

# Knox Guard

# Remotely Control and Lock Samsung Devices to Reduce Financial Risks

## Knox Guard



**Device Financing  
and Subsidy**



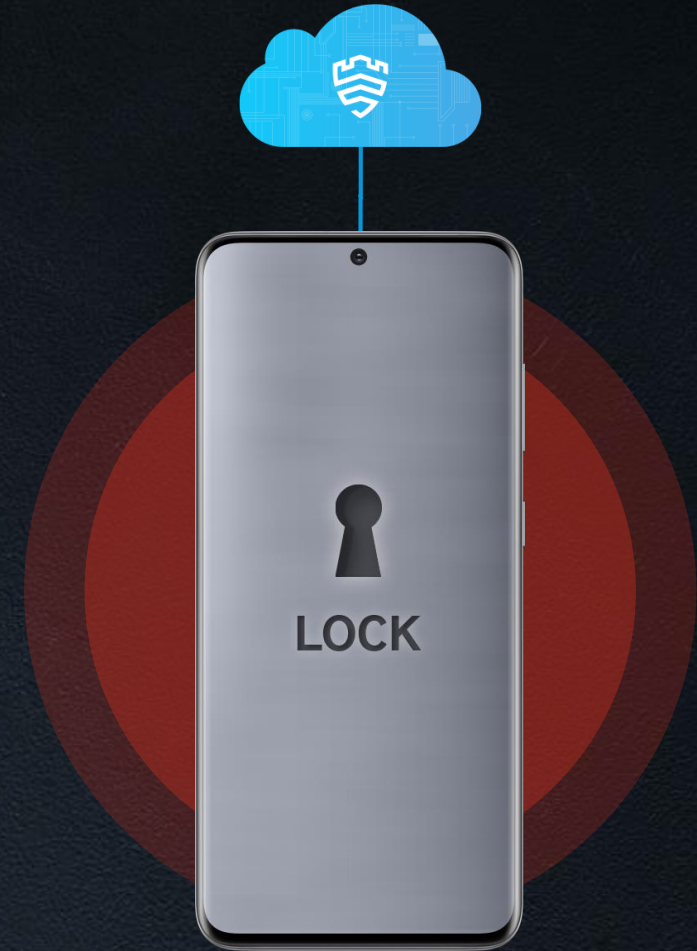
**Device Insurance**



**Device Logistics**



**Asset Protection**





# Applicable to Various Use Cases and Risks

## Device Financing and Subsidy

Aggressive promotions are needed to attract more subscribers, but they can pose financial risks

## Device Insurance

Some people may abuse the insurance coverage and sell their phones on the gray market

## Device Logistics

High-volume theft can occur during transport and warehousing of devices, or at retail outlets

## Asset Protection

After distributing the organization's devices, users such as frontline workers or students are likely to lose their devices

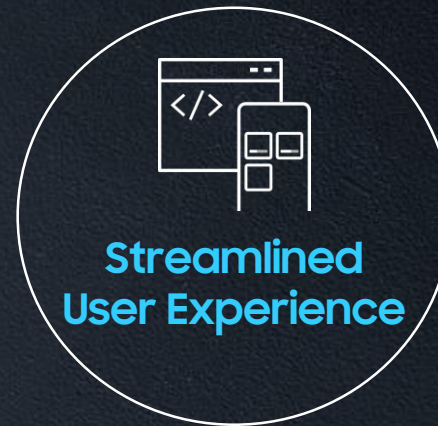


# Why Knox Guard

Enable protection schemes against fraud, theft or financial default across all devices straight out of the box



Wide range of flexible features to cover and respond to all possible threats



Easy operation with integration options and customization features



Hardware-level security features for greater control over devices

## Key Benefits

1. Granular Restrictions

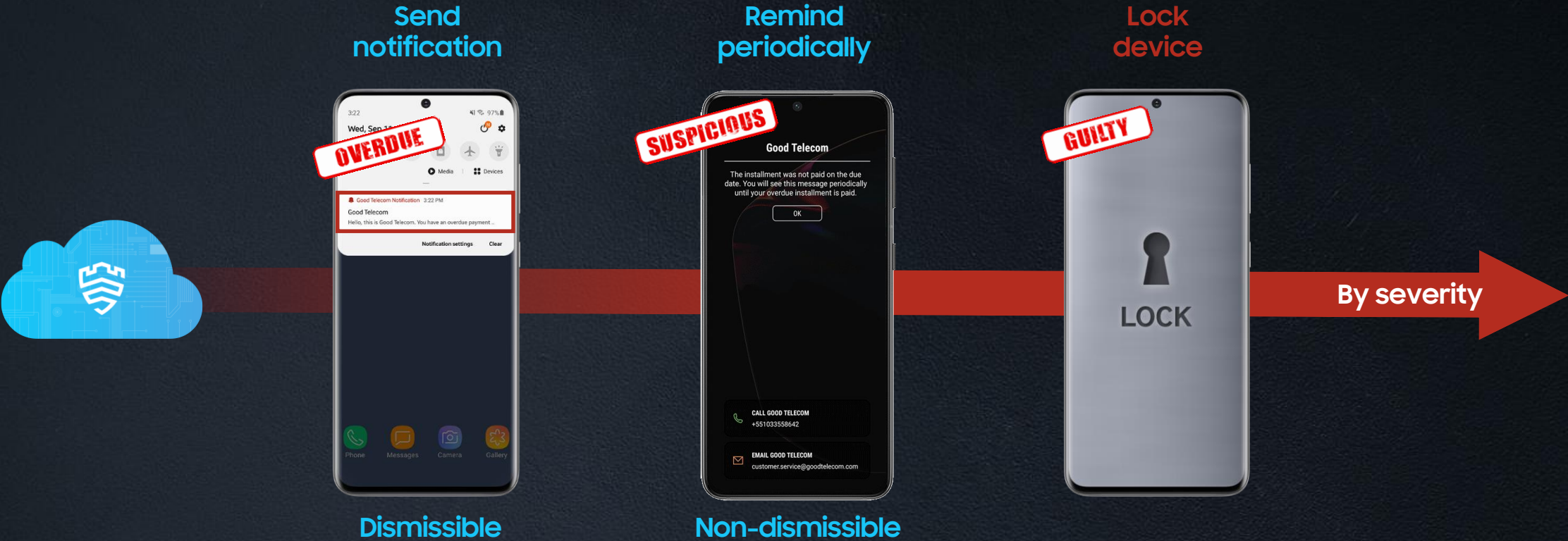
2. Streamlined User Experience

3. Highly Secure Lock



# Send Message Notifications or Restrict Device Usage

Periodic and instant reminder notifications that are persistent and impossible to dismiss



- Send messages periodically to defaulting customers to remind them of their overdue subscription status
- Dispatch non-dismissible notifications to devices reported lost or stolen

→ Restrict device usage or remotely lock devices

\*Screen images simulated

# Choose from Various Device Lock Options

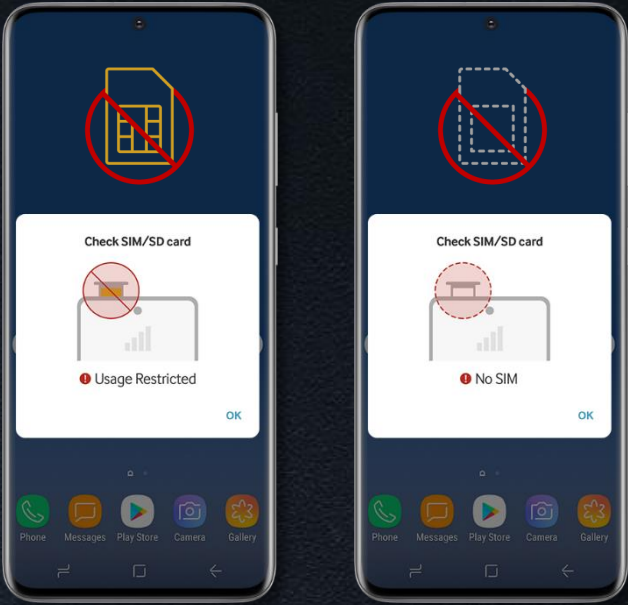
Support for various device lock methods such as total device lockdown, SIM/offline status-based lock, and flexible lock/unlock options to support both post-paid and pre-paid models

## Total Device Lockdown



- Restrict the entire device functionality
- Both post-paid and pre-paid models are supported

## SIM-card Based Lock



Unauthorized  
SIM card is  
inserted

Authorized  
SIM card is  
removed



Device usage restricted

\*Screen images simulated



# Flexibly Control a Selected Device's SIM functionality

Apply restriction policies for call, message and SIM data usage based on the SIM



Limit specific features of devices based on their SIM card

Knox Guard

Enable SIM Control

MCC\*

MNC\*

GIDI (Optional)

V

Outgoing Calls

V

Incoming Calls

SMS/MMS/RCS

V

Data Usage

Restricted action notification

Title

SIM card not supported

Message

You've installed a SIM card from a service provider...

CONFIRM



Restrict outgoing/incoming calls



Restrict sending and receiving SMS, MMS, RCS



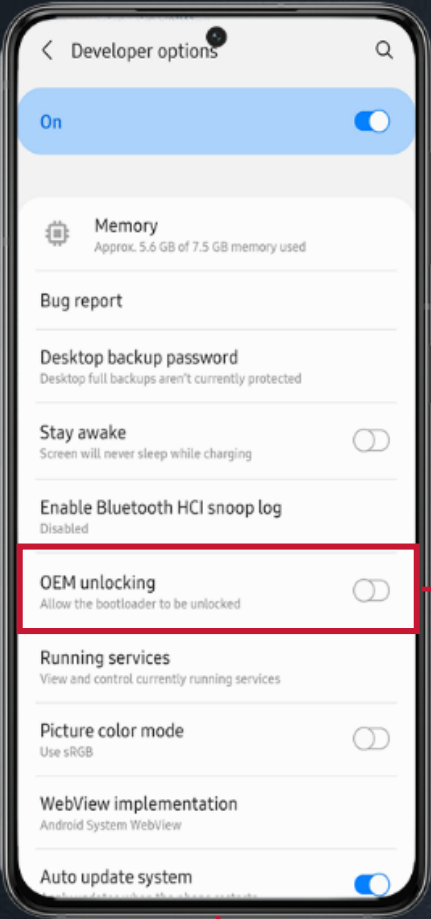
Restrict SIM data usage

\*Screen images simulated



# Relax with Knox Guard's Strong Device Restriction

Restrict device functionalities such as binary flashing, USB/Bluetooth/NFC connection, etc.



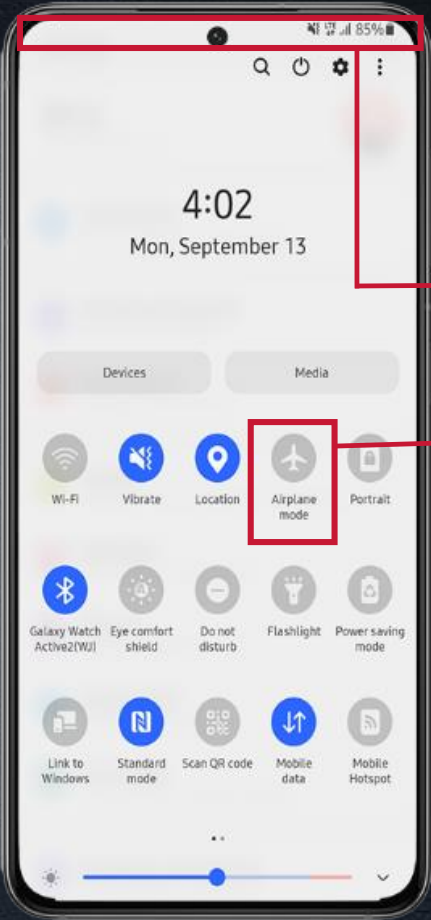
## Common restrictions with Knox Guard



Block OEM unlocking



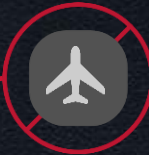
Block custom binary installation



## More powerful restrictions for locked devices



Block status bar



Disable airplane mode



Block USB/ADB connection

## Key Benefits

1. Granular Restrictions

2. Streamlined User Experience

3. Highly Secure Lock



# Effortlessly Manage Your Devices on the Knox Web Console

No development required—simply access the Knox web console to enable security features on your devices immediately

SAMSUNG  
Knox Guard

Dashboard

Devices

Policies

Licenses

Resellers

Administrators and roles

Activity log

Messaging

Support

Welcome back,

DEVICE STATUS

39 Devices

20

Attention

20 Pending

0 Locked

0 Reminder ON

12

In progress

0

Payment Complete

4

Active

LICENSE STATUS

[View all](#)

LICENSE NAME	STATUS	REMAINING SEATS	ACTIVATION END DATE
Trial 5822519947	Active	2	18 May 2019
License2	Expired	969903	17 May 2018
Test_5809	Active	9989438	11 Mar 2019

The **Device Status** widget shows a high-level view of the device status—Attention, In Progress, Payment Complete and Active.

The **License Status** widget includes the License Name, Status, Remaining Seats and Activation End Date.

Easy to navigate and apply policies to target devices, and manage your licenses and resellers.

Knox Guard features such as device logs or messaging are also freely available.

# Or Integrate Knox Guard with an Existing Server

Optional server integration with your legacy systems—supported using REST APIs



**REST API**

```
{  
  "objectId": "10583843",  
  "deviceId": "3420293710483938",  
  "approvalId": "customId",  
  "email": "knox@knoxguard.com",  
  "tel": "821049571038",  
  "message": "This device is locked."  
}
```

Knox Guard provides stable and fast-performing server-side APIs which allow you to use a comprehensive set of Knox Guard features in your system

Lock/unlock a device

Send message to device

Get device log

Apply SIM policy

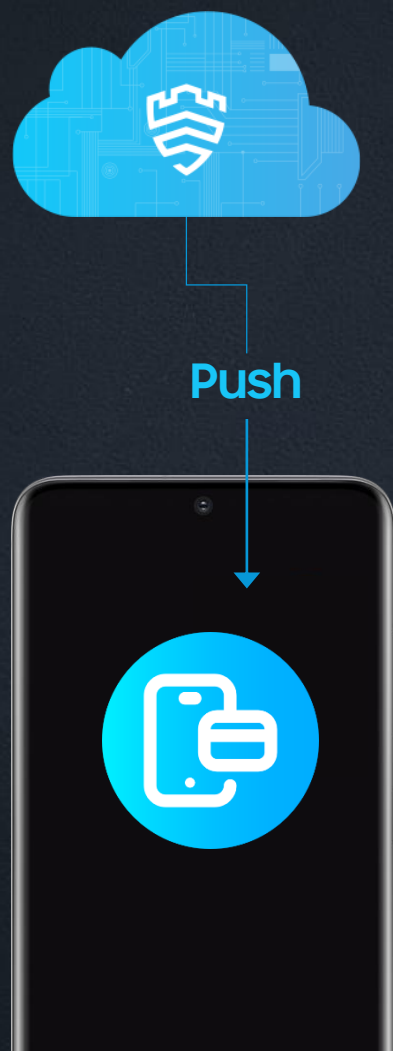
Add/delete a license

and more



# Make it Easier for Subscribers to Pay

Silent and automatic installation of a specific payment app right out of the box

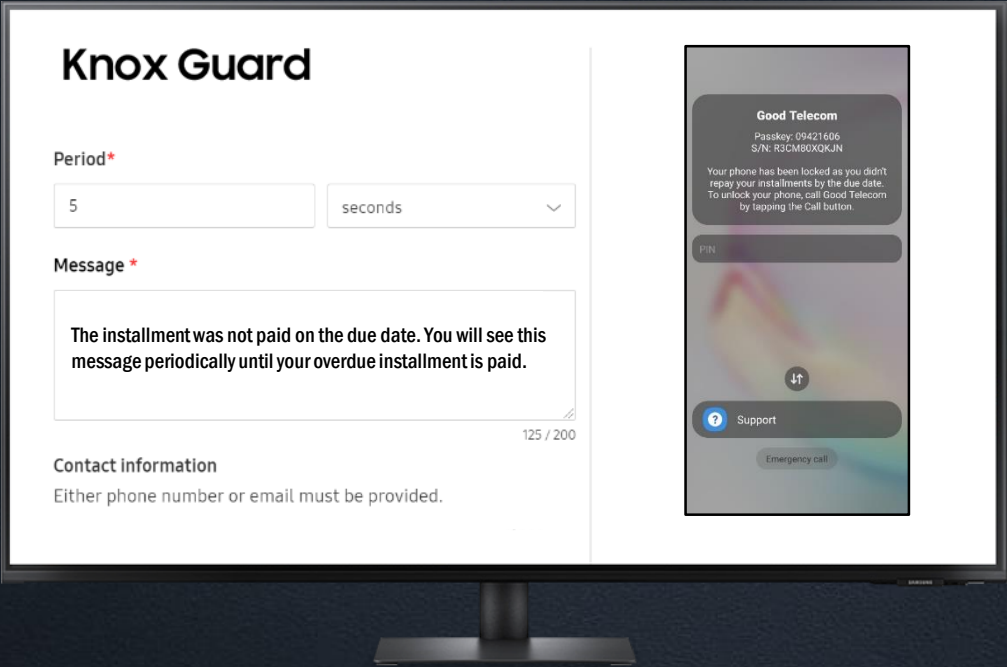


- Install your **payment app** on all subscriber devices
  - The app is installed from the initial setup
  - Making payments is easy
- Provide a **seamless experience** for defaulting subscribers
  - A payment reminder is sent
  - The overdue amount is paid through the payment app

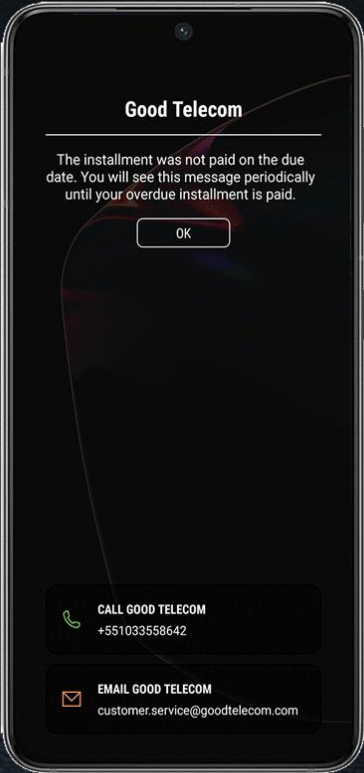
# Easily Send Messages to the Devices

Various customization features available for your device UX and messages

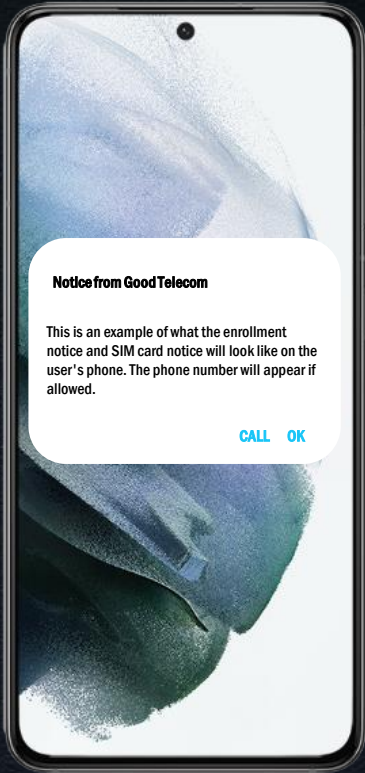
Send customizable messages to the devices through various options



Lock Screen



Reminder



Notification

\*Screen images simulated



## Key Benefits

1. Granular Restrictions

2. Streamlined User Experience

3. Highly Secure Lock

# Prevent Malicious Users from Disabling the Lock

With layers of security built from the chip up,  
Samsung devices are extra-protected against malicious attempts to disable fraud-and theft protection

## Hardware-Backed Security

Knox runs hardware-based device restrictions, such as locking inside the TrustZone, to protect devices from being compromised by malware/rooting



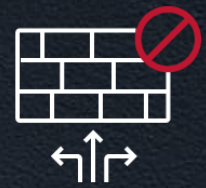
## Unauthorized Firmware Blocking

Any malicious attempt to replace or modify the official Samsung software binary is completely blocked while Knox restrictions are up and running



## IMEI Tamper-Proof

Knox restrictions are unaffected by any unauthorized device IMEI modification thanks to the secure device identifier assigned to each device



## Network Bypass-Proof

Knox has the ability to restrict device usage even when devices are kept offline maliciously for a long period. Additionally, Knox's over-the-air restrictions cannot be bypassed by on-device network firewalls or routing (e.g. VPN/Proxy)





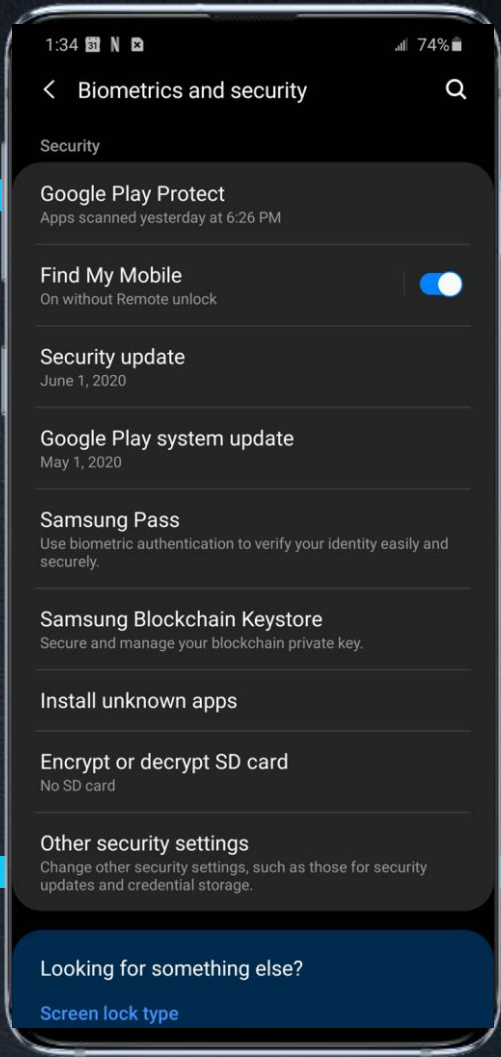
# Always Stay in the Top Security Level

Regular and manageable updates for a minimum of 4 years\* and real-time app protection

Samsung provides monthly or quarterly\* **security maintenance** releases for min. 4 yrs.

"Google Play System Update" provides modular security updates as needed, in addition to regular cycles

"Samsung is starting to get an astonishing reputation: that of quickly rolling out Android updates." (Forbes 2020)



The anti-malware scanning and remediation service **Google Play Protect** guards your device and its data against malware at all times.

Google Play Protect is installed by default on every device running Google Play Services.

Over 3 billion devices are protected and over 100 billion apps are scanned every day.

\* Availability may vary by model

# Appendix



# Case Study

## Case 1: 6k overdue payments resolved

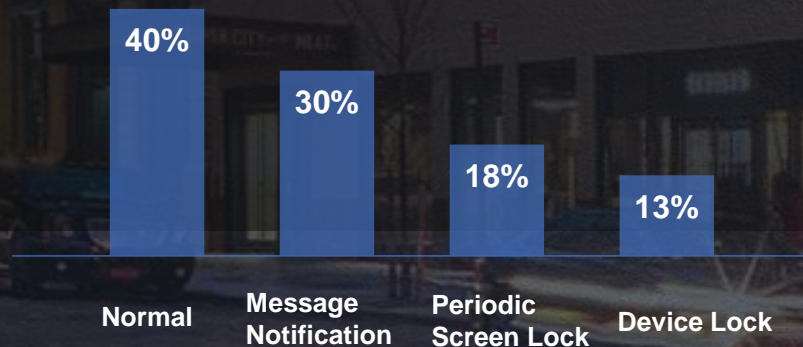
- T company had 6,000 devices has not been paid.
- After introducing KG, they had locked all devices and then all payments were made.



## Case 2: Overdue rate reduction by 68%

B Company in Latin America reduced overdue rate by using KG features.

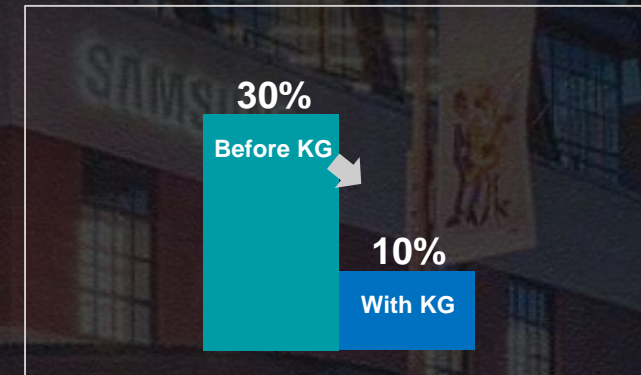
Overdue rate : 40% -> 13% after applying KG for 4 month



## Case3: Fraud rate decrease by 66%

A company in Asia proves Efficacy of Knox Guard

- After introducing KG, A company start to lock the devices, at the result of that Fraud-rate decreased from 30% to 10% ( Jan '19 ~ Jun '19 )



- Payment rate keeps growing from 42% to 54% that proves efficacy of Knox Guard



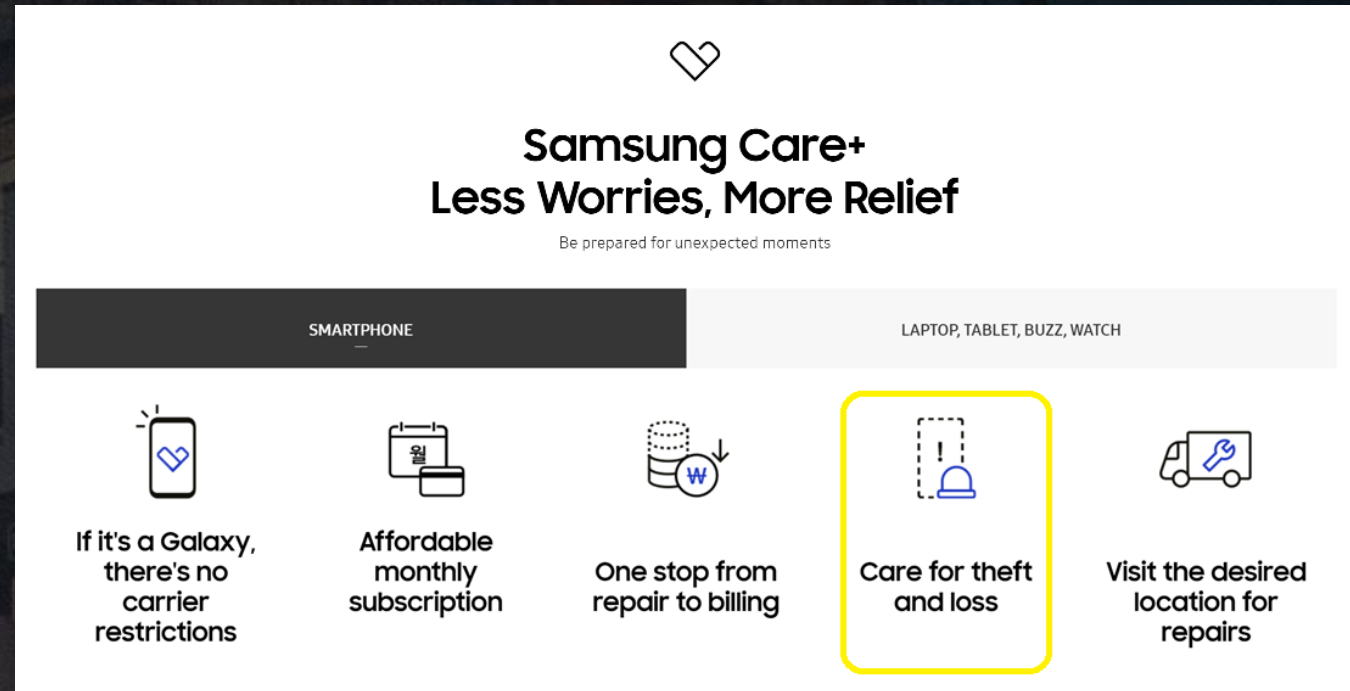


# Case Study

Samsung Care Plus provides a reliable guarantee for situations such as theft and loss with Knox Guard in South Korea, US, Mexico, Brazil, etc.

Samsung Care Plus securely locks the device reported as lost with Knox Guard. It helps Samsung Care Plus benefit from minimizing false claims, and Samsung Care Plus subscribers don't have to worry about the possibility of personal information or data leaks on their lost devices.






Knox Guard has been applied to Samsung Care Plus from Aug 2020, and the number of subscribers is gradually increasing mainly on flagship models.



The advertisement features a dark background with a city street scene at night. A white rectangular box contains the main content. At the top, a heart icon is followed by the text 'Samsung Care+' and 'Less Worries, More Relief'. Below this, a tagline reads 'Be prepared for unexpected moments'. Two tabs are visible: 'SMARTPHONE' (selected) and 'LAPTOP, TABLET, BUZZ, WATCH'. Below the tabs, five icons represent different services: a smartphone with a heart, a calendar with a heart, a database with a heart, a bell with a heart (highlighted with a yellow border), and a truck with a heart. Each icon is accompanied by a short description of the service.

**Samsung Care+**  
**Less Worries, More Relief**  
Be prepared for unexpected moments

SMARTPHONE | LAPTOP, TABLET, BUZZ, WATCH

-  If it's a Galaxy, there's no carrier restrictions
-  Affordable monthly subscription
-  One stop from repair to billing
-  Care for theft and loss
-  Visit the desired location for repairs



# Case Study

One of our partners in Latin America had 10,000 devices (\$1.5M) stolen during logistics operations. Fortunately, they were able to activate Knox Guard.

**5000 devices (\$0.9M) were found within a week.** The criminals abandoned the devices once they realized they were locked and **could not even be sold on the gray market**





# Device Ownership Verification – Overview

The ownership of devices must be verified before they can use Knox Guard

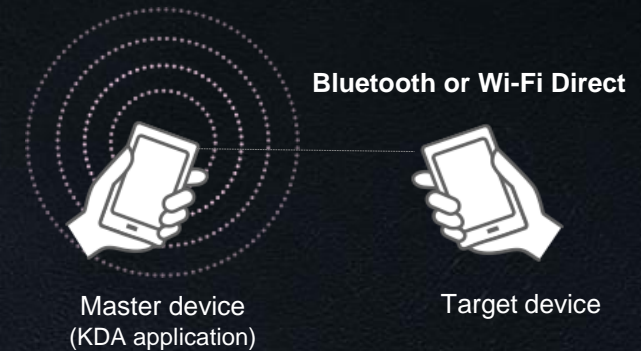


## Bulk

- Verified by the **KDP<sup>1)</sup>-participating resellers** that the devices were purchased from
- **Device IDs must be uploaded by the participating resellers** before enrollment in order to use Knox Guard
- Designed for a large number of devices

1) Knox Deployment Program

2) Available on Google Play



and  
/or

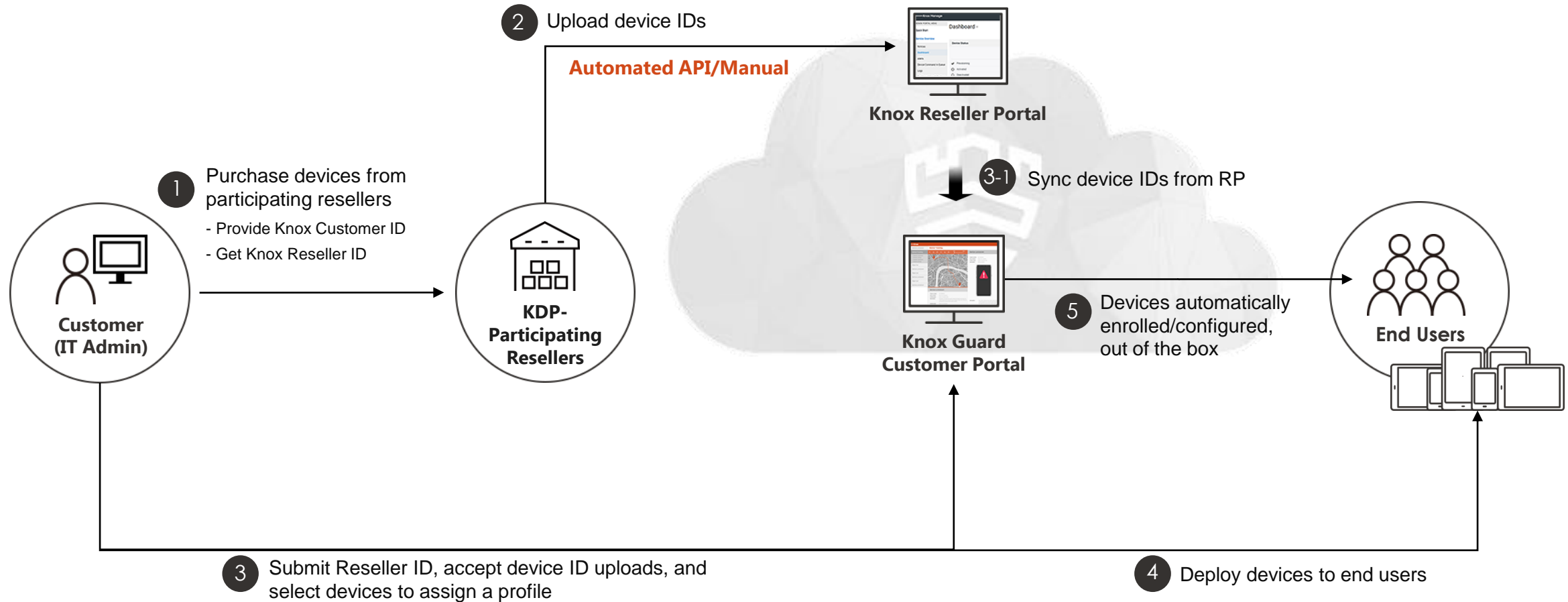
## On-the-Spot

- Verified by **KG customers**
- Each target device must be connected via Wi-Fi Direct or Bluetooth with the **Knox Deployment App<sup>2)</sup>** on a master device
- Designed for a small number of devices
- Devices are immediately enrolled



# Device Ownership Verification – Details (Bulk)

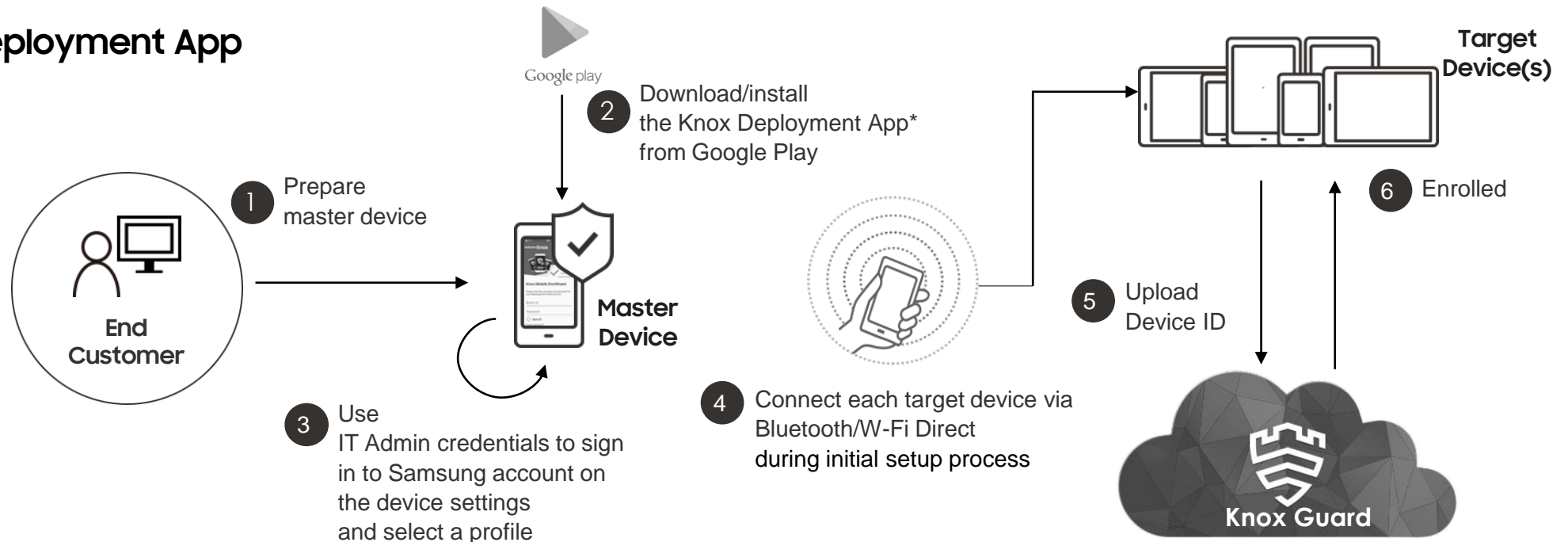
KDP-participating resellers upload device IDs in bulk for their customers



# Device Ownership Verification – Details (On-the-Spot)

Customers can verify any device immediately using the Knox Deployment App

## With Knox Deployment App





# Technical Support & Maintenance

Service Level Agreement-based technical support service is provided

Technical Resources*	<ul style="list-style-type: none"> <li>Online access to FAQ, documentation, troubleshooting guide and so on</li> </ul>
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Technical Support Requests (Ticketing)	<ul style="list-style-type: none"> <li>24x7 access to online support ticketing system (through Knox Guard Customer Portal)</li> <li>Unlimited number of support requests</li> <li>Local language supported</li> <li>SLA-based first response time</li> </ul>
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Software Update	<ul style="list-style-type: none"> <li>Code fixes and maintenance releases</li> </ul>
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Severity Level		First Response Time
Severity 1	Business-critical errors	2 Business Hours
Severity 2	Sporadic issues	4 Business Hours
Severity 3	Low-impact issues	1 Business Day
Severity 4	Technical inquiries	2 Business Days

# Knox Guard-enabled Device Warranty Service

## Device Warranty Service for Knox Guard-enabled Devices may be Limited



Samsung  
Authorized  
Service Center

- Knox Guard-enabled Samsung mobile devices can be guaranteed for the warranty period, from the date of purchase, against defects in quality and materials under normal conditions of use
- However, for locked devices the warranty service may be limited since Samsung Authorized Service Centers may not be able to alter or reset devices which are locked by IT Admins (End Customers) with Knox Guard



# Stakeholders and Responsibilities

## End Customer



Carrier

or



Financial Service  
Provider

## Purchase

- Devices from Knox Deployment Program participating resellers (for bulk device verification)
- Licenses from Knox resellers

## Sign up

- For [samsungknox.com](https://samsungknox.com)
- For Knox Guard
  - Sign the License Agreement
  - Create a Knox Customer ID

## Provide

- Its Knox Customer ID to resellers and add their Knox Reseller IDs to KG for verification

## Administer

- Remote Device Control for devices with Installment Plans



Knox Deployment  
Program  
Participating Resellers

## Sign up

- For Knox Reseller Portal
  - Sign the Knox Deployment Program Participation Agreement
  - Create a Knox Reseller ID

## Resell

- Devices to B2B customers
- Licenses to them at the same time (optional)

## Upload

- Devices to Samsung server via Knox Reseller Portal or Knox Reseller API for verification

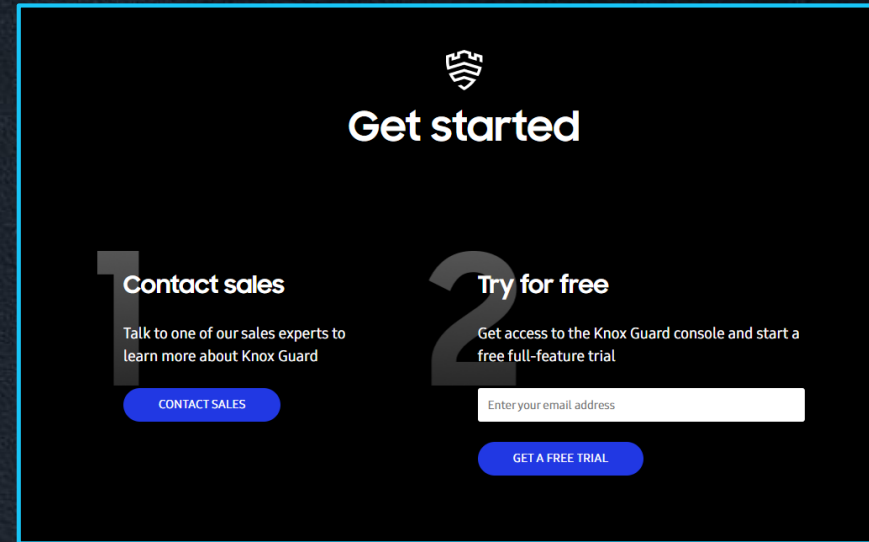
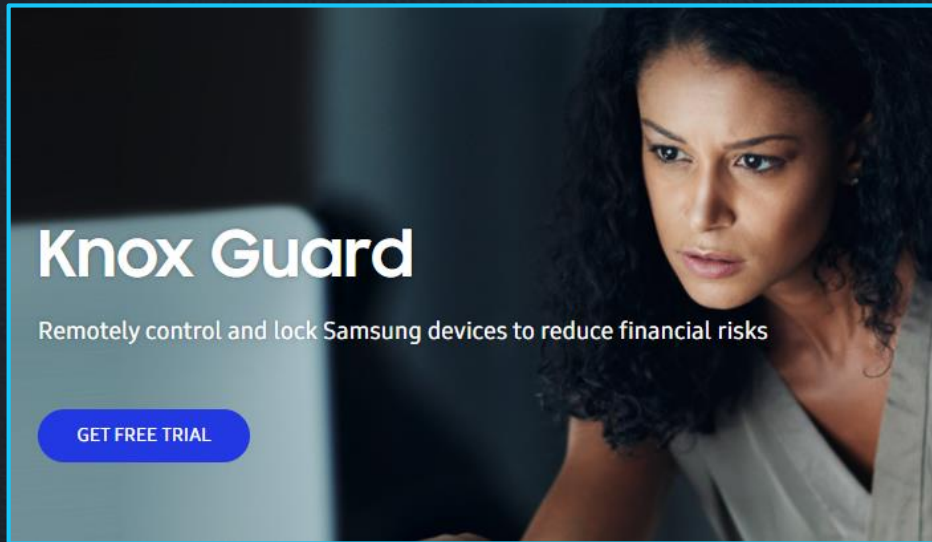
## Approve

- Customer/reseller registration

SAMSUNG

# How to Onboard Knox Guard

1. Go to the Samsung Knox portal and enroll with your Samsung account.
2. Verify your Samsung account, add company information and agree to the Samsung Knox agreements.
3. Go to the [Knox Guard page](https://www.samsungknox.com/knox-guard) and click '**GET FREE TRIAL**' for access to the Knox Guard console.  
→ <https://www.samsungknox.com/knox-guard>



4. Once KG Admin has approved your request, the 'LAUNCH' button will be displayed on the dashboard.



# Knox Guard Feature list

Features		Details	Customer Benefits
Device lock	Remote Lock	<ul style="list-style-type: none"> <li>As an IT Admin, I want to lock/unlock a device depending on the end user's payment status and customize the message shown on the lock screen.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced financial risk</li> </ul>
	Offline Lock	<ul style="list-style-type: none"> <li>As an IT Admin, I want to set the device to lock automatically if it stays offline for a pre-configured period of time.</li> </ul>	
	Auto Lock	<ul style="list-style-type: none"> <li>As an IT Admin, I want to prevent the use of stolen/missing devices by applying the auto lock function.</li> </ul> <p>*If auto lock is applied, devices are automatically locked once this feature is turned on</p>	
Messaging	Overdue Message	<ul style="list-style-type: none"> <li>As an IT Admin, I want to send customized notification messages to inform customers of overdue payments or give appropriate guidance (e.g. Customer Support).</li> </ul> <p>*Overdue messages can be sent to a locked device (the message is displayed over the lock screen)</p>	<ul style="list-style-type: none"> <li>Reduced financial risk</li> </ul>
	Blink Reminder	<ul style="list-style-type: none"> <li>As an IT Admin, I want to enable full screen-sized messages periodically at scheduled times (e.g. every 3 seconds except weekends, or every hour from 9am to 6pm)</li> </ul>	
Advanced controls	SIM Control	<ul style="list-style-type: none"> <li>As an IT Admin, I want to lock a device or apply restrictions relating to calls/SMS/MMS/RCS/data usage when the device has a non-allowed SIM card.</li> </ul>	<ul style="list-style-type: none"> <li>Additional device controllability to reduce financial risk</li> </ul>
	Application Install	<ul style="list-style-type: none"> <li>As an IT Admin, I want to install a corporate application that's easily accessible on the lock screen* for payment or customer support, and block its uninstallation by the end user.</li> </ul> <p>* App accessible from lock screen via Q OS</p>	
Basic Setting	Enrollment Message	<ul style="list-style-type: none"> <li>As an IT Admin, I want to show a customized enrollment notice on completion of enrollment, at every device reboot and on every SIM card change, with the option for this to be always dismissible.</li> </ul>	<ul style="list-style-type: none"> <li>Prevention of fraudulent resale</li> </ul>
	Customize EULA	<ul style="list-style-type: none"> <li>As an IT Admin, I want to oblige the end user to accept a custom EULA (End User License Agreement) during the enrollment process.</li> </ul>	<ul style="list-style-type: none"> <li>Customizable settings</li> </ul>
	Customize Icon	<ul style="list-style-type: none"> <li>As an IT Admin, I want to customize the notification icon.</li> </ul>	

# Unmatched security

✓ : Fully supported    △ : Partially supported    — : Not supported

Feature	Hardware-based solution (e.g. Knox)	Software-based solution
IMEI falsification protection	✓	—
Data safety powered by hardware security (Status information of device, PIN, etc.)	✓	—
TrustZone-based security	✓	—
Unofficial binary flashing blocking*	✓	△
Network bypass-proof	✓	—
Device lock on Android GO	✓	—
APK disable blocking	✓	△
Timely support for potential issues	✓	△

\* Unofficial binary(custom ROM) flashing is the most common way to root devices



Thank you