



Variable access

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Variable accesses

What are variable accesses?

A Variable is a container that holds information in an equipment such as a PLC or a data server (i.e. OPC data server). There are many different types of variables depending on the PLC or the server that is in use. A variable can be accessed by the network by using a name or a physical address in the equipment memory. Variables are exchanged on the industrial network between PLCs and servers for process control and supervision purposes. Variables can be read or written in any equipment according to need.

A variable can be for example the ongoing temperature on an industrial oven. This value is stored in the oven's PLC and can be controlled by another PLC or accessed by a SCADA system for supervisory purpose. The same value can be read by another PLC which controls the heating system.

What are variable accesses used for?

Reading and writing variables inside a network is strictly controlled. Particular attention should be paid when an unplanned change occurs, especially when it comes to a new written variable. Indeed, such a behavior could be symptomatic of an attacker attempting to take control of the process. Cisco Cyber Vision reports the variables' messages detected on the equipment of the industrial network.

Variable accesses are detailed inside component's technical sheet under a sortable table list, containing:

- The variable's name.
- Its type (WRITE or READ, but not the value itself).
- Which component have accessed the variable.
- The first and last time the component has accessed the variable.

Component: S7 300 Cell 19 (Cell 19 very low)
 IP: 10.239.18.20
 MAC: 00:1b:1b:02:c4:87

First activity: Sep 25, 2019 12:01:30 PM
 Last activity: Sep 25, 2019 12:03:01 PM

Tags: PLC
 Activity tags: Read Var., Write Var., Broadcast., Low Volume., ARP ...2+

19 Flows, 37 Events, 755 Variables

Variables accesses: 755

Variable	Types	Accessed by	First access	Last access
DB1784.DBB 0	READ	Siemens 10.239.18.21	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM
DB75.DBB 0	READ	Siemens 10.239.18.21	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM
MB 0	READ	2 different accesses	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM
	READ	Berneckner 10.239.18.30	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM
	READ	Siemens 10.239.18.21	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM
DB1784.DBX 0.6	WRITE	Siemens 10.239.18.21	Sep 25, 2019 12:01:31 PM	Sep 25, 2019 12:01:31 PM
DB75.DBB 100	READ	Siemens 10.239.18.21	Sep 25, 2019 12:01:30 PM	Sep 25, 2019 12:01:31 PM

The mention "2 different accesses" (1) indicates that two components have read the variable.

Where to find variable accesses?

You can see the number of variable accesses per component on the component list view. You can sort the var column by ascending or decreasing number.

147 Components

Component	Tags	Flows	Vuln	Var	Vendor	OS	Model	Firmware version	Project
S7 300 Cell 19	PLC	27	0	755	Siemens AG,	-	-	-	-
10.16.116.254	PLC, Time Server, Deltav	23	0	99	-	-	-	-	-
Fisher 10.4.0.14	PLC, Deltav	21	0	90	Fisher-Rosemount Systems Inc.	-	-	-	-
Pump PLC	PLC	7	7	22	Siemens AG,	-	PLC_4	V 6.0.3	-
Siemens 84:5ba6	PLC	23	6	13	Siemens AG	-	-	-	-
Fisher 10.5.0.22	PLC, Deltav	21	0	2	Fisher-Rosemount Systems Inc.	-	-	-	-

Clicking a component from any view opens its right side panel where the number of variables on this component is indicated.

Explore / All data / Component list

Jan 1, 2019 12:00:00 AM - Oct 2, 2019 3:00:00 PM (9m 20h) LIVE

147 Components

Component	Tags	Flows	Vuln	Var
S7 300 Cell 19	4:87 PLC	27	0	755
10.16.116.254	8:86 PLC, Time Server, DeltaV	23	0	99
Fisher 10.4.0.14	8:54 PLC, DeltaV	21	0	90
Pump PLC	8:99 PLC	7	7	22
Siemens 84:5b:a6	8:a6 PLC	23	6	13
Fisher 10.5.0.22	8:18 PLC, DeltaV	21	0	2
Ipcas fab7:1a	8:1a PLC	1	12	2
Fisher 10.5.0.18	8:20 PLC, DeltaV	24	0	1
Abb 25:8a:2	8:a2 PLC	2	0	1
OWS1	8:93 PLC, SCADA Station, Windows, DeltaV	12171	42	1
Ipcas fab7:1c	8:1c PLC	1	12	1
Schneider 192.168.105.74	8:8c No tags	5	4	0

Component S7 300 Cell 19

Cell 19 ▲ very low

IP: 10.239.18.20
MAC: 00:1b:1b:02:c4:87

First activity: Sep 25, 2019 12:01:30 PM
Last activity: Sep 25, 2019 12:03:01 PM

Tags: PLC

Activity tags: Read Var, Write Var, Broadcast, Low Volume, ARP, Profinet, Profinet DCP

Properties: vendor-name: Siemens AG, name: Siemens 2: c4: 87, ip: 10.239.18.20, public-ip: no, mac: 00:1b:1b:02:c4:87

19
Flows

37
Events

-
Vulnerability

-
Credential

755
Variables

A detailed list of variable accesses is available under the automation tab on the component's technical sheet (see the first figure above) and on PLC reports.

