

**NEC Corporation of America**

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# **NeoFace Engage Installation and API Reference Manual**



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**NeoFace Engage Version 1.0 Installation and API Reference Manual  
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# 1 Introduction

NeoFace Engage is a platform / SDK that developers use to add functionality and video analytics to applications developed using Microsoft Kinect for Windows Software Development Kit 2.0 and Kinect Ambient Intelligence Toolkit . The Kinect Ambient Intelligence Toolkit extracts meta-data from video captured by the Kinect camera. Video is analyzed and meta-data is extracted in real-time including: person dwell-time, spacial data to understand product interactions, and the ability to push data to Azure for storage and cloud computing. When coupled with NeoFace Engage, retailers and others can capture customer demographics and drive targeted content to digital displays, test marketing messages, and capture consumer / product interactions per demographic.

The Kinect Ambient Intelligence Toolkit, powered by NEC's NeoFace Engage demographics analysis technology delivers futuristic marketing functionality, today. The Kinect for Windows Software Development Kit 2.0 and Kinect Ambient Intelligence Toolkit, enables data-rich video to be captured of individuals and their interactions with products in retail environments. This video is analyzed and meta-data is extracted in real-time. Information that can be captured by the Kinect Ambient Intelligence Toolkit includes: person dwell-time, 3D calculations to understand which products are handled, and the ability to push data to Azure, Microsoft's cloud-based infrastructure for data storage and cloud computing.

When coupled with NeoFace Engage, even greater possibilities emerge. Retailers can capture shopper demographics and drive targeted content to digital displays, test marketing messages and understand the impact on specific audiences, and capture detailed product interactions and interest based per shopper demographics.

NeoFace Engage is a platform / SDK that developers use to add functionality and video analytics to applications they develop for the Microsoft Kinect sensor.

NeoFace Engage is licensed on a per Kinect Sensor basis.

NeoFace Engage with face recognition is available to select, certified value added resellers. For more information about adding facial recognition functionality to NeoFace Engage projects, contact NEC Corporation of America, Enterprise Biometric Sales at [NeoFaceEngage-Sales@necam.com](mailto:NeoFaceEngage-Sales@necam.com).

## 2 System Requirements

This section describes the system configuration that is required to support the NeoFace Engage SDK with the Kinect for Windows Software Development Kit 2.0 and Kinect Ambient Intelligence Toolkit.

### 2.1 Software Requirements

To install and use the NeoFace Engage, your machine should fulfil the following software requirements.

Software	Requirements
Programming Language	C++, C#, or Visual Basic
IDE	Microsoft Visual Studio 2013+
OS	Windows 8.0,8.1 Windows Server 2012
OS Shell	Windows PowerShell 3.0+
.Net Framework	.Net Framework 4.5.1 or above
VC++ Runtime	Visual Studio 2008 VC++ Redistributable package for x64
Tools	NuGet Package Manager or NuGet Package Explorer
SDK	Kinect for Windows Software Development Kit 2.0 and Kinect Ambient Intelligence Toolkit
Cloud	Azure subscription – For telemetry capture and reporting

### 2.2 Hardware Requirements

To install and use the NeoFace Engage, your machine should fulfil the following hardware requirements.

Hardware	Requirements
Architecture	64 bit
Processor	Physical dual-core 3.1 GHz (2 logical cores per physical) or faster
Memory	4 GB of RAM or more
Controller	USB 3.0 controller dedicated to the Kinect for Windows v2 sensor*
Sensor	Kinect for Xbox One sensor and Kinect Adapter for Windows

Hardware	Requirements
Adapter	DX11 capable graphics adapter

\* If you are adding USB 3.0 functionality to your existing PC through a USB 3.0 host controller adapter, please ensure that it is a Windows 8 compliant device and that it supports Gen-2.

## 3 Installing NeoFace Engage

The NeoFace Engage for developers is distributed as a NuGet package. To download the latest the NeoFace Engage SDK, go to [www.nuget.org/packages](http://www.nuget.org/packages) and search for *NeoFace Engage SDK*. Download the latest version of the NeoFace Engage, and launch Package Manager. Enter `Install-Package NeoFace-Engage`. NuGet retrieves the NeoFace Engage SDK from the specified package source and installs it into the project that is selected in the Default project drop-down list (unless you specify a different project in the command). The **Successfully installed NeoFace-Engage** message is displayed.

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NOTE: To download and unpack NeoFace Engage to Microsoft Visual Studio, you can use the NuGet Package Manager or the NuGet Package Explorer. For more information about installing and using NuGet Package Manager or NuGet Package Explorer, go to [www.nuget.org](http://www.nuget.org).

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## **4 Activating the NeoFace Engage License**

NeoFace Engage is protected by a time-limited and hardware bound license. The NuGet package will function for five days after installation before license activation will be required. An activation code may be obtained by contacting NeoFace Engage Sales and NEC Corporation of America. See the “How to Purchase” directions in the NuGet Package for more details.



## 5 NeoFace Engage APIs

The NeoFace SDK provides the following API's:

- ♦ `List<Face> DetectFace(Image inputImage)`: Denotes an input parameter that is a .Net image object. This parameter returns list (collection) of faces detected from the input image.
- ♦ `Face`: Denotes an object that consists of the following properties:
  - ♦ `Index` is a zero-based index of the face in the image
  - ♦ `Age` is determined from face.
  - ♦ `Gender` is either Male or Female
- ♦ `Void Dispose()`: Cleans up allocated resources when the user exits NeoFace Engage.

The following is a sample code that uses the NeoFace Engage APIs to capture the results of the age and gender analysis on the supplied face image:

```
using NEC.NeoFace.Engage;

Image img = Image.FromFile(@"C:\Images\face.jpg");
List<Face> faces = NECLabs.DetectFace(img);

Console.WriteLine("Number of Faces detected: " + faces.Count);

foreach(Face in faces)
{
    Console.WriteLine("Face Index: " + face.Index);
    Console.WriteLine("Gender: " + face.Gender);
    Console.WriteLine("Age: " + face.Age);
}

NECLabs.Dispose();
```