

# SIEMENS

## SIMATIC

### S7-1500/ET 200MP, S7-1500R/H, SIMATIC Drive Controller, SIMATIC S7-1500 Software Controller, ET 200SP, ET 200pro

## Product Information about Syslog Messages

### Product Information

## Introduction

### Scope of validity of the product information

This product information supplements the documentation for SIMATIC S7-1500/ET 200MP, S7-1500R/H, SIMATIC Drive Controller, SIMATIC S7-1500 Software Controller, ET 200SP, ET 200pro.

## Cybersecurity information

Siemens provides products and solutions with industrial cybersecurity functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For more information on industrial cybersecurity measures that may be implemented, please visit (<https://www.siemens.com/global/en/products/automation/topic-areas/industrial-cybersecurity.html>).

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customers' exposure to cyber threats.

To stay informed about product updates at all times, subscribe to the Siemens Industrial Cybersecurity RSS Feed under (<https://new.siemens.com/global/en/products/services/cert.html>).

Siemens Aktiengesellschaft  
Digital Industries  
Postfach 48 48  
90026 NÜRNBERG  
GERMANY

Product Information about Syslog Messages  
A5E53245873-AA, 11/2023

# Table of Contents

1. Event Details .....	5
1.1. SE_LOCAL_SUCCESSFUL_LOGON .....	5
1.2. SE_LOCAL_UNSUCCESSFUL_LOGON .....	5
1.3. SE_NETWORK_SUCCESSFUL_LOGON .....	5
1.4. SE_NETWORK_UNSUCCESSFUL_LOGON .....	5
1.5. SE_LOGOFF .....	6
1.6. SE_DEFAULT_USER_AUTHENTICATION_USED .....	6
1.7. SE_ACCESS_PWD_ENABLED .....	6
1.8. SE_ACCESS_PWD_DISABLED .....	6
1.9. SE_ACCESS_PWD_CHANGED .....	7
1.10. SE_ACCESS_GRANTED .....	7
1.11. SE_ACCESS_DENIED .....	7
1.12. SE_ACCESS_DENIED_NUMBER_OF_CONCURRENT_SESSIONS_EXCEEDED .....	7
1.13. SE_CRITICAL_DEVICE_STARTED .....	8
1.14. SE_CRITICAL_DEVICE_STOPPED .....	8
1.15. SE_AUDIT_EVENTS_OVERWRITTEN .....	8
1.16. SE_OPEN_RESOURCE .....	9
1.17. SE_CLOSE_RESOURCE .....	9
1.18. SE_DELETE_OBJECT .....	9
1.19. SE_OBJECT_OPERATION .....	9
1.20. SE_SESSION_CLOSED .....	10
1.21. SE_INVALID_SESSION_ID .....	10
1.22. SE_BACKUP_STARTED .....	10
1.23. SE_BACKUP_SUCCESSFULLY_DONE .....	10
1.24. SE_BACKUP_FAILED .....	11
1.25. SE_BACKUP_RESTORE_STARTED .....	11
1.26. SE_BACKUP_RESTORE_FAILED .....	11
1.27. SE_SECURITY_CONFIGURATION_CHANGED .....	11
1.28. SE_SESSION_ESTABLISHED .....	12
1.29. SE_CFG_DATA_CHANGED .....	12
1.30. SE_USER_PROGRAM_CHANGED .....	12
1.31. SE_OPMOD_CHANGED .....	12
1.32. SE_FIRMWARE_LOADED .....	13
1.33. SE_FIRMWARE_ACTIVATED .....	13
1.34. SE_SYSTEMTIME_CHANGED .....	13
1.35. SE_OPMOD_CHANGE_INITIATED .....	13
1.36. SE_SECURITY_STATE_CHANGE .....	14
1.37. SE_DEVICE_STARTUP .....	14

1.38. SE_TIME_SYNCHRONIZATION	14
1.39. SE_DEVICE_CONNECTED	14
1.40. SE_DEVICE_DISCONNECTED	15
1.41. SE_SESSION_TERMINATED	15
2. Parameter Details	16
2.1. dateAndTime	16
2.2. devProduct	16
2.3. devVendor	16
2.4. DNSserver	16
2.5. domainName	16
2.6. errReason	16
2.7. evt	16
2.8. fct	16
2.9. functionRight	16
2.10. FWVersion	16
2.11. hostName	17
2.12. interface	17
2.13. IPv4Suite	17
2.14. job	17
2.15. newState	17
2.16. NTPserver	17
2.17. oldState	17
2.18. PNDeviceName	17
2.19. protocolType	17
2.20. resOper	17
2.21. resource	17
2.22. result	18
2.23. rhCPU	18
2.24. service	18
2.25. sessionID	18
2.26. spt	18
2.27. src	18
2.28. sTSel	18
2.29. userName	18
2.30. withMeasurements	18
3. APP-NAME field content	19
4. Requirements	20
4.1. SR 1.1 RE 1 - Unique identification and authentication	20
4.2. SR 1.1 RE 2 - Multifactor authentication for untrusted networks	20
4.3. SR 1.1 RE 3 - Multifactor authentication for all networks	20
4.4. SR 1.11 - Unsuccessful login attempts	20

4.5. SR 1.13 - Access via untrusted networks . . . . .	21
4.6. SR 1.2 - Software process and device identification and authentication . . . . .	21
4.7. SR 1.3 - Account management . . . . .	21
4.8. SR 1.4 - Identifier management . . . . .	21
4.9. SR 1.5 - Authenticator management . . . . .	21
4.10. SR 2.1 - Authorization enforcement . . . . .	22
4.11. SR 2.1 RE 3 - Supervisor override . . . . .	22
4.12. SR 2.1 RE 4 - Dual approval . . . . .	22
4.13. SR 2.10 - Response to audit processing failures . . . . .	22
4.14. SR 2.12 - Non-repudiation . . . . .	23
4.15. SR 2.2 - Wireless use control . . . . .	23
4.16. SR 2.5 - Session lock . . . . .	23
4.17. SR 2.6 - Remote session termination . . . . .	23
4.18. SR 2.7 - Concurrent session control . . . . .	23
4.19. SR 2.8 RE 1 - Centrally managed, system-wide audit trail . . . . .	24
4.20. SR 2.9 RE 1 - Warn when audit record storage capacity threshold reached . . . . .	24
4.21. SR 3.1 - Communication integrity . . . . .	24
4.22. SR 3.2 - Malicious code protection . . . . .	24
4.23. SR 3.4 - Software and information integrity . . . . .	25
4.24. SR 3.7 - Error handling . . . . .	25
4.25. SR 3.8 - Session integrity . . . . .	25
4.26. SR 3.9 - Protection of audit information . . . . .	25
4.27. SR 3.9 RE 1 - Audit records on write-once media . . . . .	26
4.28. SR 7.1 - Denial of service protection . . . . .	26
4.29. SR 7.3 - Control system backup . . . . .	26
4.30. SR 7.3 RE 1 - Backup verification . . . . .	26
4.31. SR 7.3 RE 2 - Backup automation . . . . .	26
4.32. SR 7.4 - Control system recovery and reconstitution . . . . .	27
4.33. SR 7.5 - Emergency power . . . . .	27
4.34. SR 7.6 - Network and security configuration settings . . . . .	27
5. Severities . . . . .	28
5.1. Emergency . . . . .	28
5.2. Alert . . . . .	28
5.3. Critical . . . . .	28
5.4. Error . . . . .	28
5.5. Warning . . . . .	28
5.6. Notice . . . . .	28
5.7. Informational . . . . .	29
5.8. Debug . . . . .	29

# Chapter 1. Event Details

## 1.1. SE\_LOCAL\_SUCCESSFUL\_LOGON

<b>ID</b>	<b>1</b>
Parameter	<a href="#">fct</a> , <a href="#">result</a> , <a href="#">rhCPU</a>
Description	Valid credentials provided by local logon.
Comment	-
Requirement	<a href="#">SR 1.1 RE 1 - Unique identification and authentication</a>
Severity	<a href="#">Informational</a>

## 1.2. SE\_LOCAL\_UNSUCCESSFUL\_LOGON

<b>ID</b>	<b>2</b>
Parameter	<a href="#">fct</a> , <a href="#">parameter</a> , <a href="#">result</a> , <a href="#">errReason</a> , <a href="#">rhCPU</a>
Description	Wrong user name or wrong password (credentials) provided by local logon.
Comment	-
Requirement	<a href="#">SR 1.1 RE 1 - Unique identification and authentication</a>
Severity	<a href="#">Error</a>

## 1.3. SE\_NETWORK\_SUCCESSFUL\_LOGON

<b>ID</b>	<b>3</b>
Parameter	<a href="#">fct</a>
Description	Valid credentials provided by remote logon.
Comment	This event indicates a successful login.
Requirement	<a href="#">SR 1.1 RE 1 - Unique identification and authentication</a>
Severity	<a href="#">Informational</a>

## 1.4. SE\_NETWORK\_UNSUCCESSFUL\_LOGON

<b>ID</b>	<b>4</b>
Parameter	<a href="#">fct</a> , <a href="#">errReason</a>
Description	Wrong user name or wrong password (credentials) provided by remote logon.
Comment	This event indicates a failed login attempt.
Requirement	<a href="#">SR 1.1 RE 1 - Unique identification and authentication</a>

<b>ID</b>	<b>4</b>
Severity	<a href="#">Error</a>

## 1.5. SE\_LOGOFF

<b>ID</b>	<b>5</b>
Parameter	<a href="#">fct</a> , <a href="#">errReason</a> , <a href="#">rhCPU</a>
Description	User session ended - logout.
Comment	This event indicates a terminated user session due to a requested logout.
Requirement	<a href="#">SR 1.1 RE 1 - Unique identification and authentication</a>
Severity	<a href="#">Informational</a>

## 1.6. SE\_DEFAULT\_USER\_AUTHENTICATION\_USED

<b>ID</b>	<b>6</b>
Parameter	<a href="#">fct</a> , <a href="#">result</a>
Description	User logged in with default user name and password.
Comment	This event indicates a successful login of the 'Anonymous' user.
Requirement	<a href="#">SR 1.5 - Authenticator management</a>
Severity	<a href="#">Informational</a>

## 1.7. SE\_ACCESS\_PWD\_ENABLED

<b>ID</b>	<b>11</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">result</a>
Description	Password protection was enabled for some resource.
Comment	This event indicates that the protection level has been enabled for particular item.
Requirement	<a href="#">SR 1.3 - Account management</a>
Severity	<a href="#">Notice</a>

## 1.8. SE\_ACCESS\_PWD\_DISABLED

<b>ID</b>	<b>12</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">result</a>
Description	Password protection was disabled for some resource.
Comment	This event indicates that the protection level has been disabled for particular item.
Requirement	<a href="#">SR 1.3 - Account management</a>

<b>ID</b>	<b>12</b>
Severity	<a href="#">Notice</a>

## 1.9. SE\_ACCESS\_PWD\_CHANGED

<b>ID</b>	<b>13</b>
Parameter	<a href="#">fct</a> , <a href="#">errReason</a> , <a href="#">result</a>
Description	User changed his password.
Comment	This event indicates that the password for a given user has been successfully changed.
Requirement	<a href="#">SR 1.3 - Account management</a>
Severity	<a href="#">Notice</a>

## 1.10. SE\_ACCESS\_GRANTED

<b>ID</b>	<b>19</b>
Parameter	<a href="#">fct</a> , <a href="#">functionRight</a> , <a href="#">parameter</a> , <a href="#">result</a>
Description	Restricted access was granted for an user.
Comment	-
Requirement	<a href="#">SR 2.1 - Authorization enforcement</a>
Severity	<a href="#">Informational</a>

## 1.11. SE\_ACCESS\_DENIED

<b>ID</b>	<b>20</b>
Parameter	<a href="#">fct</a> , <a href="#">functionRight</a>
Description	Restricted access was denied for an user.
Comment	This event indicates that access to a defined function has been refused due to the lack of the required function right.
Requirement	<a href="#">SR 2.1 - Authorization enforcement</a>
Severity	<a href="#">Error</a>

## 1.12. SE\_ACCESS\_DENIED\_NUMBER\_OF\_CONCURRENT\_SESSIONS\_EXCEEDED

<b>ID</b>	<b>51</b>
Parameter	<a href="#">fct, result</a>
Description	When the maximum number of concurrent sessions is exceeded, this event will be raised.
Comment	This event indicates a failed login attempt due to limited resources.
Requirement	<a href="#">SR 2.7 - Concurrent session control</a>
Severity	<a href="#">Warning</a>

## 1.13. SE\_CRITICAL\_DEVICE\_STARTED

<b>ID</b>	<b>52</b>
Parameter	<a href="#">fct, resource</a>
Description	(Initial) start-up of a critical device or application.
Comment	This event indicates that an application has been started (e.g. web server, OPCUA or PUT/GET-Server).
Requirement	<a href="#">SR 2.8 RE 1 - Centrally managed, system-wide audit trail</a>
Severity	<a href="#">Notice</a>

## 1.14. SE\_CRITICAL\_DEVICE\_STOPPED

<b>ID</b>	<b>53</b>
Parameter	<a href="#">fct, resource</a>
Description	Shut down of a critical device or application.
Comment	This event indicates that an application has been stopped (e.g. web server, OPCUA or PUT/GET-Server).
Requirement	<a href="#">SR 2.8 RE 1 - Centrally managed, system-wide audit trail</a>
Severity	<a href="#">Alert</a>

## 1.15. SE\_AUDIT\_EVENTS\_OVERWRITTEN

<b>ID</b>	<b>56</b>
Parameter	<a href="#">fct</a>
Description	Ring buffer is full. Audit Trail starts to overwrite old events.
Comment	This event will only be triggered when a syslog server is configured.
Requirement	<a href="#">SR 2.10 - Response to audit processing failures</a>
Severity	<a href="#">Alert</a>

## 1.16. SE\_OPEN\_RESOURCE

<b>ID</b>	<b>61</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">result</a>
Description	Open the handle of an object.
Comment	This event indicates that a file or a folder is opened.
Requirement	<a href="#">SR 2.12 - Non-repudiation</a>
Severity	<a href="#">Informational</a>

## 1.17. SE\_CLOSE\_RESOURCE

<b>ID</b>	<b>62</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a>
Description	Close the handle of an object.
Comment	This event indicates that a file or a folder is closed.
Requirement	<a href="#">SR 2.12 - Non-repudiation</a>
Severity	<a href="#">Informational</a>

## 1.18. SE\_DELETE\_OBJECT

<b>ID</b>	<b>63</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">result</a>
Description	Delete an object.
Comment	This event indicates that a file, a folder or the user program is deleted or the Simatic Memory Card is formatted.
Requirement	<a href="#">SR 2.12 - Non-repudiation</a>
Severity	<a href="#">Informational</a>

## 1.19. SE\_OBJECT\_OPERATION

<b>ID</b>	<b>64</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">resOper</a> , <a href="#">result</a>
Description	Access an object.
Comment	This event indicates that a folder is created, a file or folder is renamed or the file system is browsed.
Requirement	<a href="#">SR 2.12 - Non-repudiation</a>
Severity	<a href="#">Informational</a>

## 1.20. SE\_SESSION\_CLOSED

<b>ID</b>	75
Parameter	-
Description	Session closed.
Comment	-
Requirement	<a href="#">SR 3.7 - Error handling</a>
Severity	<a href="#">Informational</a>

## 1.21. SE\_INVALID\_SESSION\_ID

<b>ID</b>	76
Parameter	-
Description	Session is invalid.
Comment	This event indicates that access to a defined function has been refused due to an invalid Session ID.
Requirement	<a href="#">SR 3.7 - Error handling</a>
Severity	<a href="#">Error</a>

## 1.22. SE\_BACKUP\_STARTED

<b>ID</b>	79
Parameter	-
Description	Backup started.
Comment	Start of a backup operation
Requirement	<a href="#">SR 7.3 - Control system backup</a>
Severity	<a href="#">Notice</a>

## 1.23. SE\_BACKUP\_SUCCESSFULLY\_DONE

<b>ID</b>	80
Parameter	-
Description	Backup finished.
Comment	This event indicates that an online backup finished successfully.
Requirement	<a href="#">SR 7.3 - Control system backup</a>
Severity	<a href="#">Notice</a>

## 1.24. SE\_BACKUP\_FAILED

<b>ID</b>	<b>81</b>
Parameter	-
Description	Backup failed.
Comment	This event indicates that an online backup creation failed.
Requirement	<a href="#">SR 7.3 - Control system backup</a>
Severity	<a href="#">Error</a>

## 1.25. SE\_BACKUP\_RESTORE\_STARTED

<b>ID</b>	<b>85</b>
Parameter	<a href="#">fct</a> , <a href="#">resource</a> , <a href="#">dateAndTime</a>
Description	Restore started.
Comment	This event indicates that restoration of an online backup file started.
Requirement	<a href="#">SR 7.4 - Control system recovery and reconstitution</a>
Severity	<a href="#">Notice</a>

## 1.26. SE\_BACKUP\_RESTORE\_FAILED

<b>ID</b>	<b>86</b>
Parameter	-
Description	Restore failed.
Comment	This event indicates that restoration of an online backup file failed.
Requirement	<a href="#">SR 7.4 - Control system recovery and reconstitution</a>
Severity	<a href="#">Error</a>

## 1.27. SE\_SECURITY\_CONFIGURATION\_CHANGED

<b>ID</b>	<b>94</b>
Parameter	<a href="#">fct</a> , <a href="#">result</a>
Description	Security configuration data changed.
Comment	This event indicates that an security-relevant configuration change has been performed for the given application (e.g. download of user configuration).
Requirement	<a href="#">SR 7.6 - Network and security configuration settings</a>
Severity	<a href="#">Notice</a>

## 1.28. SE\_SESSION\_ESTABLISHED

<b>ID</b>	95
Parameter	<a href="#">fct</a> , <a href="#">result</a>
Description	-
Comment	The event is created when OPC UA has processed an open secure channel request.
Requirement	-
Severity	-

## 1.29. SE\_CFG\_DATA\_CHANGED

<b>ID</b>	96
Parameter	<a href="#">fct</a> , <a href="#">interface</a> , <a href="#">IPv4Suite</a> , <a href="#">NTPserver</a> , <a href="#">DNSserver</a> , <a href="#">hostName</a> , <a href="#">domainName</a> , <a href="#">PNDeviceName</a> , <a href="#">resource</a> , <a href="#">result</a> , <a href="#">resOper</a> , <a href="#">withMeasurements</a>
Description	-
Comment	This event indicates a change of the PLC configuration data.
Requirement	-
Severity	-

## 1.30. SE\_USER\_PROGRAM\_CHANGED

<b>ID</b>	97
Parameter	<a href="#">fct</a> , <a href="#">result</a>
Description	-
Comment	This event indicates software program change.
Requirement	-
Severity	-

## 1.31. SE\_OPMOD\_CHANGED

<b>ID</b>	98
Parameter	<a href="#">fct</a> , <a href="#">oldState</a> , <a href="#">newState</a>
Description	-
Comment	This event indicates that the operating mode has been changed.
Requirement	-
Severity	-

## 1.32. SE\_FIRMWARE\_LOADED

<b>ID</b>	<b>99</b>
Parameter	<a href="#">fct</a> , <a href="#">result</a>
Description	Firmware successfully loaded.
Comment	-
Requirement	-
Severity	-

## 1.33. SE\_FIRMWARE\_ACTIVATED

<b>ID</b>	<b>100</b>
Parameter	<a href="#">fct</a> , <a href="#">oldState</a> , <a href="#">newState</a>
Description	-
Comment	Firmware successfully activated.
Requirement	-
Severity	-

## 1.34. SE\_SYSTEMTIME\_CHANGED

<b>ID</b>	<b>101</b>
Parameter	<a href="#">fct</a>
Description	-
Comment	This event indicates that the system time has been changed.
Requirement	-
Severity	-

## 1.35. SE\_OPMOD\_CHANGE\_INITIATED

<b>ID</b>	<b>102</b>
Parameter	<a href="#">newState</a> , <a href="#">rhCPU</a>
Description	A client (e.g. TIA-Portal) initiated a change of the operating state of the CPU. Please be aware that additional operating modes (e.g. RUN_REDUNDANT) exist on R/H CPUs. Since multiple clients can initiate such a change not all changes are really executed.
Comment	This event indicates that an application has initiated an operating mode change request.
Requirement	-

<b>ID</b>	<b>102</b>
Severity	Notice

## 1.36. SE\_SECURITY\_STATE\_CHANGE

<b>ID</b>	<b>105</b>
Parameter	fct, result
Description	-
Comment	A component inside PLC changed the security state. Security may have lowered down, for example to allow an initial configuration (e.g. provisioning mode in OPC UA).
Requirement	-
Severity	-

## 1.37. SE\_DEVICE\_STARTUP

<b>ID</b>	<b>106</b>
Parameter	fct, result
Description	-
Comment	The device is started up and provides the previous shut down reason in the details.
Requirement	-
Severity	-

## 1.38. SE\_TIME\_SYNCHRONIZATION

<b>ID</b>	<b>201</b>
Parameter	fct, result
Description	-
Comment	This event indicates that time synchronisation started, stopped or got lost.
Requirement	-
Severity	-

## 1.39. SE\_DEVICE\_CONNECTED

<b>ID</b>	<b>301</b>
Parameter	fct, interface
Description	USB device or SD card was connected, but not mounted.

<b>ID</b>	<b>301</b>
Comment	External device (SMC, USB) has been connected.
Requirement	-
Severity	-

## 1.40. SE\_DEVICE\_DISCONNECTED

<b>ID</b>	<b>304</b>
Parameter	<a href="#">interface</a>
Description	USB device or SD card was disconnected.
Comment	External device (SMC, USB) has been disconnected.
Requirement	-
Severity	-

## 1.41. SE\_SESSION\_TERMINATED

<b>ID</b>	<b>307</b>
Parameter	<a href="#">fct</a> , <a href="#">errReason</a>
Description	A local or remote session was terminated due to missing operator acknowledgement, timeout or network issues.
Comment	This event indicates a terminated user session due to a session timeout.
Requirement	-
Severity	-

# Chapter 2. Parameter Details

## 2.1. dateAndTime

Description: date and time

## 2.2. devProduct

Description: Device Product Name

## 2.3. devVendor

Description: Device Vendor Name

## 2.4. DNSserver

Description: DNS server addresses

## 2.5. domainName

Description: domain name

## 2.6. errReason

Description: error reason

## 2.7. evt

Description: Test functions event

## 2.8. fct

Description: Function executed in PLC

## 2.9. functionRight

Description: the requested function right

## 2.10. FWVersion

Description: Firmware Version

## **2.11. hostName**

Description: host name

## **2.12. interface**

Description: interface name

## **2.13. IPv4Suite**

Description: IP v4 Suite

## **2.14. job**

Description: Test functions job

## **2.15. newState**

Description: new state or version

## **2.16. NTPserver**

Description: NTP server addresses

## **2.17. oldState**

Description: old state or version

## **2.18. PNDeviceName**

Description: PROFINET device name

## **2.19. protocolType**

Description: Protocol Type

## **2.20. resOper**

Description: Result of an operation

## **2.21. resource**

Description: object or file name

## **2.22. result**

Description: Result of an executed function

## **2.23. rhCPU**

Description: inside the R/H system the event is initiated locally on this or neighbour CPU

## **2.24. service**

Description: system service name

## **2.25. sessionID**

Description: Contains an identifier that allows the reader of the syslog to determine related syslog events

## **2.26. spt**

Description: source port (UDP/TCP)

## **2.27. src**

Description: source address

## **2.28. sTSEL**

Description: source Transport selector

## **2.29. userName**

Description: name of the user

## **2.30. withMeasurements**

Description: withMeasurements

## Chapter 3. APP-NAME field content

AppName	Description
Backup/Restore	Software component implementing Online Backup and Restore
Cert-Store	Software component implementing certificate management
DCP-Server	DCP server
DHCP-Client	DHCP client
Display	Display of the PLC
FW-Update	Software component managing firmware update
HW-Configuration	Software component managing hardware configuration
Memory-Card	Software component managing Memory Card
Memory-Mgt	Memory management
ODK	Open Development Kit
OPCUA-Server	Software component OPC UA
Operating-Mode-Mgt	Software component managing operating mode changes
PLC-Program	Software component for user program execution
PG/HMI-Comm	Software component managing the communication to Engineering system and HMI devices
PUT/GET-Server	Server for PUT/GET access from a client via unsecured S7 communication
Syslog	Software component syslog
RIB	Software component Real-time information backbone on a SIMATIC IPC with an S7 1500 Software Controller
Test-Functions	Test system for commissioning
Text-Lists	Text list manager
Time-System	Software component responsible for time system
UMAC	User management and access control
Websserver	Software component web server

# Chapter 4. Requirements

## 4.1. SR 1.1 RE 1 - Unique identification and authentication

Description	The control system shall provide the capability to uniquely identify and authenticate all human users.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2
Comment	SL-C 2 requires fulfillment of SR 1.1 and SR 1.1 RE 1.

## 4.2. SR 1.1 RE 2 - Multifactor authentication for untrusted networks

Description	The control system shall provide the capability to employ multifactor authentication for human user access to the control system via an untrusted network (see 5.15, SR 1.13 - Access via untrusted networks).
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 3
Comment	SL-C 3 requires fulfillment of SR 1.1, SR 1.1 RE 1 and SR 1.1 RE 2.

## 4.3. SR 1.1 RE 3 - Multifactor authentication for all networks

Description	The control system shall provide the capability to employ multifactor authentication for all human user access to the control system.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 1.1, SR 1.1 RE 1, SR 1.1 RE 2 and SR 1.1 RE 3.

## 4.4. SR 1.11 - Unsuccessful login attempts

Description	The control system shall provide the capability to enforce a limit of a configurable number of consecutive invalid access attempts by any user (human, software process or device) during a configurable time period. The control system shall provide the capability to deny access for a specified period of time or until unlocked by an administrator when this limit has been exceeded.
Source	IEC 62443-3-3:2013

## 4.5. SR 1.13 - Access via untrusted networks

Description	The control system shall provide the capability to monitor and control all methods of access to the control system via untrusted networks.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 1

## 4.6. SR 1.2 - Software process and device identification and authentication

Description	The control system shall provide the capability to identify and authenticate all software processes and devices. This capability shall enforce such identification and authentication on all interfaces which provide access to the control system to support least privilege in accordance with applicable security policies and procedures.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2
Comment	Wireless devices are covered in particular by SR 1.6 and SR 2.2 with higher requirements for achieving a similar security level to wired devices.

## 4.7. SR 1.3 - Account management

Description	The control system shall provide the capability to support the management of all accounts by authorized users, including adding, activating, modifying, disabling and removing accounts.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.8. SR 1.4 - Identifier management

Description	The control system shall provide the capability to support the management of identifiers by user, group, role or control system interface.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.9. SR 1.5 - Authenticator management

Description	The control system shall provide the capability to: h) initialize authenticator content; i) change all default authenticators upon control system installation; j) change/refresh all authenticators; and k) protect all authenticators from unauthorized disclosure and modification when stored and transmitted.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.10. SR 2.1 - Authorization enforcement

Description	On all interfaces, the control system shall provide the capability to enforce authorizations assigned to all human users for controlling use of the control system to support segregation of duties and least privilege.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 1

## 4.11. SR 2.1 RE 3 - Supervisor override

Description	The control system shall support supervisor manual override of the current human user authorizations for a configurable time or event sequence.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 3
Comment	SL-C 3 requires fulfillment of SR 2.1, SR 2.1 RE 1, SR 2.1 RE 2 and SR 2.1 RE 3.

## 4.12. SR 2.1 RE 4 - Dual approval

Description	The control system shall support dual approval where an action can result in serious impact on the industrial process.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 2.1, SR 2.1 RE 1, SR 2.1 RE 2, SR 2.1 RE 3 and SR 2.1 RE 4.

## 4.13. SR 2.10 - Response to audit processing failures

Description	The control system shall provide the capability to alert personnel and prevent the loss of essential services and functions in the event of an audit processing failure. The control system shall provide the capability to support appropriate actions in response to an audit processing failure according to commonly accepted industry practices and recommendations.
Source	IEC 62443-3-3:2013

## 4.14. SR 2.12 - Non-repudiation

Description	The control system shall provide the capability to determine whether a given human user took a particular action.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 3
Comment	SR 2.12 RE 1 (SL-C 4) requires determination of users in general (human, software process, device)

## 4.15. SR 2.2 - Wireless use control

Description	The control system shall provide the capability to authorize, monitor and enforce usage restrictions for wireless connectivity to the control system according to commonly accepted security industry practices.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.16. SR 2.5 - Session lock

Description	The control system shall provide the capability to prevent further access by initiating a session lock after a configurable time period of inactivity or by manual initiation. The session lock shall remain in effect until the human user who owns the session or another authorized human user re-establishes access using appropriate identification and authentication procedures.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.17. SR 2.6 - Remote session termination

Description	The control system shall provide the capability to terminate a remote session either automatically after a configurable time period of inactivity or manually by the user who initiated the session.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.18. SR 2.7 - Concurrent session control

Description	The control system shall provide the capability to limit the number of concurrent sessions per interface for any given user (human, software process or device) to a configurable number of sessions.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.19. SR 2.8 RE 1 - Centrally managed, system-wide audit trail

Description	The control system shall provide the capability to centrally manage audit events and to compile audit records from multiple components throughout the control system into a system-wide (logical or physical), time-correlated audit trail. The control system shall provide the capability to export these audit records in industry standard formats for analysis by standard commercial log analysis tools, for example, security information and event management (SIEM).
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 2.8 and SR 2.8 RE 1

## 4.20. SR 2.9 RE 1 - Warn when audit record storage capacity threshold reached

Description	The control system shall provide the capability to issue a warning when the allocated audit record storage volume reaches a configurable percentage of maximum audit record storage capacity.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 2.9 and SR 2.9 RE 1.

## 4.21. SR 3.1 - Communication integrity

Description	The control system shall provide the capability to protect the integrity of transmitted information.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.22. SR 3.2 - Malicious code protection

Description	The control system shall provide the capability to employ protection mechanisms to prevent, detect, report and mitigate the effects of malicious code or unauthorized software. The control system shall provide the capability to update the protection mechanisms.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 1

## 4.23. SR 3.4 - Software and information integrity

Description	The control system shall provide the capability to detect, record, report and protect against unauthorized changes to software and information at rest.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.24. SR 3.7 - Error handling

Description	The control system shall identify and handle error conditions in a manner such that effective remediation can occur. This shall be done in a manner which does not provide information that could be exploited by adversaries to attack the IACS unless revealing this information is necessary for the timely troubleshooting of problems.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.25. SR 3.8 - Session integrity

Description	The control system shall provide the capability to protect the integrity of sessions. The control system shall reject any usage of invalid session IDs.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

## 4.26. SR 3.9 - Protection of audit information

Description	The control system shall protect audit information and audit tools (if present) from unauthorized access, modification and deletion.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 3

## 4.27. SR 3.9 RE 1 - Audit records on write-once media

Description	The control system shall provide the capability to produce audit records on hardware-enforced write-once media.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 3.9 and SR 3.9 RE 1.

## 4.28. SR 7.1 - Denial of service protection

Description	The control system shall provide the capability to operate in a degraded mode during a DoS event.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 1

## 4.29. SR 7.3 - Control system backup

Description	The identity and location of critical files and the ability to conduct backups of user-level and system-level information (including system state information) shall be supported by the control system without affecting normal plant operations.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 1

## 4.30. SR 7.3 RE 1 - Backup verification

Description	The control system shall provide the capability to verify the reliability of backup mechanisms.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2
Comment	SL-C 2 requires fulfillment of SR 7.3 and SR 7.3 RE 1.

## 4.31. SR 7.3 RE 2 - Backup automation

Description	The control system shall provide the capability to automate the backup function based on a configurable frequency.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4
Comment	SL-C 4 requires fulfillment of SR 7.3, SR 7.3 RE 1 and SR 7.3 RE 2.

## 4.32. SR 7.4 - Control system recovery and reconstitution

Description	The control system shall provide the capability to recover and reconstitute to a known secure state after a disruption or failure.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.33. SR 7.5 - Emergency power

Description	The control system shall provide the capability to switch to and from an emergency power supply without affecting the existing security state or a documented degraded mode.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 4

## 4.34. SR 7.6 - Network and security configuration settings

Description	The control system shall provide the capability to be configured according to recommended network and security configurations as described in guidelines provided by the control system supplier. The control system shall provide an interface to the currently deployed network and security configuration settings.
Source	IEC 62443-3-3:2013
SecurityLevel	SL-C 2

# Chapter 5. Severities

## 5.1. Emergency

Value	0
Used by	Reserved for SIEM after correlation
Meaning	A 'panic' condition. The most severe messages that prevent continuation of operation, such as immediate system shutdown.

## 5.2. Alert

Value	1
Meaning	System conditions requiring immediate attention. E.g. corrupted system database, insufficient disk space, run out of file descriptors, audit log corrupt / stopped / deleted.

## 5.3. Critical

Value	2
Meaning	Indicates failure in a primary system. Mostly serious system/application malfunctioning, such as failing hardware (hard device errors) or software. Usually non-recoverable. E.g. H-System not available.

## 5.4. Error

Value	3
Meaning	Mostly correctable errors, for example errors other than hardware device errors. Continuation of the operation is possible. Usually all error conditions are automatically recoverable. E.g. authentication / autorisation failures, CPU and resource issues, any problems that do not infect 'normal operation'.

## 5.5. Warning

Value	4
Meaning	Not an error, but indication that an error will occur if action is not taken. E.g. file system 85% full.

## 5.6. Notice

Value	5
-------	---

Meaning	Events that are unusual but not error conditions. Change of any authorized security setting. Non-error conditions that might require special handling. E.g. configuration event, commands executed by user (after successful authentication), change of security policy by administrator, activation AV scanner.
---------	--

## 5.7. Informational

Value	6
Meaning	Normal operational messages based on valid security policy. E.g. successful authentication / autorisation event, commands executed by user (after successful authentication), firewall has passed a frame (only by special FW-setting).

## 5.8. Debug

Value	7
Meaning	Reserved value. Currently not used by this document. Info useful to developers for debugging the application, not useful during operations.