

Harmony INFI 90 news

The ABB Harmony INFI 90
news bulletin



Welcome to the first issue of the Harmony INFI 90 news

Dear readers,

I'm pleased to bring you our first Harmony INFI 90 news bulletin intended for users of the ABB Harmony INFI 90 control system. You might wonder why we would start a newsletter now for a control system that was introduced in the 80s as Network 90. It is not a marketing oversight, so let me assure you there are good reasons.

First, it's an opportunity to remind that your Harmony INFI 90 control system is still being developed and supported by ABB. How can we do that? ABB's commitment is the "Evolution without obsolescence" concept. This keeps your control system up-to-date by just providing small steps instead of a total replace solution.

This news bulletin will help us share the news about ABB's investments in new products and software versions for the Harmony INFI 90 control platform.

Secondly, we would like to tell you about all upgrade possibilities designed to increase the performance of this system as well as the seamless, proven migration possibilities for the HMI based on state-of-the-art hardware solutions, both of which can help secure your equipment investments.

And finally, we want to keep you up-to-date regarding worldwide ABB events including Harmony INFI 90 technology as well as status reports and platform notes,

which will be of interest to customers who have not yet signed up for a service contract and lack these announcements.

We plan to issue at least an annual news bulletin, packed with valuable information for you. In addition, we encourage your feedback and invite you to share your interests and comments with us. We are delighted to provide any additional information or advice you may need.

I wish you happy reading.

Kind regards
Fabio Fargione
Harmony Evolution Manager
ABB Power Systems Division

ABB Harmony upgrade provides secure, reliable and powerful control

Duvha power station is a six unit, coal-fired power plant operated by the South African electrical utility, Eskom, with a total installed capacity of 3,600 megawatts (MW). The plant is located in approximately 15 km east of Witbank in Mpumalanga province.

The Duvha plant's control system consists of the ABB Harmony INFI 90 process control system, with 17 power conditioning units (PCUs), multi-function processors (MFP), bridge controllers (BRC100) and block I/Os. The original human machine interface (HMI) solution

from the late 1990s is based on Process Portal B/Windows 2000.

After more than 15 years of good operation the system faced normal component aging, in addition to fast evolution of the plant operating system.

Site assessment and service solves plant water problem.

The Duvha plant were encountering problems with system stability in its water treatment plant (WTP), where the Harmony INFI 90 control system has been operating since 1998.

NTCF modules in this component created a critical situation for the customer, in some cases forcing the shutdown of all units, causing load shedding.

GEC engineers identified the problem and provided Eskom with a solution to fix the instability. Their system site assessment also generated a life cycle

report that presented a clear picture of system status, highlighting critical actions and defining a multi-step approach in order to update the system and make it more reliable.

The WTP is a critical component of the site, and malfunctions can result in a total plant shutdown. Normal aging of the

Engineering station upgrades enable new redundancy bridge controller.

The first step was an update of the Harmony engineering to the latest version of Composer for Harmony applications.

system, without impacting normal plant operations.

The engineering tool upgrade enabled the customer to use the new BRC modules, and upgrade some of the existing MFP modules.

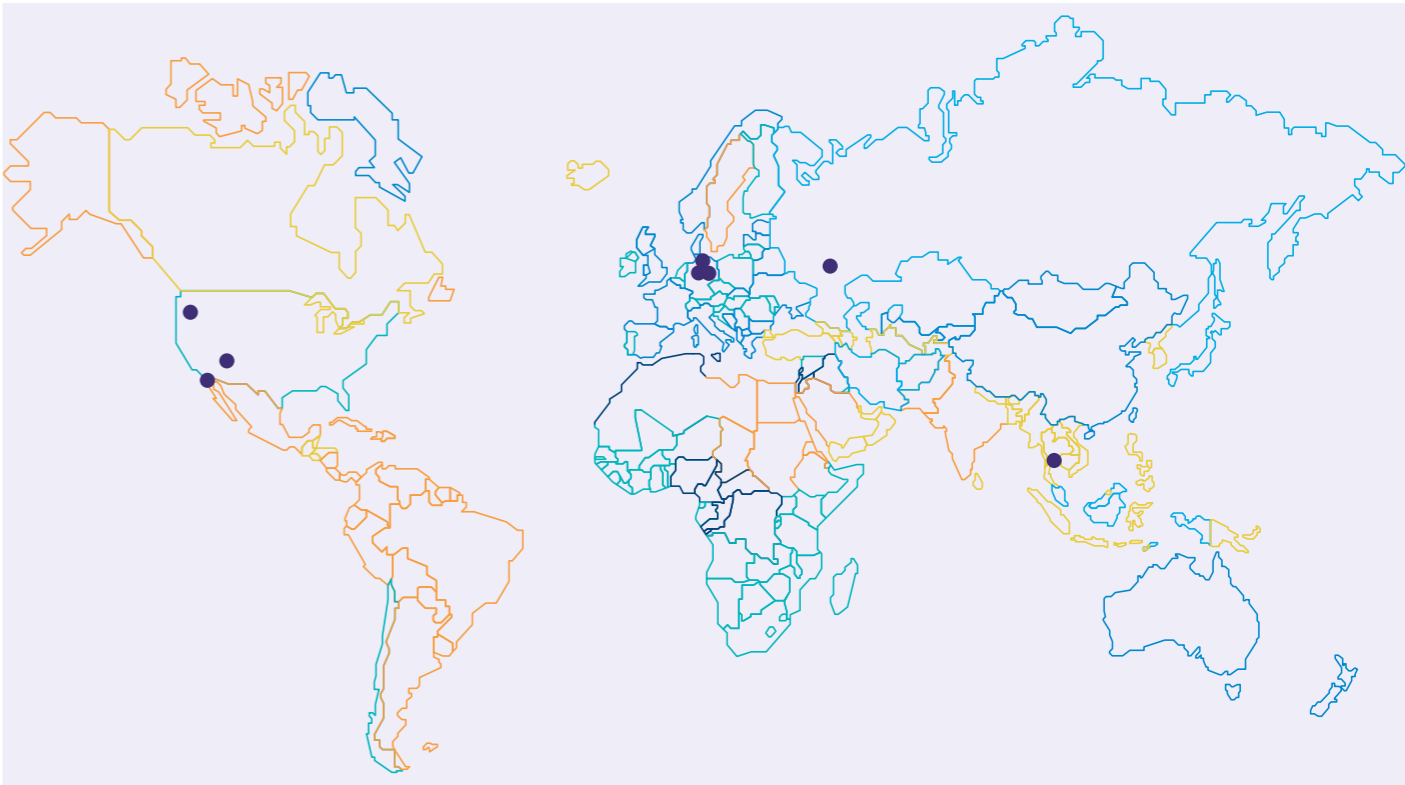
All data and parameters was saved and imported into the new engineering server, after the proper project conversion. The work was done in parallel to the running



Benefits of the ABB solution

The ABB multi-step evolution approach enables the customer to better manage its maintenance budget. The system evolution guarantees a more powerful and reliable redundant system, eliminating plant outages.

Between the first and the last step of the evolution, all the replaced devices can be “refreshed,” while also ensuring the spare parts needs of almost all the obsolete components still installed. The direct involvement of the ABB GEC Harmony and local ABB teams ensures a fast and proper response to any future customer needs.



Welcome to the ABB events

Here you can find all events and conferences from the power generation industry that may be of interest for you.

All events are hosted by the Power Generation users themselves and focus on meeting, sharing experiences and exchanging best practices. In addition, they are the perfect platform to experience the latest Harmony INFI 90 product updates and system news by ABB.

If you would like to participate in one of the Power Generation events, please do not hesitate to contact us.

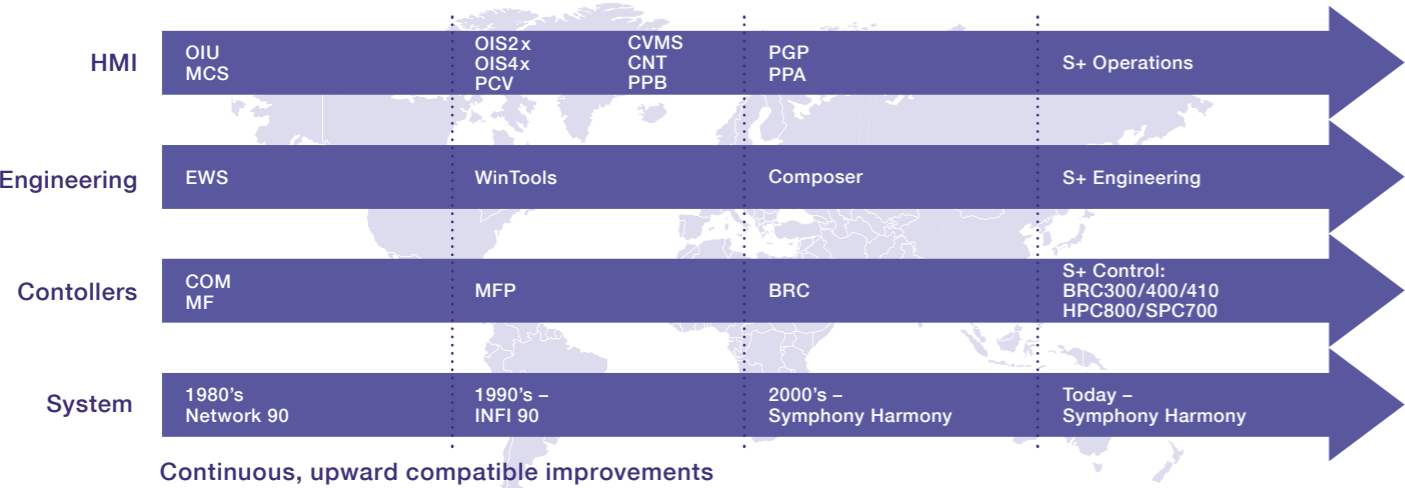
Event	Country	Start date	End date	City
MEORGA MSR-Spezialmessen 2015	Germany	10.06.2015	10.06.2015	Hamburg
HydroVision International 2015	USA	14.07.2015	17.07.2015	Portland, Oregon
International Desalination World Congress 2015	USA	30.08.2015	04.09.2015	San Diego, CA
PowerGen Asia 2015	Thailand	03.09.2015	05.09.2015	Bangkok
MEORGA MSR-Spezialmessen 2015	Germany	16.09.2015	16.09.2015	Landshut
MEORGA MSR-Spezialmessen 2015	Germany	14.10.2015	14.10.2015	Braunschweig
RUGRIDS-ELECTRO 2015	Russian Federation	19.10.2015	22.10.2015	Moscow
Power-Gen International 2015	USA	08.12.2015	10.12.2015	Las Vegas, NV

ABB control systems Harmony INFI 90 extends its life cycle support

Symphony Harmony is a proven process control system used for demanding applications in various industries.

The wide range of Harmony references includes the power generation, chemical, pharmaceutical, pulp and paper, water and wastewater, petrochemical, metals and mining, food and beverage, cement, and sugar industries – with over 6,000 systems installed worldwide. Originally introduced in 1980 as Network 90, the system has gone through several evolutionary steps: INFI 90, INFI 90 Open, and Symphony Harmony.

For more than 30 years, ABB has evolved the Symphony family, ensuring that each new generation enhances its predecessors and is backwardly compatible with them – all in accordance with our long-held policy of ‘Evolution without obsolescence. And now Symphony Harmony is taking the next step in its evolutionary path.



Introducing Symphony® Plus – Total plant automation for the power and water industries.

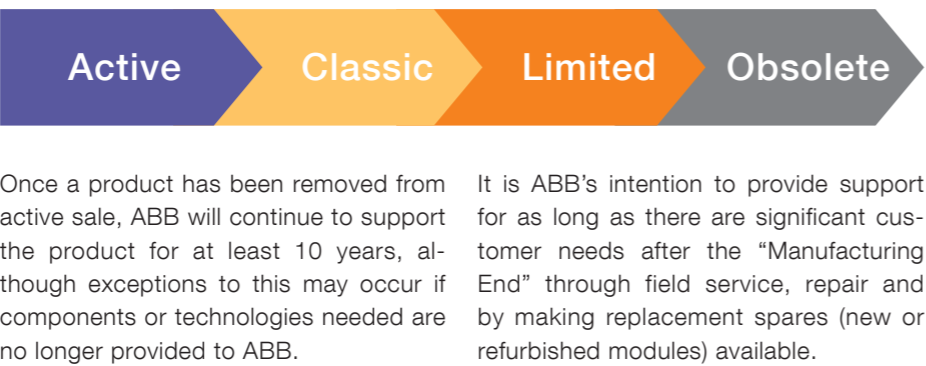
Like its predecessors listed above, Symphony Plus is designed to meet the requirements of plant owners in all geographic markets and in all types of power generation and water treatment.

Automation Sentinel remains the key program for lifecycle system support as customers continue to upgrade and evolve their installed systems to our latest generation offerings.

ABB life cycle policy statement

ABB's control systems are designed for continuous evolution. It is ABB's goal to protect our customers' intellectual investment (i.e. application software) beyond the life cycles of the underlying platform products (i.e. hardware and software).

ABB will not “Remove from Active Sale” any product or “family” of products until an equivalent replacement to those products is available.



Available life cycle parts services

ABB offers a comprehensive range of spare parts with short lead times, which helps minimize downtime if a failure occurs.

ABB's life cycle parts services portfolio meets customers' needs to minimize costs and maximize the value of their investments in ABB equipment.

ABB ensures that our customers receive the best possible return on their assets throughout the entire product life cycle.

Product	Non-active since	Status	Spare parts service	Emergency parts service	Refurbished parts service	Parts repair service	Parts exchange service	Parts test service	Preventive maintenance kits	inventory Access™ Program	Evolution without Obsolescence to
OIS Series	Before 1998	Obsolete	—	—	—	—	—	—	—	—	S+ Operations
Conductor VMS	2004	Limited	0	✓	0	✓	✓	✓	✓	0	S+ Operations
Conductor NT	2010	Limited	0	✓	0	✓	✓	✓	✓	0	S+ Operations
Process Portal B	2009	Limited	0	✓	0	✓	✓	✓	✓	0	S+ Operations
LAN90 PCV	2011	Classic	0	0	0	0	0	0	0	0	S+ Operations
Power Generation Portal	2014	Classic	✓	✓	0	✓	✓	✓	✓	0	S+ Operations
Symphony Plus Operation		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Wintool/CAD EWS	2004	Obsolete	—	—	—	—	—	—	—	—	S+ Engineering
Composer Harmony 5.x	2011	Obsolete	—	—	—	—	—	—	—	—	S+ Engineering
Composer Harmony 6.1		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Symphony Plus Engineering		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Network 90 Power System	1999	Obsolete	—	—	—	—	—	—	—	—	MPSIII
Modular Power System I	2001	Obsolete	—	—	—	—	—	—	—	—	MPSIII
Modular Power System II	2003	Limited	0	✓	0	✓	✓	✓	✓	0	MPSIII
Modular Power System III		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Bridge Controller		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Multi-Function Processor	2006	Limited	0	✓	0	✓	✓	✓	✓	0	BRC410
Harmony Area Controller	2004	Limited	0	✓	0	✓	✓	✓	✓	0	HPC800
Harmony Rack Controller BRC410		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Harmony Din Controller HPC800		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Harmony Block I/O	2003	Limited	0	✓	0	✓	✓	✓	✓	0	S800 I/O
Harmony Rack I/O HR Series		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Harmony Din I/O SD Series		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Harmony with S800 I/O		Active	✓	✓	✓	✓	✓	✓	✓	✓	
Harmony Control Network		Active	✓	✓	✓	✓	✓	✓	✓	✓	

Harmony INFI 90 Performance Fingerprint

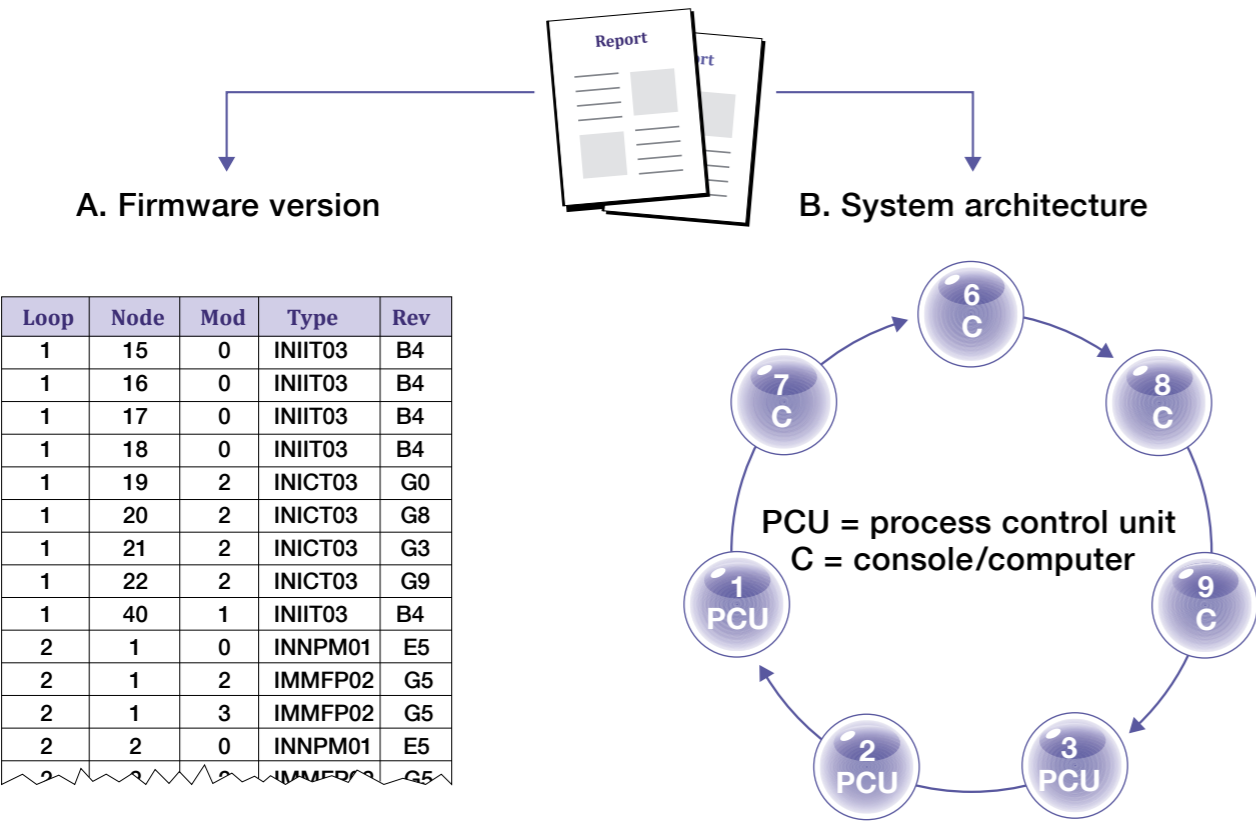
Identifying system performance improvement opportunities

The Harmony Performance Fingerprint diagnoses system status and performance in order to identify peak system operation. Using ABB's proprietary analyzer software, Harmony Performance Analyzer™, ensures control system performance is not affected while ABB engineers perform the audit to collect system topology and configuration information. Because life cycle status, operating condition and maintenance practices associated with Harmony have critical roles in cost-effectively managing the system, associated control system equipment and applications are also reviewed. Included in the Harmony Performance Fingerprint is the measurement and analysis of INFINET performance, Controller CPU utilization and PCU nodes communication loading. More specifically, the audit includes network monitoring/peak loading and performance thresholds.

Once the evaluation is complete, a comprehensive report is generated and the detailed findings and strategy for issue resolution are presented to the plant personnel.

What is being checked

- Module firmware levels
 - Redundant modules with conflicting firmware revisions
 - Potential communication loop performance issues
 - Situations that may cause temporary system performance degradation
- System settings that restrict maximum communication performance
 - NIS communication poll rate settings
 - Module reporting error codes
- (A) The Harmony Performance Fingerprint identifies hardware, firmware and software version levels to determine if updates may result in higher system performance. (B) System architecture is mapped during the Fingerprint so that problems such as communication interruptions can quickly and easily be identified and fixed.



PGP Benchmark and Fingerprint

Opportunities for system performance improvements

The PGP Benchmark and Fingerprint provides a comprehensive diagnostic analysis of the Power Generation Portal (PGP) system. Performance, configuration and life cycle parameters are read from the installed system and compared to requirements and best practices. Non-optimal system states and settings are automatically identified. As a result, the Benchmark report provides a quick overview of the system status, and the Fingerprint report presents the evaluated findings and detailed recommendations for improvement.

What is being checked

- The PGP Benchmark and Fingerprint include comprehensive measurement of system parameters which are mandatory for reliable operation.

This includes:

 - PGP internal core components health-state
 - Database configuration consistency checks
 - Hardware components configuration
 - Computer runtime parameters
 - Network parameters and performance
- The PGP Benchmark and Fingerprint establish a perfect initial step in achieving improved system performance levels. ABB continuously improves and expands Health Check Services, and as a result steadily improves the performance of its customer base.

No.	CheckItem	PGP33	Performance Status Summary	SME01	Performance Status Summary
29	Drivers	G		R	Features License Permission indicates differences with reference server
30	Application	G		R	A performance measurement of the Drivers License Permission indicates difference with the reference server
PGP Static Information					
31	TntExplorer Information	N/A		N/A	
32	OPC Client	Y	No OPC Client is running in this machine	G	
33	Scanner Instance	G		Y	No Scanner Instance is running in this machine
34	ICI Status	G		Y	No ICI interface is running in this machine
35	Startup System	G		G	
36	System Running Hours	G		G	
37	Node Weight	G		G	
38	PlantUnit	N/A		N/A	
39	Configuration Aligned	G		G	
40	Alarm Archive Aligned	G		G	
41	Trend Group Aligned	G		G	
42	Playback Aligned	G		G	
43	PTL Aligned	G		G	
44	Simulation status	G		G	
45	PGP file (bin) information	G		G	
46	Registry settings	G		R	A performance measurement of the Registry Settings indicates differences in the license configuration with respect to the reference server
HW Component Check					
47	Graphic	Y	The Graphic Card size could not be sufficient to guarantee best performance.	R	The Graphic Card size is not sufficient to guarantee best performance.
48	Hard Disks	Y	Disk Defragmentation is recommended	Y	Disk Defragmentation is recommended
49	File System	G		G	

Legend

Checks Passed

Checks with Failure(s)

Checks passed with Warning(s)

Not Applicable

ABB Training Center

Your gateway to specific Harmony INFI 90 training

Training programs for engineers, programmers, maintenance and operations personnel provide up-to-date technical expertise for existing and new products, processes, and technology advances.

on-line. We help you to increase the skill level and knowledge of your employees through training assessment programs including competence development, custom courseware and coaching services.

in any given situation hence improving operational efficiency of your assets.

We offer training on-site at ABB training facilities, locally at your plant site, or

Accurate training will increase your capability to respond rapidly and efficiently

Course Title	Course Code	Goals	Duration
Symphony Harmony Basics and Configuration	S-SH-BC	The attendees will receive an overview of the system, a description of the configuration structure, the concepts and the capabilities of Symphony Harmony control system.	4 ½ days Monday to Friday
Symphony Harmony Engineering Composer	S-SH-COMP	This course covers the a complete methodology used to control system programming, using a familiar Industry Standard Windows User Interface. Using a process control loop model as a base project, the attendees will use the Automation Architect program to create process control configuration strategies and relevant documentation. The attendees will be able to configure and modify the configuration into the automation unit modules. They will learn how to handle the engineering workstation, as well as the usage of on-line functions.	4 ½ days Monday to Friday
Symphony Harmony Diagnostic and Maintenance	S-SH-MNT	Hands-on exercises give attendees the opportunity to operate, install, and maintain the Harmony Rack I/O DCS. The attendees will be able to follow all operations related to installing and commissioning the system. They will understand hardware documentation and recognize, diagnose and remedy fault conditions within the Symphony system using system diagnostic tools.	4 ½ days Monday to Friday
Power Generation Portal Operation and Configuration	S-SH-PGP	The attendees will be able to understand and design basic architecture of a Power Generation Portal system; they will learn to operate and perform basic configuration tasks of a Power Generation Portal system.	4 ½ days Monday to Friday
Power Generation Portal Advanced Configuration	S-SH-PGP_ADV	The attendees will be able to design complex Power Generation Portal architectures, to perform advanced editing tasks of databases and custom graphics, to export/import data to external hosts, to modify access rights, and to perform advanced configurations of log and report.	4 ½ days Monday to Friday



Harmony INFI 90 presence worldwide

We are here to support you

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