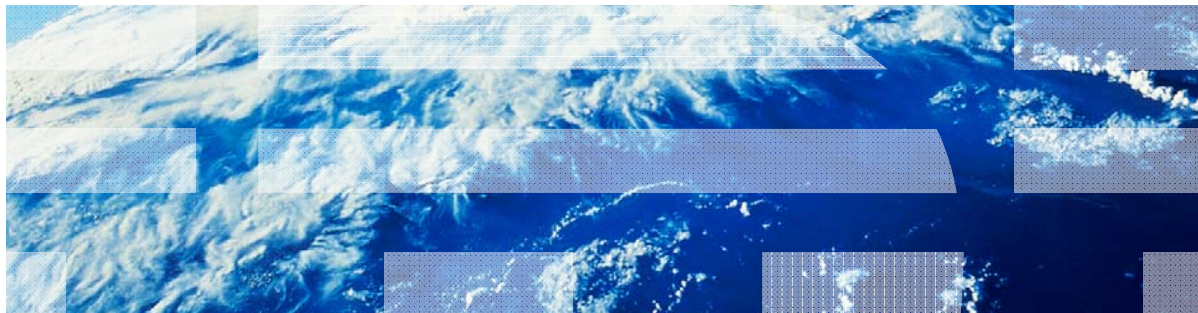*IBM Worklight V5.0.6*
Getting Started

Device provisioning concepts

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Agenda

- Overview

- Device Id

- Understanding device provisioning

- No-provisioning

- Auto-provisioning

- Custom provisioning

Overview

- One of the most advanced and complex security features that the Worklight platform provides, is a device provisioning

- Device provisioning is a process of obtaining and validating device identity

- Device identity (or in short – device ID) is similar to user identity, but is used to **uniquely** identify a specific device

- Device identity is essential for various features. For example:

  - Push notifications – you want to know which device you are sending the notification to

  - Reports – you want to know how many devices are using your server

- Knowing the device identity opens a wide array of security integration possibilities, for example you can decide which **devices** are allowed to communicate with the Worklight server and that are not

- In this training module you learn what device provisioning is, what types of device provisioning are supported by Worklight and what are the artifacts that are involved in a process of device provisioning

Overview

- Worklight platform supports three types of device provisioning
  - No provisioning
  - Auto provisioning
  - Custom provisioning
- This training module focuses on the first two types
- For additional information regarding custom provisioning, please refer to relevant training module and IBM Worklight user documentation.

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Understanding the device ID

- Device ID is automatically obtained (generated) by a client side framework that is once requested by the Worklight server

- It is created by using the Worklight framework and is a special feature of Worklight

- It is used to uniquely identify a specific device with the Worklight server

- Similar to the way the user ID is used for user authentication. The device ID is used for device authentication

- Device provisioning is based on the device ID and supported on iOS and Android platforms

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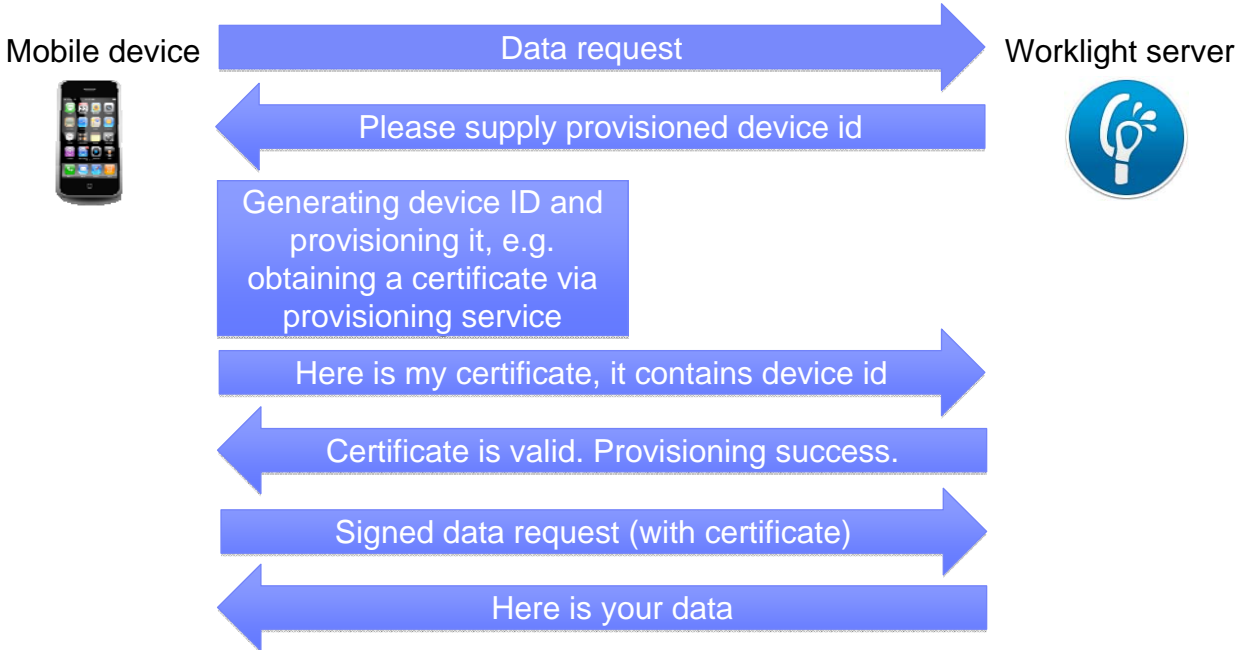- Auto-provisioning

- Custom provisioning

Understanding device provisioning

- It is important to gain a better understanding of what device provisioning is

- Device provisioning is a process where a certificate is issued by a provisioning service (which can be either Worklight server or custom provisioning service) for a specific device

- The issued certificate contains device information that is obtained during the provisioning process

- Prior to issuing a certificate to a specific device, the provisioning service can perform extra validations on received device credentials

- This certificate must come from a certificate authority that is trusted by the Worklight server, so Worklight server would be able to validate it

Understanding device provisioning

- Device provisioning flow in a nutshell

Mobile device		Worklight server

Data request →

← Please supply provisioned device id

Generating device ID and provisioning it, e.g. obtaining a certificate via provisioning service

Here is my certificate, it contains device id →

← Certificate is valid. Provisioning success.

Signed data request (with certificate) →

← Here is your data

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No provisioning

- **No provisioning** is appropriate for the development environment.

- Using **No provisioning** means that the provisioning process is not triggered (requested) by the Worklight server

- Application obtains the device ID and send it to the Worklight server

- Worklight server does not perform any validation, whether this device is allowed to communicate with it or not

- Certificate is neither issued or requested on any stage

- **No provisioning** is a default option for mobile applications

- You are not required to manually enable it in the case of using default security settings

No provisioning

- In case you use **customSecurityTest** to protect a resource that requires device identity and want to use no provisioning, add the realm, as illustrated, to your security test

```
    <test realm="wl_anonymousUserRealm" isInternalUserID="true"/>
    <test realm="wl_deviceNoProvisioningRealm" isInternalDeviceID="true"/>
customSecurityTest>
```
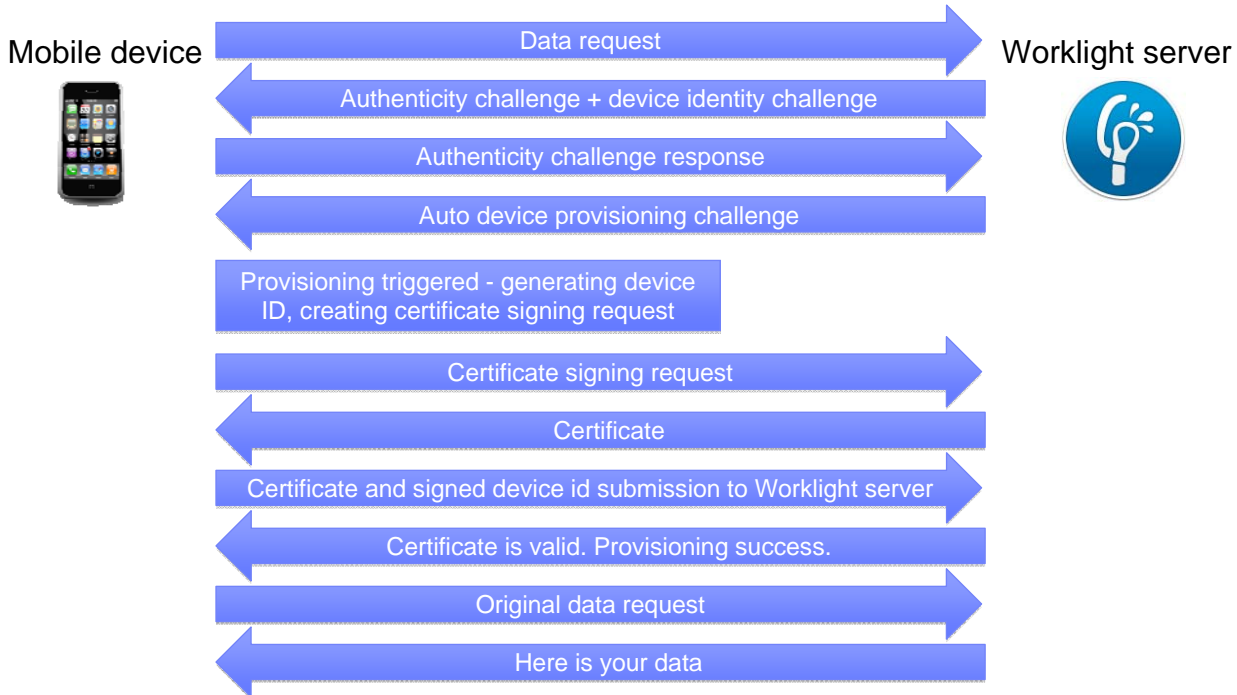
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Understanding device provisioning

- **Auto provisioning** is the automatic one-time process where the Worklight server plays the role of a provisioning service

- Worklight server triggers (request) a provisioned device identity

- Application obtains the device ID and starts an automated provisioning process by using the Worklight server as a provisioning service

- Worklight server collects supplied device information and issues a certificate by using the server-side keystore

- The certificate will be issued to any device that requests it, therefore auto provisioning makes sense only when it is used after a successful authenticity check

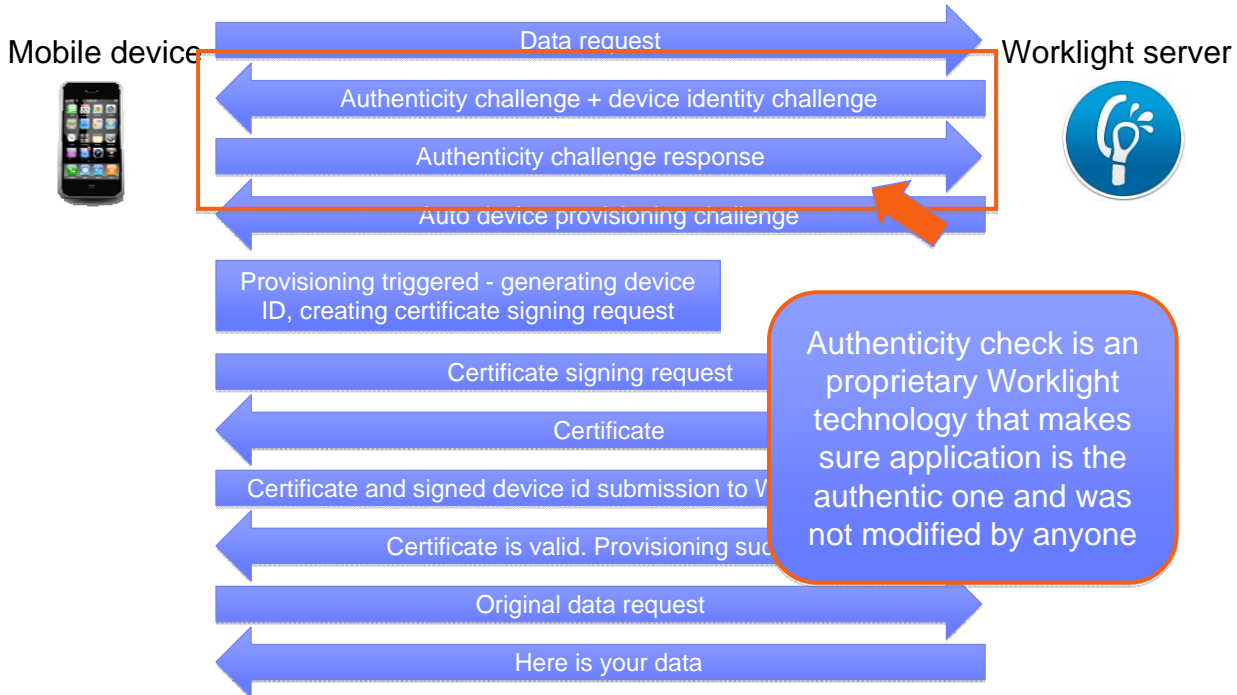- See following slides for auto provisioning flow

Auto provisioning

- Auto-provisioning during first application start

Mobile device

Worklight server

| Data request → |
| Authenticity challenge + device identity challenge ← |
| Authenticity challenge response → |
| Auto device provisioning challenge ← |

Provisioning triggered - generating device ID, creating certificate signing request

| Certificate signing request → |
| Certificate ← |
| Certificate and signed device id submission to Worklight server → |
| Certificate is valid. Provisioning success. ← |
| Original data request → |
| Here is your data ← |

Auto provisioning

- Auto-provisioning during first application start

Mobile device | Worklight server

Data request

Authenticity challenge + device identity challenge

Authenticity challenge response

Auto device provisioning challenge

Provisioning triggered - generating device ID, creating certificate signing request

Certificate signing request

Certificate

Certificate and signed device id submission to W

Certificate is valid. Provisioning suc

Original data request

Here is your data

Authenticity check is an proprietary Worklight technology that makes sure application is the authentic one and was not modified by anyone

Auto provisioning

- Subsequent start up of a provisioned application

Mobile device

Worklight server

Data request →

← Authenticity challenge + device identity challenge

Device ID and certificate are already created.
No need to trigger provisioning again

Authenticity + provisioned device identity response →

← Provisioned device verified. Device authentication success.

Original data request →

← Here is your data
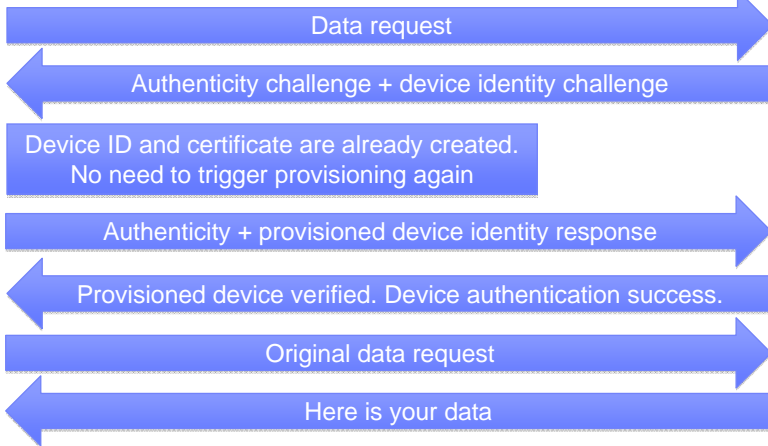
Auto provisioning

- To enable auto provisioning add the following realms to your **authentication-config.xml** file

- In case you use custom security test

```
    <test realm="wl_authenticityRealm"/>
    <test realm="wl_deviceAutoProvisioningRealm" isInternalDeviceID="true"/>
</customSecurityTest>
```

- In case you use mobile security test

```
<mobileSecurityTest name="mobileTests">
    <testAppAuthenticity/>
    <testDeviceId provisioningType="auto" />
</mobileSecurityTest>
```

Auto provisioning

- By default the Worklight server uses its internal keystore to issue a certificate

- You can tell the Worklight server to use your own keystore by adjusting the **worklight.properties** file

```
22
23 ############################################
24 #    Worklight Default Certificate
25 ############################################
26 wl.ca.keystore.path=conf/default.keystore
27 wl.ca.keystore.type=jks
28 wl.ca.keystore.password=worklight
29 wl.ca.key.alias=keypair1
30 wl.ca.key.alias.password=worklight
31
```
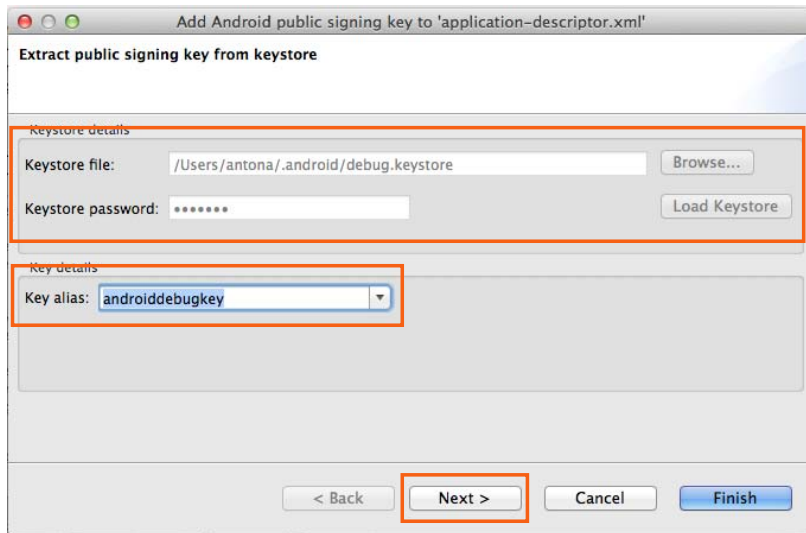
- Note **wl.ca.keystore.path** property value can be both relative to the Worklight project **/server/** folder and absolute to the file system

Auto provisioning

- As described previously, auto provisioning must be used together with the application authenticity check

- To enable the authenticity check for Android applications, you must set up **publicSigningKey** value in **application-descriptor.xml** file

- The **publicSigningKey** contains the public key value of the certificate that is used to sign Android applications

- In the development environment this certificate is in a keystore that can be found under **{user-home}/.android/debug.keystore** file

- You can either extract the public key manually or use the wizard that is provided by Worklight Studio

- To do the latter, right click your Android environment and select **Extract public signing key**

Auto provisioning

- Specify the location and password of a keystore file and click Load Keystore

- The default password for **debug.keystore** is "android"

- Select key alias and click Next

Auto provisioning

- Once you click Finish, the public key is automatically pasted into the relevant section of **application-descriptor.xml** file

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Custom provisioning

- **Custom provisioning** permits you to use the custom provisioning service and define custom device authentication and validation rules

- Worklight server is not responsible for issuing certificates, but only for validating them

- For more information see the relevant training module and IBM Worklight user documentation regarding custom device provisioning

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