openPDC v1.5

2012 User's Forum Tutorial

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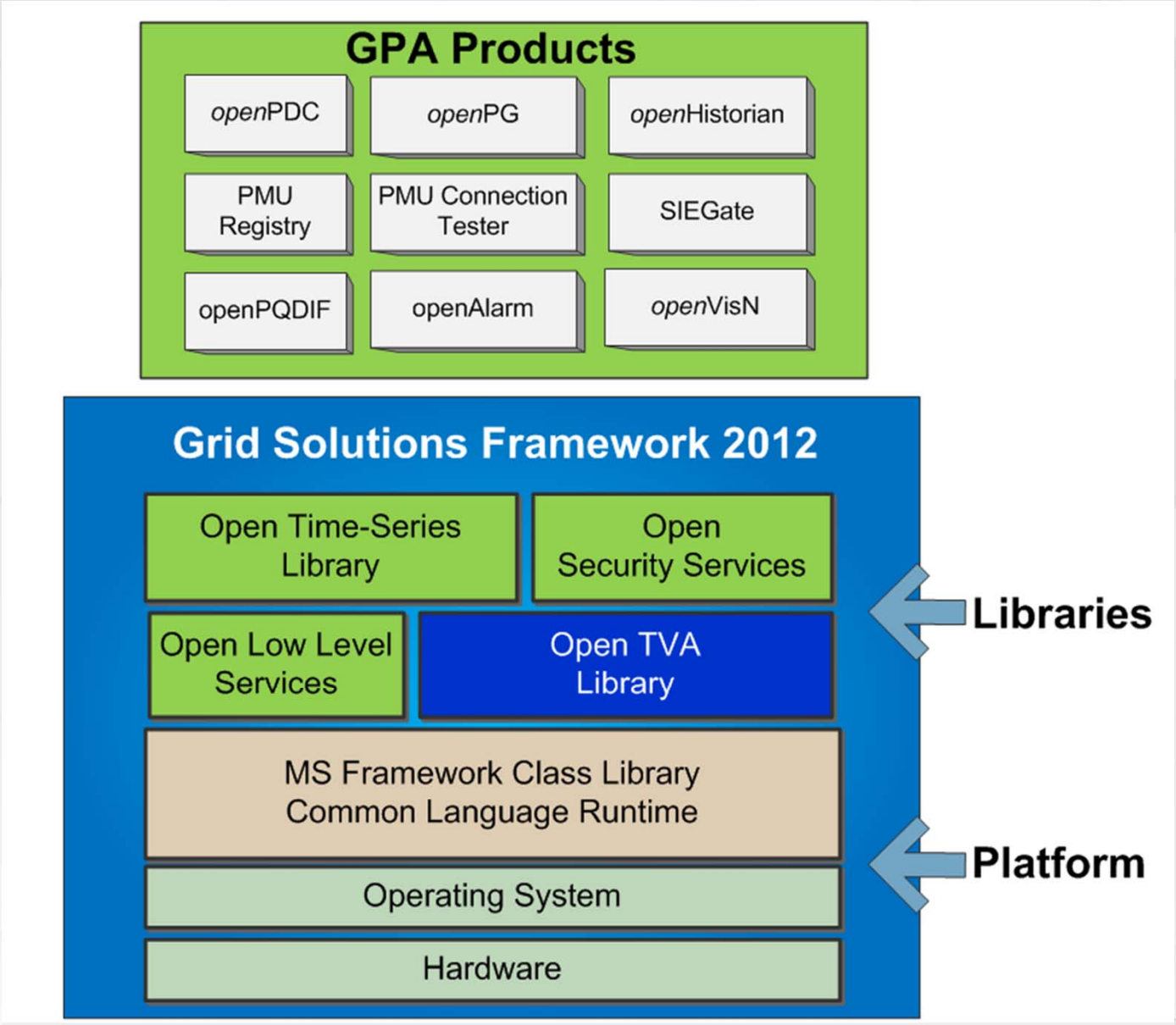
8/22/2012



openPDC Version 1.5 Feature List

- Seamless integration with the open phasor gateway (openPG). The openPDC can perform all the functions of the openPG.
- Multicast server and improved source support (receive and transmit for all protocols).
- New extensible statistics engine.
- Updated subscriber API's – with .NET, C++ and Java support.
- An alarming service that will provide automated notifications based on phasor data comparisons to set-points or data control bands.
- Automatic out-of-band historical data “gap filling” in a destination openPDC as might result, for example, during times that communications is lost between a substation and the control center.

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openPDC Version 1.5 Feature List *(continued)*

- Dynamic switching to a secondary communications connection on failure of the primary connection.
- Security and performance improvements based on findings from testing by vendors and major universities.
- Simple UDP packet splitting (software level) for outputs to accommodate streams greater than 64K (or other user selectable limit)
- Macrodyne G and N support
- IEEE C37.118.2-2012 support
- IEC 61850-90-5 support with missing data statistic for multiple ASDUs

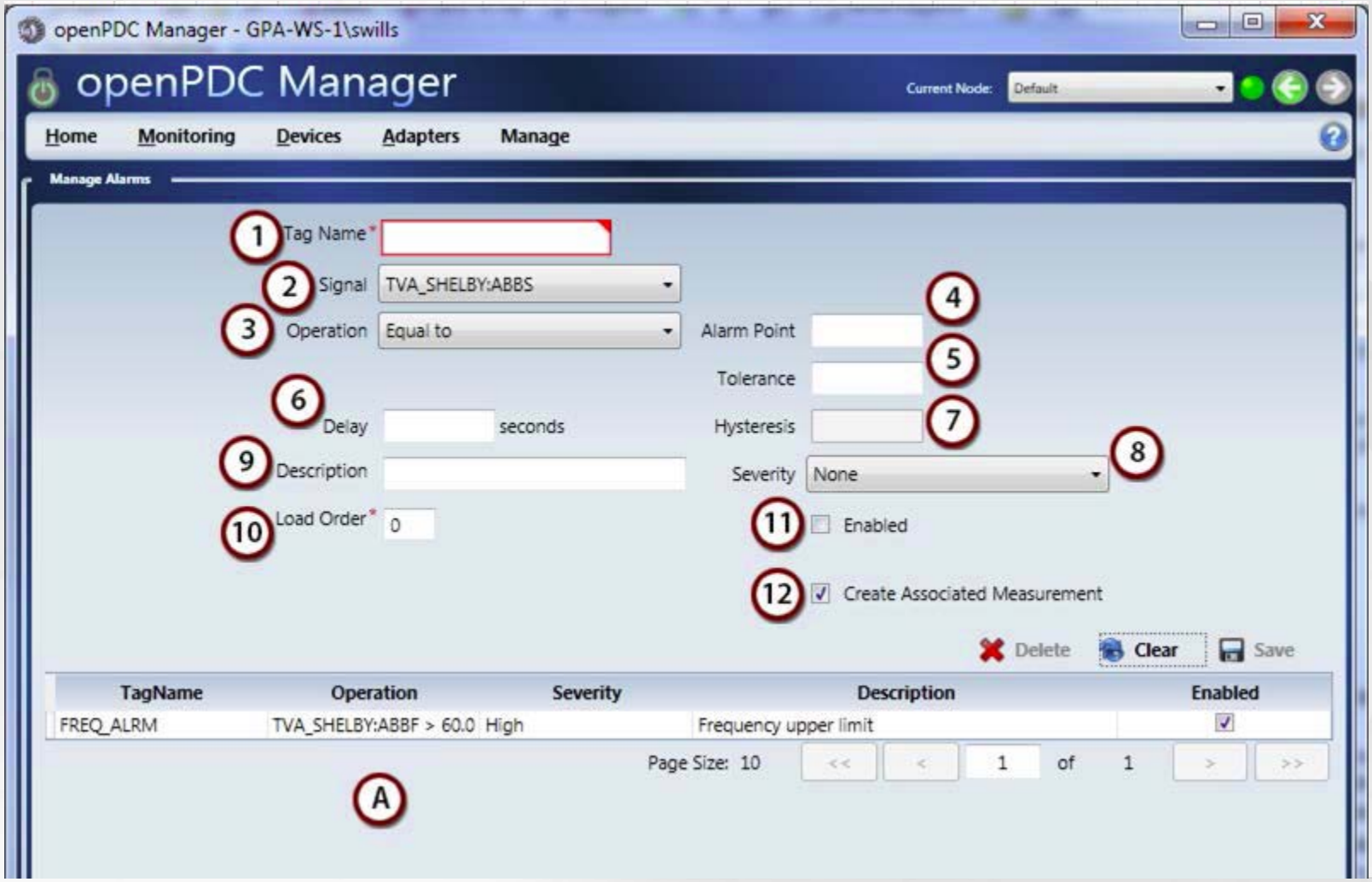
Security Improvements

- Based on reports from Fortity and code level inspections provided by external parties, the openPDC v1.5 includes various new security improvements.
- A majority of code level check-ins into version 1.5 have been related to improvements to security at various levels.

Completely New Socket Layer

- In version 2.0 of the .NET Framework sockets were implemented using the Asynchronous Programming Model prevalent throughout the .NET Framework at that time. The primary issue with the 2.0 Socket was that it consumed excess CPU cycles to perform a single socket I/O operation and allocating much memory to maintain I/O operations on a large number of sockets simultaneously.
- In .NET Framework 3.5 a new method called Event-based Asynchronous Pattern is used efficiently manage a large number of overlapped objects simultaneously.
- Version 1.5 of the openPDC implements this improved socket technology.

Alarming



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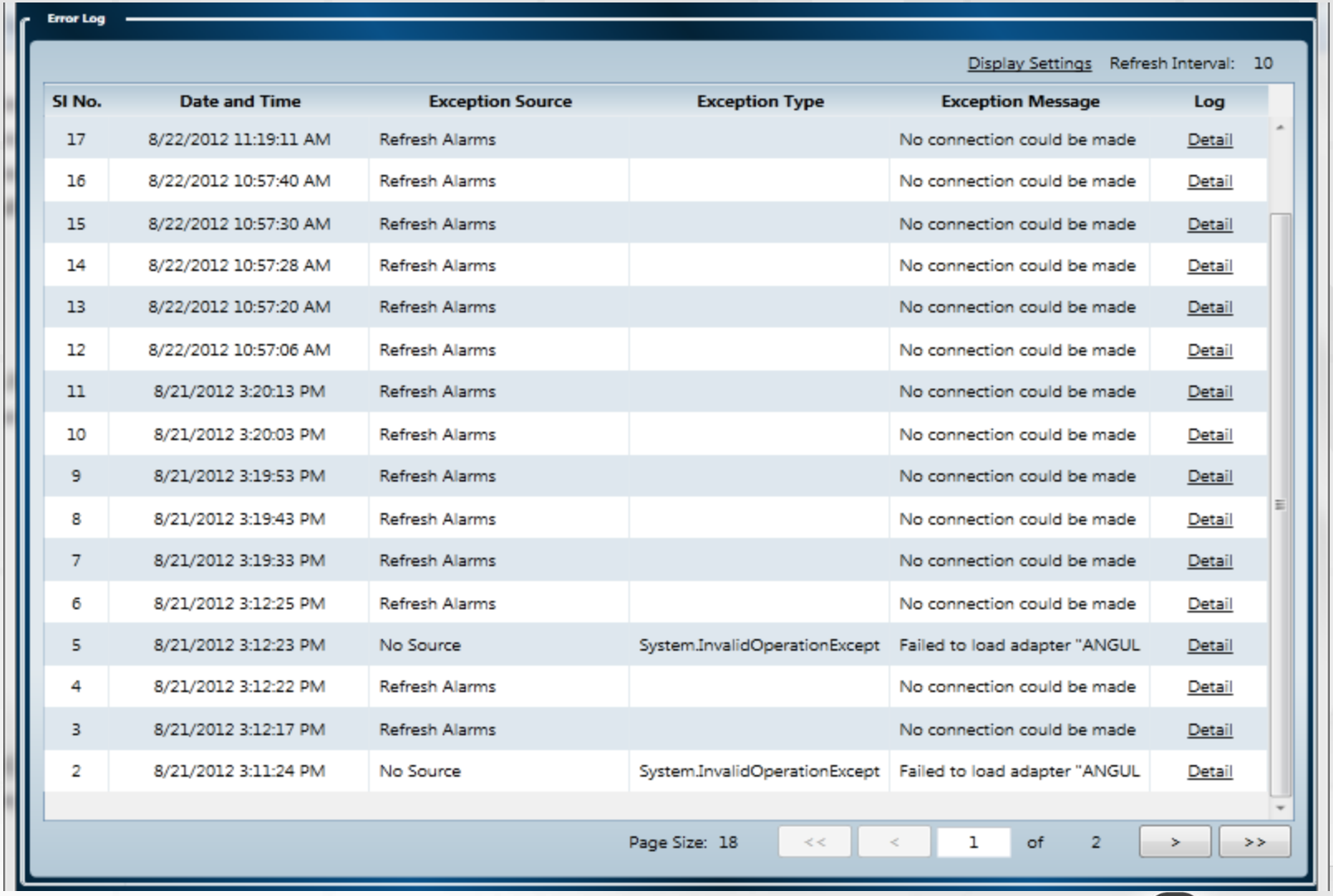
Full Error Log



SI No.	Date and Time	Exception Source	Exception Type	Exception Message	Log
17	8/22/2012 11:19:11 AM	Refresh Alarms		No connection could be made	Detail
16	8/22/2012 10:57:40 AM	Refresh Alarms		No connection could be made	Detail
15	8/22/2012 10:57:30 AM	Refresh Alarms		No connection could be made	Detail
14	8/22/2012 10:57:28 AM	Refresh Alarms		No connection could be made	Detail
13	8/22/2012 10:57:20 AM	Refresh Alarms		No connection could be made	Detail
12	8/22/2012 10:57:06 AM	Refresh Alarms		No connection could be made	Detail
11	8/21/2012 3:20:13 PM	Refresh Alarms		No connection could be made	Detail
10	8/21/2012 3:20:03 PM	Refresh Alarms		No connection could be made	Detail
9	8/21/2012 3:19:53 PM	Refresh Alarms		No connection could be made	Detail
8	8/21/2012 3:19:43 PM	Refresh Alarms		No connection could be made	Detail
7	8/21/2012 3:19:33 PM	Refresh Alarms		No connection could be made	Detail
6	8/21/2012 3:12:25 PM	Refresh Alarms		No connection could be made	Detail
5	8/21/2012 3:12:23 PM	No Source	System.InvalidOperationExcept	Failed to load adapter "ANGUL	Detail
4	8/21/2012 3:12:22 PM	Refresh Alarms		No connection could be made	Detail
3	8/21/2012 3:12:17 PM	Refresh Alarms		No connection could be made	Detail
2	8/21/2012 3:11:24 PM	No Source	System.InvalidOperationExcept	Failed to load adapter "ANGUL	Detail

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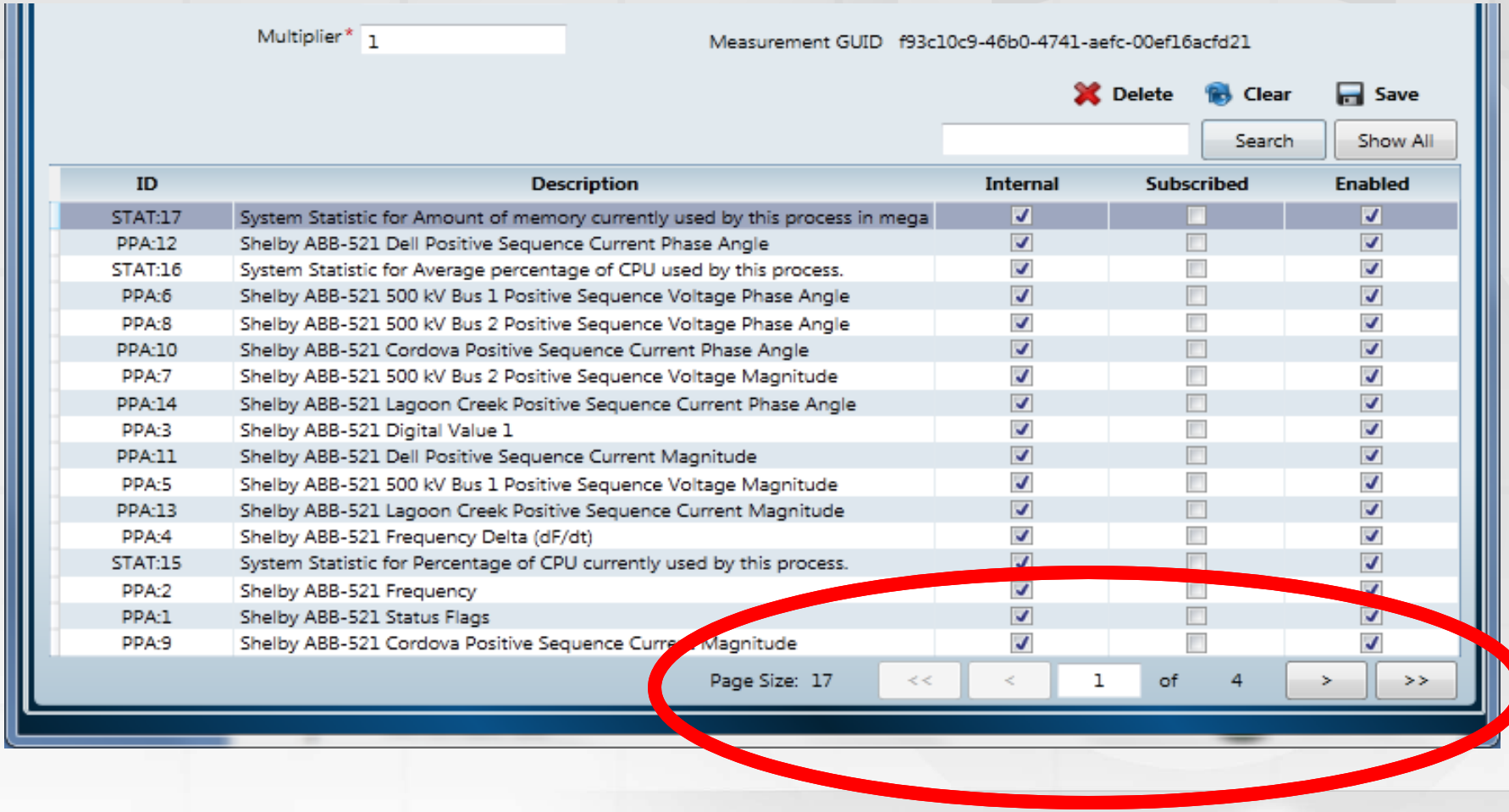
Enhanced Screen Performance

Paging screens now work quickly with millions of records!



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New Adapters

- DNP3 input adapter
- Native OSI-PI input and output adapters built using SDK for best speed
- Dynamic Calculator
- Enhanced CSV adapters with high-resolution timer and transverse formatting support
- 1-Second Frequency Averager

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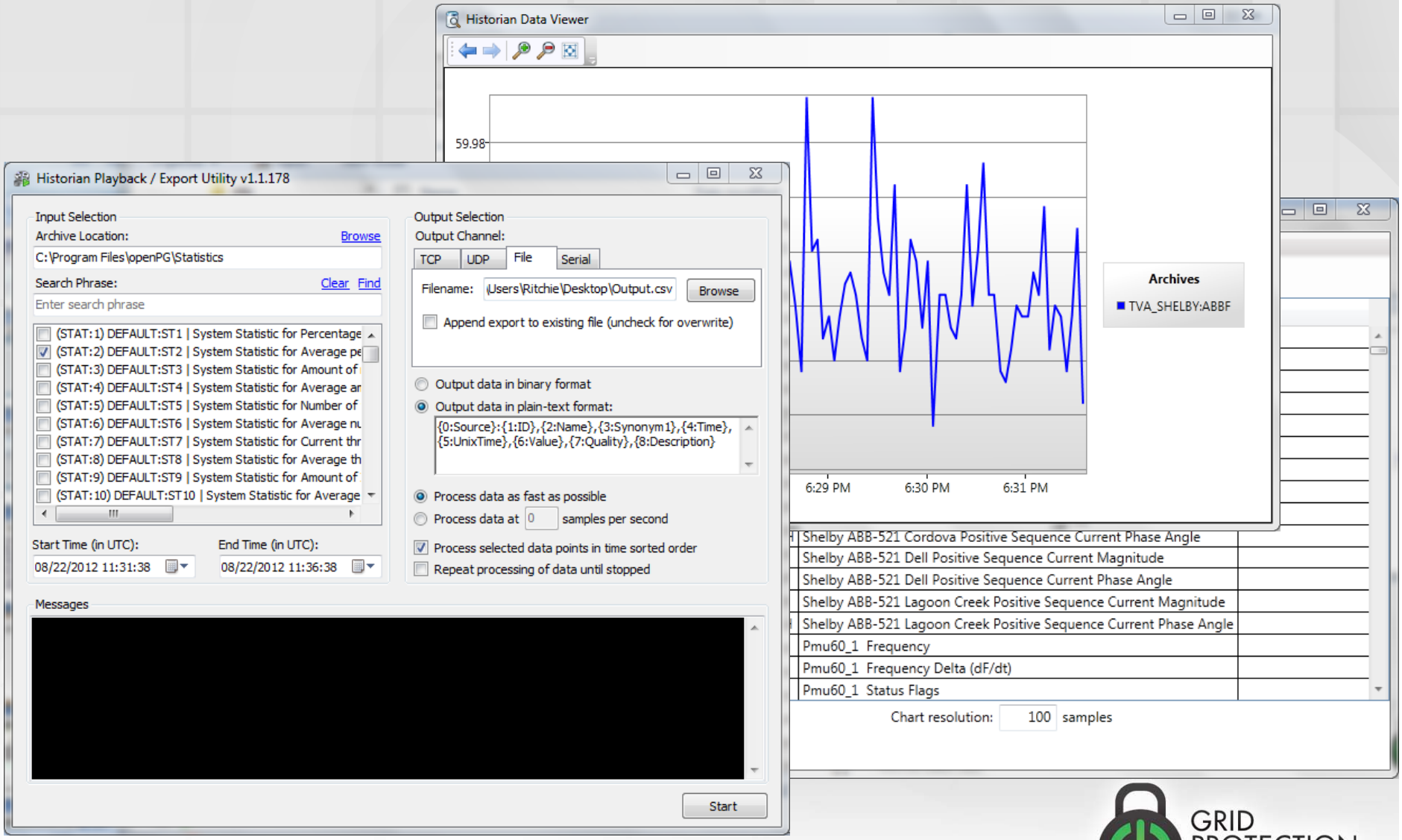
Tool Enhancements…



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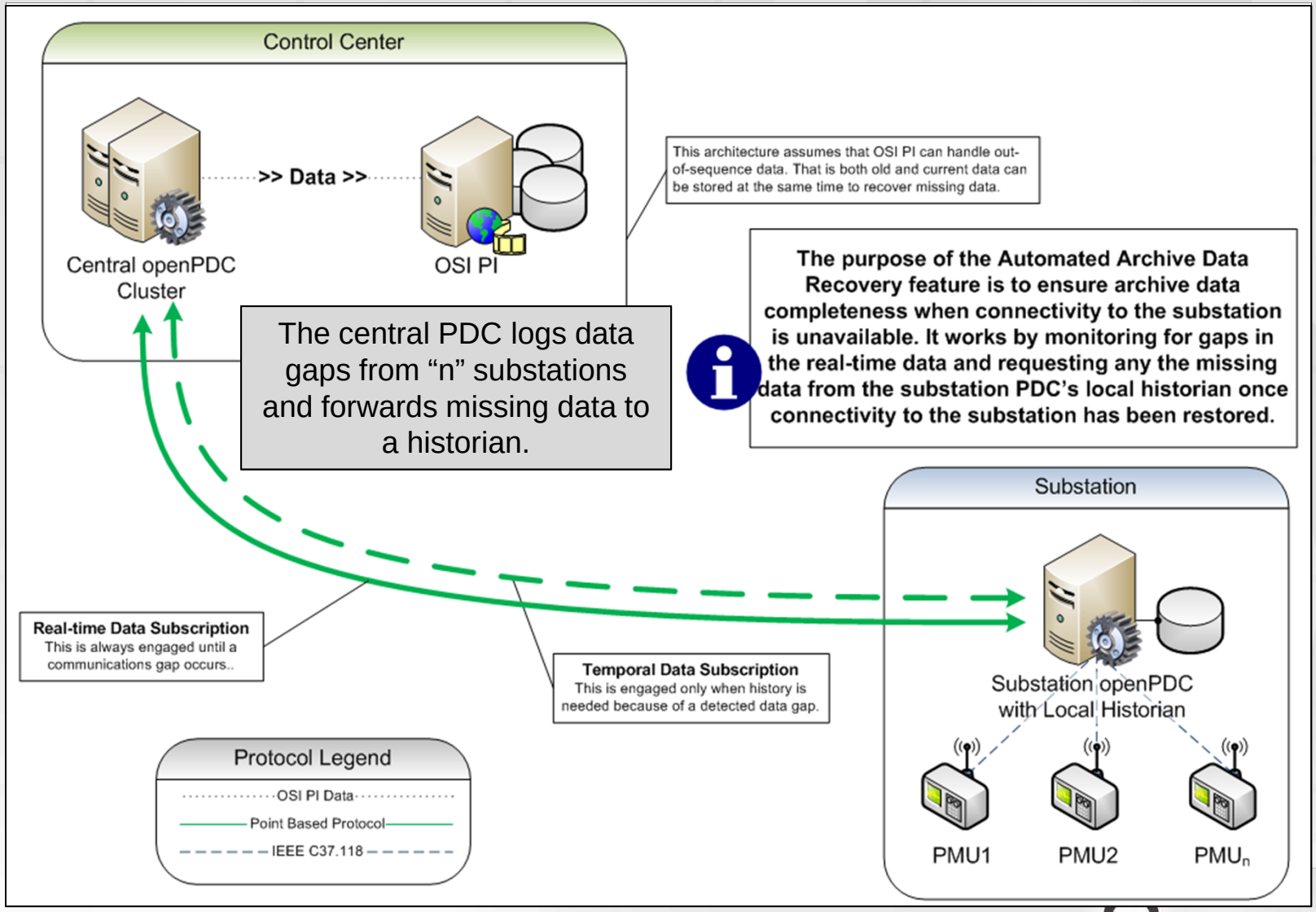
Automated Historical Data Synchronization



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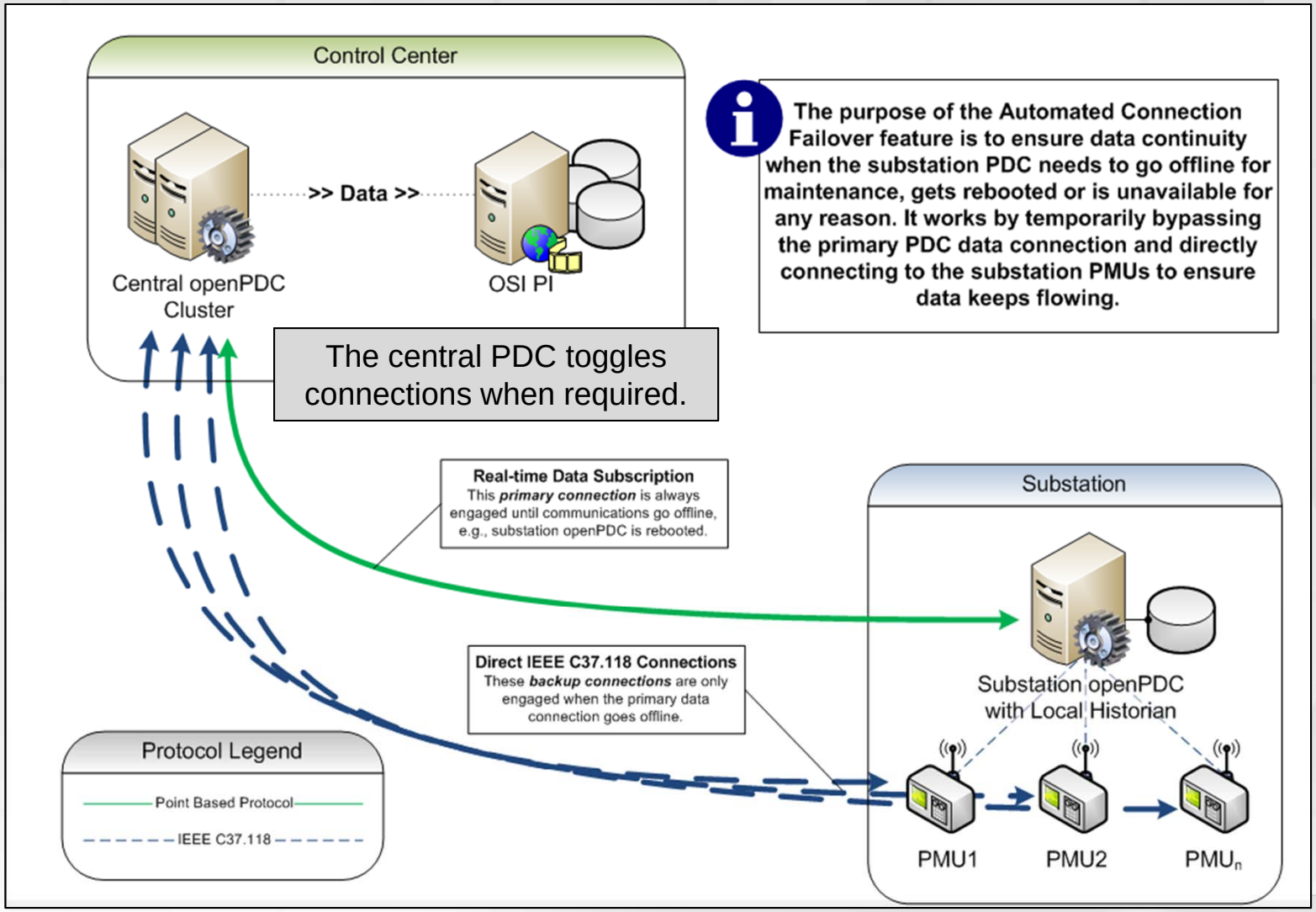
Automated Connection Failover



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Thank You for *Your* Contributions!

- Updates
- Enhancements
- New Screens
- New Features
- Bug Fixes

Version 1.5 of the openPDC includes more externally provided open source contributions than any other version to date!

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