COURSE OVERVIEW FE0185
Natural Gas Transmission Pipeline Design Project (Scope Definition)

Course Title
Natural Gas Transmission Pipeline Design Project (Scope Definition)

Course Date/Venue
June 28-July 02, 2026/Tamra Meeting Room, Al Bandar Rotana Creek, Dubai, UAE or Online Virtual Training

Course Reference
FE0185

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of Natural Gas Transmission Pipeline Design Project (Scope Definition). It covers the natural gas transmission systems, regulatory and industry standards for pipelines and pipeline project life cycle and scope definition; the stakeholder and requirements analysis, data collection for scope development and scope breakdown structure (SBS) for pipeline projects; the route selection and corridor studies and discuss pipeline hydraulic design principles; the diameter and wall thickness design, material selection and specification including preliminary pipeline layout and alignment; the design basis and planning documentation; and the pipeline construction methods and construction equipment and techniques.

During this interactive course, participants will learn the welding and jointing scope definition, coating ; the wrapping systems, backfilling and restoration works; the construction timeline and resource planning and corrosion control and cathodic protection; the block valves, stations and facilities, SCADA and pipeline monitoring systems and safety and HAZOP Studies; the environmental and social impact management, right-of-way (ROW) and land use planning including pre-commissioning and commissioning procedures; and the pipeline operation systems, maintenance strategies and scop and pipeline integrity management.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on natural gas transmission pipeline design project
- Discuss natural gas transmission systems, regulatory and industry standards for pipelines and pipeline project life cycle and scope definition
- Carryout stakeholder and requirements analysis, data collection for scope development and scope breakdown structure (SBS) for pipeline projects
- Review route selection and corridor studies and discuss pipeline hydraulic design principles
- Illustrate diameter and wall thickness design, material selection and specification including preliminary pipeline layout and alignment
- Apply design basis and planning documentation, pipeline construction methods and construction equipment and techniques
- Discuss welding and jointing scope definition, coating and wrapping systems as well as backfilling and restoration works
- Employ construction timeline and resource planning, corrosion control and cathodic protection
- Recognize block valves, stations and facilities, SCADA and pipeline monitoring systems and safety and HAZOP Studies
- Carryout environmental and social impact management, right-of-way (ROW) and land use planning including pre-commissioning and commissioning procedures
- Apply pipeline operation systems, maintenance strategies and scop and pipeline integrity management

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of natural gas transmission pipeline design project for pipeline design engineers, project engineers and project managers, pipeline integrity and operations engineers, mechanical, civil, and petroleum engineers, facility and process engineers, regulatory, safety, and compliance personnel and those who involved in involved in the planning, design, construction, and operation of natural gas transmission pipeline systems.

Virtual Training (If Applicable)

If this course is delivered online as a Virtual Training, the following limitations will be applicable:-

Certificates	Only soft copy certificates will be issued to participants through Haward's Portal. This includes Wallet Card Certificates if applicable
Training Materials	Only soft copy Training Materials (PDF format) will be issued to participant through the Virtual Training Platform
Training Methodology	80% of the program will be theory and 20% will be practical sessions, exercises, case studies, simulators or videos
Training Program	The training will be for 4 hours per day starting at 0930 and ending at 1330
H-STK Smart Training Kit	Not Applicable
Hands-on Practical Workshops	Not Applicable
Site Visit	Not Applicable
Simulators	Only software simulators will be used in the virtual courses. Hardware simulators are not applicable and will not be used in Virtual Training

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Fee

F2F Classroom: US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Online Virtual: US$ 2,750 per Delegate + **VAT**.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours

Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations:

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Dr. Tony Dimitry, PhD, MSc, BSc, is a **Senior Corrosion & Metallurgical Engineer** with over **30 years** of industrial experience. His expertise covers **Risk Based Inspection** (**RBI**) Methodologies, **Risk Based Inspection** (**RBI**) According to **API 580**, **581**, **Risk Based Inspection** (**RBI**) & **Failure Mode** & **Effect Analysis** (**FMEA**), **Corrosion** Prevention, **Cathodic Protection** Systems, **Corrosion Control**, **Corrosion Inhibition**, **Corrosion** Management in Process Operations, **Corrosion** Engineering, **Metallurgical** Failure Analysis & Prevention, **Fabrication & Repair**, **Corrosion** & Prevention of Failures, **Material** Selection, **Welding** Technology, **Welding Defects** Analysis, **Brazing/Soldering**, **Steel Manufacturing**, **Facility Integrity**, **Ladle Furnace Treatment**, **Ferro-Alloys Production**, **Tank Farm & Tank Terminal Safety**, Integrity Management, Fitness-for-Service (**FFS**), Process Plant Equipment, **Pressure Vessels**, **Piping & Storage Facilities**, Piping **Vibration** Analysis & Practical Engineering Solutions, Remaining Life Assessment & Repair of **Pressure Equipment & Piping**, **Pipeline** Operations & Maintenance, Gas Transportation Piping Code, **Maintenance** Management, **Reliability** Management, **Rotating Equipment**, **Static Equipment**, **Failure Analysis**, **FMEA** and **Preventive & Predictive** Maintenance. Currently, he is in charge of the **metallurgical failure analysis** and the usage of fracture mechanics for determining crack propagation in impellers of turbines.

During his career life, Dr. Dimitry held a significant positions such as the **Operations Engineers**, **Technical Trainer**, **HSE Contracts Engineer**, **Boilers Section Engineer**, **Senior Engineer**, **Trainee Mechanical Engineer**, **Corrosion Engineer**, **Turbines Section Head**, **Professor**, **Lecturer/Instructor** and **Teaching Assistant** from various multinational companies like **Chloride Silent Power Ltd.**, **Technical University of Crete**, **National Nuclear Corporation**, **UMIST Aliveri Power Station** and **HFO Fired Power Station**.

Dr. Dimitry has **PhD**, **Master** and **Bachelor** degrees in **Mechanical Engineering** from the **Victory University of Manchester** and the **University of Newcastle**, **UK** respectively. Further, he is a **Certified Instructor/Trainer**, a **Certified Internal Verifier/Assessor/Trainer** by the **Institute of Leadership & Management** (**ILM**) and an associate member of the American Society of Mechanical Engineers (**ASME**) and Institution of Mechanical Engineers (**IMechE**). He has further delivered various trainings, seminars, courses, workshops and conferences internationally.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1:	***Sunday, 28th of June 2026***
0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Overview of Natural Gas Transmission Systems*** *Function of Transmission versus Distribution Pipelines • Onshore versus Offshore Pipeline Systems • Integration with Production and Processing Facilities • Typical Pressured and High-Volume Designs*
0930 – 0945	*Break*
0945 – 1030	***Regulatory & Industry Standards for Pipelines*** *ASME B31.8 – Gas Transmission & Distribution • API 5L – Line Pipe Specification • ISO 13623 – Pipeline Transportation Systems • Local Regulatory and Environmental Requirements*
1030 – 1130	***Pipeline Project Life Cycle & Scope Definition*** *Concept, Prefeasibility, FEED, EPC, Operation • Scope Boundaries and System Limits Definition • Inclusion / Exclusion Criteria • Key Deliverables per Phase*
1130 – 1215	***Stakeholder & Requirements Analysis*** *Owner / Operator Requirements • Government and Regulatory Agencies • Landowners and Communities • Environmental & HSE Requirements*
1215 – 1230	*Break*
1230 – 1330	***Data Collection for Scope Development*** *Topographic Surveys • Geotechnical & Soil Investigation • Meteorological & Route Data • Existing Utilities and ROW Constraints*
1330 – 1420	***Scope Breakdown Structure (SBS) for Pipeline Projects*** *Design Scope • Construction Scope • Mechanical & Civil Scope • Instrumentation, Telecom and SCADA Scope*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2:	***Monday, 29th of June 2026***
0730 – 0830	***Route Selection & Corridor Studies*** *Feasibility Corridors & Mapping Techniques • GIS and Satellite Mapping Use • River, Road & Utility Crossings • Cultural and Environmentally Sensitive Areas*
0830 – 0930	***Pipeline Hydraulic Design Principles*** *Flow Rate Calculations • Pressure Drop Evaluation • Compressibility Factors • Temperature and Elevation Effects*
0930 – 0945	*Break*
0945 – 1100	***Diameter & Wall Thickness Design*** *MAOP Calculation • Hoop Stress Formula • Safety Factor Application • Corrosion Allowance*
1100 – 1215	***Material Selection & Specification*** *API 5L Grades (X42, X52, X60, X70, etc.) • Pipe Manufacturing Processes • Mechanical and Chemical Properties • Coating System Specifications*

1215 – 1230	Break
1230 – 1330	***Preliminary Pipeline Layout & Alignment*** Horizontal and Vertical Alignment • Station Placement • Valve & Pig Launcher Locations • Accessibility and Maintenance Access
1330 – 1420	***Design Basis & Planning Documentation*** Design Philosophy • Process Flow Diagrams (PFDs) • Preliminary P&IDs • Design Basis Memorandum (DBM)
1420 – 1430	***Recap*** Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two

Day 3: Tuesday, 30th of June 2026

0730 – 0830	***Pipeline Construction Methods*** Open Cut Trenching • Horizontal Directional Drilling (HDD) • Boring & Microtunneling • Offshore Laying Methods (S-Lay/J-Lay)
0830 – 0930	***Construction Equipment & Techniques*** Trenchers and Side Booms • Welding and Coating Equipment • Lifting and Lowering Methods • Stringing and Pipe Handling
0930 – 0945	Break
0945 – 1100	***Welding & Jointing Scope Definition*** Welding Procedures & Standards • NDT and Inspection Methods • Weld Mapping and Documentation • Joint Coating Requirements
1100 – 1215	***Coating & Wrapping Systems*** FBE Coating • 3LPE, 3LPP Systems • Field Joint Coatings • Potential Defects Detection
1215 – 1230	Break
1230 – 1330	***Backfilling & Restoration Works*** Bedding Material Requirements • Backfill Compaction • Erosion Control Measures • Land Restoration Procedures
1330 – 1420	***Construction Timeline & Resource Planning*** Crew and Manpower Planning • Equipment Scheduling • Construction Sequencing • Weather and Terrain Impact Analysis
1420 – 1430	***Recap*** Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Three

Day 4: Wednesday, 01st of July 2026

0730 – 0830	***Corrosion Control & Cathodic Protection*** External & Internal Corrosion Mechanisms • Sacrificial Anode Systems • Impressed Current Systems • Coating + CP Integration
0830 – 0930	***Block Valves, Stations & Facilities*** Sectionalizing Valves • Compressor Stations • Metering and Regulating Stations • Scraper (Pig) Launcher/Receiver
0930 – 0945	Break
0945 – 1100	***SCADA & Pipeline Monitoring Systems*** Remote Data Acquisition • Pressure, Temperature and Flow Sensors • Leak Detection Systems • Control Room Operations

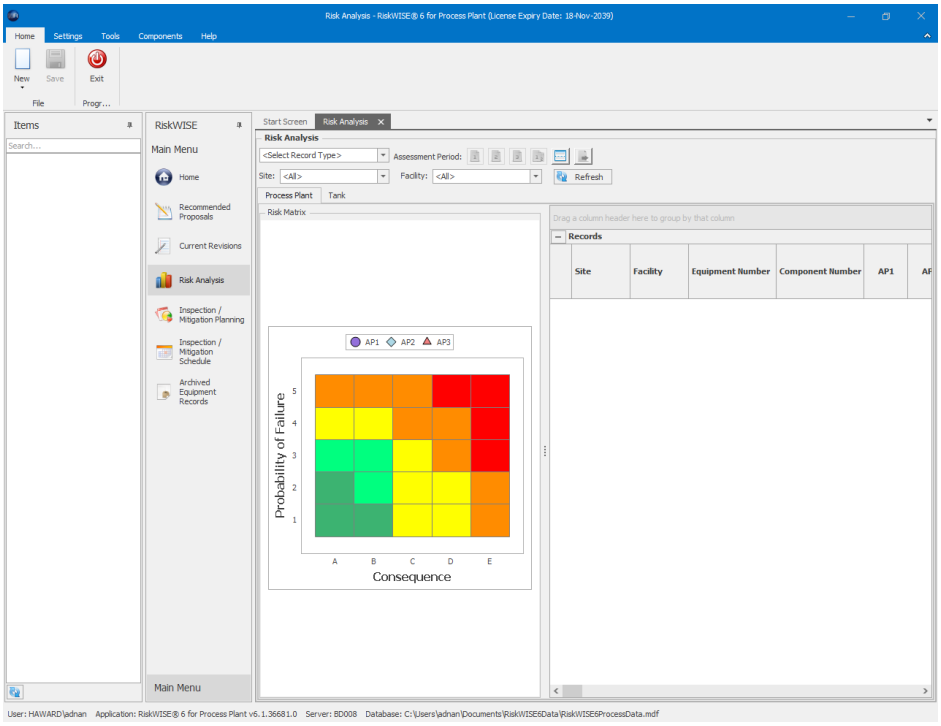
1100 – 1215	***Safety & HAZOP Studies*** *Risk Assessment Techniques • HAZID & HAZOP Studies • Emergency Shutdown Systems (ESD) • Quantitative Risk Analysis (QRA)*
1215 – 1230	*Break*
1230 – 1330	***Environmental & Social Impact Management*** *ESIA Requirements • Biodiversity and Habitat Protection • Waste and Spill Management • Community Engagement Plans*
1330 – 1420	***Right-of-Way (ROW) & Land Use Planning*** *ROW Width and Access Requirements • Permanent versus Temporary Acquisition • Compensation Issues • Surveying & Demarcation*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Four*

Day 5: ***Sunday, 02nd of July 2026***

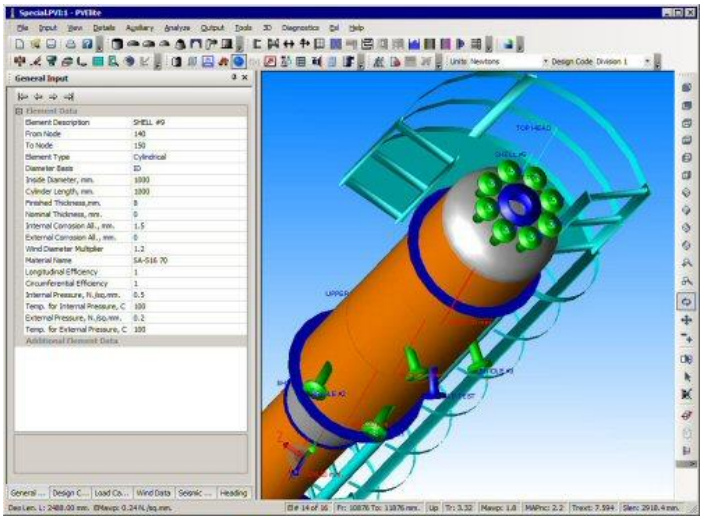
0730 – 0830	***Pre-Commissioning & Commissioning Procedures*** *Pipeline Cleaning & Gauging • Hydrostatic Testing • Drying and Inerting • Start-Up Procedures*
0830 – 0930	***Pipeline Operation Systems*** *Operating Pressure Control • Compressor and Flow Management • Temperature and Surge Control • System Balancing*
0930 – 0945	*Break*
0945 – 1100	***Maintenance Strategies & Scope*** *Routine Inspection Programs • Pigging Operations • Corrosion Monitoring • Maintenance Scheduling*
1100 – 1215	***Pipeline Integrity Management*** *In-Line Inspection (Smart Pigging) • Defect Assessment Methods • Fitness-for-Service Analysis • Repair and Rehab Techniques*
1215 – 1230	*Break*
1230 – 1300	***Documentation & Final Project Deliverables*** *As-Built Records • Operation & Maintenance Manuals • Final Design Report • Asset Register and Drawings*
1300 - 1345	***Lessons Learned & Continuous Improvement*** *Post-Project Evaluation • Performance Monitoring • Design Optimization • Feedback Incorporation*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about t Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulator (Hands-on Practical Sessions)

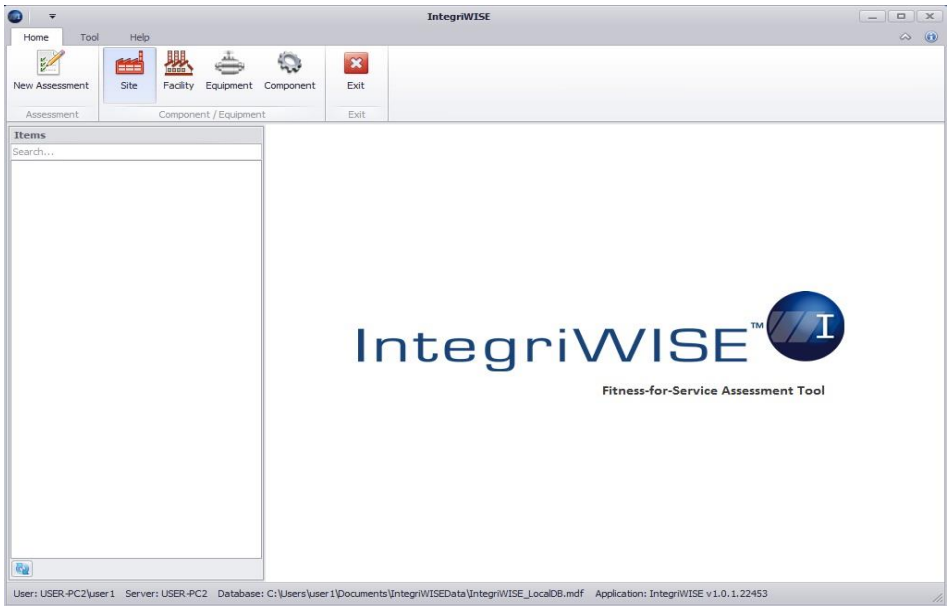
Practical session will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using the state-of-the-art simulators. "RiskWISE", "PV-Elite" and "IntegriWISE™".

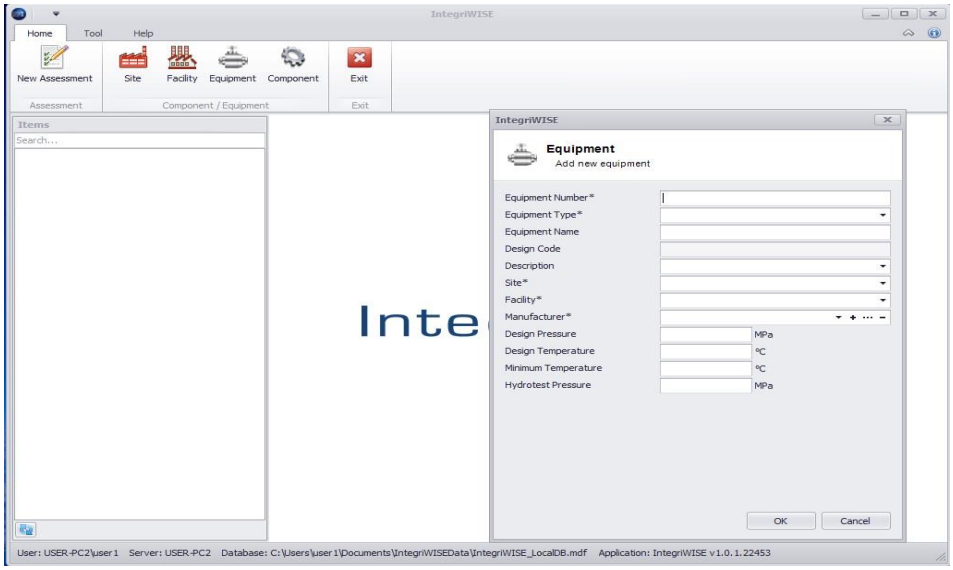


RiskWISE Simulator



PV-Elite Simulator





IntegriWISE™

Course Coordinator

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