



# A new era in premium vascular ultrasound

Philips EPIQ 5 ultrasound system

**PHILIPS**

# The new challenges in global healthcare

Unprecedented advances in premium ultrasound performance can help address the strains on overburdened hospitals and healthcare systems, which are continually being challenged to provide a higher quality of care cost-effectively. The goal is quick and accurate diagnosis the first time and in less time. Premium ultrasound today demands improved clinical information from each scan, faster and more consistent exams that are easier to perform, and a higher level of confidence, even for technically difficult patients.



## Key trends in global ultrasound

- The need for more definitive premium ultrasound with exceptional image quality, performance, and intelligence that provides automated views and quantification
- Ultrasound exam volumes continue to increase every year due to the aging global population, resulting in a demand for greater workflow and throughput
- A demand to automate most operator functions to allow for ease of use and consistency of exam between users
- The need for technology to address the technically challenging patient



## Introducing a new era in premium vascular ultrasound

It's our most powerful architecture ever applied to ultrasound imaging – touching all aspects of acoustic acquisition and processing, allowing you to truly experience ultrasound's evolution to a more definitive modality.



# Performance

More confidence in your diagnoses even for your most difficult cases

EPIQ 5 is the new direction for premium vascular ultrasound, featuring an uncompromised level of clinical performance to meet the challenges of today's most demanding practices.



## Our most powerful architecture ever applied to vascular ultrasound

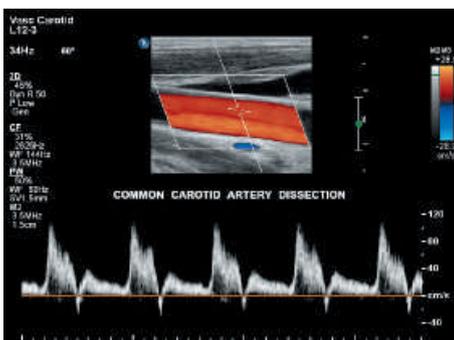
EPIQ performance touches all aspects of acoustic acquisition and processing, allowing you to truly experience the evolution to a more definitive modality.

## Philips nSIGHT Imaging is a totally new approach

The Philips proprietary nSIGHT Imaging architecture introduces a totally new approach to forming ultrasound images without compromise. Unlike conventional systems that form the image line by line, nSIGHT creates images with optimal resolution down to the pixel level.

## Extraordinary architecture

Proprietary nSIGHT Imaging incorporates the use of a new precision beamformer along with powerful massive parallel processing. This extraordinary architecture captures an enormous amount of acoustic data and then reconstructs optimally focused beams, creating precise resolution for every pixel in the image – all in real time.



# Breaking old rules. Creating new realities.

nSIGHT Imaging breaks the rules of conventional ultrasound to achieve new levels of clinical performance.

## Old rule 1

You must choose between frame rate and image quality

Conventional  
technology

nSIGHT Imaging

nSIGHT more than doubles the frame rate

For the first time you can experience both highly detailed ultrasound images and extraordinary temporal resolution and frame rate through virtually perfect beams with fewer transmit operations, breaking the traditional compromise of conventional architectures.

## Old rule 2

You must critically place a focal zone to achieve the greatest image clarity



Conventional  
technology

Best resolution  
limited to  
transmit focal  
zone area



nSIGHT  
Imaging

Effective  
reconstructed  
transmit beam  
uniformity

Now you can experience superb tissue uniformity all the way up to the skin line without the compromise of conventional transmit focus limitations through dynamic calculation and reconstruction of optimal transmit and receive focusing continually at all depths down to the pixel level.

## Old rule 3

You can't escape penetration limitations and sensitivity to weak tissue signals



**C9-2 PureWave curved array**

Superb penetration and resolution  
(16 cm) on adult patient



nSIGHT Imaging

Visualize extraordinary levels of detail and contrast resolution with exceptional penetration at higher frequencies even on difficult patients through ultra-wide dynamic range and unique beam reconstruction that reinforces exceptional tissue information at greater depths with less noise.

### Image quality: the numbers tell the story

Comparing EPIQ 5 to conventional premium systems shows breakthrough advances in imaging performance:\*

- Up to 76% increase in penetration  
(penetration = ability to scan at depths and maintain resolution in order to complete the study)\*
- Up to 160% increase in temporal resolution  
(ability to maintain resolution at high frame rates)\*

\*Quantitative engineering study comparing Philips iU22 ultrasound system with EPIQ 5.

Full range  
of transducers  
supports virtually any  
vascular application.



# Exceptional images for a new era

Abd Gen  
C5-1

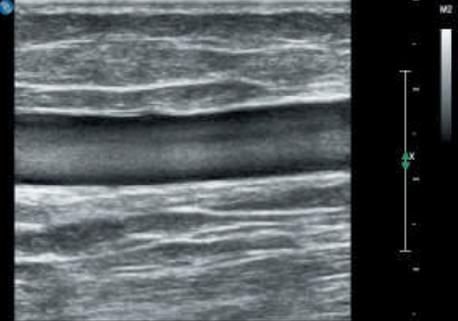
66Hz  
RS  
2D  
64%  
Dyn R 55  
P Low  
HRes



ABDOMINAL AORTIC ANEURYSM

Vasc Venous  
L12-3

35Hz  
RS  
2D  
58%  
Dyn R 50  
P Low  
HRes



GREATER SAPHENOUS VEIN

Abdomen General  
C9-2

71Hz  
RS  
2D  
83%  
Dyn R 70  
P Low  
Gen

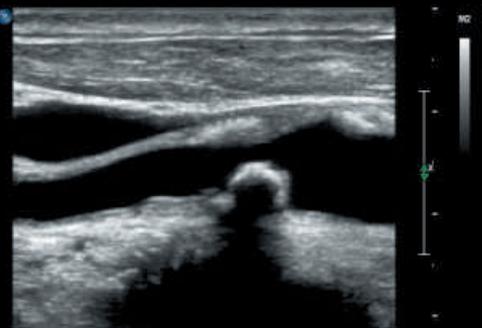
CPA  
76%  
1000Hz  
WF 70-12  
3.4MHz



RENAL TRANSPLANT VASCULATURE

Vasc Carotid  
L12-3

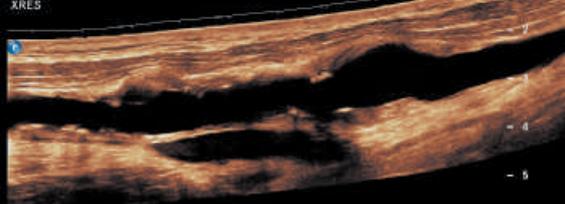
38Hz  
RS  
2D  
55%  
Dyn R 50  
P Low  
HGen



INTERNAL CAROTID ARTERY STENOSIS

Vasc Arterial  
L12-3

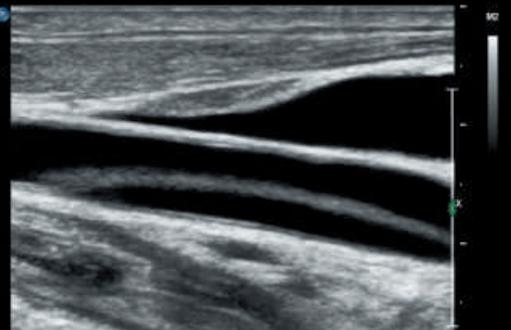
38Hz  
RS  
2.4  
2D  
C 50  
P Cal  
HRes  
SonoQT  
XRES



FEMORAL ARTERY WITH DISTAL ANEURYSM  
PANORAMIC IMAGING

Vasc Carotid  
L12-3

38Hz  
RS  
2D  
58%  
Dyn R 50  
P Low  
HGen



COMMON CAROTID ARTERY DISSECTION

Vascular Arterial  
L18-3

80Hz

RS

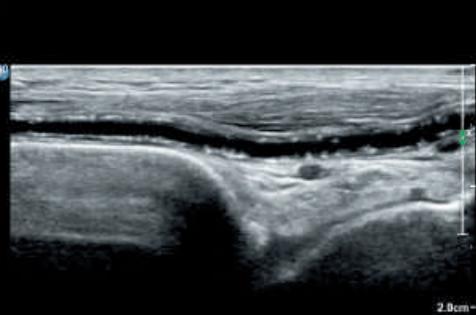
2D

34%

Dyn R 60

P Med

Res



DISTAL TIBIAL ARTERY

Vasc Venous  
L12-3

35Hz

RS

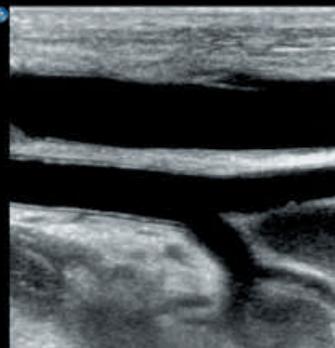
2D

85%

Dyn R 50

P Low

HGen



COMMON FEMORAL VEIN /  
COMMON FEMORAL ARTERY BIFURCATION

Vasc Carotid  
L12-3

23Hz

2D

56%

Dyn R 50

P Low

GGen

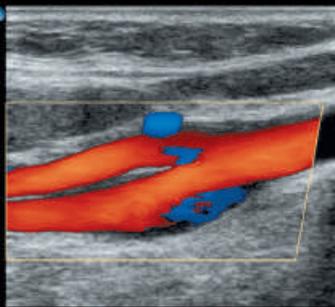
CF

38%

7825Hz

WF 144Hz

3.5MHz



COMMON CAROTID ARTERY BIFURCATION

Vasc Venous  
L12-3

15Hz

2D

73%

Dyn R 44

P Low

HRes

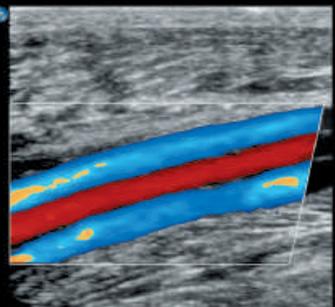
CF

54%

975Hz

WF 30Hz

3.5MHz



POSTERIOR TIBIAL VEINS / ARTERY

Abd Renal  
C9-2

11Hz

2D

57%

Dyn R 48

P Low

HGen

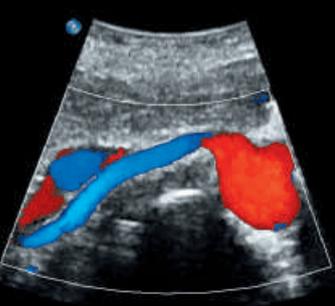
CF

27%

3750Hz

WF 131Hz

3.0MHz



RENAL ARTERY

Vasc Venous  
L12-3

24Hz

60°

Z 1.4

2D

48%

Dyn R 50

P Low

GGen

CF

52%

750Hz

WF 28Hz

4.0MHz

EM

45%

WF 40Hz

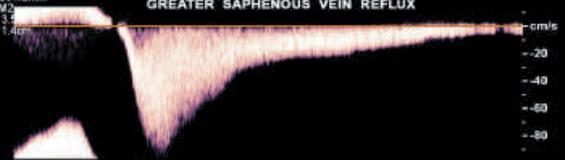
SVI 5mm

M2

1.4



GREATER SAPHENOUS VEIN REFLUX



# The technically difficult patient is

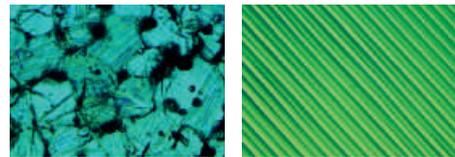


EPIQ 5 offers the ultimate in flexibility to configure any clinical option and application for a true no-compromise vascular imaging system.

nSIGHT Imaging strengthens the power of PureWave to image technically difficult patients. PureWave crystal technology represents the biggest break-through in piezoelectric transducer material in 40 years. The pure, uniform crystals of PureWave are 85% more efficient than conventional piezoelectric material, resulting in exceptional performance. This technology allows for improved penetration in difficult patients with a single transducer and for excellent detailed resolution.

PureWave offers new answers for imaging technically difficult patients in a wide range of applications:

- PureWave C5-1 and the new PureWave C9-2 for difficult-to-image abdominal and lower extremity applications
- PureWave S5-1 for difficult-to-image cardiology patients and transcranial applications

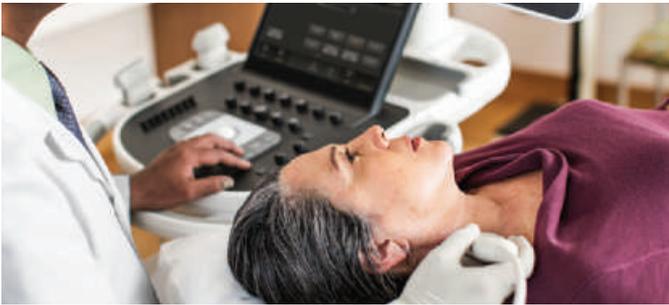


**Conventional** (x800) **PureWave** (x800)

PureWave crystals have virtually perfect uniformity for greater bandwidth and twice the efficiency of conventional ceramic materials. The result is excellent imaging and Doppler performance.



# now even easier



## Access to multimodality images

Use multimodality query retrieve to view DICOM images such as CT, NM, MR, angiography, and ultrasound. Easily compare past and current studies without the use of an external reading station, and even review these multimodality images while live imaging.



## Elastography for more definitive information about tissue stiffness

EPIQ 5 is uniquely designed to support both strain and shear wave methods of elastography. Highly sensitive strain imaging requires no external compression and can be used to assess relative tissue stiffness across a variety of applications. Shear wave elastography utilizes unique pulsing schemes to generate and measure the propagation speed of shear waves through tissue. This technique produces a measure of tissue stiffness that has proven helpful in assessing diseases such as liver fibrosis.



# Designed

## to reinvent the user experience

### EPIQ 5 makes it easy to be green

EPIQ 5 is one of the greenest systems we have ever designed. It consumes 25% less power than our existing premium ultrasound.

EPIQ 5 has completely reinvented the premium ultrasound user experience. Ease of use, workflow, ergonomics, portability... we've revolutionized how you interact with an ultrasound system from every standpoint, and kept it beautifully intuitive.

More than 80% of sonographers experience work-related pain, and more than 20% of these suffer a career-ending injury.<sup>1</sup> With EPIQ 5, a new tablet-like interface results in dramatic reduction in reach and button pushes, with 40% to 80% less reach and 15% fewer steps.\*

#### Advanced workflow

The design of the platform features "walk up usability" meaning that users can perform an exam with minimal training. The system offers the automation to drive efficiency throughout exams with features such as Real Time iSCAN (AutoSCAN), which automatically optimizes gain and TGC continuously to provide optimal images are achieved in 2D, 3D, or 4D.

#### Library quiet

EPIQ 5 is almost silent when running. A noise test determined that EPIQ 5 runs at 37-41 dB, which is equivalent to the sound of a library.



EPIQ 5 features integrated efficiency tools and multiple degrees of articulation for scanning comfort.



1. Society of Diagnostic Medical Sonography, Industry Standards for the Prevention of Musculoskeletal Disorders in Sonography, May 2003.

\*Engineering study comparing Philips iU22 ultrasound system with EPIQ 5.



Place EPIQ 5 in sleep mode, move it, and boot up in seconds.

### Efficiency is built in

Integrated efficiency tools address the expanding demand for greater throughput and exam consistency.

### SmartExam

SmartExam decreases exam time by 30-50%, keystrokes by as many as 300/exam, and results in a higher level of consistency among users. It is fast and easy to customize, providing consistent and accurate annotation, automatic mode switching, and missed view alerts to streamline exams. The result is more time to focus on your patients, increased confidence in complete studies, less focus on requirements, less repetitive motion, less stress, and enhanced schedule maintenance and department efficiencies.

### Auto Doppler for vascular imaging

Auto Doppler takes time-consuming color box positioning and sample volume placement from ten steps to three steps and reduces the number of repetitive button pushes by an average of 67.9%.

### Active native data

Active native data allows for post-processing of many exam parameters.

### Set-up Wizard

Set-up Wizard allows users to step up to the system, easily establish user configurations, and get running quickly.

### Scanning comfort

Multiple degrees of articulation for both the control panel and 21.5-inch LCD monitor with 720° of freedom allows for ergonomic alignment for scanning comfort whether sitting or standing.

### Amazingly portable

At just 230 lbs., EPIQ 5 is lightest in its class and 40% lighter than the heaviest competitive premium system. Easily transport EPIQ 5 on both carpet and tile floors. The monitor folds down to reduce overall system height for transport, and the integrated cable hooks and catch tray are ideal for portable studies. Wireless<sup>†</sup> DICOM further aids workflow.

Large 21.5-inch wide screen for easy viewing in virtually any environment.



<sup>†</sup> Check for availability in your geography.

# Intelligence

## turning images into answers

EPIQ 5 is our most intelligent premium ultrasound system ever, offering a complete set of easy-to-use quantitative tools.



### Anatomical Intelligence is the heart of EPIQ 5

At the heart of the powerful EPIQ 5 architecture is our Philips exclusive Anatomical Intelligence Ultrasound (AIUS), designed to elevate the ultrasound system from a passive to an actively adaptive device. With advanced organ modeling, image slicing, and proven quantification, exams are easy to perform, more reproducible, and deliver new levels of clinical information.

AIUS ranges from automating repetitive steps to full-blown computer-driven analysis with minimal user interaction – all using anatomic intelligence and all providing the results you need. In fact, many of our tools come with ZeroClick technology, which means that once loaded, the tool does it all for you.\*

## Q-App quantification applications

EPIQ 5 offers a wide variety of sophisticated Q-Apps to quantify ultrasound image information.

### Vascular Q-Apps

- Intima Media Thickness (IMT)
- General Imaging 3D Quantification (GI 3DQ)
- Region of Interest (ROI)
- MicroVascular Imaging (MVI)
- Vascular Plaque Quantification (VPQ)

### Cardiology Q-Apps

- Strain Quantification (SQ)
- CMQ Stress
- Automated 2D Cardiac Quantification<sup>A.I.</sup> (a2DQ<sup>A.I.</sup>)
- Automated Cardiac Motion Quantification<sup>A.I.</sup> (aCMQ<sup>A.I.</sup>)

\*Edit option

## Automation

### Automated 2D Cardiac Quantification<sup>A.I.</sup> (a2DQ<sup>A.I.</sup>) with ZeroClick technology for adult and pediatric echo

The ideal tool of every echo lab, Automated 2D Cardiac Quantification<sup>A.I.</sup> (a2DQ<sup>A.I.</sup>) with ZeroClick technology uses AIUS for an Auto-ROI to drive the Q-App and provide rapid access to proven 2D EF and volumes. AutoEF is available during the study and so fits in with an everyday echo protocol.

### Automated Cardiac Motion Quantification<sup>A.I.</sup> (aCMQ<sup>A.I.</sup>) with ZeroClick technology for adult echo

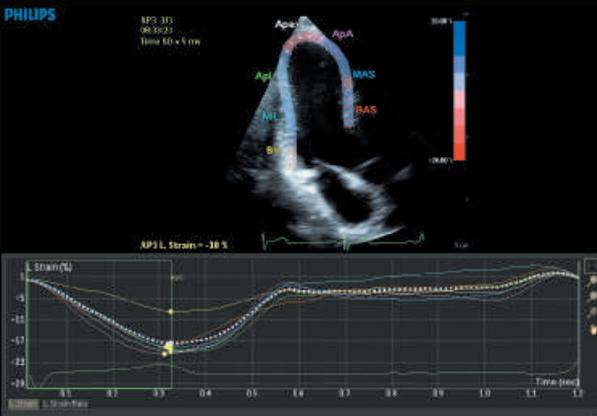
The ZeroClick technology of the Automated Cardiac Motion Quantification<sup>A.I.</sup> (aCMQ<sup>A.I.</sup>) uses speckle mechanics to provide reproducible 2D Global Longitudinal Strain (GLS) speckle measurements. An accurate EF is also calculated by using the Auto-ROI that drives the automation within the aCMQ<sup>A.I.</sup> Q-App.

### Vascular Plaque Quantification (VPQ)

Vascular Plaque Quantification is a non-invasive tool that uses 3D technology to visualize and quantify both the overall volume of vascular plaque in the carotid artery and the percent area of vessel reduction, as well as other characteristics of plaque composition. VPQ may prove to be a valuable tool to aid in determining who is at an increased risk of stroke or cardiovascular disease based on this important measurement of plaque buildup in the carotid artery.



**a2DQ<sup>A.I.</sup> with ZeroClick for fast, reproducible EF on all your patients.**



**aCMQ<sup>A.I.</sup> with ZeroClick technology provides both EF and GLS from the same 2D images.**



**VPQ and the VL13-5 transducer allow advanced analysis of plaque volume and morphology.**

# Advanced support services are proactive



We understand your challenges: uncertain economic times, changing healthcare landscapes, and the impact of healthcare reform. We know that efficient workflows and system uptime are critical success factors in running an effective healthcare business.

Philips is committed to offering solutions to provide you with world-class services that move from reactive to proactive and with predictive service models that provide high system availability and enhanced workflow to help you deliver high-quality patient care.

## Remote services mean we're closer than ever\*



### Remote desktop

Spend less time on the phone with a Philips “Virtual Visit” with remote system interaction for fast technical and clinical troubleshooting and guided scanning options.

### iSSL technology

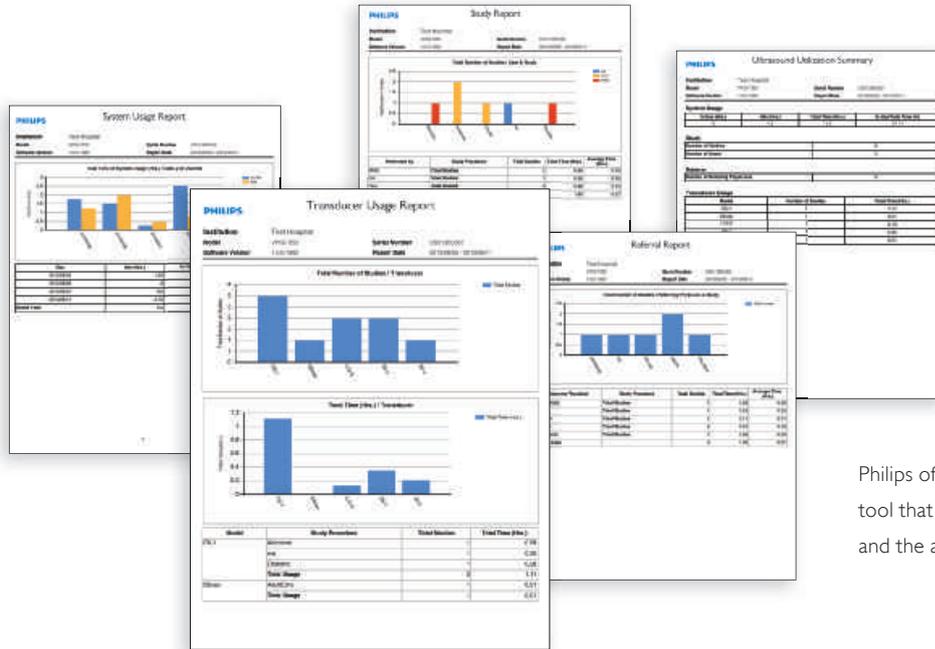
This industry-standard protocol meets global privacy standards and provides a safe and secure connection to the Philips remote services network using your existing Internet access point.

### Online support request

Enter a support request directly from your EPIQ system for a fast, convenient communication mechanism that reduces workflow interruption and keeps you at the system and focused on your patient.

The remote desktop allows Philips service engineers to gain a live view of your system's console for remote operation, real-time clinical troubleshooting, and issue resolution.

# and predictive



Philips offers the only ultrasound utilization tool that provides individual transducer usage and the ability to sort by exam type.

## Utilization reports

Data intelligence tools that can help you make informed decisions to improve workflow, deliver quality patient care, and decrease the total cost of ownership. This is the only ultrasound utilization tool that provides individual transducer usage and the ability to sort by exam type.

## Pro-active monitoring

Proactive monitoring allows for the detection and repair of anomalies before they become problems and helps us to better predict potential failures and proactively act on them. Increase system availability, optimize workflow, and promote patient satisfaction by scheduling downtime as opposed to reacting to an unexpected problem.

\*Check for availability in your geography.

## Exceptional serviceability

The system features superior modular design for rapid repair, getting your system up and running quickly.

## Intelligent software architecture

Software is easily optimized, maintained, and restored by the service user without risk to patient data, giving you peace of mind when dealing with software anomalies and confidence that your data is safe.

This software architecture takes patient data privacy to a new level. Patient data is stored on a separate partition and physical location to provide protection and ease of removal, providing you total control of your data.

## Clinical education solutions

Our comprehensive, clinically relevant courses, programs, and learning paths are designed to help you improve operational efficiency and enhance patient care.

**Philips Healthcare**  
is part of **Royal Philips**

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