Macintosh HD:Users:33i:Desktop:Communication_definitsion.emf

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| --- | --- |
| **Message Name** | **Information** |
| Activate | * Definition: Starts all devices for grid connected mode. * Content: None. |
| Activate\_failure | * Definition: Notice of failure Activate command. * Content: length of error information (UINT32), error information (STR). |
| Activate\_success | * Definition: Confirmation of success of all devices activating. * Content: None. |
| Bad\_message | * Definition: Message sent from EMS to SCADA or vice-versa if a message is incorrectly formatted. * Content: length of message name (UINT8), message name (STR), length of original message content (UINT32), Original message content (STR). |
| Black\_start | * Definition: Starts all devices for islanded mode. The sequence does not include the V/f controller, as this is separately configured. * Content: length of startup sequence (UINT32), startup sequence as a comma-separated list of IED names (STR). |
| Black\_start\_failure | * Definition: Notice of failure to start devices. * Content: length of startup sequence (UINT32), startup sequence as a comma-separated list (STR), length of error information (UINT32), error information (STR). |
| Black\_start\_success | * Definition: Confirmation of success of all devices starting. * Content: length of startup sequence (UINT32), startup sequence as a comma-separated list (STR). |
| CID\_file | * Definition: Send SCADA .CID individual file * Content: length of CID file name (UINT8), CID file name (STR), length of file (UINT32), file (STR). |
| CID\_file\_error | * Definition: Notice from SCADA to EMS that there was a problem parsing/using a given .CID file. * Content: length of CID file name (UINT8), CID file name (STR), length of error information (UINT32), error information (STR). |
| CID\_file\_received | * Definition: Received confirmation that file has been received. * Content: length of CID file name (UINT8), CID file name (STR). |
| CID\_load | * Definition: Notification from EMS to SCADA to load defined .CID file and to perform initial connection to IED. * Content: length of CID file name (UINT8), CID file name (STR), length of IED name (UINT8), IED name (STR). |
| CID\_load\_failure | * Definition: Notification from SCADA to EMS that the .CID file was not loaded successfully. * Content: length of CID file name (UINT8), CID file name (STR), length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| CID\_load\_success | * Definition: Notification of successfully loading .CID file and performing initial connection to IED sent from SCADA to EMS. * Content: length of CID file name (UINT8), CID file name (STR), length of IED name (UINT8), IED name (STR). |
| CID\_unload | * Definition: Notification from EMS to SCADA to unload defined IED and close communication. * Content: length of IED name (UINT8), IED name (STR). |
| CID\_unload\_failure | * Definition: Notification from SCADA to EMS that the IED was not unloaded successfully. * Content: length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| CID\_unload\_success | * Definition: Notification of successfully unloading IED sent from SCADA to EMS. * Content: length of IED name (UINT8), IED name (STR). |
| Device\_activate | * Definition: Activates a device manually, outside of Activate or Black\_start. * Content: length of IED name (UINT8), IED name (STR). |
| Device\_activate\_failure | * Definition: Notice of failure of device being able to activate. * Content: length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| Device\_activate\_success | * Definition: Confirmation of device’s activation. * Content: length of IED name (UINT8), IED name (STR). |
| Device\_deactivate | * Definition: Manually deactivates a device, outside of shedding or Shutdown. * Content: length of IED name (UINT8), IED name (STR). |
| Device\_deactivate\_failure | * Definition: Notice of a device failing to deactivate. * Content: length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| Device\_deactivate\_success | * Definition: Notice of successful deactivation. * Content: length of IED name (UINT8), IED name (STR). |
| Device\_parameter\_get | * Definition: This message is sent from EMS to SCADA to request IED device parameters. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR). |
| Device\_parameter\_get\_failure | * Definition: This message is sent from SCADA to EMS on a failure to get a device parameter. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR), length of error string (UINT32), error string (STR). |
| Device\_parameter\_get\_success | * Definition: This message is sent from SCADA to EMS to provide the requested device parameter. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR), parameter data type (ENUM), parameter (varies). |
| Device\_parameter\_set | * Definition: This message is sent from EMS to SCADA to set IED device parameters. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR), parameter data type (ENUM)[[1]](#endnote-1), parameter (varies). |
| Device\_parameter\_set\_failure | * Definition: Notification of failure to apply device parameter sent from SCADA to EMS. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR), length of error string (UINT32), error string (STR). |
| Device\_parameter\_set\_success | * Definition: Confirmation of success of application of device parameter sent from SCADA to EMS. * Content: length of IED name (UINT8), IED name (STR), length of parameter name (UINT8), parameter name (STR). |
| Island | * Definition: Moves microgrid from grid-connected to islanded mode. * Content: None. |
| Island\_failure | * Definition: Notice of failure to island microgrid. * Content: length of error information (UINT32), error information (STR). |
| Island\_success | * Definition: Confirmation of success of transition to islanded mode. * Content: None. |
| Island\_control\_set | * Definition: Defines the device that will change from P/Q to V/f mode when islanding occurs. * Content: length of IED name (UINT8), IED name (STR). |
| Island\_control\_set\_failure | * Definition: Notice of failure of the device being able to transition to V/f mode. * Content: length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| Island\_control\_set\_success | * Definition: Confirmation of success of the devices’ capability to take on this role. * Content: length of IED name (UINT8), IED name (STR). |
| Measurement\_get | * Definition: This message is sent by the EMS to the SCADA to request a single measurement. * Content: length of IED name (UINT8), IED name (STR), length of measurement name (UINT8), measurement name (STR). |
| Measurement\_get\_failure | * Definition: Notice of failure from the SCADA to the EMS regarding getting the requested measurement point. * Content: length of IED name (UINT8), IED name (STR), length of measurement name (UINT8), measurement name (STR), length of error information (UINT32), error information (STR). |
| Measurement\_get\_success | * Definition: This message from SCADA is the successful return of the measurement data requested by the EMS. * Content: length of IED name (UINT8), IED name (STR), length of measurement name (UINT8), measurement name (STR), measurement (DBL). |
| Measurement\_get\_multiple | * Definition: This message is sent by the EMS to the SCADA to request multiple measurements. * Content: length of IED names (UINT32), IED names (STR), length of measurement names (UINT32), measurement names (STR). |
| Measurement\_get\_multiple\_failure | * Definition: Notice of failure from the SCADA to the EMS regarding getting the requested measurement point. * Content: length of IED names (UINT32), IED names (STR), length of measurement names (UINT32), measurement names (STR), length of error information (UINT32), error information (STR). |
| Measurement\_get\_multiple\_success | * Definition: This message from SCADA is the successful return of the measurement data requested by the EMS. * Content: length of IED names (UINT32), IED names (STR), length of measurement names (UINT32), measurement names (STR), measurement array ([DBL]). |
| PCC\_relay\_set | * Definition: Defines the device that provides the point of common coupling. * Content: length of IED name (UINT8), IED name (STR). |
| PCC\_relay\_set\_failure | * Definition: Notice of failure of device being able to open a relay. * Content: length of IED name (UINT8), IED name (STR), length of error information (UINT32), error information (STR). |
| PCC\_relay\_set\_success | * Definition: Confirmation of success of the devices’ capability to take on this role. * Content: length of IED name (UINT8), IED name (STR). |
| Setpoint\_set | * Definition: Setpoint sent from EMS to SCADA for dispatch of resources * Content: length of IED name (UINT8), IED name (STR), length of variable name (UINT8), variable name (STR), setpoint (DBL). |
| Setpoint\_set\_failure | * Definition: Notice of failure of application of set points sent from IED to SCADA to EMS or from SCADA to EMS. * Content: length of IED name (UINT8), IED name (STR), length of variable name (UINT8), variable name (STR), length of error information (UINT32), error information (STR). |
| Setpoint\_set\_success | * Definition: Confirmation of success of application of set points sent from IED to SCADA to EMS * Content: length of IED name (UINT8), IED name (STR), length of variable name (UINT8), variable name (STR). |
| Setpoint\_multiple\_set | * Definition: Setpoints sent from EMS to SCADA for dispatch of resources * Content: length of IED names (UINT32), IED names (STR), length of variable names (UINT32), variable names (STR), setpoints ([DBL]). |
| Setpoint\_multiple\_set\_failure | * Definition: Notice of failure of application of set points sent from IED to SCADA to EMS or from SCADA to EMS. * Content: length of IED names (UINT32), IED names (STR), length of variable names (UINT32), variable names (STR), length of error information (UINT32), error information (STR). |
| Setpoint\_multiple\_set\_success | * Definition: Confirmation of success of application of set points sent from IED to SCADA to EMS * Content: length of IED names (UINT32), IED names (STR), length of variable names (UINT32), variable names (STR). |
| Shed\_set | * Definition: Defines loads to shed during islanding. * Content: length of sequence (UINT32), shed sequence as a comma-separated list of IED names (STR), Load Ratings ([DBL]). |
| Shed\_set\_failure | * Definition: Notice of failure to set shed sequence. * Content: length of sequence (UINT32), shed sequence as a comma-separated list of IED names (STR), length of error information (UINT32), error information (STR). |
| Shed\_set\_success | * Definition: Confirmation of success of setting shed sequence. * Content: length of sequence (UINT32), shed sequence as a comma-separated list of IED names (STR). |
| Shutdown | * Definition: Performs shutdown sequence for all devices within the microgrid. * Content: None. |
| Shutdown\_failure | * Definition: Notice of failure to shutdown microgrid. * Content: length of error information (UINT32), error information (STR). |
| Shutdown\_success | * Definition: Confirmation of success of shutdown. * Content: None. |
| Synchronize | * Definition: Moves microgrid from islanded to grid-connected mode. * Content: None. |
| Synchronize\_failure | * Definition: Notice of failure to connect microgrid to the larger grid. * Content: length of error information (UINT32), error information (STR). |
| Synchronize\_success | * Definition: Confirmation of success of transition to grid-connected mode. * Content: None. |
| Unknown\_message | * Definition: Message sent from EMS to SCADA or vice-versa if an undefined message was sent. * Content: length of message name (UINT8), message name (STR). |

1. The Data Type Enumerated List is as follows:

   |  |  |  |
   | --- | --- | --- |
   | Number | Data Type | Number of Bytes |
   | 0 | Boolean (BOOL) | 1 |
   | 1 | Unsigned 16-bit integer (UINT16) | 2 |
   | 2 | Unsigned 32-bit integer (UINT32) | 4 |
   | 3 | Signed 32-bit integer (INT32) | 4 |
   | 4 | Double-precision floating point (DBL) | 8 |
   | 5 | String (Size is prepended with a UINT8) (STR) | Varies |

   The Enum itself is a UINT8. [↑](#endnote-ref-1)