

PLANTSCAPE SERVER

CONFIGURING REPORTS

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SESSION OBJECTIVES

At the completion of this session the student will be able to:

- List the available report types
- Define the parameters for each report type
- Identify the various report output destinations available
- Configure a basic Free-format report definition file

REFERENCES

Knowledge Builder: Server and Client Configuration Guide

Knowledge Builder: Client and Server Installation Guide

Knowledge Builder: Operator's Guide

Configuring Reports

Report Types

Plantscape Server provides a Report subsystem which provides for configuration of both preformatted and custom reports.

The report types available are

Preformatted	<ul style="list-style-type: none">• Alarm and Event• Alarm Duration• Sequence of Events• Point Attribute• Point Cross Reference• Downtime Analysis• History Archive• Standard
Custom	<ul style="list-style-type: none">• ODBC Data Exchange• MS Excel• Free Format

More detail of each type can be obtained from

Knowledge Builder: Server & Client Config Guide→Report Types

Configuring Reports.....continued

Configuring a Report

Display the Reports and History Archives Configuration Summary:
either: choose **System Menu**→**System Configuration**→**Reports**

or: choose **Configure**→**Reports**

	Report/Archive	Title	Type
1	Rpt01	Alarm & Event Report	Alarm and Event
2	Rpt02	Alarm Duration Report	Alarm Duration
3	Rpt03	Point Cross Reference Report	Cross Reference
4	Rpt04	Point Attribute Report	Point Attribute
5	Rpt05	5 sec History Archive	History Archive
6	Rpt06	1 min History Archive	History Archive
7	Rpt07	Free Format Report	Free Format
8	Rpt08	ODBC Data Exchange Report	ODBC Data Exchange
9	Rpt09	MS Excel Report	Microsoft Excel
10	-		None
11	Qppsw	Operator Passwords	Free Format
12	-		None
13	-		None
14	-		None
15	-		None
16	-		None
17	-		None
18	-		None
19	-		None
20	-		None

[View Reports & History Archives](#)

Scroll to find the required report, or a blank entry to configure a new report, and select it to display the Report **Definition** tab

Report Definition

Report/archive type: **None** (required)
Note: Changing the report type will clear all details of this report

Name:

Title:

Area:

Reporting on Request

☐ Enable reporting on request

Destination: ☒ Station Default Printer

Periodic Reporting

☐ Enable periodic reporting

Destination:

Next report: 0:00:00

Interval: **None**

Request program LRN: 0

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Configuring Reports.....continued

Report Definition

Type	See <i>Knowledge Builder: Server & Client Config Guide</i> → Report Types
Name	10 characters maximum. The name must be unique and must not contain any spaces.
Title	70 characters maximum.
Area	Only users with access to this Area are allowed to change the details of this report. If no Area is defined then this restriction does not apply.

Reporting on Request

Enable	Check or uncheck the checkbox as required.
Destination	Define the printer to which the report will be sent by choosing either the Station Default Printer, or by clicking in the combobox and choosing any printer listed. If no printer is specified then the report output will be displayed in the Station window from where it was requested.

Periodic Reporting

Enable	Check or uncheck the checkbox as required.
Destination	<p>Click on the combobox and select the required printer from the list.</p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Attention</p> <p>This is the printer that will be used if this report is requested by Algo 70.</p> </div> <p>Even if no printer is specified the output will never be sent to a Station window.</p>
Next Report	<p>Indicates the date/time when this report is next due to be automatically requested.</p> <p>Every time the report runs, the Next report date/time is recalculated.</p>
Interval	<p>To specify the frequency of periodic reporting, click on the Interval combo box and select the desired interval from the drop-down list.</p> <p>If Interval is specified before Next Report the server will calculate the Next Report date/time automatically.</p>
Request Program LRN	<p>Enter the LRN of a program that is required to be run immediately after this report has run.</p> <p>More details of LRNs are provided in the course “PlantScape Server Implementation – 2”.</p>

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Configuring Reports.....continued

Report Content Page

After completing the **Definition** page click on the **Content** tab:

Report/Archive 10

Definition **Content**

Report on Alarms and Events with:

Alarm or Event type

Area

Point ID(s) ? - any single character

Event description * - any string of characters

Subpriority or Operator ID Leave blank for all subpriorities or operator IDs

Location

Occuring during:

☒ Specific Time Period Starting 0:00

Ending 0:00

☐ Relative Time Period Length (ending at request time)

Options

☐ Print field time

Request

The entries on this page vary with report Type and are described completely in

Knowledge Builder: Server and Client Configuration Guide→

Configure Reports

Requesting a Report

Click on the **Request** button on either the **Definition** or **Content** pages.

Font Size

The font size used when a report is printed can be set from the Printer Configuration Summary.

This is displayed by choosing:

System Menu→**System Configuration**→**Printers**

or

Configure→**Hardware**→**Printers**

The font size is entered as points.

The most usual values are 8, 10, or 12.

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Configuring Reports.....continued

Report Output File

When a Report executes successfully a text file version of the report output is sent to the c:\honeywell\server\report directory.

The name of the file will be of the following form:

rpt nnn

where nnn is the Report number that was requested.

Therefore after successfully executing Report Number 5 there would be a file with the pathname:

c:\honeywell\server\report\rpt005

If the file already exists from a previous execution of Report Number 5 it will be overwritten.

These files can be saved, copied or transferred to other computers using standard Windows NT tools.

In addition there will be a file named:

rpt nnn .htm

where nnn is the Report number that was requested.

This file is used by Station when displaying the report output.

Configuring Reports.....continued

History Archive Report Type

The History Archive report type is the mechanism used to archive history files to prevent loss of data before they are overwritten. When a History Archive report runs it creates a set of files which are saved normally under the directory c:\honeywell\server\archive. This directory may be compressed to save disk space if required.

The format of each archive directory name is as follows:

ayYYYYmMMdDDhHHrRRR

where:

YYYY is the year in which the archive was created

MM is the month the Archive was created (01-12)

DD is the day of the month the Archive was created (01-31)

HH is the hour of the day the Archive was created (00-23)

RRR is the History Archive Report number that created the Archive

The screenshot shows a software window titled 'Report/Archive' with a tab labeled '5 Rpt05' and a subtitle '5 sec History Archive'. The window has two main sections: 'Definition' and 'Content'. The 'Content' section is active and contains the following fields:

- History Types to Archive:** A list of options with checkboxes. 'Fast history' is checked, and 'Fast snapshots' is selected. Under 'Standard history', '1 minute snapshots', '6 minute averages', '1 hour averages', '8 hour averages', and '24 hour averages' are listed. Under 'Extended history', '1 hour snapshots', '8 hour snapshots', and '24 hour snapshots' are listed.
- Archive Location:** A text box labeled 'Path' with a note below it: 'If left blank, archives will be stored below the directory nominated by the Archive Directory registry entry.'
- Disk Limit:** A section with the text 'History archiving will not occur if free disk space falls below' followed by a text box containing '50.00' and the unit 'Mbytes'.

On the right side of the window, there is a 'Request' button and a vertical stack of three colored rectangles (teal, grey, and light grey). At the bottom right, there is a text box containing the following text:

History archiving provides a means of storing history files for later retrieval by the appropriate trend. The archive will be stored in a directory named: ayYYYYmMMdDDhHHrRRR

where:
YYYY is the year
MM is the month
DD is the day &
HH is the hour of the archive
RRR is the report/archive number

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Preformatted Reports.....continued

Definition Tab Settings

The History Archive should have Periodic Reporting enabled with the following recommended **Next Report** and **Interval** values:

History Type	Next Report	Interval
5 sec snap	HH:MM:02	1 Hour
1 min snap	HH:MM:30	1 Day
6 min avg	HH:MM:30	1 Week
1 hour avg	HH:MM:30	1 Week
8 hour avg	HH:MM:30	1 Quarter
24 hour avg	HH:MM:30	1 Year
1 hour snap	HH:03:00	1 Week
8 hour snap	HH:03:00	1 Quarter
24 hour snap	HH:03:00	1 Year

These settings ensure that a History Archive report runs after history collection has occurred for the associated history file.

Trend Page access to archive files

When the trend time base scroll bars are used the transition from viewing data from the current history file to viewing data from an archive file is seamless.

These directory names can optionally be specified on Trends to display data from a specific archive file.

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Preformatted Reports.....continued

Disk Space

Since a new archive directory will be produced with each execution of an archive report, it should be noted that substantial disk space could be used.

To calculate disk space requirements for the PlantScape Server history files use the following formula for each history interval:

$$\text{Number of bytes} = (P + 2) * (N + 2) * 4$$

where P is the maximum number of Point Parameters to be configured for history for a given interval

and N is the maximum number of samples to be collected for that history interval (maximum or 32767 for each interval).

The values of P and N can be found in the

Knowledge Builder: Client and Server Installation Guide→
Planning Your Database Requirements.

However they will not be valid if a custom database sizing has been performed.
Refer to “System Sizings” in Introduction Section of this Student Guide.

Disk Limit

As a safeguard, the archive report definition allows the specification of the minimum amount of disk space that must be available to permit execution of the report.

An alarm is produced if this limit is reached.

Archive Directory Location

During the installation of PlantScape Server the location of the History Archive directory can be defined.

The default location is c:\honeywell\server\archive.

The defined location can be overwritten by nominating a new path in the History Archive report **Content** tab.

Lab Exercise - Preformatted Report Configuration

Introduction

Proceed with the lab exercise listed below.
Ask your Course Manager for any assistance if you are not sure what you are expected to do.

Accessing Report Configuration

This exercise is designed to cover the procedures required to configure an Alarm and Event Report and an Alarm Duration Report.

Step	Action	
1	Display and view Reports 1 to 8 and note the different Definition and Content tab entries of each report type.	
2	Display the Definition tab for Report 2# and enter the following details (ensuring you know what they mean):	
	Type	Alarm and Event
	Name	Team_#_A
	Title	Team # Holding Tanks Level Alarms
	Area	leave blank
	Enable	reporting on request
3	Display the Content tab for report 2# and enter the following details (ensuring you know what they mean):	
	Alarm or Event Type	All
	Area	leave blank
	Point IDs	LT10?
	Event Description	leave blank
	Subpriority or Operator ID	leave blank
	Location	Online
	Occuring during	previous 24 hours

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Lab Exercise - Preformatted Report Configuration continued

Accessing Report Configuration

.....continued

4	Request the report and view the output on your Station.
5	<p>Use Notepad (or equivalent) to view the PSc Server file c:\honeywell\server\report\rpt02#</p> <div><p>Attention</p><p>Remember that the sharename for c:\honeywell is honeywel.</p></div>
6	<p>Repeat steps 2 to 5 using Report 3#, report type Alarm Duration, and an appropriate Title and Name.</p> <p>Note the differences in the output.</p>

Custom Reports

Introduction

Three types of custom reports are available:

- ODBC Data Exchange (discussed in course Implementation – 2)
 - Microsoft Excel (introduced later in this *Student Guide* and discussed fully in course Implementation – 2)
 - Free Format (which we will discuss here).
-

Free Format Report

A Free Format report can include up to 999 variables. Of these variables, a maximum of 400 can be character variables (ASCII).

A variable is one item of information (such as a temperature) stored in a point parameter. A variable can contain:

- Point values (including historical data)
- Values from PSc Server database files and regular Operating System (Windows NT) files
- Calculated values.

Calculations can be performed on values using addition, subtraction, multiplication, division and exponentiation operators.

Historical data can be processed to determine summations, maximums, minimums and standard deviations.

Values in the report's variables can also be stored in the server database and in Operating System files.

The report may optionally include an X-Y plot of the history values for two points.

Free Format Report Configuration

When a Free Format report is run, it reads the Report Definition file and produces a report based on the entries in this file.

To configure a Free Format report:

1. Create a Report Definition file using a text editor.
 2. Configure the **Details** and **Content** tabs of the Free Format report.
-

Creating the Report Definition File

Any text editor can be used to create a Free Format definition file. Regardless of what means is used to create the file, it must eventually reside in the PlantScape Server directory structure. Therefore use whatever technique you wish in the exercises in this section.

Saving Report Definition Files

The Free Format Definition files should be saved in c:\honeywell\server\user or one of its sub-directories. The file can be given any name, but it may be useful to use a “.ffr” extension.

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Custom Reports.....continued

Formatting Report Definition Files

Free Format Report Definition files contain two sections:

- A variable definition section
- A formatting section (or “body”)

Use the variable definition section to define the variables and give them values that will be used in the report.

This section contains lines that have one of 14 different types of entry recognised by the Free Format report.

The following rules apply to entries in the variable definition section:

- Each type of entry is identified by the character in the first column
- The fields are space or tab separated.
- The “*” entry is used to start comment lines.
- Index numbers, that are used to identify variables, can be no greater than 999. A maximum of 400 character string variables can be used.

The formatting section follows the variable definition section.

Reference the variables you defined in the variable definition section in the formatting section in order to include the values from those variables.

The layout for the report output is specified in a WYSIWYG (what-you-see-is-what-you-get) format.

This includes headings, outlines and spacing.

For details about the entries, refer to

Knowledge Builder: PSc Server and Client Config Guide→

Free Format Variables Reference

Using Point Values

The most common values used in Free Format reports are point values.

The table on the next page lists some of the more commonly used Free Format Report Definition file entries and the functions they perform on point values.

Custom Reports.....continued

Commonly used Free Format Report Definition file entries

Type of Entry	Entry	Meaning	Description
Reading Point Parameter Values	F	Fetch from Point	Reads a specified point parameter into a Free Format Report variable. The format used for printing the variable can be specified. When reading history parameters, it is also possible to read multiple history values into successive Free Format variables at once by specifying an offset into the history file and the number of history samples.
	A	Acquire field value (applies to non-Hybrid Controller points only)	Identical to “fetch from point” except that the point parameter is scanned from the controller before reading the value in order to obtain an up-to-date value.
	X	Demand point processing (applies to non-Hybrid Controller points only)	Identical to “acquire field value” except that processing of the point is forced regardless of whether or not the point value has changed. This entry is used to force any algorithms attached to the point to be executed.
Storing Values in Point Parameters	G	Give to point	Stores a value contained in a Free Format Report variable in the specified point parameter.
Performing Calculations	C	Calculated Variable Definition	Used to specify the print format to be used for the Free Format Report variable that is the result of the calculation.
	P	Perform Calculation	Used to specify the expression for a calculation on several Free Format Report variables. Addition, subtraction, multiplication, division and exponentiation operations can be performed.
Working with History Data	T	Totalise history	Enables history values for a point to be read from the database and totalised. The total is stored in the specified Free Format Report variable. The format used for printing the variable can be specified.
	L	History maximum/minimum	Enables the maximum and minimum history values for a point to be determined and stored into two successive Free Format Report variables.
Formatting Output	B	Start of report body	Used at the end of the variable definition section to indicate the start of the formatting section of the report. Any lines following this entry will be included in the report output.

Lab Exercise - Free Format Report Configuration

Free Format Report

Step	Action
1	<p>Using Notepad (or equivalent) create a Free Format Report definition file which obtains the last five 1-minute snapshot history values for the PV of the point LT10# (for a Non-Hybrid Controller) or LT50# (for a Hybrid Controller). Have your report list these values formatted to two decimal places.</p> <p>Refer to: <i>Knowledge Builder: Server and Client Configuration Guide</i>→Configuring Reports→ Free Format Report Variables Reference, and →Free Format Report Example and <i>Knowledge Builder: Server and Client Configuration Guide</i>→Configuring Points→Main Properties→ Summary of Internal Parameters.</p> <p>Save the file as team_0#.ffr and, if you are at a remote PC, transfer it to the c:\honeywell\server\user directory on the Plantscape Server.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p style="text-align: center;">Attention</p> <p style="text-align: center;">When using the File⇒Save As function in Notepad the filename should be enclosed in double quotes:</p> <p style="text-align: center;">"team_0#.ffr"</p> <p style="text-align: center;">otherwise the file will be saved as:</p> <p style="text-align: center;">team_0#.ffr.txt.</p> </div>
2	<p>Configure Report Number 4# as Free Format and complete its Definition and Content tab details.</p> <p>What entry do you need to make for Definition File Path?</p>
3	Execute the report.
4	Compare the results of the report with the Point Detail Trend of LT10# or LT50# for the 1 minute interval.

