

PowerLogic™ ION Enterprise™ 6.0

Emergency Power Supply System Configuration Utility and Test Report User Guide

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Hazard categories and special symbols

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, can result in equipment damage.

Note

A note provides you with additional information that you might want to consider.

Tip

A tip provides information that will help you perform a task more quickly or easily.

Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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Terms and Definitions

ATS - automatic transfer switch. A device that allows switching from a primary power source to a secondary or tertiary power source. ATSs are most often used where emergency power generators are used to back up power from the utility source. The ATS allows for safe switching from utility power to emergency generator power while maintaining isolation of each source from the other. ATSs continually monitor the incoming utility power.

EPSS - emergency power supply system. A connected electrical distribution system comprising alternate power sources designed to ensure continuous electrical power to designated areas during disruption of normal power. Alternate sources of power are usually one or more diesel powered generators sized to carry the emergency load. Power is transferred to the alternate power source using ATSs whenever the normal power is interrupted. An organization may have one or more EPSSs where each would contain a bank of generators and a number of ATSs.

Generator Prime Name Plate Rating - The maximum power load (typically kW or kVA identified on a generator's nameplate).

JCAHO - Joint Commission on Accreditation and Healthcare Organizations. Also referred to as the Joint Commission (JC). A private sector not-for-profit organization based in the United States. The Joint Commission operates voluntary accreditation programs for hospitals and other health care organizations. It accredits nearly 16,000 health care organizations and programs in the United States. A majority of state governments recognizes Joint Commission accreditation as a condition of licensure and receiving Medicaid reimbursement. Hospitals and medical centers in the USA must meet requirements specified by the Joint Commission to operate their facilities, including testing of generator systems.

NFPA - National Fire Protection Association. A United States organization charged with creating and maintaining minimum standards and requirements for fire prevention and suppression activities, training and equipment, as well as other life-safety codes and standards.

NEC - National Electrical Code. A United States standard for the safe installation of electrical wiring and equipment. It is part of the National Fire Codes series published by the NFPA. While the NEC is not itself a U.S. law, NEC use is commonly mandated by state or local law, as well as in many jurisdictions outside of the United States. The NEC codifies the requirements for safe electrical installations into a single, standardized source.

Chapter 1: Safety precautions

Installation, wiring, testing and service must be performed in accordance with all local and national electrical codes.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA or applicable local standards.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this device and the equipment in which it is installed before working on the device or equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions will result in death or serious injury.

Chapter 2: Emergency Power Supply System

An Emergency Power Supply System (EPSS) provides emergency electrical power to any facilities requiring continuous power, 24 hours a day, 7 days a week. Among these facilities are hospitals and medical centers.

In many jurisdictions, hospitals and medical centers need to test their emergency power supply systems on a periodic basis and keep records of such tests. Hospitals and medical centers in the USA, for example, must meet the standards specified by the Joint Commission on Accreditation of Hospital Organizations (JCAHO) to operate their facilities. These standards include the testing of generator systems. These JCAHO standards are derived from both National Fire Protection Association (NFPA) and National Electrical Code (NEC) requirements. The EPSS application can generate test reports to demonstrate compliance not only with the JCAHO standards, but also with the standards mandated by many other geographies, such as:

- HTM 0601 for the United Kingdom.
- AS/NZS 3009 for Australia and New Zealand.
- 60364-7-710 for Europe.
- CSA Z32 for Canada.

The PowerLogic™ ION Enterprise™ software solution provides data monitoring and logging to capture electrical events and readings during an EPSS test or during loss of power from a main utility. PowerLogic ION Enterprise uses the EPSS Test solution to generate an EPSS test report that government and organizational inspectors may view to determine if an EPSS is in an adequate state to generate electrical power during loss of power from a main utility, based upon government regulations or JCAHO standards derived from NFPA and NEC requirements.

Before proceeding with the EPSS Configuration Utility and the generation of EPSS test reports, ensure that your system meets the requirements listed in "[Prerequisites](#)" below.

Prerequisites

Before you use the EPSS Configuration Utility or generate EPSS test reports, ensure that the following prerequisites have been met:

- ION Enterprise 6.0 Service Pack 1 is installed and operational.
- The Web Reporter component of ION Enterprise is installed and functional.
- SQL Server 2005 Standard Edition is installed.
- The ION Enterprise database contains automatic transfer switch (ATS) and generator data for the devices that are part of your emergency power supply system.

Note that this guide does not describe how to set up devices to log and upload ATS and generator data. See the *EPSS ION Device Configuration Guide* and the *EPSS Device Configuration Guide* for information about configuring devices for monitoring and logging

EPSS components.

- The ION Enterprise EPSS Configuration Utility and EPSS Report Packs have been successfully installed. See the *Installation Instructions for the EPSS Reporting Solution* for information about installing the EPSS solution.

The components of the EPSS application are described in the following topics:

- For information about defining generators, automatic transfer switches, and report groups, see "[Define EPSS Devices and Report Groups](#)" on page 13.
- For information about designing and generating an EPSS test report, see "[Configure and Run the EPSS Test Report](#)" on page 27.

Chapter 3: Define EPSS Devices and Report Groups

Before an EPSS Test Report can be produced, you need to define generators, automatic transfer switches (ATS), and report groups, and their associated values. You do this in the EPSS Configuration Utility.

WARNING

HAZARD OF INACCURATE TEST RESULTS

- Do not incorrectly configure the EPSS system, this can lead to incorrect test reports and/or data results.
- Do not rely solely on EPSS test reports to determine if the EPSS system is functioning correctly or meeting all applicable standards and compliances.
- Use test reports as a supplement to proper workplace practices or equipment maintenance, not as a substitute.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

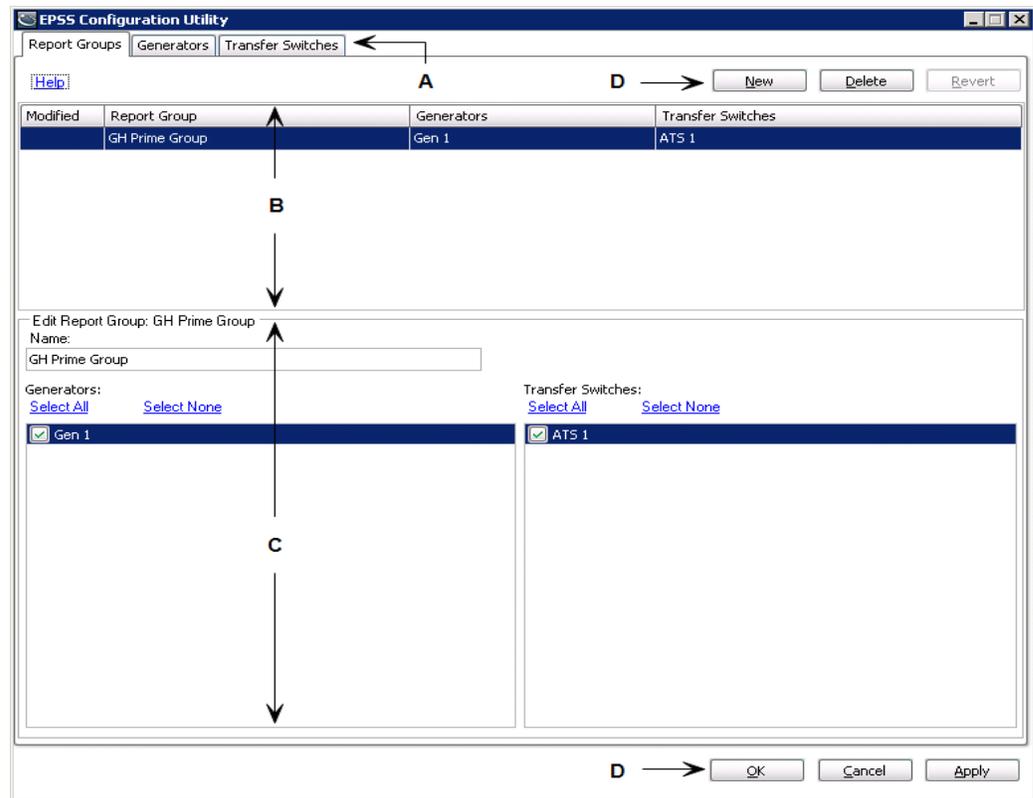
Start the EPSS Configuration Utility

To start the EPSS Configuration Utility, double-click the **EPSS Configuration Utility** icon on your desktop. You can also start the utility by clicking :

Start > All Programs > Schneider Electric > EPSS > EPSS Configuration Utility.

The EPSS Configuration Utility window consists of three tabs labeled **Report Groups**, **Generators**, and **Transfer Switches**. Each tab contains a grid area and an editor area. The grid area is empty initially but it will be populated with entries that you create through the editor area. Use the editor area to define the settings for new items, or to update the settings for an item that you select in the grid area.

The following image is an example of the EPSS Configuration Utility with the **Report Groups** tab selected.



A. Tabs

B. Grid area

C. Editor area

D. Controls

The following controls are common to each tab:

- **New** - creates a new entry in the grid.
- **Delete** - deletes the selected entry from the grid.
- **Revert** - reverts all changes made to the selected item in the grid to its original values.
- **OK** - saves all changes and exits the Configuration Utility.
- **Cancel** - exits the utility without saving changes.
- **Apply** - saves all changes but leaves the utility open.

Also common on each tab is the **Modified** column in the grid area. The characters that can appear in the **Modified** column and their meaning are:

- + (plus) - a new entry
- * (asterisk) - an existing entry has been modified
- ! (exclamation mark) - the entry is in error

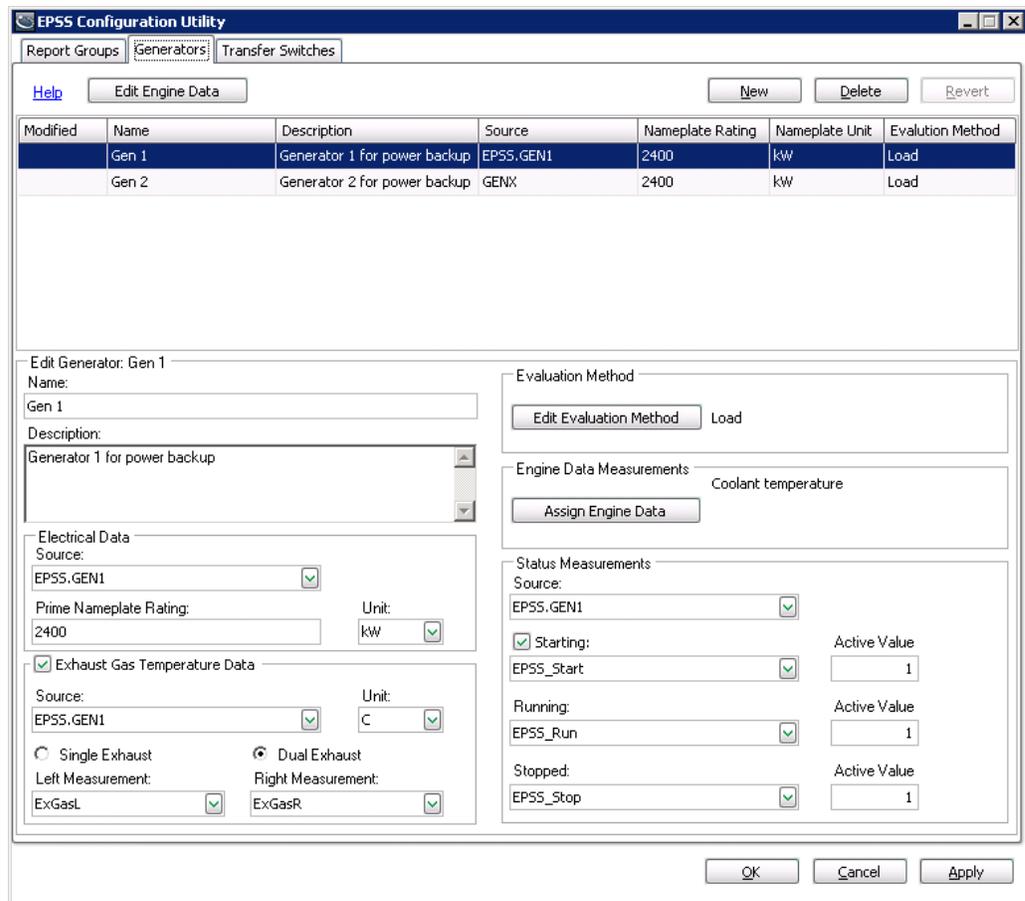
When you first use the Configuration Utility, you need to click the **Generators** tab to define generator entries, and then the **Transfer Switches** tab to define transfer switch entries. After you do this, you can then click the **Report Groups** tab, where you define your report groups by selecting from the lists of generators and transfer switches that you had defined on their respective tabs.

After you initially create entries for generators, transfer switches, and report groups in the Configuration Utility, you will access the **Report Groups** tab almost exclusively to create additional report groups or to modify existing report groups. You only need to go to the **Generators** tab or the **Transfer Switches** tab to add, modify, or delete entries to reflect changes to the devices in your emergency power supply system.

This document assumes that you are using the Configuration Utility for the first time, and therefore the **Generator** and **Transfer Switches** tabs are described first, followed by the description of the **Report Groups** tab.

Define Generators

Use the **Generators** tab to create or update entities representing the generators used in your emergency power supply system.



You can perform the following actions on this tab:

1. Click **New** to enable the **Edit Generator** area on the tab, and then use it to create a generator entry and to define specific values for it. For information about this activity, see ["Edit Generator Properties" on page 16.](#)

2. Click **Edit Engine Data** to open the **Engine Data Measurements** editor. The **Engine Data Measurements** editor is used to define engine parameters that are common for all generators. Defining engine data measurements is optional. For information about this activity, see "[Edit Engine Data \(optional\)](#)" on page 18.
3. Click **Edit Evaluation Method** to open the **Edit Evaluation Method** editor. The **Edit Evaluation Method** editor is used to select the evaluation method and the respective pass/fail criteria that you want to use when evaluating a generator. For information about this activity, see "[Edit Evaluation Method](#)" on page 19.
4. Click **Assign Engine Data** to open the **Assign Engine Data Measurement** editor. The **Assign Engine Data Measurement** editor is used to associate engine data with the generator that you are defining. For information about this activity, see "[Assign Engine Data](#)" on page 20.

Edit Generator Properties

The **Edit Generator** area on the tab is used to create a generator entry and to define specific values for it.

1. Click **New** to create a generator entry.
2. Complete the following to define a generator:
 - **Name** - enter a unique name to identify the generator.
 - **Description** - an optional text entry field that you can use to add specific information about the generator, such as make and model.
 - **Electrical Data**
 - **Source** - select a source name from the dropdown list. The source represents the ION Enterprise device that records the electrical data from the generator.
 - **Prime Nameplate Rating** - enter the maximum power load for the generator that is shown on the generator's nameplate.
 - **Unit** - select kW or kVA from the list to indicate the unit of measurement for the power load.

- **Exhaust Gas Temperature Data**

This setting is optional. If exhaust gas data is not being captured, you do not need to select and complete these values.

- **Source** - select a source name from the dropdown list. The source represents the ION Enterprise device that records the exhaust gas temperature of the generator.
- **Single Exhaust** or **Dual Exhaust** - select one of these options to indicate whether the exhaust gas temperature is measured for a single exhaust or a dual exhaust generator.
- **Measurement** - select the exhaust gas temperature measurement from the list.

- **Unit** - select either F (for Fahrenheit) or C (for Celsius) for the temperature unit of measurement.

- **Status Measurements**

Use the **Status Measurements** area to configure the states used to record the status of a generator. A generator can be in one of three states: **Starting**, **Running**, and **Stopped**. When a generator is in one of the states, the active value is stored in the measurement. The states appear in the **Events Summary** section of the EPSS Test Report.

- **Source** - select a source name from the dropdown list. The source represents the ION Enterprise device that records the status of a generator.
- **Starting** - this state indicates that the generator is starting. This setting is optional. Select the check box to enable the dropdown list and the **Active Value** field. If this setting does not apply to your installation, do not select the check box.

From the list, select the measurement that provides the input indicating that the generator is in the **Starting** state, and then enter the active value for the measurement.

- **Running** - this state indicates that the generator is running. From the list, select a measurement that provides the input indicating that the generator is in the **Running** state, and then enter the active value for the measurement.
- **Stopped** - this state indicates that the generator has stopped. From the list, select a measurement that provides the input indicating that the generator is in the **Stopped** state, and then enter the active value for the measurement.

Note that the active value for the measurements can be any value you choose.

For example, assume that the system has been configured with measurements of `GENStarting`, `GENRunning`, and `GENStopped`, that you assign these measurements to the **Starting**, **Running**, and **Stopped** states respectively, and that you set the Active Value to 1 for each.

When the generator starts, the active value for `GENStarting` becomes 1, and **Starting** is the state for the generator. When the generator is running, the active value for `GENRunning` becomes 1, and **Running** is the state for the generator. When the generator stops, the active value for `GENStopped` becomes 1, and **Stopped** is the state for the generator.

When an EPSS Test Report is generated, the states for the generator, and the time when they occurred, are included in the **Events Summary** section of the EPSS Test Report.

If there is only one measurement to indicate that the generator is either running or stopped, then you select that measurement for both the **Running** and **Stopped** states, and assign a different active value for each, respectively.

For example, assume that the measurement used to indicate whether a generator is running or not is `GenRunningStopped`.

For the **Running** state:

1. Select `GenRunningStopped` as the measurement.
2. Set the Active Value to 1.

When the generator is running, the active value for `GenRunningStopped` is 1, and **Running** is the state for the generator.

For the **Stopped** state:

1. Also select `GenRunningStopped` as the status measurement.
2. Set the Active Value to 0.

When the generator is stopped, the active value for `GenRunningStopped` is 0, and **Stopped** is the state for the generator.

Edit Engine Data (optional)

The **Engine Data Measurements** editor is used to define engine parameters that are common for all generators. The items being measured (typically analog data) can differ from generator to generator, but can include items such as battery voltage and coolant temperature. Defining engine data measurements is optional.

1. Click **Edit Engine Data** to open the **Engine Data Measurements** editor.

Modified	Name	Unit
	Coolant temperature	F
+	Battery voltage	V

Name: Units:

2. Click **New** to enable the input fields.
3. Complete the following to define engine data measurements:
 - **Name** - enter a name for the engine data item.
 - **Units** - enter a unit of measurement for the engine data item.

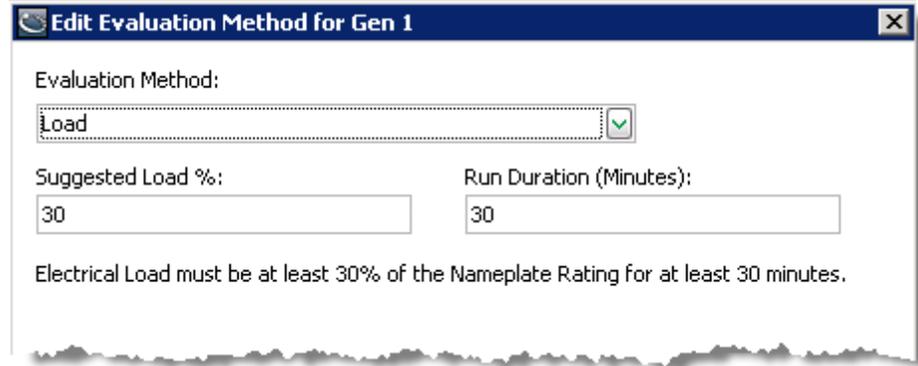
- Click **OK** to save the definitions, close the dialog, and return to the **Generators** tab.

You can assign some or all of these measurements to the new generators that you define during the generator configuration process.

Edit Evaluation Method

The **Edit Evaluation Method** editor is used to select the evaluation method and the respective pass/fail criteria that you want to use when evaluating a generator.

- Click **Edit Evaluation Method** to open the **Edit Evaluation Method** editor.



- Complete the following to set up evaluation criteria for a generator:

- Evaluation Method** - select one of the evaluation methods from the five that are in the dropdown list. For the Load Bank evaluation method, you have the option of selecting from one to three stages to include in the evaluation. The evaluation methods are summarized in the table below.
- Suggested Load %** or **Minimum Exhaust Gas Temperature** - depending on the evaluation method that you selected, enter a numerical value for the percentage or for the temperature in their respective text entry fields.
- Run Duration (Minutes)** - enter a numerical value for the minimum number of minutes that the test needs to run for evaluation purposes.

- Click **OK** to save the evaluation criteria, close the dialog, and return to the **Generators** tab.

The five evaluation methods and their respective pass/fail criteria are listed in the following table. **Load** is the default evaluation method.

Evaluation Methods	Pass/Fail Criteria
Load	The generator must run at an electrical load % that is equal to or greater than the manufacturer's suggested electrical load % for the run duration.
Exhaust Gas Temperature	The generator must run at an exhaust gas temperature that is equal to or greater than the manufacturer's suggested exhaust gas temperature for the run duration.
Load Bank	The generator must pass the stages selected for the electrical load bank test. If more than one stage is selected, the generator must pass each stage consecutively.

Evaluation Methods	Pass/Fail Criteria
Load Or Exhaust Gas Temperature	The generator must pass either the electrical load or the exhaust gas test.
Load And Exhaust Gas Temperature	The generator must pass both the electrical load and the exhaust gas test.

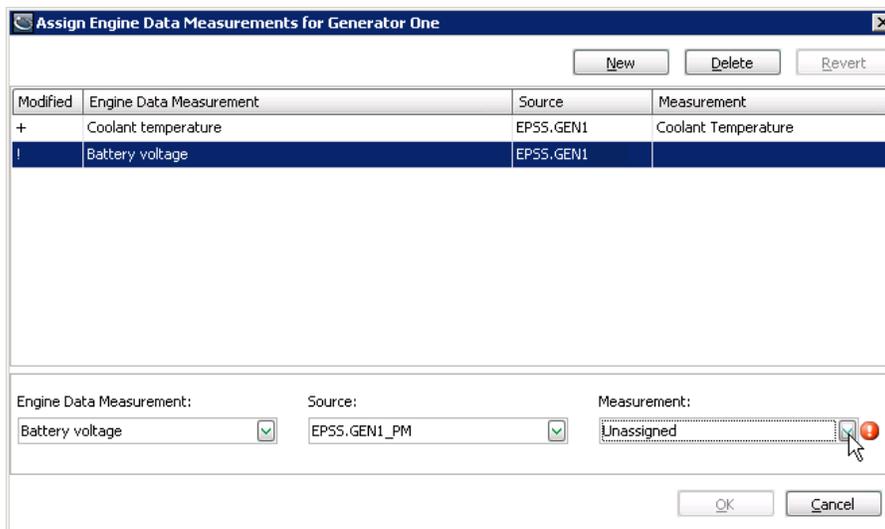
You can edit the test criteria for a test method by selecting the test name and then updating its criteria. The following table shows the default test criteria for each evaluation method. Confirm that these values meet the regulations mandated by local jurisdictions, or meet the minimum values recommended by the manufacturer, and update them if necessary.

Test Name	Stage	Minimum	Run Duration
Load	1	30 %	30 minutes
Exhaust Gas Temperature	1	900 F	30 minutes
Load Bank	1	25 %	30 minutes
Load Bank	2	50 %	30 minutes
Load Bank	3	75 %	60 minutes

Assign Engine Data

The **Assign Engine Data Measurement** editor is used to associate engine data with the generator that you are defining. The engine data that you select is defined through the Engine Data Measurements editor.

1. Click **Assign Engine Data** to open the **Assign Engine Data Measurement** editor.

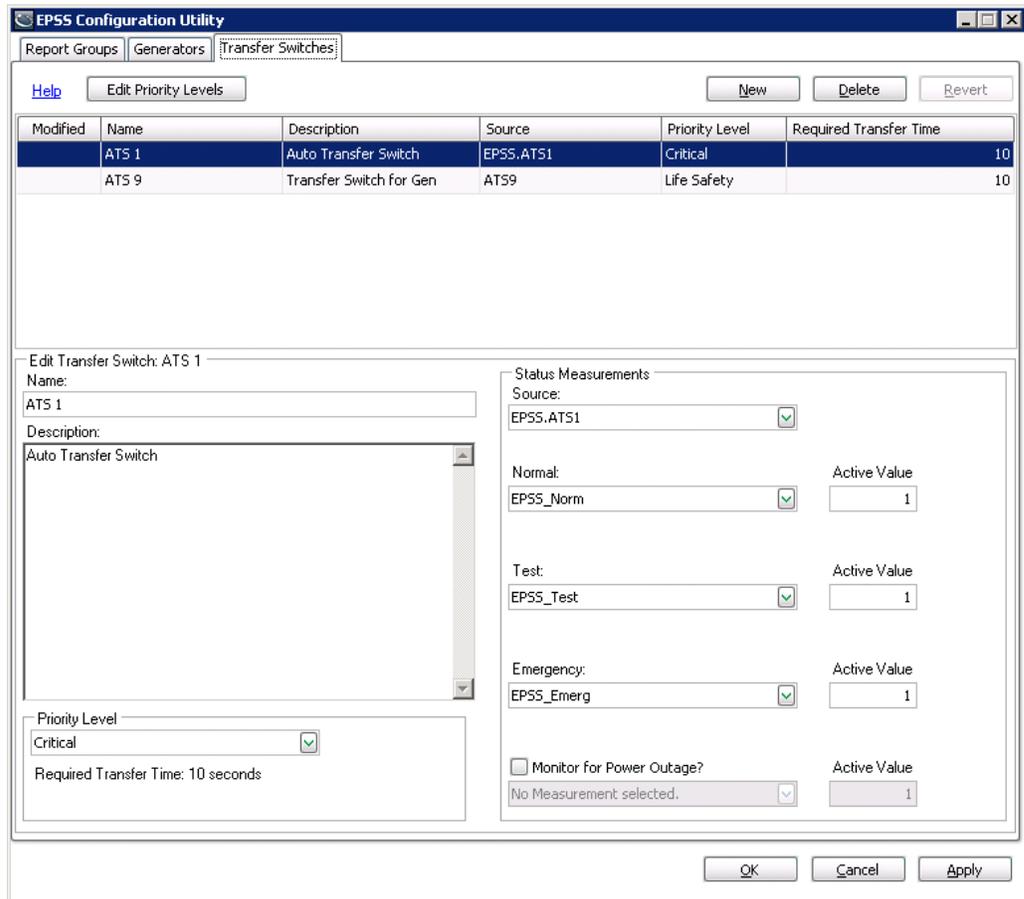


2. Click **New** to enable the dropdown lists.
3. Complete the following to assign engine data to a generator:
 - **Engine Data Measurement** - select the engine data item in the dropdown list that you want to associate with the generator. The dropdown list contains all of the engine data items that you configured for the emergency power supply system.

- **Source** - select the ION Enterprise device name in the dropdown list that records the generator data.
 - **Measurement** - select the ION Enterprise measurement in the dropdown list that records the generator data.
4. Click **OK** to save your changes, close the dialog, and return to the **Generators** tab.

Define Transfer Switches

Use the **Transfer Switches** tab to create entities representing the automatic transfer switches in your emergency power supply system.



You can perform the following actions on this tab:

1. Click **New** to use the **Edit Transfer Switch** area on the tab to create a transfer switch entry and to define specific values for it. For information about this activity, see ["Edit Transfer Switch Properties" on page 22](#).
2. Click **Edit Priority Levels** to open the **Priority Levels** editor. The **Edit Priority Levels** editor is used to select at least one priority level that you want to apply to your transfer switches. For information about this activity, see ["Edit Priority Levels" on page 23](#).

Edit Transfer Switch Properties

The **Edit Transfer Switch** area on the tab is used to create a transfer switch entry and to define specific values for it.

1. Click **New** to create a transfer switch entry.
2. Complete the following to define a transfer switch:
 - **Name** - enter a unique name to identify each transfer switch.
 - **Priority Level** - select a priority level from the dropdown list for the transfer switch. You need to assign a priority level to each transfer switch. After you assign a priority level, the required transfer time for it appears under the dropdown list field.
 - **Description** - enter any information that you want to use to identify the transfer switch. This is an optional text entry field.
 - **Status Measurements**

Use the **Status Measurements** area to configure the states used to record the status of the ATS. When a transfer switch is in one of the states, the active value is stored in the measurement. The states appear in the **Events Summary** section of the EPSS Test Report.

- **Normal** - the ATS is in the Normal position and power is supplied to the load from the utility. From the list, select the measurement that provides the input indicating that the ATS is in the **Normal** state, and then enter the active value for the measurement.
- **Test** - the ATS has been set to the Test mode. From the list, select the measurement that provides the input indicating that the ATS is in the **Test** state, and then enter the active value for the measurement.
- **Emergency** - the ATS is in the Emergency position and power is supplied to the load from the generator. Select the measurement in the list that provides the input indicating that the ATS is in the **Emergency** state, and then enter the active value for the measurement.
- **Monitor for Power Outage** - utility power is not available. If you are monitoring utility power, you can select the **Monitor for Power Outage** check box to enable the dropdown list and the **Active Value** field. From the list, select the measurement that provides the input indicating that there has been a power outage, and then enter an active value for the measurement.

Note that the active value for the measurements can be any value you choose.

For example, assume that the system has been configured with measurements of `EPSS_Norm`, `EPSS_Test`, `EPSS_Emerg`, and `EPSS_Util`, that you assign these measurements to the **Normal**, **Test**, **Emergency**, and **Power Outage** states respectively, and that you set the Active Value to 1 for each.

When the ATS is in the Normal position, the active value for `EPSS_Norm` is 1, and **Normal** is the state for the ATS. When the ATS is set to the Test mode, the active value for `EPSS_Test` is 1, and **Test** is the state for the ATS. When the ATS is in the Emergency position, the active value for `EPSS_Emerg` is 1, and **Emergency** is the state for the ATS. If a power outage occurs, the active value for `EPSS_Util` is 1, and **Power Outage** is the state for the ATS.

When an EPSS Test Report is generated, the states for the ATS, and the time when they occurred, are included in the **Events Summary** section of the EPSS Test Report.

The states are used to derive both Transfer Time (in seconds) and In Emergency time (in hours, minutes, and seconds) for the **Automatic Transfer Switch Summary** section in the EPSS Test Report, where:

- Transfer Time is the time it takes to switch to the **Emergency** state. For Test mode, the Transfer Time is the time to switch from the **Normal** state to the **Emergency** state once the test signal has been received. When an actual power outage occurs, the Transfer Time is the time to switch from the **Normal** state to the **Emergency** state once the power outage signal has been received.
- In Emergency is the duration of time that the ATS receives power from the generators. This is the time between the **Emergency** state and the **Normal** state.

Edit Priority Levels

The **Edit Priority Levels** editor is used to select at least one priority level that you want to apply to your transfer switches.

1. Click **Edit Priority Levels** to open the **Edit Priority Levels** editor.

Modified	Name	Required Transfer Time	Power Outage Enabled
	Life Safety	10	<input checked="" type="checkbox"/>
	Critical	10	<input checked="" type="checkbox"/>
	Equipment	30	<input type="checkbox"/>

Name: Required Transfer Time (Seconds):

Evaluate this Priority Level when reporting on Power Outages

2. Click **New** to add a priority level.
3. Complete the following to define priority levels:
 - **Name** - enter a unique name to identify the priority level.
 - **Required Transfer Time (Seconds)** - enter the transfer time in seconds. This time indicates the maximum acceptable time it takes the ATS to move from the **Test** state to the **Emergency** state.

- **Evaluate this Priority Level when reporting on Power Outages** - select this check box to include a priority level in the pass or fail grading. Clear the check box to exclude the priority level from grading. By excluding a priority level, you can exclude non-critical switches from evaluation. For example, if it is essential that a transfer switch that has been assigned a priority level of Life Safety be graded as a result of a power outage, then select this check box. Conversely, if a transfer switch has been assigned a priority level of Equipment, you may not regard it as essential for grading as a result of a power outage. In this case, clear the check box.

Default priority levels are shown in the following table. You can change any of these to a priority level scheme of your choice.

Name	Required Transfer Time	Power Outage Enabled
Life Safety	10	True
Critical	10	True
Equipment	30	False

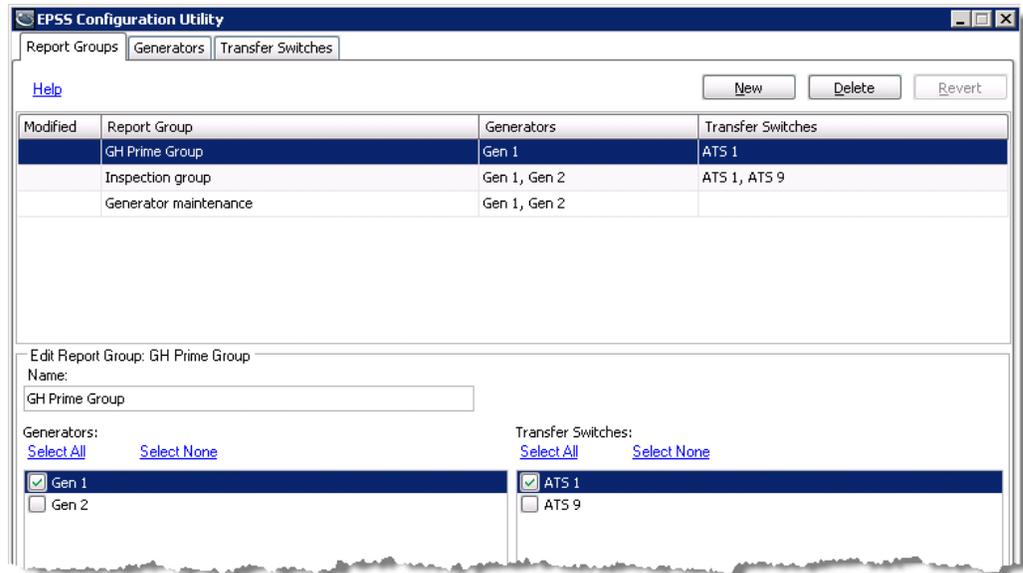
Define Report Groups

EPSS Report Groups represent a collection of devices in one or multiple emergency power supply systems. A Report Group is a named collection of generators and transfer switches that you are interested in reporting on. Each report group that you define can be customized to generate a report for a specific user. For example, to produce a report for generator maintenance personnel, you can create a report group only consisting of generators.

The following topic, "Edit Report Group", describes the fields and controls on the Report Groups tab.

Edit Report Group

The **Edit Report Group** area on the tab is used to create a report group consisting of generators and transfer switches.

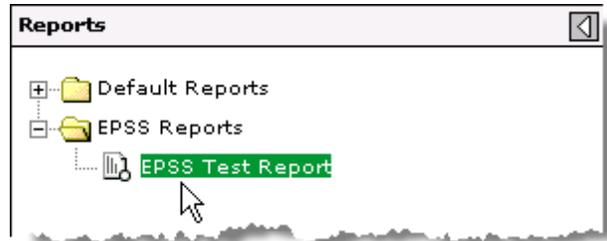


1. Click **New** to create a report group.
2. Complete the following to define the values for a report group:
 - **Name** - enter a unique name to identify the report group.
 - **Generators** - select generators to include in the group. You initially created the generator entities on the **Generators** tab of the Configuration Utility.
 - **Transfer Switches** - select transfer switches to include in the group. You initially created the transfer switch entities on the **Transfer Switches** tab of the Configuration Utility.

The **Select All** and **Select None** options let you work easily with large numbers of sources by selecting all check boxes or clearing all check boxes, respectively.

Chapter 4: Configure and Run the EPSS Test Report

Use the Web Reporter component of ION Enterprise to choose the EPSS Test Report template required to configure the EPSS Test Report.



The EPSS Test Report is dependent on the selections you make while configuring the report and also on the contents of the ION Enterprise database.

⚠ WARNING

HAZARD OF INACCURATE TEST RESULTS

- Do not incorrectly configure the EPSS system, this can lead to incorrect test reports and/or data results.
- Do not rely solely on EPSS test reports to determine if the EPSS system is functioning correctly or meeting all applicable standards and compliances.
- Use test reports as a supplement to proper workplace practices or equipment maintenance, not as a substitute.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Following is an example of the EPSS Test Report template. The fields and controls on the template are described in the topics in this section.

EPSS Test Report

Title

Company Name

Technician Name

Report Group Gen 1, ATS 1
[Exclude Sources](#)

Reporting Period [start of day 7/3/2010 to end

ATS Summary Pass/Fail, Test Mod

Events Summary ATS Events, Genera

Generator Summary
Pass/Fail, (Elec) Graph, Avg/Min/Max, Details, (Ter

Comments

Include Data Warnings Yes No

Enter a Title, Company Name, Technician Name

Enter the appropriate information in the following text entry fields:

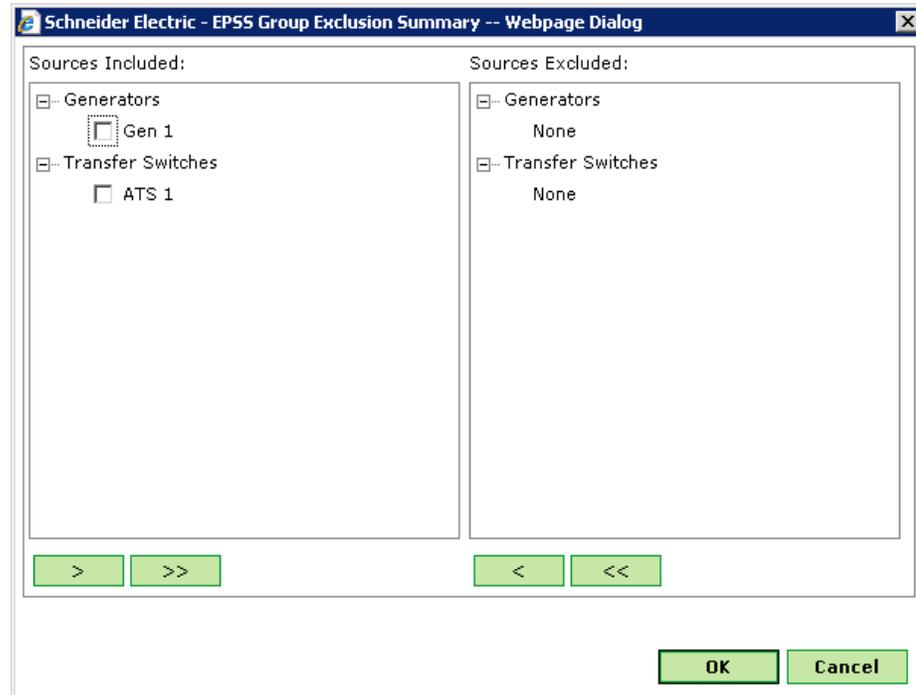
- **Title** - enter a title for the report. For example, you might title the report as the Emergency Power Supply System Operation Report.
- **Company Name** - enter the name of your organization.
- **Technician Name** - enter the name of the person who prepared the report.

Specify a Report Group and Exclude Sources

Complete the following steps to select a Report Group and to exclude sources:

1. From the dropdown list, select the Report Group that the EPSS Test Report is intended for. The list shows the groups that you set up in the Configuration Utility. When you select a group in the list, the field to the right shows the devices included in the group.

2. Click **Exclude Sources** to open a dialog to select the devices in the group that you want to exclude from the EPSS Test Report. This lets you refine the report so that devices do not appear in the report if they are not available when the test is run.



3. In the **Sources Included** area of the dialog, select the check boxes for the sources to be excluded and then click the > button to move those sources to the **Sources Excluded** area.

To move all of the sources into the **Sources Excluded** area, click the >> button. To move selected sources or all of the sources to the **Included Sources** area, click the < button or the << button, respectively.

4. Click **OK** to save your selection and return to the report template.

The devices in the report group are identified in the **Sources** section of the EPSS Test Report. Devices that you excluded from the report appear as grayed-out entries.

Select a Reporting Period and Timezone

Complete the following to select a Reporting Period and a timezone:

1. Select the reporting period for the EPSS Test Report from the dropdown list.



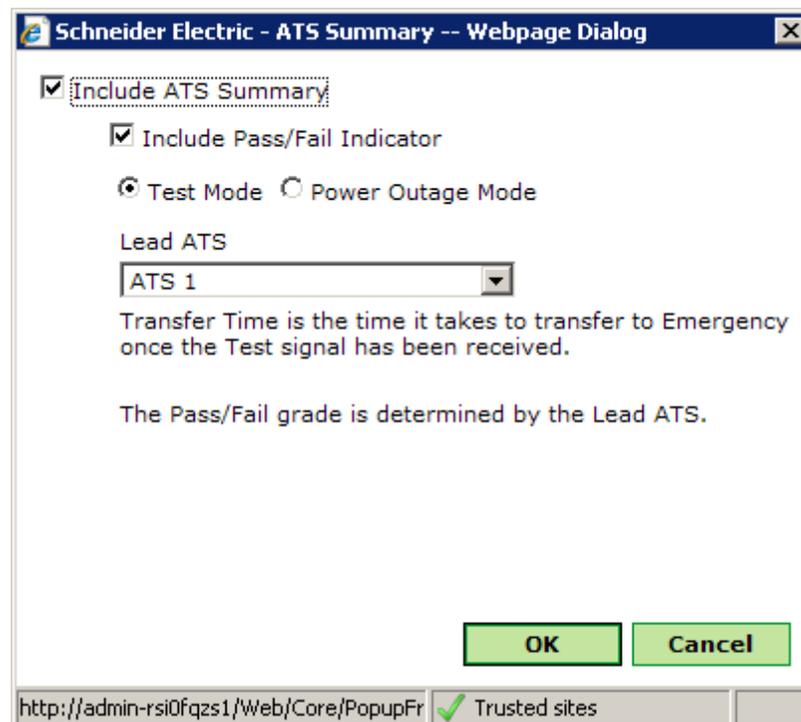
The date selections range from a fixed date, where you can define a reporting period, to a set of predefined date ranges. The initial setting is Last 7 Days.

2. For the timezone, select whether you want the timestamps in the Test Report to be in Server Local Time or UTC (Universal Time). The initial setting is Server Local Time.

Configure the Automatic Transfer Switch Summary

Complete the following to configure the **Automatic Transfer Switch Summary** section of the EPSS Test Report:

1. Click **ATS Summary** to open the **ATS Summary** dialog.

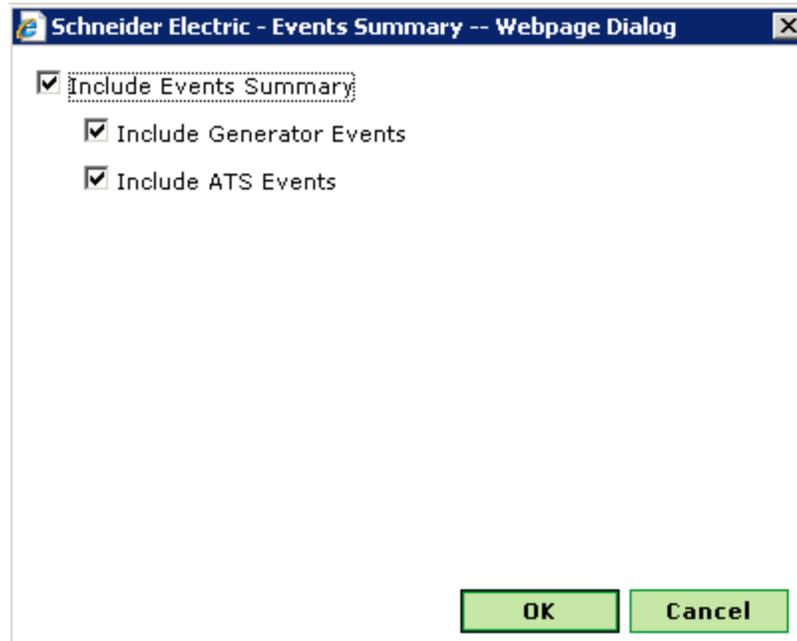


2. Select the options in the dialog to control the inclusion and contents of the **Automatic Transfer Switch Summary** section in the report:
 - **Include ATS Summary** - select this check box to include the **Automatic Transfer Switch Summary** section in the report and to enable the remaining options in the dialog. Clear this check box to exclude the **Automatic Transfer Switch Summary** section from the report.
 - **Include Pass/Fail Indicator** - select this check box to include both the Required Transfer Time and Test Status results. The Test Status shows the pass/fail grade. Clear this check box to exclude the results from the Test Report.
 - Select **Test Mode** or **Power Outage Mode**.
 - **Test Mode** - this option indicates that ATS metrics are based on the time to switch to **Emergency** state once the test signal and been received. Selecting this option indicates that the pass/fail status is based on the lead ATS. This option also enables the **Lead ATS** dropdown list.
 - **Power Outage Mode** - this option indicates that ATS metrics are based on the time to switch to the **Emergency** state once the power outage signal has been received. Selecting this option also indicates that the pass/fail status is based on the slowest ATS with a gradable priority level.
 - **Lead ATS** - select the ATS device that you want to use as the lead ATS in reporting the transfer time. The lead ATS is the ATS upon which the pass/fail grade is based.
3. Click **OK** to save your changes, close the dialog, and return to the EPSS Test Report template.

Configure the Events Summary

Complete the following to configure the **Events Summary** section of the Test Report:

1. Click **Events Summary** to open the **Events Summary** dialog.

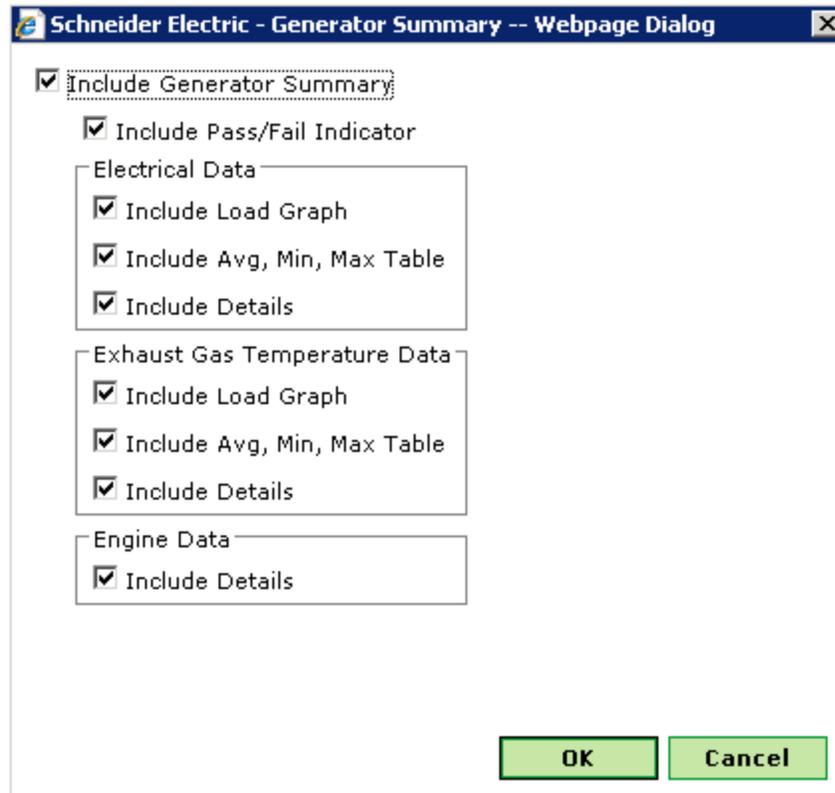


2. Select the following options in the dialog to control the inclusion and contents of the **Events Summary** section in the report:
 - **Include Events Summary** - select this check box to include the **Events Summary** section in the report and to enable the **Include ATS Events** and the **Include Generator Events** check boxes. Clear this check box to exclude the **Events Summary** section from the report.
 - **Include ATS Events** - select the check box to include ATS events in the **Events Summary** section of the report. Clear the check box to exclude ATS events from the section.
 - **Include Generator Events** - select the check box to include generator events in the **Events Summary** section of the report. Clear the check box to exclude generator events from the section.
3. Click **OK** to save your changes, close the dialog, and return to the EPSS Test Report template.

Configure the Generator Summary

Complete the following to configure the **Generator Summary** section of the EPSS Test Report:

1. Click **Generator Summary** to open the **Generator Summary** dialog.



2. Select the options in the dialog to control the inclusion and contents of the **Generator Summary** section in the report:
 - **Include Generator Summary** - select this check box to include the **Generator Summary** section in the Test Report and to enable the remaining options in the dialog. Each generator in the Report Group has its own **Generator Summary** section. Clear this check box to exclude the **Generator Summary** section from the report.
 - **Include Pass/Fail Indicator** - select this check box to include both the pass/fail grade and the test method used to evaluate each generator. The pass/fail grade is based on both the run duration and the minimum specified percentage of the prime nameplate rating. Clear this check box to exclude the pass/fail grade and the test method from the Test Report.
 - **Electrical Data** - this section provides options for the inclusion of electrical data in the **Generator Load Summary** section of the Test Report.
 - **Include Graph** - select this check box to include a generator load graph showing kW Load, kVA Load, and the threshold for the minimum

acceptable power load based on the specified load percentage for the run duration.

- **Include Avg, Min, Max Table** - select this check box to include a table showing Minimum, Average, and Maximum electrical readings for the longest continuous load at (or above) the specified load percentage. The electrical readings measured are: kW, kVA, Ia, Ib, Ic, In, Vab, Van, Vbc, Vbn, Vca, Vcn.
- **Include Electrical Details** - select this check box to include a table showing the generator's electrical details. The data is organized by time intervals and displays the readings for kW, kVA, load (the percentage of maximum load identified on the generator nameplate), Power Factor (PF), I avg, VLL avg, VLN avg, and Frequency.

If you selected **Load Bank** when you configured the evaluation method for a generator in the report group, the **Generator Load Summary** section of the EPSS Test Report shows the details of the selected stages of the load bank test. The stages are represented on the graph. For information about the load bank test, see "[Edit Evaluation Method](#)" on page 19.

- **Exhaust Gas Temperature Data** - this section provides options for the inclusion of exhaust gas temperature data in the **Generator Exhaust Gas Summary** section of the Test Report.
 - **Include Graph** - select this check box to include a graph showing the exhaust gas temperature for the run duration, and a horizontal line identifying the minimum temperature required for the run duration.
 - **Include Avg, Min, Max Table** - select this check box to include a table showing Minimum, Average, and Maximum exhaust gas temperature readings for the longest continuous exhaust gas temperature at (or above) the minimum acceptable exhaust temperature.
 - **Include Temperature Details** - select this check box to include a table showing the Longest Continuous EGT (Exhaust Gas Temperature) time period, the Minimum EGT, Required Run Duration (Min), and Actual Run Duration.
- **Engine Data** - this section provides an option to include a **Generator Engine Details** section in the Test Report.
 - **Include Generator Engine Details** - select this check box to include a table of engine parameter data. The items being measured (typically analog data) differ from generator to generator, but can include items such as battery voltage and coolant temperature. The details for each generator include:
 - The generator's name.
 - The generator's start and stop times by date.

- A label to show whether the data was automatically or manually collected.
 - A table of data organized by columns labeled with the name of the measurement, a timestamp, and the corresponding values.
3. Click **OK** to save your changes, close the dialog, and return to the EPSS Test Report template.

Add Comments

The **Comments** area is a text entry box where you can add observations and comments to be included in the final report.

Include Data Warnings

Select the appropriate option to include or exclude the data warnings table.

- Select **Yes** to include a table of data warnings in the report. If there are no data warnings, the table is not included in the report.
- Select **No** to exclude a table of data warnings from the report.

Generate a Test Report

Click **Generate Report** to create the EPSS Test Report. The layout and content of the report is dependent on the selections you made when you configured the EPSS Test Report, and on the contents of the ION Enterprise database.

Save a Test Report

After an EPSS Test Report has been generated, you can save it with some or all of its inputs defined.

1. Click **File > Save**. The **Save Report** dialog opens.
2. Type a name for the report in the **Name** field.
3. In the location box below the **Name** field, select the location for the saved report or click **New Folder** to create a new folder for it. Note that you cannot nest one folder inside another.
4. From the section in the bottom portion of the dialog box, select the checkboxes for the inputs that you want to save with the report and clear the checkboxes for those that you do not want to save.

The next time that you generate a saved report, you need to specify the inputs that were not saved.

5. Click **OK**. The report is saved with the inputs you selected.

EPSS Test Report Example

The sections and content contained in the EPSS Test Report are dependent on the selections you made in the EPSS Test Report template and on the contents of the ION Enterprise database.

The following images are examples of various sections of an EPSS Test Report in the order in which they occur.

Note

The data in the examples is for illustration purposes only.

- The title page of the test report shows the title, company name, report group, the name of the person preparing the report, and the test period.



EPSS Report - May 2010

For

Park Royal Hospital

EPSS Main East

Prepared By

John Hancock

Test Period

5/3/2010 1:00:00 AM - 5/3/2010 3:00:00 AM (Server Local)

Generated on: 8/5/2010 1:02:33 PM

Page 1 of 2

- The **Sources** section shows the devices in the selected report group.

Sources in Report Group: EPSS Main East

Source	Type	Description
ATS 01	Transfer Switch	This is a Life Safety Load ATS Device. Refer to EPSS operating procedure before testing this device.
ATS 02	Transfer Switch	This is a Critical Load ATS Device
ATS 03	Transfer Switch	This is a Non-Essential Load ATS Device
Gen 01	Generator	Cummins generator.

- The **Events Summary** section shows the status of the ATSS and generators in the report group.

ATS and Generator Events Summary

Timestamp	Source Name	Status
5/3/2010 1:00:54.24 AM	ATS 01	Test
5/3/2010 1:00:54.54 AM	Gen 01	Start
5/3/2010 1:01:03.04 AM	Gen 01	Running
5/3/2010 1:01:03.34 AM	ATS 01	Emergency
5/3/2010 1:01:24.24 AM	ATS 02	Test
5/3/2010 1:01:24.54 AM	ATS 02	Emergency
5/3/2010 1:01:46.31 AM	ATS 03	Test
5/3/2010 1:01:46.58 AM	ATS 03	Emergency
5/3/2010 1:59:18.90 AM	ATS 01	Normal
5/3/2010 1:59:19.90 AM	ATS 02	Normal
5/3/2010 1:59:29.89 AM	ATS 03	Normal
5/3/2010 2:06:21.63 AM	Gen 01	Stopped

- The **Automatic Transfer Switch Summary** section includes sections for the **Lead ATS** and for all of the ATSS in the report group.

Automatic Transfer Switch Summary

Lead ATS			
Lead ATS	Transfer Time	Required Transfer Time	Test Status
ATS 01	9.10 s	10 s	PASS

All Automatic Transfer Switches			
Transfer Switch	Priority Level	Transfer Time	In Emergency (hh:mm:ss)
ATS 01	Life Safety	9.10 s	00:58:15
ATS 02	Critical	0.30 s	00:57:55
ATS 03	Non-Essential Equipment	0.27 s	00:57:43

- The following **Generator Summary** section shows that the **Load and Exhaust Gas Temperature** evaluation method is being used to determine the status of the generator being tested.

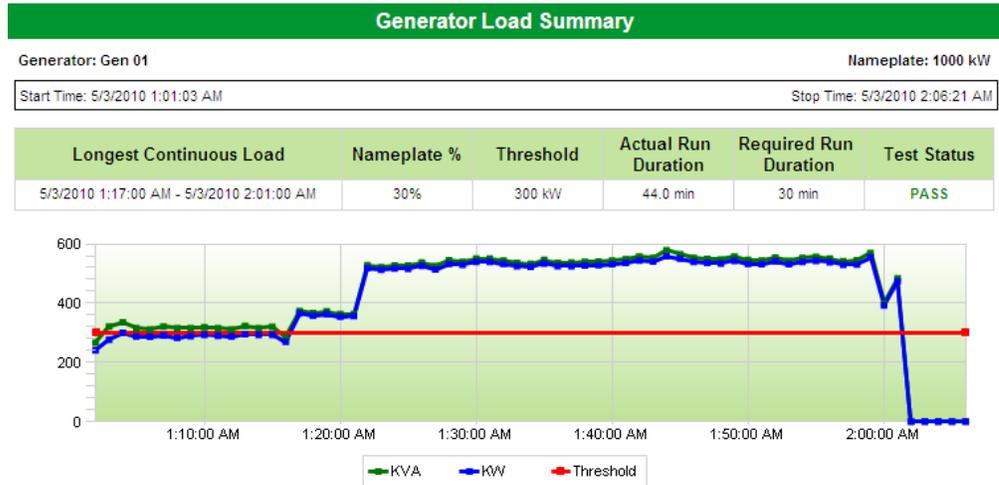
Generator Summary

Generator: Gen 01 Nameplate: 1000 kW
 Start Time: 5/3/2010 1:01:03 AM Stop Time: 5/3/2010 2:06:21 AM

Evaluation Method	Overall Test Status
Load and Exhaust Gas Temperature	PASS

Test	Stage	Test Status
Load	One	PASS
Exhaust Gas Temperature	One	PASS

- The **Generator Load Summary** section shows a graphical representation of the electrical load data for the generator being test.



- The **Generator Load Summary** section includes a table summarizing the minimum, average, and maximum electrical readings for the longest continuous load.

Min, Avg, Max Readings for the Longest Continuous Load

Measurement	Min	Avg	Max	Units
Active Power	355.00	509.36	558.00	kW
Apparent Power	363.00	520.93	578.00	kVA
Current Phase A	449.00	654.20	729.00	A
Current Phase B	421.00	602.82	666.00	A
Current Phase C	434.00	615.22	679.00	A
Voltage Phases AB	482.00	482.00	482.00	V
Voltage Phases AN	278.00	278.04	279.00	V
Voltage Phases BC	482.00	482.02	483.00	V
Voltage Phases BN	278.00	278.04	279.00	V
Voltage Phases CA	482.00	482.02	483.00	V
Voltage Phases CN	278.00	278.02	279.00	V

- The following **Generator Summary** section shows that the **Load Bank** evaluation method is being used to determine the status of the generator being tested.

Generator Summary

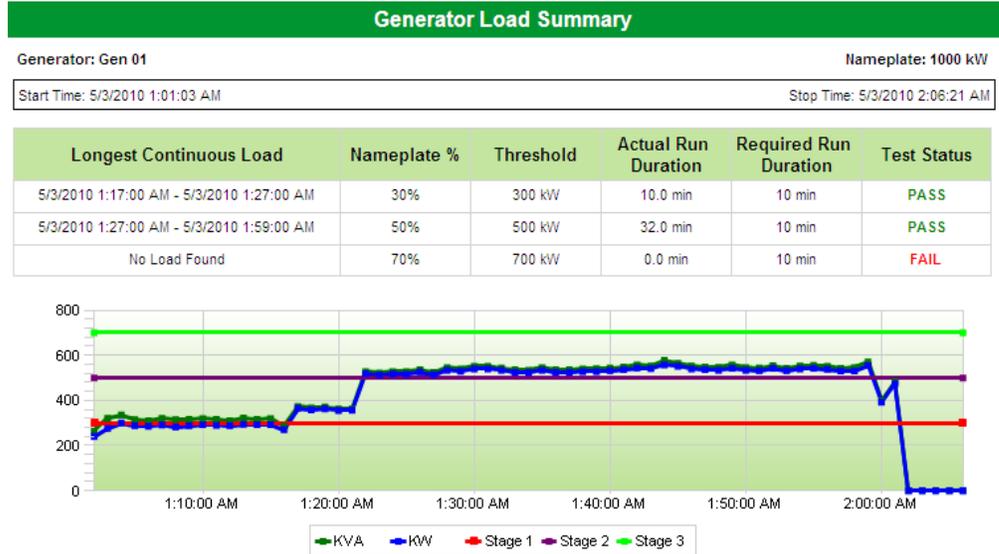
Generator: Gen 01 Nameplate: 1000 kW

Start Time: 5/3/2010 1:01:03 AM Stop Time: 5/3/2010 2:06:21 AM

Evaluation Method	Overall Test Status
Load Bank	FAIL

Test	Stage	Test Status
Load Bank	One	PASS
Load Bank	Two	PASS
Load Bank	Three	FAIL

- The **Generator Load Summary** section for the **Load Bank** evaluation method shows a table and graphical representation of the electrical load data for the generator being test.



- The **Generator Load Summary** section includes a table summarizing the minimum, average, and maximum electrical readings for the longest continuous load by load bank stages. The following images show data for each stage of the load bank test.

Min, Avg, Max Readings for the Longest Continuous Load

Generator: Gen 01 Nameplate: 1000 kW

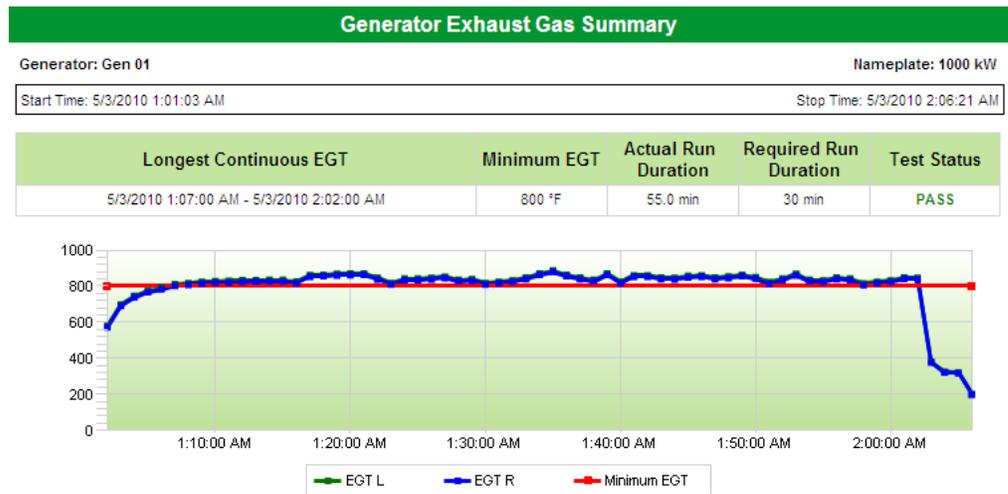
Start Time: 5/3/2010 1:01:03 AM Stop Time: 5/3/2010 2:06:21 AM

Stage One		1:17:00 AM - 1:27:00 AM			
Measurement	Min	Avg	Max	Units	
Active Power	355.00	438.90	526.00	kW	
Apparent Power	363.00	447.90	537.00	kVA	
Current Phase A	449.00	559.60	674.00	A	
Current Phase B	421.00	519.70	624.00	A	
Current Phase C	434.00	531.20	632.00	A	
Voltage Phases AB	482.00	482.00	482.00	V	
Voltage Phases AN	278.00	278.00	278.00	V	

Stage Two				
1:27:00 AM - 1:59:00 AM				
Measurement	Min	Avg	Max	Units
Active Power	514.00	535.33	558.00	kW
Apparent Power	525.00	547.85	578.00	kVA
Current Phase A	659.00	688.82	729.00	A
Current Phase B	608.00	633.79	666.00	A
Current Phase C	619.00	646.12	679.00	A
Voltage Phases AB	482.00	482.00	482.00	V
Voltage Phases AN	278.00	278.06	279.00	V
Voltage Phases BC	482.00	482.03	483.00	V
Voltage Phases BN	278.00	278.03	279.00	V
Voltage Phases CA	482.00	482.03	483.00	V
Voltage Phases CN	278.00	278.03	279.00	V

Stage Three	
No Load Found	

- The **Generator Exhaust Gas Summary** section shows a graphical representation of the exhaust gas temperature data.



- The **Generator Exhaust Gas Summary** section also includes a table summarizing the minimum, average, and maximum exhaust gas temperature readings for the longest continuous load.

Min, Avg, Max Readings for the Longest Continuous EGT

Measurement	Min	Avg	Max	Units
Exhaust Gas Temperature Left	811.03	844.38	888.80	F
Exhaust Gas Temperature Right	803.00	836.02	880.00	F

- The **Generator Exhaust Gas Details** section shows summarized exhaust gas temperature details by time intervals for the run duration.

Generator Exhaust Gas Details		
Generator: Gen 01		Nameplate: 1000 kW
Start Time: 5/3/2010 1:01:03 AM		Stop Time: 5/3/2010 2:06:21 AM
Timestamp	Exhaust Gas Temperature Left °F	Exhaust Gas Temperature Right °F
5/3/2010 1:02:00 AM	578.73	573.00
5/3/2010 1:03:00 AM	698.92	692.00
5/3/2010 1:04:00 AM	746.39	739.00
5/3/2010 1:05:00 AM	774.67	767.00
5/3/2010 1:06:00 AM	791.84	784.00
5/3/2010 1:07:00 AM	811.03	803.00
5/3/2010 1:08:00 AM	817.09	809.00
5/3/2010 1:09:00 AM	824.16	816.00

- The **Generator Electrical Details** section shows summarized electrical details by time intervals.

Generator Electrical Details						
Generator: Gen 01				Nameplate: 1000 kW		
Start Time: 5/3/2010 1:01:03 AM				Stop Time: 5/3/2010 2:06:21 AM		
Timestamp	KW	KVA	Load %	VLLAvg	VLNAvg	Frequency
5/3/2010 1:02:00 AM	241.00	266.00	24.10	482.00	278.00	60.07
5/3/2010 1:03:00 AM	276.00	321.00	27.60	481.00	278.00	60.03
5/3/2010 1:04:00 AM	300.00	336.00	30.00	482.00	278.00	60.08
5/3/2010 1:05:00 AM	288.00	315.00	28.80	482.00	278.00	60.06
5/3/2010 1:06:00 AM	286.00	311.00	28.60	482.00	278.00	60.07
5/3/2010 1:07:00 AM	291.00	321.00	29.10	482.00	278.00	60.07
5/3/2010 1:08:00 AM	283.00	315.00	28.30	482.00	278.00	60.08
5/3/2010 1:09:00 AM	289.00	316.00	28.90	482.00	278.00	60.07
5/3/2010 1:10:00 AM	293.00	319.00	29.30	482.00	278.00	60.07
5/3/2010 1:11:00 AM	290.00	316.00	29.00	482.00	278.00	60.08

- The **Generator Engine Details** section shows engine parameter details. The following image shows battery voltage readings.

Generator Engine Details		
Generator: Gen 01		Nameplate: 1000 kW
Start Time: 5/3/2010 1:01:03 AM		Stop Time: 5/3/2010 2:06:21 AM
Measurement	Timestamp	Reading
Battery Voltage (V)	5/3/2010 1:02:00 AM	28.02
	5/3/2010 1:03:00 AM	28.02
	5/3/2010 1:04:00 AM	28.03
	5/3/2010 1:05:00 AM	28.00
	5/3/2010 1:06:00 AM	27.98
	5/3/2010 1:07:00 AM	27.98

- The following image of the **Generator Engine Details** section shows the generator's oil pressure readings.

Oil Pressure (PSI)	
5/3/2010 1:02:00 AM	84.91
5/3/2010 1:03:00 AM	66.36
5/3/2010 1:04:00 AM	65.05
5/3/2010 1:05:00 AM	65.05
5/3/2010 1:06:00 AM	66.43
5/3/2010 1:07:00 AM	72.86
5/3/2010 1:08:00 AM	65.76
5/3/2010 1:09:00 AM	65.03
5/3/2010 1:10:00 AM	64.93

PowerLogic™ ION Enterprise™ 6.0
EPSS Configuration Utility and Test Report User Guide

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