Guide to Containerized Deployments

Version 1.0.1

Scenera, Inc., Nikon Corporation, Sony Semiconductor Solutions Corporation, Wistron Corporation and Hon Hai Precision Industry Co., Ltd.(NICE Alliance Promoters) contributed to this document.

Revision History

Version	Date	Comments
1.0.1	20 Dec 2019	First release

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1.1. Introduction

NICE Devices may be provisioned by packaging software that implements the NICE specifications (NICE Software) into containers and deploying via a container infrastructure such as Docker. This document provides an overview for the process to deploy a NICE Device as a set of containers. The NICE Device may be a camera, IoT device or a NICE Bridge that connects between existing cameras and Internet of Things (IoT) devices and the NICE world.

1.2. Containerized Deployment with in Field Provisioning of Devices

Many IoT devices make use of containers to deploy applications to these devices. An example of a containerized deployment technology is Docker. When using containers to deploy NICE Software, it is partitioned into containers which are deployed to the Device with the appropriate container runtime. When the Device boots up for the first time it downloads the appropriate containers to execute on the Device. The implementation of the container technology is out of the Scope of the NICE specification. The implementor may select from any implementation of containerization in the market and may use the provided mechanisms for managing the download of containers to the Device. The contents of the Device Security Object are injected into the containerized NICE software when the Device makes the request for the containers that are to be downloaded to the Device.

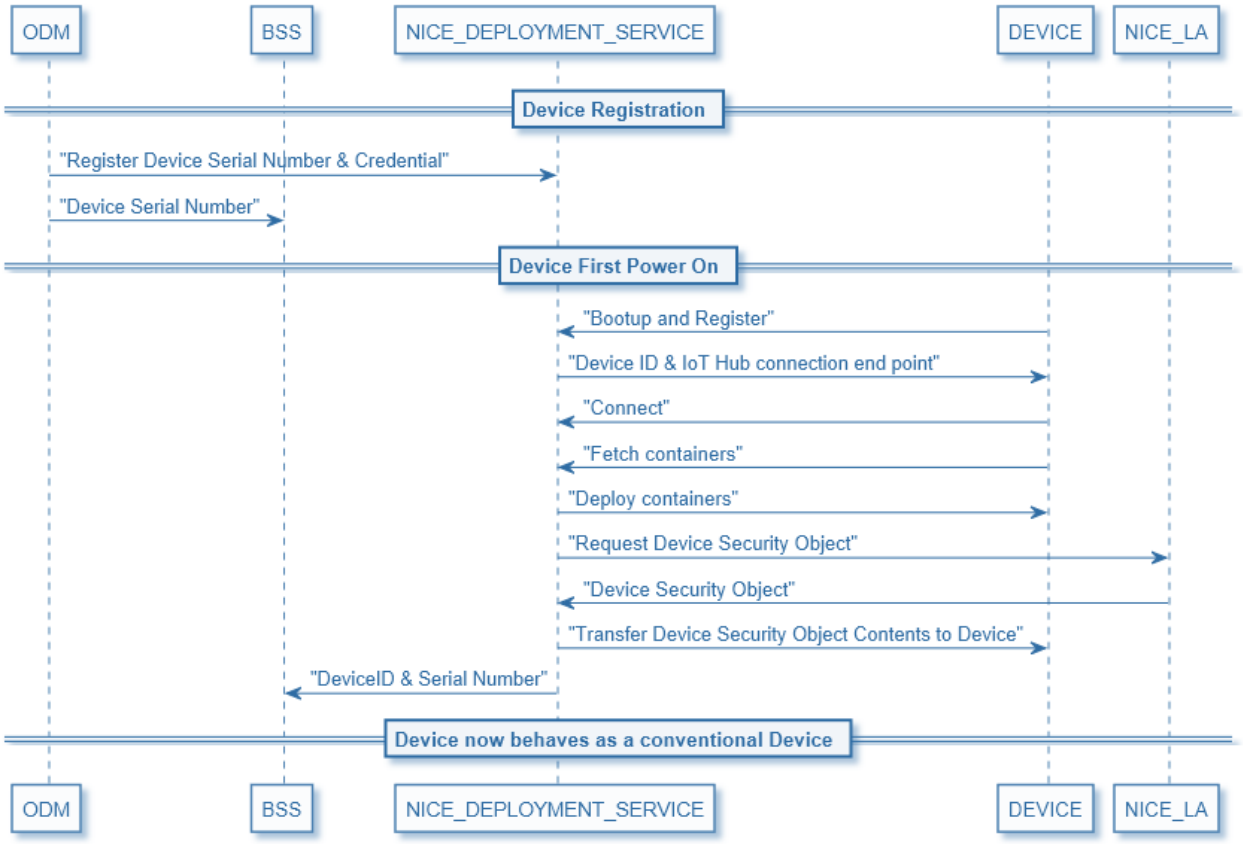

Figure 1. Sequence Diagram of Containerized Deployment

The above sequence diagram shows how a containerized deployment can work with a typical IoT container deployment technology.

The NICE Deployment Service coordinates the synchronization of a 3rd party Device Provisioning Service, a 3rd party MQTT Broker and Container Registry. The Manufacturer or the party procuring the devices from Manufacturers enters the device details (some form of Identity and Credential) into the NICE Deployment Service. The exact format of this is dependent on the Manufacturers implementation and is not covered by the NICE specifications.

When the Device powers up for the first time it contacts the Device Provisioning Service which will enable the Device to connect to the Device registry and download the appropriate containers for the Device.

Once the Device has downloaded its containers, the NICE Deployment Service fetches the Device Security Object (containing the NICE ID and Private Key) from the NICE LA and transferred to the Device.

The Device now behaves in the same manner as the Device which has been provisioned during the manufacturing process. I.e. it will now connect to the NICE LA, get the ManagementEndPoint Object and use this to set up a connection with the NICE LA and be allocated to the NICE AS in the usual manner.