

Custom Title Block Display

If a spec title block is a custom title block, in the generated Excel file, the software now displays this title block successfully.

Multi-Tag Spec Support

Save as Excel now supports multi-tag specs for which you changed the format.

Specifications Module

Ability to Indicate Revision Changes on Specification Sheets

Changes to specification sheets made between revisions are now indicated by means of a triangle with the revision number inside.

Assigning a Custom Title Block to All Specs

The Specifications module now supports the method of title block assignment that is used across all reports in other SmartPlant Instrumentation modules. This means that you can use a specific custom title block in all specifications. You can specify the file SPECS DEFAULT TB WITH PB UNITS.PSR as your title block for specs, or use any other custom title block that you create. Note that the SPECS DEFAULT TB WITH PB UNITS.PSR title block is supplied as a sample, and is only suitable for specifications.

Creating Individual Specs for Each Instrument Process Data Case

It is now possible to create a specification for each instrument process data case, not only for the governing case. After creating a first specification for a particular case, if you want to create other specs for the remaining cases of that instrument, you need to assign the same spec form to all of these specs.

Data Import in Batch Mode

You can now import data from external files to instrument specifications in batch mode. First, you specify a source file folder, and then select the .isf files from which you want to import data. The software imports data to instrument specifications by matching the tag numbers in the source .isf files and target specifications that exist in SmartPlant Instrumentation.

Default Folder for ISF Files

You can now specify a default folder for .isf files. You can set the software to display this folder automatically in all dialog boxes where you need to select a folder for importing data from .isf files, or for exporting data to .isf files.

Displaying Process Data in Specs with the General Process Function

Tags with process function General can now have process data. As a result, you can display process data in an instrument specification that is based on a form with process function General. To do so, you need to regenerate an existing form with process function General after upgrading to Version 7.0. Also, a multi-tag specification can now display process data.

Displaying the Number of Headers when Editing or Adding Headers

When editing headers or adding headers to a multi-tag format, the software now displays the number of the headers that you selected. Also, the software displays the maximum allowed number of headers that you can select (200 headers).

Functional Requirement Specification

It is now possible to generate a functional requirement specification. A functional requirement specification is a specification that consists of the main page with the loop number data, individual pages associated with the loop tags, and the note page, which is created automatically and refers to the loop number only.

Indicating Default Columns in the Form Data Template Editor

If in the **Spec Data Dictionary**, you select specific default columns for a form, and then, in the **Form Data Template Editor**, open a form data template that is based on this form, the software now visually indicates the default columns which you can use. The columns that you did not select in the **Spec Data Dictionary** are displayed as disabled.

Indicating the Column Type when Displaying Table Columns

In the **Page Editor**, when you display table columns that you can select and add in a page, for each column, the software now shows the column type and the maximum number of characters that you can use in the column.

Moving Tags from a Multi-Tag List to Another Spec

It is now possible to move tags from the currently open multi-tag list to a multi-tag list in another specification. You can either create a new specification and move tags

from the currently open multi-tag list to the multi-tag list in another specification, or move tags to the multi-tag list of an existing specification.

Notification About Process Data Changes

You can now set the software to notify about process data changes only when the specification has a revision.

Overwriting Column Headers in Batch Mode

On the **Field Properties** tab of the Spec Data Dictionary, you can now select a source spec form for overwriting all of the currently displayed column headers.

Printing Specifications into PDF Files

You can now print each specification into an individual .pdf file. When creating a .pdf file name for an entity specification, the software uses the name of the entity as a source.

SEE LIST label Customization

You can customize the SEE LIST label, which appears in the main pages of a multi-tag specification. In a multi-tag specification, the SEE LIST label appears in every field that the multi-tag list format contains.

Selecting a Filter as a Search Parameter

In the Specifications module, when defining a scope of entities for report generation, you can select a filter as a search parameter. You can create this kind of filter in the Browser module, per browser view belonging to the Instrument Specifications browser group.

Setting Fieldbus Columns as Non-Editable

You can now set the software to make fieldbus columns non-editable in entity specifications.

Support of Specifications for Various Entities

You can now create specification for various entities. Prior to Version 7, it was only possible to create a specification for instrument tags. The entity types that you can select to create entity specifications are as follows:

- Reference Cable
- Reference Panel
- Reference Wiring equipment
- Hook-up item
- Loop
- Instrument

Wiring Module

Wiring Explorer

The **Wiring Explorer** replaces the Plant Panel Manager and the Plant Cable Manager in the Wiring module. The **Wiring Explorer** provides for much more flexibility when creating your wiring design. It enables you to access and perform various actions with all the wiring entities in your plant. The **Wiring Explorer** employs an expandable/collapsible hierarchy that allows you to navigate to relevant wiring entities and select them for use.

The software arranges wiring entities in the tree view pane based on the relationship among the entities. There are several folders that contain various panels and their sub-entities. In the **Wiring Explorer**, panels are arranged according to their category just like in the **Domain Explorer**. Panels, in turn, contain their child entities, for example terminal strips, racks, wiring equipment, and so forth. There is a lot of flexibility in creating a panel hierarchy. There is no rigid structure like 'panel – strip – terminal' that limits your wiring design. You can create various wiring structures, as you require.

Also, there are folders that contain cables and cross cables and their sub-entities.

Note that you can drag a wiring entity from the **Wiring Explorer** to the **Reference Explorer** and vice versa if you need to copy an entity.

Wiring Equipment

SmartPlant Instrumentation features a new type of wiring entity called wiring equipment. Examples of wiring equipment are barriers, isolators, trip amplifiers, relays, and so forth. I/O cards, I/O termination cards, and various terminal strips also belong to this group of wiring hardware. Wiring equipment entities are wiring objects that can handle multiple sub-entities, such as terminal strips, connectors, channels, and so forth.

Wiring equipment entities are classified according to various categories, for example I/O card, I/O Termination card, Fieldbus brick, Amplifier, and so forth. SmartPlant Instrumentation is shipped with a number of these categories. You can also customize your own wiring equipment categories and create various wiring equipment entities belonging to these customized categories. You can define custom properties for each category by defining the property name and its type (character, number or date). Custom properties will then be available for each instance of wiring equipment you create in the database according to its category.

A major change in this version is the introduction of I/O card and I/O termination card as special categories of wiring equipment. I/O termination cards are vendor-specific cards that usually connect to the I/O cards using a system cable. I/O cards usually reside in slots and may (or may not) include a termination block (a terminal strip). After upgrading your existing database to Version 7.0, the software converts previous I/O terminal strips (which used to be called I/O Cards) to one or more of these entities. If there was a reference to a distant or redundant slot, the software adds I/O cards automatically and associates them with selected slot as new objects. With the introduction of I/O cards as wiring equipment, some properties that existed previously on the I/O terminal strip have been moved on the I/O card Properties. This change constitutes a change in macros that are related to the control system.

Apparatus

SmartPlant Instrumentation allows you to create a group of apparatuses or a single apparatus. An apparatus group constitutes an apparatus strip with a number of apparatuses created according to a selected apparatus configuration. Also, you can add a single apparatus to an apparatus group. Once you have created a new apparatus group or a single apparatus, SmartPlant Instrumentation displays it in the **Domain Explorer** showing the terminals belonging to the apparatus. This representation is similar to the representation of channels.

Since apparatus has become a wiring entity in version 7, you can define apparatus properties, duplicate, or delete an apparatus, and assign it a symbol. The software uses this symbol in the Enhanced Report Utility when generating a loop using the By Custom Symbol method. Furthermore, you can create a Fieldbus brick assembly that includes a Fieldbus brick and an apparatus group.

Fieldbus Brick Assemblies

SmartPlant Instrumentation introduces a new wiring equipment feature - Fieldbus Brick assembly. A Fieldbus brick assembly is a composite object that consists of a wiring equipment entity (Fieldbus brick) and an apparatus, terminal-strip or connector. When creating a Fieldbus brick, you can define power supply requirements and current consumption. You can then add an apparatus group to a Fieldbus brick. Also, when generating a segment validation report, the software takes into account the Fieldbus brick electric properties and validates the total current of a segment.

I/O Tag Assignment Reports

Due to the introduction of wiring equipment entities in the Wiring module, there is a change in the generation of **I/O Tag Assignment** reports. Now you have to select a panel or several panels in the **Panel - Wiring Selection** dialog box. You can also select one or several wiring equipment entities for which the software generates a report showing the I/O assignment for all the terminal strips that exist under the selected wiring equipment entities.

Active Plug-and-Socket Junction Boxes

SmartPlant Instrumentation supports active plug-and-socket junction boxes for fieldbus validation reports. The **Plug-and-Socket Box** wizard allows you to define the current consumption, open circuit voltage, and short-circuit protection for an active plug-and-socket junction box. When generating a Fieldbus segment validation report, the software takes these values into account when calculating the total segment current consumption and voltage drop for a particular segment.

Channel Properties Dialog Box

You can now define properties for channels. The software distinguishes among three types of channel:

- I/O channels - the **I/O Properties** tab on the **Channel Properties** dialog box allows you to define I/O-related properties. Note that some of these properties are also new.
- General channels - these are non-I/O channels for grouping purposes.
- Apparatus channels - these include manufacturer and model properties.

Connection and Cross-Wiring Windows

In the **Connection** and **Cross-Wiring** windows, you can now double-click an entity to open the entity **Properties** dialog box. The software also allows you to right-click an entity and select a shortcut menu command if you want to perform an action with the selected entity.

Also, the size of the grid control in the **Connection** window has been increased and it dynamically adjusts to your screen size.

Conductor Cross-Sections Supporting Table

Conductor Cross-Sections is a new supporting table that allows you to manage conductor cross-section data when you define cable type properties.

Controller/Processor Lists in I/O Card Properties

The Controller/Processor list header in the **I/O Card Properties** dialog box has become panel manufacturer-specific. That is, if you define a specific header for that list in the **Panel Manufacturer** dialog box for the current panel manufacturer, the software will replace the default **Controller/Processor** list header with the one you define in the **Panel Manufacturer** dialog box.

Creating Panels with Terminals and Connectors

SmartPlant Instrumentation allows you to create a panel that contains both terminals and plug-and socket connections. Some Fieldbus and Telecom devices have inputs via a plug-and socket arrangement and outputs via terminated wires on terminals. To provide for this need, SmartPlant Instrumentation allows you to add a connector under any panel type (except for device panels) and then make the required connections either through the terminals or the connectors. It is also possible to cross-wire the internal pins of the connector and the terminal-strip within the same panel.

Displaying the Farthest Cable Connections

While working in the **Connection** window, in addition to displaying the adjacent connection of a cable or a wire, you can also open the farthest connection. This means that the software switches to the end of the wiring routing of the current wire and displays the last panel on that end based on the signal that is carried on that wire. If a signal exists in the direction that you chose to switch to, SmartPlant Instrumentation follows the signal to the end. If there is no signal, the software shows the panel that is connected at the end of the wiring routing.

Fieldbus Segment Validation Report

The Fieldbus Segment Validation Report now features a title block. Also, it is possible to manage report revisions and archive them.

Formatting the Panel-Strip Report

When generating a panel-strip report with adjacent connections, in print preview, the software allows you to set the print format definitions. You can resize the column width, select a paper size, and set the orientation.

I/O Assignment in Operating Owner Domain

When working in Operating owner domain and effecting I/O assignment, the software checks if a channel has already been assigned. The software performs this validation in all the projects and in AsBuilt. If a channel has already been assigned in a different project, the software displays an appropriate message informing you which project, tag number, or entity occupies that channel. You can accept or reject the I/O assignment. If the I/O Assignment is done automatically during a connection, a similar message is displayed.

I/O Assignment Window - Multiple Row Selection

In the **I/O Assignment** window, it is now possible to select multiple rows in the **Tag List** and **Assignment Details** panes. As a result, you can now perform various actions in batch mode.

Internal Connections

A new wiring preference allows you to preserve the existing internal connections of an entity when you duplicate it or copy it to the **Reference Explorer** and back to the **Domain Explorer**.

Internal Terminators in Panel - Strip Reports

Panel - Strip reports for apparatuses now display internal terminators. Internal terminators are indicated by the letter T.

Location Manager

Location Manager allows you to define panel locations for panels and their sub-entities. You can then set a location for a selected panel. Panel location can have multiple levels, for example **building - floor - room**. You can use each level to define a panel location.

Manufacturer Field in Various Property Dialog Boxes

The length of the **Manufacturer** field for panels, terminal strips, and cables has been increased to fifty characters.

Moving a Terminal Strip with Connections

The software allows you to move a terminal strip with connections to another panel of the same type. You can do this by dragging a terminal strip to another panel in the **Domain Explorer** or **Wiring Explorer**.

Rack Slots

Unlike the previous versions, slots are now handled in the database as records and they can be alpha-numeric characters. A new dialog box enables you to create slots in a rack. A new properties dialog box is now available for each slot. When creating a rack, the software allows you to add multiple slots according to a configuration that you define.

Creating Racks Under Different Panel Types

It is now possible to add racks under most panel types, apart from device panels. The software displays racks in the **SmartPlant Instrumentation Explorer** below the panel. There is a new dialog box in which you can define rack properties.

Multiple Wires on a Terminal

When multiple wires are connected to a terminal, the software allows you to open the **Terminal Connection** dialog box and select a wire which you want to display on top. This way, you can open the adjacent connection for the wire displayed on top.

Naming Conventions for Wiring Entities

SmartPlant Instrumentation allows you to name new panels (apart from plug-and-socket boxes), racks, wiring equipment entities, and device cables automatically according to the naming conventions that have been set in the Administration module by the Domain Administrator.

Name and Sequence Uniqueness of Wiring Entities

When creating or editing the properties of a wiring entity, SmartPlant Instrumentation validates that the wiring entity has a unique name and sequence. If SmartPlant Instrumentation detects that the sequence of a wiring entity is not unique, the software displays an appropriate message and does not create the entity until you enter a unique sequence. The software also validates name uniqueness. However, SmartPlant Instrumentation enforces it depending on a preference setting.

Panel Sub-Entities

SmartPlant Instrumentation allows you to create panels that in addition to terminal strips contain wiring equipment, connectors, Plug-and-Socket boxes and device panels. If there is a device panel or a junction box under the panel, it is possible to retrieve the parent panel name in the enhanced report as an attribute.

Panel-Strip Reports in Operating Owner Domain

When working in an Operating Owner domain and generating panel-strip reports, the reports can include AsBuilt items internal to the selected terminal strip, regardless of whether or not they are part of a specific engineering project. The AsBuilt items are indicated by shading so you can identify them. Note that this option depends on a preference setting that you make by clicking **File** > **Preferences** > **Wiring** > **Reports** > **Include unclaimed AsBuilt entities**.

Polarity

The **Polarity** list in the **Connector Type Configuration** and **Cable Configuration** dialog boxes has three new values: Line, Neutral, and Ground.

Segment-Wide Parameter Profile Properties

When defining segment-wide parameter properties, you can now enter decimal values for minimum receiver voltage. Also, the maximum capacitance property is no longer limited to a 3-digit value.

Terminals on a Conventional Multi-Input Device

The software now allows you to edit the properties of terminals belonging to a conventional multi-input device.

PDB Cabinets Published by SmartPlant Electrical

After retrieving PDB cabinets from the Engineering Framework published by SmartPlant Electrical, SmartPlant Instrumentation allows you to open the **Panel Properties** dialog box and edit the cabinet properties. However, the power supply values are view-only and not accessible for editing.