# General Specification

# Sequence of Events Recorder

# **Exaguantum**/SER

### GS GMSCD0101-01E

# The Problem

Unplanned incidents and equipment trips have the potential to cause equipment damage, reductions in production rate and quality, fire, environmental damage and loss of life.

# The Solution

Exaquantum/SER (Sequence of Events Recorder) provides a web interface for users to display and analyze collected Alarms & Events and process data suitable for Root Cause Analysis (RCA) and trip analysis to lower or remove the possibility of future recurrences.

# Benefits

- Integrated view of alarm and event messages provides users with visibility across the site for improved analysis
- Increases user efficiency when performing RCAs and trip analysis
- Allows past incidents to be further analyzed for failure patterns
- Regulatory compliance is supported by the availability of a detailed audit trail

# Key Features

- Intuitive web user interface providing access to a centralized database of alarm and event messages
- At-a-glance overview of the latest events and trips
- Users can see the details surrounding trip occurrences
- Reports can be produced on demand or scheduled and emailed at regular intervals
- Data can be exported to a CSV file for use in external applications, such as Excel

# Introduction

Exaquantum/SER, hereafter referred to as 'SER', accesses Exaquantum Historian Alarms & Events and process data that is being continuously collected and stored from all appropriate plant systems.

SER can configure trip conditions allowing a trip to be created when an incident occurs for later analysis. All alarms, events and relevant process data for a given period of time, before and after the trip, is recorded, aiding users in determining the cause(s) and knock-on effects of each trip.

In addition, SER acts as a sequence of events recorder (SOE) providing an integrated view of all the alarm and events suitable for performing RCAs.

Exaquantum/SER - Trips Sequence of Events	▲ localhost/Quantumuser +
Last 10 completed Trips	Last 10 Events in the last hour
Pump A47 Stop	1FIC1105 Flow Upper LineA. UnitA PV = 42.3 KM3/H LO
1FIC1102 Pump_A_47 (1MC3011) is OFF ALM	Data/Time 30 Jul 2013 19:38:13.000 OPCServer CHIS001 Source 1FIC1105 Category Process Alarm
Date/Time 27 Jul 2013 15:00:15:000 CPCServer CHIB123 Source 1FIC1102	Severity 500 ConditionName LO TagName 1FIC1105
Crude Unit 1LL Critical	1FIC1104 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
2LIN2101 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Date/Time 30 Jul 2013 15:38:13.000 OPCServer CHIS001 Source 1FIC1104 Category Process Alarm
Datar/Time 27 Jul 2013 14:59:56.000 OPCServer CHI8206 Source 2LIN2101	Severity 500 ConditionName LO TagName 1FIC1104
Plant 4 Unit 576 Oil level LOW	1FIC1103 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
4FIC2704 OIL_LVL_PV = 12.03 LL	Date/Time 30 Jul 2013 15:38:13.000 OPCServer CHIS001 Source 1FIC1103 Category Process Alarm
DaterTime 27 Jul 2013 14:59:55:000 OPCServerCHI8942Source 4FIC2704	Severity 500 ConditionName LO TagName 1FIC1103
Conveyer B110 Stop	1FIC1102 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
1FIC1102 PlantA_Machine5C97 (LLL05c97) is STOPPED	Data/Time 30 Jul 2013 15:38:13.000 OPCServer CHI8001 Source 1FIC1102 Category Process Alarm
DaterTime 27 Jul 2013 14:42:58:000 OPCServerCHI8845 Source IFIC1102	Severity 500 ConditionName LO TagName 1FIC1102
Bottom Pump Stop Trip	1FIC1105 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover
1FIC1102 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Data/Time 30 Jul 2013 19:38:12.000 OPCServer CHIS001 Source 1FIC1105 Category Process Alarm
Date/Time 27 Jul 2013 14:32:37.000 OPCServerCHIS0923 Source1FIC1102	Severity 500 ConditionName HI TagName 1FIC1105
9X54 Pump Stop Trip	1FIC1104 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover
3FID1305 Pump_9x54000_LVL is STOPPED	Date/Time 30 Jul 2013 1538:12:000 OPCServer CHIS001 Source 1FIC1104 Category Process Aarm
DaterTime 27 Jul 2013 14:27:43.000 OPCServer CHI8963 Source3FID1305	Severity 500 ConditionName HI TagName 1FIC1104
Main tower funnel temp HIGH	1FIC1103 Flow Upper LineA UnIXA PV = 67.9 KM3/H HI Recover
1BAC6114 Flow Upper Line7 Unit2 Funnel85 PV = 523.0 KM3/H HI	Date/Time 30 Jul 2013 15:38:12.000 OPCServer CH8001 Source 1FIC1103 Category Process Alarm
Date/Time 27 Jul 2013 14:24:23.000 OPCServer CHI3302 Seurce1BAC6114	Severity 500 ConditionName HI TagName 1FIC1103
Conveyer B564 STOP	1FIC1102 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover
1FIC1276 PtantB7_Machine3C00 (LDS0x1102) is STOPPED	Date/Time 30 Jul 2013 15:35:12:000 OPCServer CHI8001 Source 1FIC1102 Category Process Alarm
Date/Time 27 Jul 2013 14:21:54.000 OPCServer CHIS940 Seurce1FIC1276	Severity 500 ConditionName HI TagName 1FIC1102
Primary Surge Pump Pressure Release	1FIC1105 Flow Upper LineA UnitA PV = 85.5 KM3/H HH Recover
355D18349 Pump_5x62040_LVL = 4545 HM3/H	Date/Time 30 Jul 2013 153808.000 OPCServer CHIS001 Source 1FIC1106 Category Process Alarm
DstefTime 27 Jul 2013 14:17:01.000 OPCServer CHIS923 Seurce355D18349	Severity 900 ConditionName HH TagName 1FIC1105
Secondary Surge Pump Pressure Release	1FIC1104 Flow Upper LineA UnitA FV = 65.5 KM3/H HH Recover
355D18341 Pump_5ti62804_LVL = 3240 HM3/H	Date/Time 30 Jul 2013 15:38:09.000 OPCServer CHIS001 Source 1FIC1104 Category Process Alarm
Date/Time 27 Jul 2013 14:07:34:000 OPCServer CHIG734 Source355D18341	Severity 900 ConditionName HH TegName 1FIC1104

# Capabilities

#### Web User Interface

SER user access is provided via an intuitive web user interface, eliminating the need for specific client software. A central navigation area provides links to each of the reports, localization options and other Exaquantum products. The web user interface is compatible with Microsoft Internet Explorer versions 8, 9 and 10, with security provided through Windows local and domain user groups.

#### Localization

The SER user interface allows seamless switching between installed languages. SER is provided with US English by default with support for additional languages on request – please contact your local Yokogawa office for more information.

Date/Time 🕈	Trip Name	OPC Server	Source	Message
27 Jul 2013 15:00:15:000	Pump A47 Stop	CHIS123	1FIC1102	1FIC1102 Pump_A_47 (1MC3011) is OFF ALM
27 Jul 2013 14:59:58.000	Crude Unit 1LL Critical	CHIS296	2LIN2101	2LIN2101 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
27 Jul 2013 14:59:55.000	Plant 4 Unit b76 Oil level LOW	CHIS942	4FIC2704	4FIC2704 OIL_LVL_PV = 12.03 LL
27 Jul 2013 14:42:59.000	Conveyer B110 Stop	CHIS845	1FIC1102	1FIC1102 PlantA_Machine5C97 (LLL05c97) is STOPPED
27 Jul 2013 14:32:37.000	Bottom Pump Stop Trip	CHIS0923	1FIC1104	1FIC1102 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
27 Jul 2013 14:24:23.000	Main tower funnel temp HIGH	CHIS392	1BAC6114	1BAC6114 Flow Upper Line7 Unit2 Funnel85 PV = 523.0 KM3/H HI
27 Jul 2013 14:21:54.000	Conveyer B564 STOP	CHIS940	1FIC1276	1FIC1276 PlantB7_Machine3C00 (LDS0x1102) is STOPPED
27 Jul 2013 14:17:01.000	Primary Surge Pump Pressure Release	CHIS923	355D18349	355D18349 Pump_5x62040_LVL = 4545 HM3/H
27 Jul 2013 14:07:34.000	Secondary Surge Pump Pressure Release	CHIS734	355D18341	355D18341 Pump_5x62804_LVL = 3240 HM3/H
27 Jul 2013 14:02:15.000	Pump A47 Stop	CHIS123	1FIC1102	1FIC1102 Pump_A_47 (1MC3011) is OFF ALM
27 Jul 2013 13:59:58.000	Crude Unit 1LL Critical	CHIS296	2LIN2101	2LIN2101 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
27 Jul 2013 13:57:55.000	Plant 4 Unit b76 Oil level LOW	CHIS942	4FIC2704	4FIC2704 OIL_LVL_PV = 12.03 LL
27 Jul 2013 13:42:59.000	Conveyer B110 Stop	CHIS845	1FIC1102	1FIC1102 PlantA_Machine5C97 (LLL05c97) is STOPPED
27 Jul 2013 13:32:37.000	Bottom Pump Stop Trip	CHIS0923	1FIC1104	1FIC1102 Flow Upper LineA UnitA PV = 42.3 KM3/H LO
27 Jul 2013 13:24:23.000	Main tower funnel temp HIGH	CHIS392	1BAC6114	1BAC6114 Flow Upper Line7 Unit2 Funnel85 PV = 523.0 KM3/H HI
27 Jul 2013 13:21:54.000	Conveyer B564 STOP	CHIS940	1FIC1276	1FIC1276 PlantB7_Machine3C00 (LDS0x1102) is STOPPED
27 Jul 2013 13:17:01.000	Primary Surge Pump Pressure Release	CHIS923	355D18349	355D18349 Pump_5x62040_LVL = 4545 HM3/H
27 Jul 2013 13:07:34.000	Secondary Surge Pump Pressure Release	CHIS734	355D18341	355D18341 Pump_5x62804_LVL = 3240 HM3/H
27 Jul 2013 13:00:15.000	Pump A47 Stop	CHIS123	1FIC1102	1FIC1102 Pump_A_47 (1MC3011) is OFF ALM
27 Jul 2013 12:59:58.000	Crude Unit 1LL Critical	CHIS296	2LIN2101	2LIN2101 Flow Upper LineA UnitA PV = 42.3 KM3/H LO



#### **Trip Detection**

If trip detection is required, trip conditions are configured using SER's Trip Detection Configuration Tool, grouped by event source and category. Each trip condition will have:

- A unique name and description
- One or more trip event conditions including optional process data
- Pre-trip and post-trip detection event time spans, such as 120 minutes before the trip detection and 60 minutes following the trip detection for which all events and process data will be recorded

Each received alarm and event is compared against the configured trip conditions and if a match occurs then a trip will be created with the trip monitor copying alarms & events and process data surrounding the trip into a dedicated secure area. Trip conditions can be optionally set to prevent more than one active trip at a time from occurring.

Frip Details for Pump A47 Stop					ΨFI	iter • 0
Date/Time †	Туре	Source	Message	Category	Tag name	Data valu
27 Jul 2013 22:14:58.000	DATA	Root.CHIS001.1FIC1201_PV.Value	Flow Upper LineA UnitB			120.34
27 Jul 2013 22:14:59.126	DATA	Root.CHIS001.1FIC1202_PV.Value	Flow Upper LineA UnitB			117.23
27 Jul 2013 22:14:59.576	DATA	Root.CHIS001.1FIC1203_PV.Value	Flow Upper LineA UnitB			177.63
27 Jul 2013 22:14:59.783	DATA	Root.CHIS001.1FIC1204_PV.Value	Flow Upper LineA UnitB			114.76
27 Jul 2013 22:14:59.843	DATA	Root.CHIS001.1FIC1205_PV.Value	Flow Upper LineA UnitB			103.99
27 Jul 2013 22:14:59.973	DATA	Root.CHIS001.2FIC1101_PV.Value	Flow Lower LineB UnitC			138.85
27 Jul 2013 22:15:00.034	DATA	Root.CHIS001.2FIC1107_PV.Value	Flow Lower LineB UnitC			134.73
27 Jul 2013 22:15:00.520	DATA	Root.CHIS001.2FIC1103_PV.Value	Flow Lower LineB UnitC			141.23
27 Jul 2013 22:15:00.932	DATA	Root.CHIS001.2FIC1104_PV.Value	Flow Lower LineB UnitC			111.61
27 Jul 2013 22:15:01.183	DATA	Root.CHIS001.2FIC1105_PV.Value	Flow Lower LineB UnitC			119.34
27 Jul 2013 22:15:01.613	TRIP	Root.CHIS001.1FIC1102_PV.Value	1FIC1102 Pump_A_47 (1MC3011) is OFF ALM	Process Alarm	1FIC1102	501.23
27 Jul 2013 22:15:01.892	DATA	Root.CHIS001.1FIC1201_PV.Value	Flow Upper LineA UnitB			123.64
27 Jul 2013 22:15:02.032	DATA	Root.CHIS001.1FIC1202_PV.Value	Flow Upper LineA UnitB			98.230
27 Jul 2013 22:15:02.232	DATA	Root.CHIS001.1FIC1204_PV.Value	Flow Upper LineA UnitB			122.65
27 Jul 2013 22:15:02.573	DATA	Root.CHIS001.1FIC1203_PV.Value	Flow Upper LineA UnitB			130.17
27 Jul 2013 22:15:02.680	DATA	Root.CHIS001.2FIC1103_PV.Value	Flow Lower LineB UnitC			112.73
27 Jul 2013 22:15:02.820	DATA	Root.CHIS001.2FIC1207_PV.Value	Flow Lower LineB UnitC			104.65
27 Jul 2013 22:15:02.953	DATA	Root.CHIS001.2FIC1101_PV.Value	Flow Lower LineB UnitC			118.37
27 Jul 2013 22:15:03.233	DATA	Root.CHIS001.1FIC1205_PV.Value	Flow Upper LineA UnitB			111.80
27 Jul 2013 22:15:03.462	DATA	Root.CHIS001.2FIC1105_PV.Value	Flow Lower LineB UnitC			125.10
			« 1 2 »			

#### Reports

The SER web user interface enables users to create both Sequence of Event (SOE) and trip reports that are highly customizable through the use of filters. The reports can be printed or exported to CSV files for use in external applications such as Excel. Report filter definitions can also be saved and reused, saving users time when running commonly used queries.

# Storage of Messages and Process Data in a Single Integrated Database

All alarm and event messages and process data from various sources can be stored in the SER database.

For trips, alarm & event messages and trip configured process data is also copied into a secure area of the database for long term storage, which is used for web based trip analysis and reports.

# Integration with Multiple Monitoring and Control Data Systems

The Exaquantum Historian collects and stores alarm & event messages and process data from control and safety systems, etc. into a centralized database providing SER users with a detailed picture of overall plant activity.

# **Data Archiving and Retrieval**

SER includes a tool for managing the way historical data is accumulated and archived on backup devices. Archived data may later be restored for access by users.

#### Data Catch-up

Yokogawa has uniquely extended Exaopc's (Yokogawa's OPC Server) implementation of OPC HDA to include Historical Alarms and Events (HAE). This allows Exaopc to automatically buffer all alarm and event messages and process data that is received by Exaopc when the Exaquantum Historian is not available.

Once the connection has been restored, alarm and event messages and process data collected by Exaopc will be automatically passed to the Exaquantum Historian, allowing missing trips to be recognized by SER.

#### **OPC** Interfaces

Exaquantum/SER receives data from OPC compliant data sources meeting the following standards:

- Data Access OPC DA 2.05a
- Alarms and Events Access OPC A&E 1.1
- Historical Data Access OPC HDA 1.2

Key data providers of Alarms & Events and process data include:

- Yokogawa's OPC server 'Exaopc' for CENTUM-XL, CENTUM CS, CENTUM CS 1000, CENTUM CS 3000 and CENTUM VP
- Yokogawa's Stardom, FAST/TOOLS, ProSafe-RS and ProSafe MULCOM

This Exaquantum Historian captures and stores alarm and event timestamps with a time resolution of 1 millisecond for use by SER.

Alarms, events and process data received from non-Yokogawa OPC servers can be connected to the Exaquantum Historian if they meet the OPC standards specified above.

Additionally, Yokogawa can supply custom Exaopc interfaces to provide missing capabilities such as OPC HDA for equipment supporting only OPC DA. An Exaopc interface is also available to convert OPC DA to OPC A&E.

Date/Time 🕇	OPCServer	Source	Message	Category	Severity	ConditionName	TagName
30 Jul 2013 16:07:51.000	CHIS001	1FIC1105	1FIC1105 Flow Upper LineA UnitA PV = 20.7 KM3/H LL	Process Alarm	900	LL	1FIC1105
30 Jul 2013 16:07:51.000	CHIS001	1FIC1104	1FIC1104 Flow Upper LineA UnitA PV = 20.7 KM3/H LL	Process Alarm	900	LL	1FIC1104
30 Jul 2013 16:07:51.000	CHIS001	1FIC1103	1FIC1103 Flow Upper LineA UnitA PV = 20.7 KM3/H LL	Process Alarm	900	LL	1FIC1103
30 Jul 2013 16:07:51.000	CHIS001	1FIC1102	1FIC1102 Flow Upper LineA UnitA PV = 20.7 KM3/H LL	Process Alarm	900	u.	1FIC1102
30 Jul 2013 16:07:47.000	CHIS001	1FIC1105	1FIC1105 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Process Alarm	500	LO	1FIC1105
30 Jul 2013 16:07:47.000	CHIS001	1FIC1104	1FIC1104 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Process Alarm	500	LO	1FIC1104
30 Jul 2013 16:07:47.000	CHIS001	1FIC1103	1FIC1103 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Process Alarm	500	LO	1FIC1103
30 Jul 2013 16:07:47.000	CHIS001	1FIC1102	1FIC1102 Flow Upper LineA UnitA PV = 42.3 KM3/H LO	Process Alarm	500	LO	1FIC1102
30 Jul 2013 16:07:45.000	CHIS001	1FIC1105	1FIC1105 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover	Process Alarm	500	н	1FIC1105
30 Jul 2013 16:07:45.000	CHIS001	1FIC1104	1FIC1104 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover	Process Alarm	500	HI	1FIC1104
30 Jul 2013 16:07:45.000	CHIS001	1FIC1103	1FIC1103 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover	Process Alarm	500	H	1FIC1103
30 Jul 2013 16:07:45.000	CHIS001	1FIC1102	1FIC1102 Flow Upper LineA UnitA PV = 57.9 KM3/H HI Recover	Process Alarm	500	H	1FIC1102
30 Jul 2013 16:07:44.000	CHIS001	1FIC1105	1FIC1105 Flow Upper LineA UnitA PV = 65.5 KM3/H HH Recover	Process Alarm	900	HH	1FIC1105
30 Jul 2013 16:07:44.000	CHIS001	1FIC1104	1FIC1104 Flow Upper LineA UnitA PV = 65.5 KM3/H HH Recover	Process Alarm	900	HH	1FIC1104
30 Jul 2013 16:07:44.000	CHIS001	1FIC1103	1FIC1103 Flow Upper LineA UnitA PV = 65.5 KM3/H HH Recover	Process Alarm	900	HH	1FIC1103
30 Jul 2013 16:07:44.000	CHIS001	1FIC1102	1FIC1102 Flow Upper LineA UnitA PV = 65.5 KM3/H HH Recover	Process Alarm	900	HH	1FIC1102
30 Jul 2013 16:07:44.000	CHIS001	1FIC1101	1FIC1101 Flow Upper LineA UnitA PV = 65.5 KM3/H HH Recover	Process Alarm	900	HH	1FIC1101
30 Jul 2013 16:07:29.000	CHIS001	1FIC1105	1FIC1105 Flow Upper LineA UnitA PV = 72.7 KM3/H HH	Process Alarm	900	HH	1FIC1105
30 Jul 2013 16:07:29.000	CHIS001	1FIC1104	1FIC1104 Flow Upper LineA UnitA PV = 72.7 KM3/H HH	Process Alarm	900	HH	1FIC1104
30 Jul 2013 16:07:29.000	CHIS001	1FIC1103	1FIC1103 Flow Upper LineA UnitA PV = 72.7 KM3/H HH	Process Alarm	900	HH	1FIC1103

# Hardware and Software Requirements

#### **Tables: Minimum Hardware and Software Specifications**

Component	Hardware Specification
Exaquantum/ SER Server	<ul> <li>2.2 GHz multi-core processor</li> <li>8 GB RAM</li> <li>300 GB disk</li> </ul>
Exaquantum/ SER Web Server*	<ul> <li>2.2 GHz multi-core processor</li> <li>8 GB RAM</li> <li>18 GB disk</li> </ul>
Exaquantum/ SER Clients	As appropriate for Internet Explorer 8, 9 or 10

\*A dedicated web server may be required depending on the Exaquantum requirements, the number of Exaquantum expansion packages (such as Exaquantum/SER, Exaquantum/ ARA, Exaquantum/AMD, Exaquantum/SFM, Exaquantum/DTA, etc.) being installed on the Exaquantum server and the total number of concurrent Web users. Please contact your local Yokogawa office for assistance.

	Component	Software Specification
	Evoquantum/	<operating systems=""> <ul> <li>Windows Server 2012 Standard 64 bit</li> <li>Windows Server 2008 R2 Standard (SP1) 64 bit</li> <li>Windows Server 2008 Standard (SP1) 32 bit</li> </ul></operating>
	SER Server	<ul> <li><other software=""></other></li> <li>Exaquantum Historian R2.85 Server (Legacy or Standard Security)</li> <li>Exaquantum/Web R2.85 Server (if combined server)</li> </ul>
	Exaquantum/ SER Web Server	<operating systems=""> <ul> <li>Windows Server 2012 Standard 64 bit</li> <li>Windows Server 2008 R2 Standard (SP1) 64 bit</li> <li>Windows Server 2008 Standard (SP2) 32 bit</li> </ul> <other software=""> <ul> <li>Exaquantum/Web R2.85 Server</li> </ul></other></operating>
	Exaquantum/ SER Clients	<b>Operating Systems&gt;</b> <ul> <li>Internet Explorer 8, 9 or 10</li> </ul>

# Models and Suffix Codes

Table: Exaquantum/SER Server License

	Product Codes	Description
Model	GMSCD01	Exaquantum/SER Server License
	-S	Basic Software License
	1	New Order (with Media)
	1	English Version
	-01	Sequence of Events Recorder Server License
	-N□□	Enter the number of New per-seat Exaquantum/SER Web Client Licenses in □□ (01 - 99)
Suffix Codes	-NDDD	Enter the number of discounted New per-seat Exaquantum/SER Web Client Licenses in □□ (01 - 99)*
	-V00	Enter the number of existing Exaquantum/ Web per-seat Client Licenses to be upgraded to access Exaquantum/SER screens in □□ (01 - 99)*
	-UDDD	Enter the number of discounted per-seat Exaquantum/Web Client Licenses to be Upgraded in

\*A price discount of 50% is applied if Exaquantum/ARA (Alarm Reporting and Analysis) is also purchased at full price for installation on the same server as Exaquantum/SER when ordered at the same time. This discount does not apply to Exaopc cassette licenses.

An Exaquantum historian and Exaquantum/Web server license must also be provided.

If trip reporting is configured then the number of Exaquantum tags (data points) required will depend on the amount of tags to be used for trip condition filters and/or collected when a trip occurs.

#### Table: Exaquantum/SER Maintenance Service

	Product Codes	Description
Model	GMSCD80	Exaquantum/SER Maintenance Service
	-S	Basic Maintenance Service
	1	Always 1
	1	Always 1
Suffix	-1P□□	Enter the number of Exaquantum/ SER (Sequence of Events Recorder) Package Licenses in 🗆 (01 - 99)
Codes	-1NDD	Enter the number of New per-seat Exaquantum/SER Web Client Licenses in □□ (01 - 99)
	-1000	Enter number of Upgraded per-seat Exaquantum/SER Web Client Licenses in

### Trademarks

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