IEC 61850 User Feedback Task Force - Support #6605

Identification of three phase trip with ACT DO

11/21/2023 02:10 AM - Maud Merley

Status:	Resolved	**Start date:**	11/21/2023
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:			
ID:		**To discuss in WG10:**	No
Source:	RTE	**Short Proposal:**	
TF Unique ID:		**Standard(s):**	TR IEC 61850-7-500
WG10 Proposal:		**Needs More Information:**	No
Estimated Completion:		**Assigned TF:**	61850-7-500 Ed2
Discuss in Upcoming Meeting:	No		

Description

In IEC 61850-7-3 ed2.1 Table 21, the use of DA « general" of cdc ACT is specified. It can be used as general (three phase) trip, but table 21 requires also "general" to be set if the protection function only emits a trip command for one phase. This requirement poses a problem for the following use cases:
1. For circuit breaker featuring single phase trip capacity, there is one trip contact for each phase and a three-phase trip contact. The association of the three-phase trip contact is logical and can be considered as redundancy. This association is impossible if general is to be set for single-phase command.
2. The recloser automaton requires information whether a trip was single phase (and on which phase) or three phase. For single phase trips, DA phs* can be used. It would be logical to use DA "general" for three phase trip indication. This is impossible if general is to be set for single-phase command, as each single-phase trip would wrongly initiate a three phase cycle.
Conclusion: a DA indicating three phase trip, independent from single-phase-trip is necessary.
Proposal: accept "general" to indicate three phase trip independent from single phase trip. For this, delete the last part of the value description for "general": "'general' shall be set if one of the 'phsX'/'neut' is set". This would allow the application to decide (as it should be), enabling the aforementioned use cases.
Alternatively,
- a specific DA for three phase trip (phsABC ?) could be introduced, but this would have a very huge impact and should probably be avoided.
- the combined use of phsA, phsB and phsC to indicate a three phase trip would require an additional logic gate for the circuit breaker interface connected to circuit breakers without three phase capability and having only one trip contact. This would delay the overall trip time and is not desirable.
- Different implementation in protection functions depending on whether they are associated to cb with single and three phase capability or three phase capability only. This would cause many implementation issues for the protection functions and seems not acceptable.

Related issues:

Related to 61850-7-5 and 61850-7-500 - IEC61850-7-5 #6383: Single phase and m...	**New**	**03/09/2021**	**09/09/2021**
Related to IEC 61850 User Feedback Task Force - Support #647: Single phase an...	**Resolved**	**03/09/2021**	**09/09/2021**

History

#1 - 11/21/2023 02:11 AM - Maud Merley

- Source set to RTE

#2 - 11/21/2023 02:11 AM - Vladan Cvejic

- Discuss in Upcoming Meeting changed from No to Yes

#3 - 11/21/2023 08:12 AM - Vladan Cvejic

- Related to IEC61850-7-5 #6383: Single phase and multi phase trip indication for the autorecloser added

#4 - 11/21/2023 08:13 AM - Vladan Cvejic

- Status changed from New to Resolved

- Discuss in Upcoming Meeting changed from Yes to No

- Standard(s) set to TR IEC 61850-7-500

- Assigned TF 61850-7-500 Ed2 added

- Assigned TF deleted (None)

Rerouted to 7-500 Project. It will be addressed there.

#5 - 11/21/2023 08:14 AM - Vladan Cvejic

- Related to Support #647: Single phase and multi phase trip indication for the autorecloser added