

G-Cloud Service Definition

NEC Facial Recognition Solution

Crown
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G-Cloud – NEC Facial Recognition Solution

Service Definition

This Service Definition is relevant to all UK Police Forces, Criminal Justice agencies and Public Safety organisations. NEC Facial Recognition and any related services are provided by NEC Software Solutions (NEC).

The NEC NeoFace Facial Recognition Standard G-Cloud Service is available as:

- NEC NeoFace Facial Recognition Private Cloud (an on-premise, or separately procured, private cloud).

Overview of G-Cloud Service

NEC NeoFace Facial Recognition is a high performance and scalable face recognition software solution which provides users with a platform to identify an individual (subject) in one of the three following use cases:

- **Retrospective Facial Recognition:** Identify individuals in images or videos post event. Images and videos can be from any source such as stored videos from a CCTV camera or images captured by a witness.
- **Live Facial Recognition:** Identify individuals in real-time from a live video feed. This feed can be from any source such as CCTV cameras.
- **Operator initiated Face recognition:** Identify individuals by taking a picture of them using a mobile phone app.

In each of the above cases a person's face is detected and searched against one or multiple image galleries (watchlists) to identify if the subject is already known and if so, retrieve their identity and associated metadata.

Deploying a NeoFace Facial Recognition solution includes installation of the software on hardware tailored to each use case, configuration of the installed software, and ongoing customer support.

Service Packages

Each of the above three use cases can be deployed individually or in combination using the following packages built upon the standard service package:

Standard Service Package

The Standard service package is required for all other packages and consists of the following components:

Base Software

- A set of feature rich Facial Recognition tools enabling users to establish their own workflows without needing to re-design the software.
- Capability to support tens of millions of enrolled facial images.
- Browser based user dashboard with customisable widgets.

- Support for hundreds of concurrent users.
- Data retention tools that manually or automatically delete subject or match data.
- System Configurator Tool.
- Full auditing and Reporting tools.
- Transport Layer Security (TLS) and enterprise infrastructure tools enables encryption of all data at rest and in transit.
- Geotagging of hits with visual representation on a map.
- A centralised system monitor, showing the status of all servers and cameras connected to the main system.
- A role-based access control mechanism with fine-grained role restriction and definition.
- Configure organisations for multi-tenancy and data separation between teams.
- Comprehensive APIs enable full systems integration.
- Integration with LDAP Providers such as Active Directory increases security and provides single sign on.

Subject Enrolment

- A performant and scalable image Data Store
- The ability to create more than 200 Watchlists
- Individual or Bulk Enrolment of images into the Watchlists
- The ability to enable, disable or delete a Watchlist and the faces contained within
- The ability to enrol a Face via an image file (JPG, PNG, BMP)
- The ability to add the following metadata for each subject at the point of enrolment or after:
 - ➔ First Name
 - ➔ Middle Name
 - ➔ Last Name
 - ➔ Date Of Birth
 - ➔ Gender
 - ➔ Address.
- The ability to add multiple custom fields (up to 12) during the enrolment process.

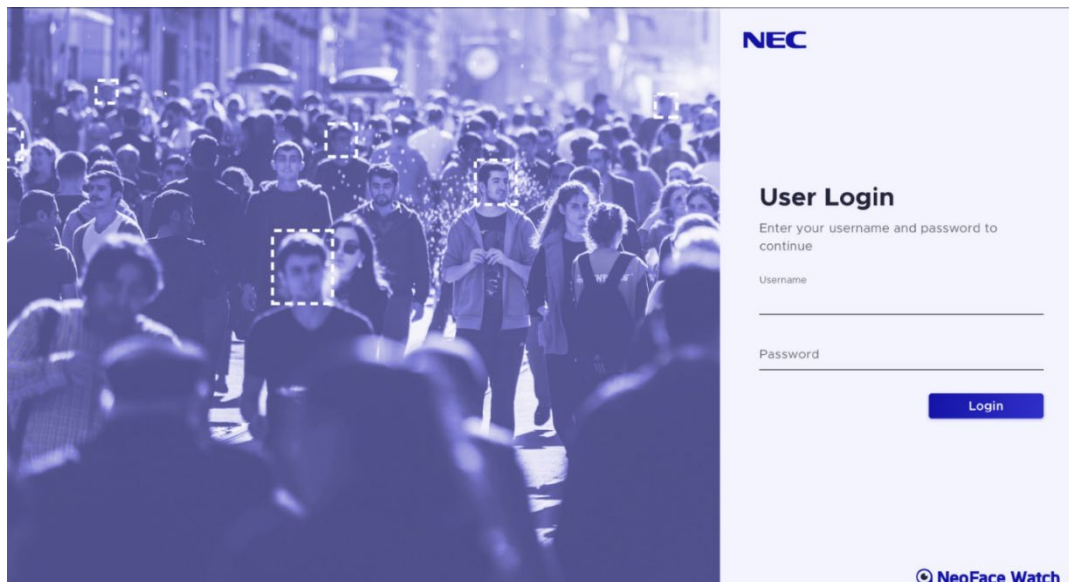


Figure 1: NeoFace Facial Recognition browser-based Login page

Image-based Retrospective Facial Recognition Package

- The ability to upload one or more images for identification.
- The capability to automatically detect one or more faces from within the uploaded image or multiple images, searching them in parallel.
- The capability for the operator to automatically overlay on the image the eye location, face and head.
- The ability (in the event no face can be detected) to allow the user to enhance the image appropriately. Enhancements include:
 - Crop
 - Rotate
 - Smooth
 - Sharpen
 - Brightness, Saturation, Contrast
 - Automated enhancement of Brightness, Saturation and Contrast
 - Automatic Histogram
 - Upscale Resolution
 - Zoom in and out.
- Face Search tools to search probe images against the faces enrolled in the Watchlists.
- Create a ranked candidate list following a face search, with similarity scores providing the order from most to least similar.

- Provide the user with the ability to pre- and post-filter the candidate list based upon:
 - ➔ Watchlist
 - ➔ Matching score
 - ➔ Topology
 - ➔ Enrolment date
 - ➔ Image Tags
 - ➔ Date of Birth.
- Ability to view thumbnails of every image in the system as well as viewing specific Watchlist and moving subjects between them.
- A history of all 1:N searches undertaken by a specific user.
- A full audit trail of all key operator activity in accordance with DPA 2018 and GDPR.
- A role-based access control mechanism with administrator definable roles.
- Administrator ability to enable, disable, edit or delete a specific user.

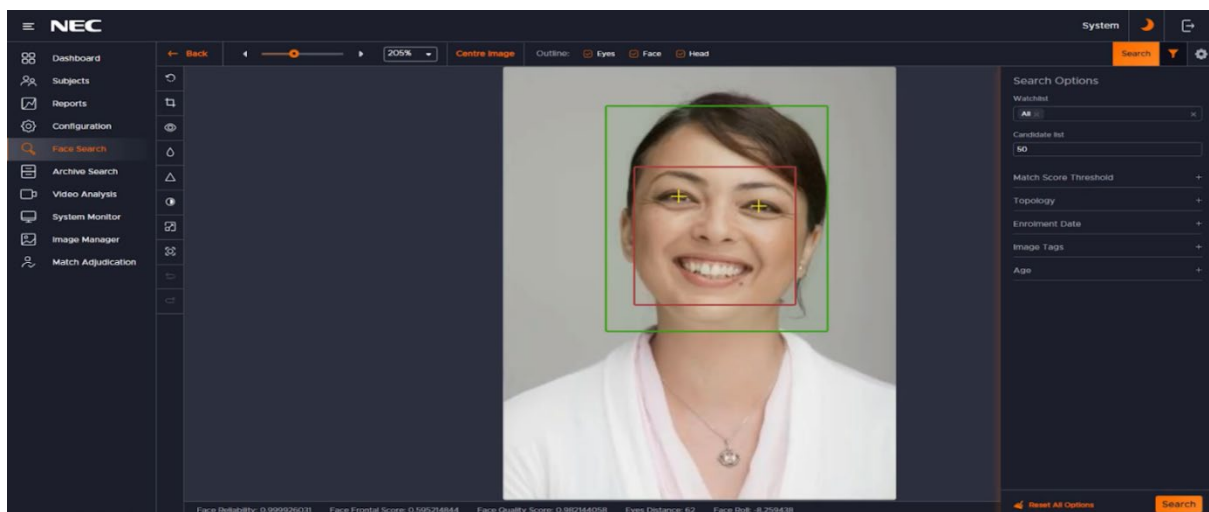


Figure 2: Subject photo uploaded and Biometric template created. Various enhancement tools are provided on the left side of the image. The Search button at the top right will perform searching against watchlists

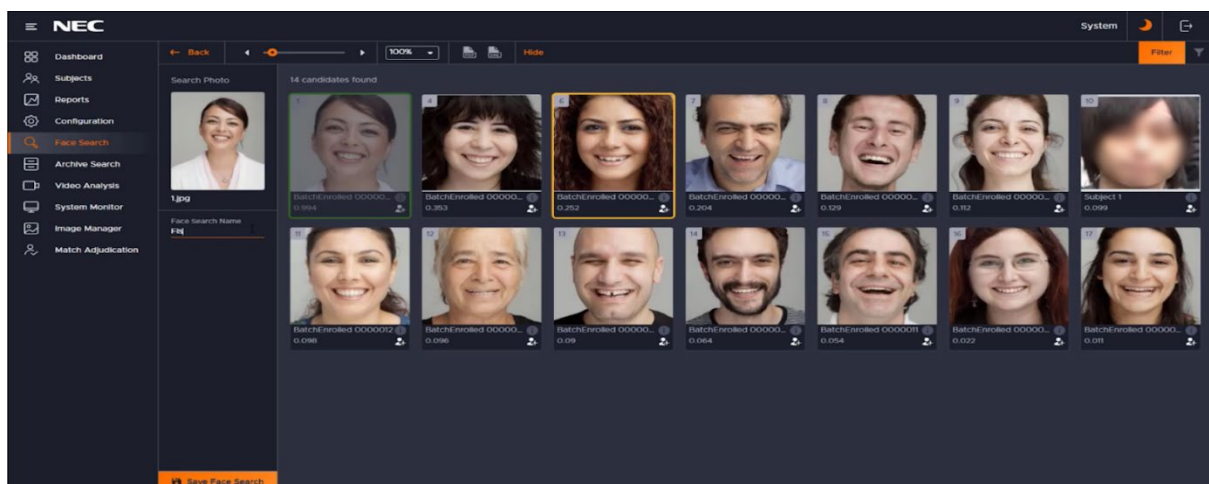


Figure 3: Returned Rank results based on highest to lowest match scores

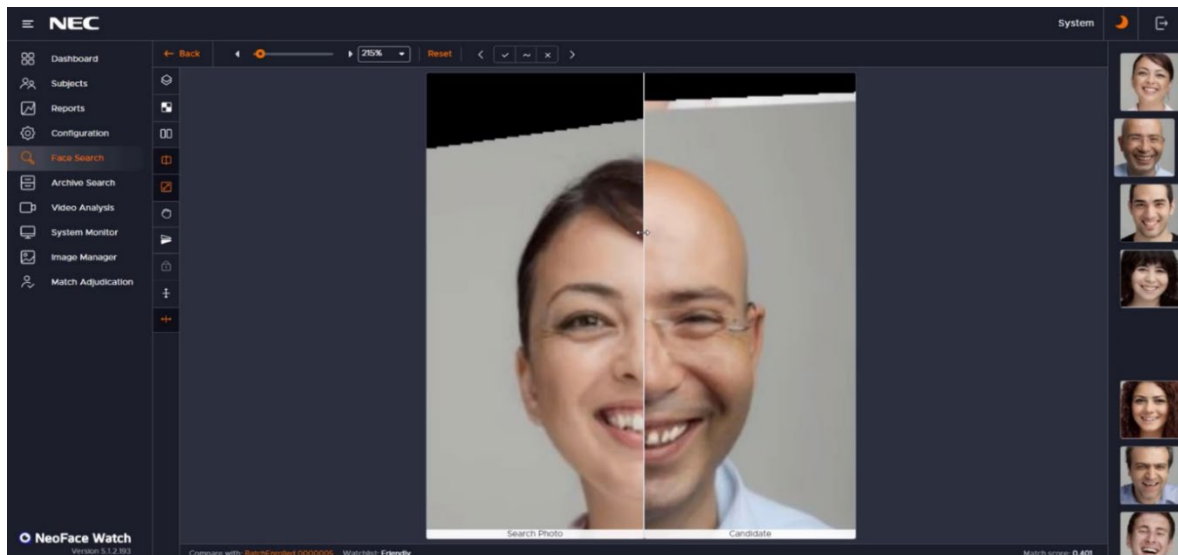


Figure 4: Further adjudication can be achieved by clicking on each image of the image in Figure 3 for a more detailed comparison. Additional comparison tools are provided on the left-hand side

Video-based Retrospective Facial Recognition Package

This package provides users with a platform to carry out identification of individuals in recorded videos. This package includes:

- The capability to process recorded video to identify faces within them.
- The ability for a user to load multiple video files into the software component in the following formats:
 - ➔ AVE
 - ➔ AVI
 - ➔ MPEG
 - ➔ MP4
 - ➔ MOV
 - ➔ ASF
 - ➔ MKV.
- Provide the user with the ability to review hits within each video.
- The ability to automatically identify faces in the video.
- The ability to use the images identified in the video to search against the faces enrolled into the Watchlists.
- The results of the matched subjects in chronological order of the timestamp of the video frame they were matched.
- The ability to automatically enrol all unknown faces located within the video(s) into a Watchlist of unknown subjects.

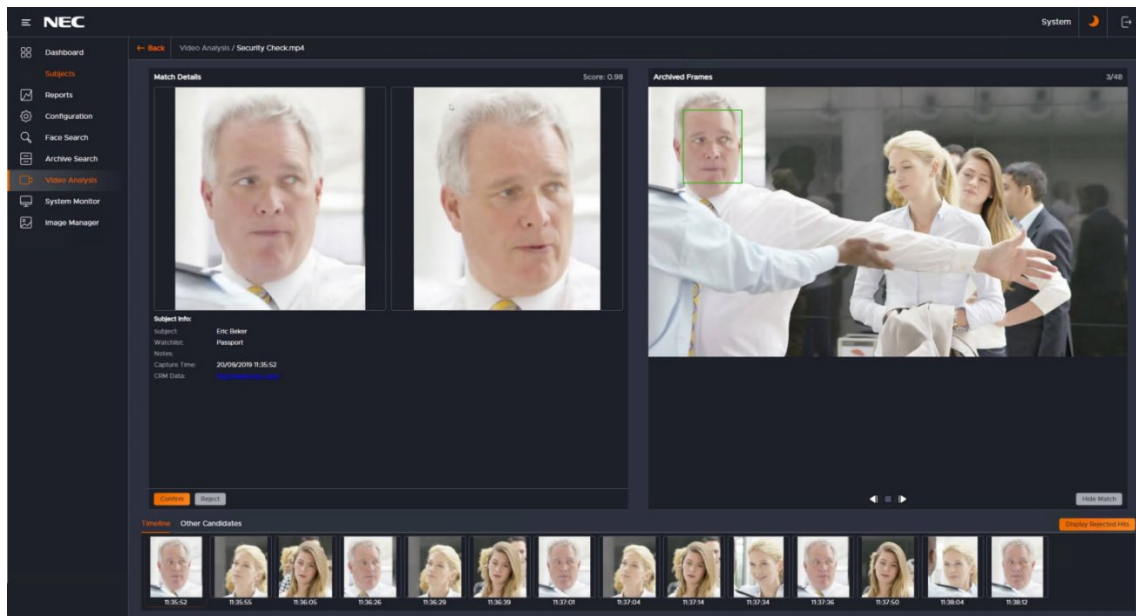


Figure 5: Video Analysis tool to find subjects in recorded videos

Live Facial Recognition Package

This package provides users with the capability to identify an individual based on a watchlist, in real-time, from a live video feed. The Live Facial Recognition Package provides:

- The ability to connect any number of live video feeds (from CCTV cameras or elsewhere) directly or via a Video Management System (VMS) to the Live Facial Recognition system.
- The ability to automatically identify a face within a live video stream based on enrolled watchlists.
- The ability to automatically raise an Alert whenever a face detected in a video stream matches a known subject's photo.
- Allow alerts to be sent as a pop up on the dashboard (option to enable sound), sent as an email or as a notification to the NeoFace Facial Recognition mobile app (Requires mobile app package).

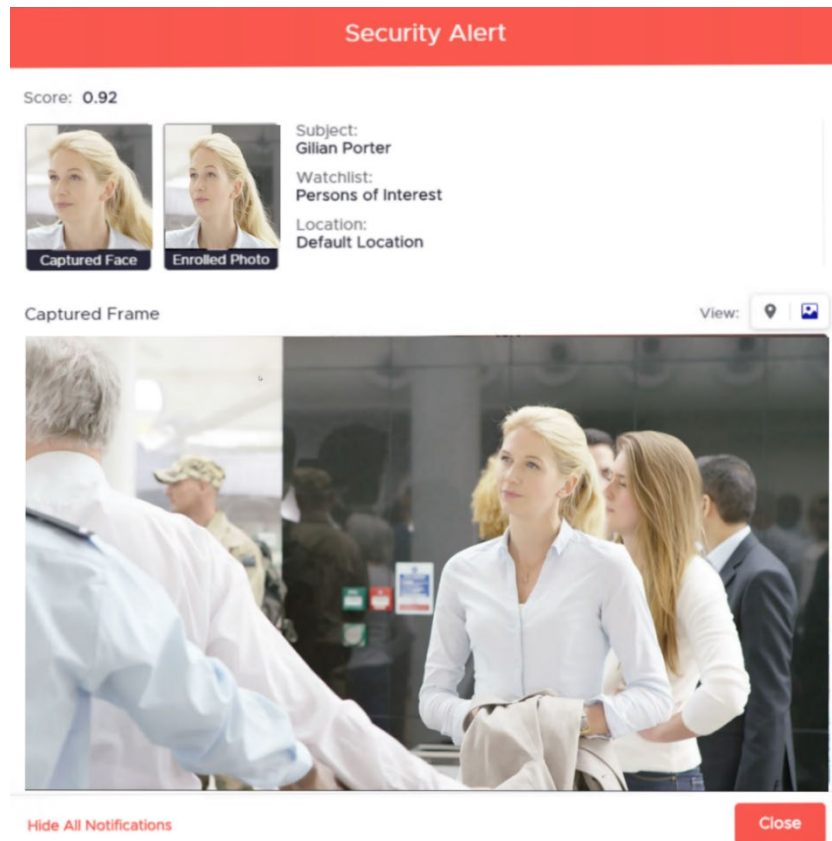


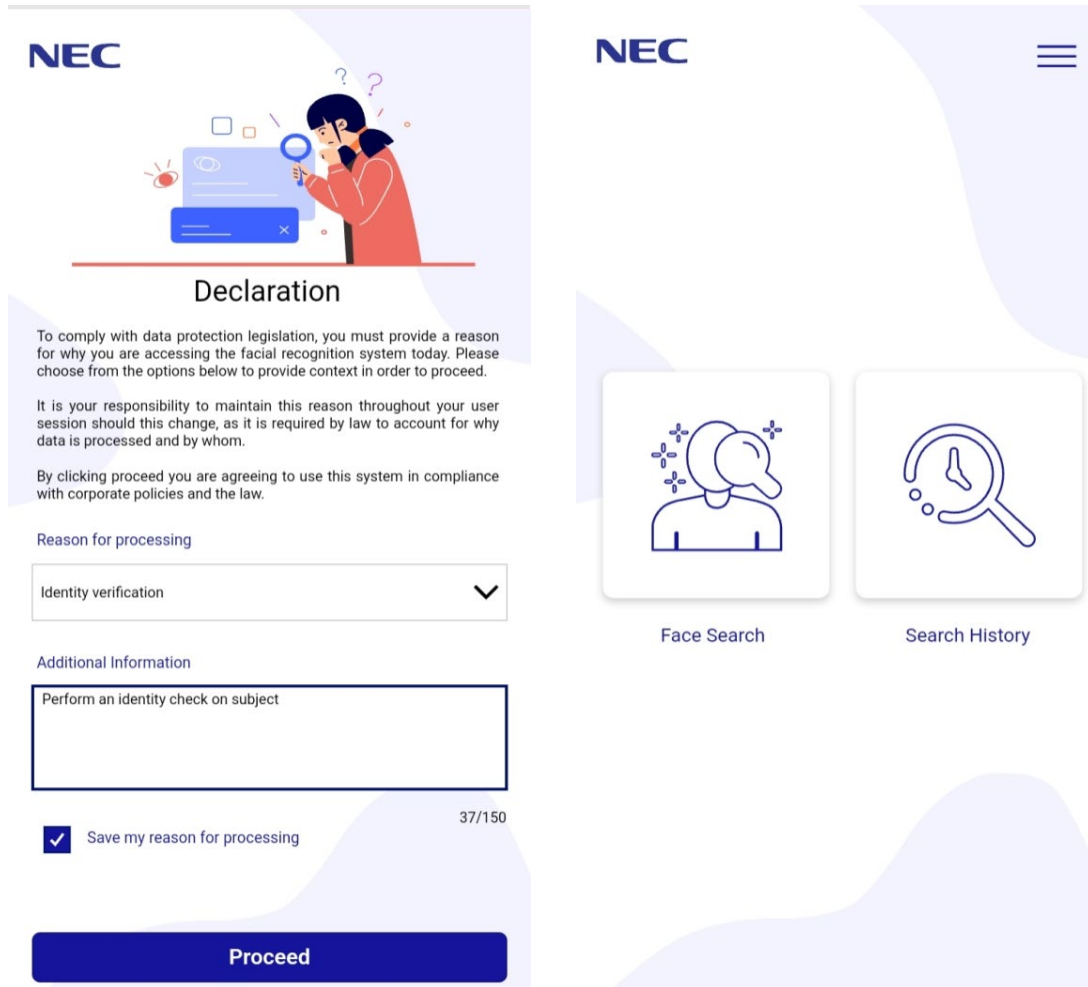
Figure 6: Alert generated from a real-time camera

Operator Initiated Facial Recognition Package

This package enables users to use the iOS or Android NeoFace Mobile ID Power App to take a picture of an individual or upload subject images, perform a Face Search (requires the Image-based Retrospective Facial Recognition package) or even receive Real Time alerts (requires the Live Facial Recognition Package).

The Operator Initiated Facial Recognition Package provides users:

- A Power App supported for IOS and Android devices. Clients require Microsoft Power App licences for their OIFR Power App users.
- A broker in the private cloud to facilitate communication between the Power App and the Facial Recognition software.
- The ability to capture photographs and perform a Face Search against the faces enrolled into the Watchlists.
- The ability to search and identify a subject from any location, using either the device's inbuilt camera or pre-existing images stored on the device.
- The ability to receive Real Time Alerts to their mobile device.
- Admin dashboard to configure and monitor use.



Declaration

To comply with data protection legislation, you must provide a reason for why you are accessing the facial recognition system today. Please choose from the options below to provide context in order to proceed.

It is your responsibility to maintain this reason throughout your user session should this change, as it is required by law to account for why data is processed and by whom.

By clicking proceed you are agreeing to use this system in compliance with corporate policies and the law.

Reason for processing

Identity verification

Additional Information

Perform an identity check on subject

☒ Save my reason for processing 37/150

Proceed

Face Search

Search History

Figure 7: Screenshots of the NeoFace Facial Recognition app

High Availability, Scalability and Resilience

NeoFace Facial Recognition is designed to scale to support expanding requirements.

Software architectures for High Availability and Resilience will be provided based on your requirements.

Technical Requirements

Service Dependencies

To access and use the Starter and Advanced tiers of the NeoFace Facial Recognition solution, you must provide the following requirements:

- A workstation with a supported HTML5 Browser (e.g. Chrome, Firefox or Microsoft Edge).
- Windows Server 2022.
- Microsoft SQL Server 2022 Enterprise or Standard Edition.
- Depending on quantity and specification of cameras, the bandwidth required is 1 Gbps for real-time and 10 Mbps for retrospective facial recognition.
- Maximum network latency should not exceed 50ms.

- Must be patched with the latest service packs and windows updates
- An Active Directory server is recommended for security compliance
- Must have English operating system.
- The server should be dedicated to running the NeoFace Facial Recognition solution only.

Server specifications and quantities will be tailored and provided upon request.

If using OIFR Mobile ID, you will need the following:

- A Microsoft Azure Subscription to host the Mobile ID and Power Platform software.
- Power Apps Premium license, one for each User of Mobile ID Power App.
- Network access to the NeoFace Watch System, for example, via VPN if deployed on premise.

If using NeoFace Watch Nexus, you may need the following:

- An SMTP server if you wish to connect to third parties using secured email exchange
- An SFTP server if you wish to exchange messages with third parties using files.

Technical Interfaces

To integrate with the NeoFace Facial Recognition solution, Starter and Advanced tiers, the following interfaces are available:

- REST API
- Web Services API
- Import Folders.

CSV and files based bulk loading tools are available for our products to initially populate the databases with millions of customer data records.

Additional Services

Each of the following - available on request - are charged based on the NEC rate card and priced based on your specific needs:

Face Search Image Quality Assessment

Face Search Image Quality Assessment provides Facial Recognition domain experienced consultancy services to assess the quality of an organisation's potential Watchlist and Search images prior to enrolment into the service. The service provides advice and recommendation to ensure the maximum operation benefit is achieved.

In addition to the Face Search Image Quality Assessment, we offer consultancy services to assist in bulk image enrolment outside of the standard on-boarding service.

NeoFace Facial Recognition Training Course

Additional Training Courses similar to those provided during on boarding, can be provided to users and trainers.

Live Facial Recognition Site Survey

Live Facial Recognition (LFR) Site Survey provides LFR domain experienced consultancy services to develop the users understanding of real-time requirements including:

- Understand the best locations for Realtime Facial Recognition.
- Consideration for the flow of subjects, location constraints and the concepts of Pinch-points.
- Lighting and Environments.
- Positioning, Angles, Pixels, Resolution and Scene setup.
- Camera placement, Camera angles and Camera features (Models, Resolutions and Lenses).

NeoFace Facial Recognition Integration Scoping Study

Integration Scoping Study provides a scoping study aimed at identifying the potential integration of NeoFace Facial Recognition with existing or new operational systems using the Application Programmable Interface (API).

As a result of the Scoping Study, we will determine if any additional services are required for the integration.

Ordering and Invoice Process

If you wish to order these services, a G-Cloud Order Form will need to be completed and signed by both parties.

Request a Demonstration

We will be pleased to demonstrate the NeoFace Facial Recognition Solution to you.

Please email frameworks@NEC.com to request a demonstration.



✉ frameworks@necsws.com

🌐 necsws.com

🐦 @nec_sws

About NEC Software Solutions

Our customers change lives, so we create software and services that get them better outcomes. By innovating when it matters most, we help to keep people safer, healthier and better connected worldwide.

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