PS-LOOKUP

Interface Specifications for OCX

Edition 1.0 R18
Dec. 20, 2023

i-PRO Co., Ltd.

Revision Record

Version	Revised Date	Content of Revision
1.0 R01	Dec. 21, 2011	First Edition
1.0 R02	Apr. 24, 2012	Added NV200 to supported device.
1.0 R03	Dec. 13, 2012	Correction of Typographical Error
1.0 R04	Mar. 21, 2013	2.1 Added Microsoft® Windows® 8 Pro to System Environment.
1.0 R05	Jul. 18, 2013	Correction of Typographical Error
1.0 R06	Mar. 26, 2014	2.1 Added Microsoft® Windows® 8.1 Pro to System Environment. 2.1 Update System Environment.
1.0 R07	Jul. 14, 2014	Added NV300 to supported device.
1.0 R08	Oct. 14, 2015	2.1 Added Microsoft® Windows® 10 Pro to System Environment.
1.0 R09	Jan. 22, 2016	2.1 Added Microsoft® Windows Server® 2012 Standard to System Environment. 2.1 Added Microsoft® Windows Server® 2012 R2 Standard to System Environment. 2.1 Deleted Microsoft® Windows Server® 2003 Standard 64 bit Edition to System Environment. 2.1 Deleted Microsoft® Windows Server® 2003 Standard 32 bit Edition to System Environment. 2.1 Deleted Microsoft® Windows Server® 2003 Enterprise 64 bit Edition to System Environment. 2.1 Deleted Microsoft® Windows Server® 2003 Enterprise 32 bit Edition to System Environment.
1.0 R10	Feb. 8, 2017	Added NX400 to supported device.
1.0 R11	Jun. 19, 2017	Change company name. Added NX200 to supported device. 2.1 Deleted Microsoft® Windows® XP Professional SP3 from System Environment. 2.1 Deleted Microsoft® Windows Vista® Business SP2 32 bit Edition from System Environment.
1.0 R12	Dec. 12, 2017	2.1 Update System Environment.
1.0 R13	Jun. 26, 2019	1.4 Updated Abbreviations. 2.2 Updated Development Environment.
1.0 R14	May. 29, 2020	Change company name. 2.1 Added Microsoft® Windows Server® 2016 Standard to System Environment.
1.0 R15	Apr. 1, 2022	Change company name. 2.1 Added Microsoft® Windows® 11 Pro and Windows Server® 2019 Standard to System Environment.
1.0 R16	Sep. 1, 2022	2.1 Added Microsoft® Windows Server® 2022 Standard to System Environment. 2.1 Deleted Microsoft® Windows® 8 Pro from System Environment.
1.0 R17	Dec. 9, 2022	1.4. Updated abbreviation. Added NU series to NX series NX series NU series
1.0 R18	Dec. 20, 2023	Changed the notation from ActiveX to OCX.

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1. Preface

1.1. What's PS-LOOKUP

PS-LOOKUP is the software library which is provided to help to develop an application software that is for detecting i-PRO Co., Ltd. made security products (Network cameras, Network Disk Recorders(NV series ,NX series), Digital Disk Recorders, Network Interface Units) and notify to application.
PS-LOOKUP is provided as the OCX control.

1.2. Trademarks and Registered Trademarks

Microsoft and Windows are registered trademarks of Microsoft Corporation in U.S. and/or other countries. Other names of companies and product contained in these operating instructions may be trademarks or registered trademarks of their respective owners.

1.3. Limitation of liability

- PS-LOOKUP provides interfaces for the application software to detect i-PRO Co., Ltd. made security products (Network cameras, Network Disk Recorders(NV series ,NX series), Digital Disk Recorders, Network Interface Units), and is not designed to protect against "theft" or "crime" independently.

- The provided sample programs are designed to instruct users how to use the SDK. They are not developed for the purpose of actual surveillance system.

- In not event shall i-PRO Co., Ltd. be liable to any party or any person, except for replacement or reasonable maintenance of the product, for the cases, including but not limited to below;

[1] Any damage and loss, including without limitation, direct or indirect, special, sequential or exemplary, arising out of or relating to the product;
[2] Personal injury or any damage caused by inappropriate use or neglect operation of the user;
[3] Any problems, consequential inconvenience, or loss or damage, arising out of the reverse compiling or reverse engineering of the product;
[4] Any loss or damage, or claims arising out from loss or leak of PS data including video data in the PC;
[5] Any claim or action for damages, brought by any person or organization being a photogenic subject, due to violation of privacy with the result of that surveillance camera's picture, including saved data, for some reason, becomes public or is used for the purpose other than surveillance;

1.4. Abbreviations
  The following abbreviations are used in these operating instructions.
  Microsoft® Visual Basic 2005 is described as Visual Basic 2005.
  Microsoft® Visual C# 2005 is described as Visual C# 2005.
  Microsoft® Visual Basic 2012 is described as Visual Basic 2012.
  Microsoft® Visual C# 2012 is described as Visual C# 2012.

  Network Camera is referred as Camera.
  Network Interface Unit is referred as Encoder.
  Network Disk Recorder is referred as NWDR.
  Network Disk Recorder (NV series) is referred as NV series.
  Network Disk Recorder (NX series, NU series) is referred as NX series.
  Digital Disk Recorder (HD300 series) is referred as HD300.
  Digital Disk Recorder (HD600 series, HD700 series) is referred as HD600/700.

1.5. Structures of PS-LOOKUP
  Figure 1-1 shows the PS-LOOKUP structures.
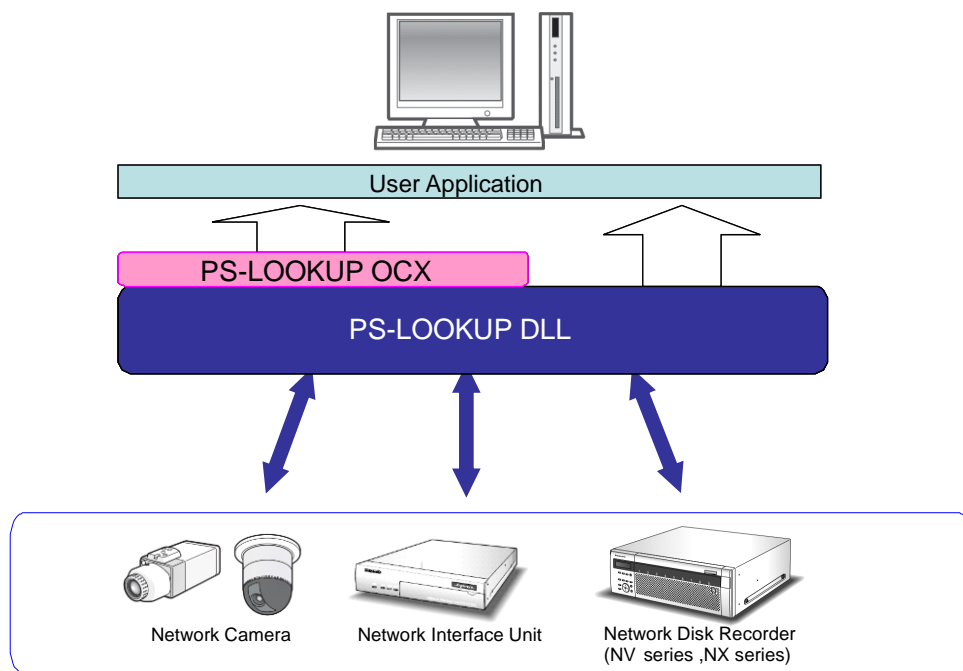
Figure 1-1 PS-LOOKUP Structures

1.6. Overview of Functions

Table 1-1shows the overview of functions.

Table 1-1 Function Overview

No.	Overview	Reference
1	Notify an application of device detection	PSLookup Group

1.7. Function List

Table 1-2 shows the functions provided in this PS-LOOKUP.

Table 1-2 List of Functions

Event

No.	Class	Event	Overview	Reference
PSLookup Group				
1	PSLOOKUP Control	OnDevLookup	The OnDevLookup notification function is to pass an received device detection information from PS-LOOKUP to a specified application.	
2	PSLOOKUP Control	OnError	The OnError notification function is to pass an error code from PS-LOOKUP to a specified application.	

2. System requirements

2.1. System Environment
The following table shows the PC specification that is needed for using PS-LOOKUP.

Table 2-1 OS

OS	Microsoft® Windows® 7 Professional SP1 32 bit Edition
	Microsoft® Windows® 7 Professional SP1 64 bit Edition
	Microsoft® Windows® 8.1 Pro 32 bit Edition(*1)
	Microsoft® Windows® 8.1 Pro 64 bit Edition(*1)
	Microsoft® Windows® 10 Pro 32 bit Edition
	Microsoft® Windows® 10 Pro 64 bit Edition
	Microsoft® Windows® 11 Pro
	Microsoft® Windows Server® 2008 R2 Standard SP1
	Microsoft® Windows Server® 2008 R2 Enterprise SP1
	Microsoft® Windows Server® 2012 Standard
	Microsoft® Windows Server® 2012 R2 Standard
	Microsoft® Windows Server® 2016 Standard(Desktop Experience)
	Microsoft® Windows Server® 2019 Standard(Desktop Experience)
	Microsoft® Windows Server® 2022 Standard(Desktop Experience)

Table 2-2 System requirements

Processor(*2)	Intel® Core™2 Quad 2.66GHz or more
Memory	2.0GB or more
Hard drive	10GB or more
LAN	100Mbps or more

Table 2-3 Recommended system requirements

Processor(*2)	Intel® Core™i7-4790
Memory	8.0GB or more
Hard drive	10GB or more
LAN	100Mbps or more

(*1) Modern UI is not supported.
(*2) When displaying video on multiple screens, please use the recommended system requirements.

2.2. Development Environment

The following table shows the development environment list that is supported by PS-LOOKUP OCX.

Table 2-4 Development Environment

Target	Development Tool
PS-LOOKUP OCX	Visual Basic 2005 SP1
	Visual C# 2005 SP1
	Visual Basic 2012
	Visual C# 2012

2.3. Supported i-PRO Products

Please refer to [**PS-API Supported Product List for English**] document.

3. Setup

3.1. Product

Please refer to [**PS-API Installation Guide for OCX**] document.

Table 3-1 The Overview of Files

[OCX folder]

Directory Name	Objective
PS-API¥ Redistributable	OCX files/DLL files Redistributable.
PS-API¥ Setup	Installer for OCX control and DirectShow filters. For development. **NOT REDISTRIBUTABLE.**
PS-API¥ Tool	Test tool. By using this tool, you can confirm connecting to a target device with PS-API. **NOT REDISTRIBUTABLE.**
PS-API¥ Document	The users manual. (This document) **NOT REDISTRIBUTABLE.**

Directory Name	Objective
PS-ALARM¥ Redistributable	OCX files/DLL files Redistributable.
PS-ALARM¥ Document	The users manual. **NOT REDISTRIBUTABLE.**

Directory Name	Objective
PS-LOOKUP¥ Redistributable	OCX files/DLL files Redistributable.
PS-LOOKUP¥ Document	The users manual. **NOT REDISTRIBUTABLE.**

[OCX-Sample folder]

Directory Name	Objective
Sample Program	Sample Programs. **NOT REDISTRIBUTABLE.**

3.2. Install

Please refer to [**PS-API Installation Guide for OCX**] document.

3.3. UnInstall

Please refer to [**PS-API Installation Guide for OCX**] document.

3.4. Control name and Class ID

The following information are Control name and Class ID of PS-LOOKUP.

    Control name   :   pslookupctrl
    Class ID (CLSID) :   33197B00-11E4-4DAE-B8CE-38DF72FDBF94

3.5. Restrictions

(1) Standardize the time zone setting of devices in your system.
(2) Do not use the Power Schemes or System Standby mode of WIndows®.
(3) PS-LOOKUP instance is NOT thread safe.
(4) The maximum number of device detection that the PC can receive depends on the PC performance that receives device information.

4. Overview of Library

4.1. Connect to the device
When the application detects devices by using PS-LOOKUP, it is necessary that OnDevLookupEnable property is set to "1"..
After setting OnDevLookupEnable property to "1", detected device's information is notified via OnDevLookup event.
When stop detecting devices, set OnDevLookupEnable property to "0".

```
┌─────────────┐                    ┌─────────────┐
│ Application │                    │  PS-LOOKUP  │
└─────────────┘                    └─────────────┘
       │                                  │
       │                                  │
       │  OnDevLookupEnable = 1           │
       │─────────────────────────────────▶│
       │                                  │ ┐
       │                                  │ │ Detect devices
       │                                  │ │ that is belonging
       │                                  │ │ under the same subnet.
       │                                  │ │
       │  OnDevLookupEnable = 0           │ │
       │─────────────────────────────────▶│ ▼
       │                                  │
```
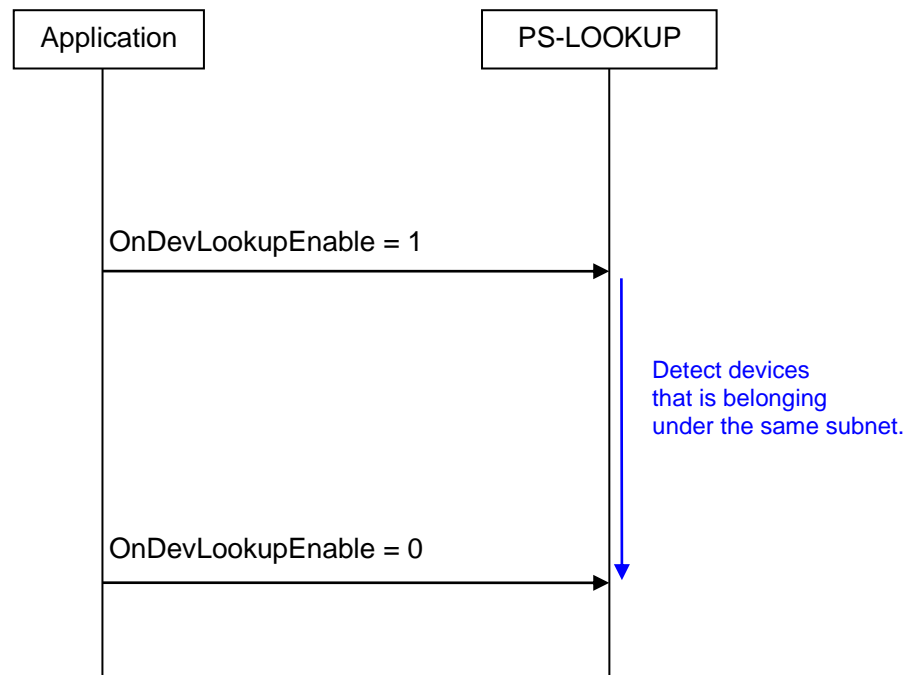
Figure 4-1 Connect to The Device

4.2. Steps to detect device with PS-LOOKUP
The following chart shows the flow of detecting devices, and stop.
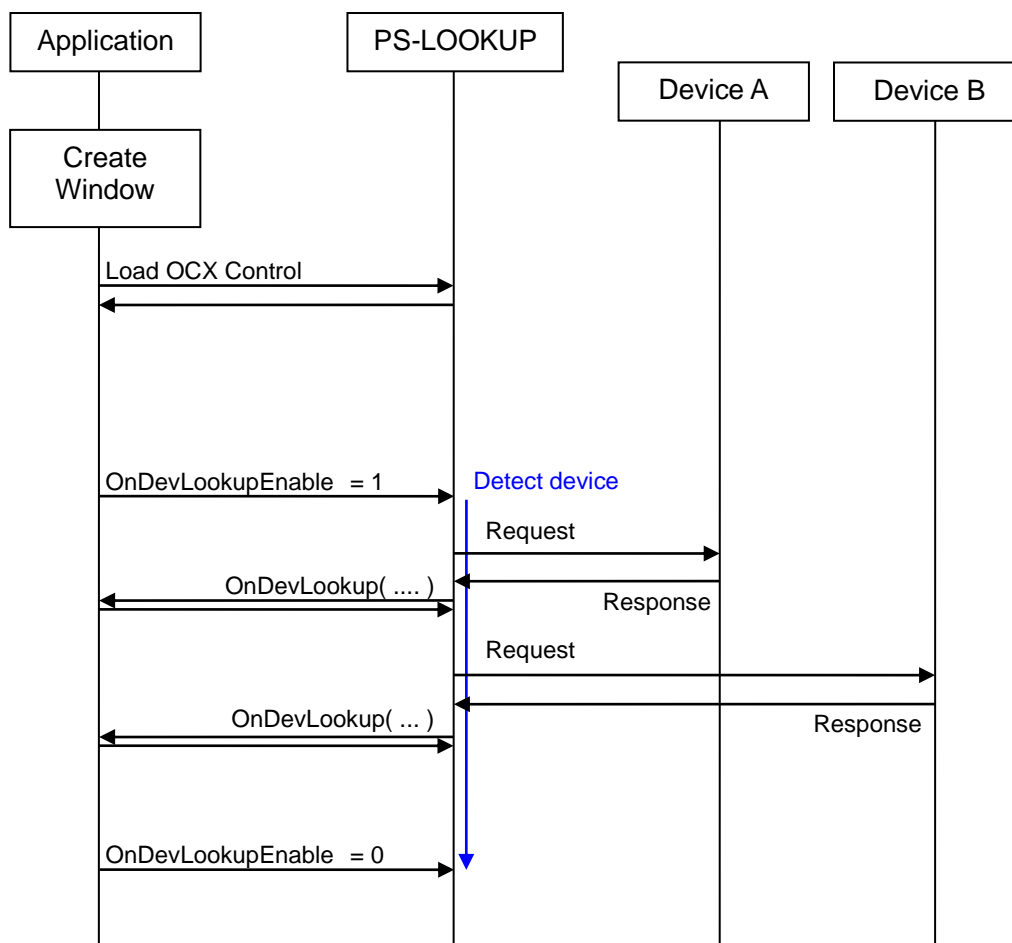
Figure 4-2 Steps to detect devices with PS-LOOKUP

5. Details of the Object

This chapter describes the detail specification of this OCX control.

5.1. Object

5.1.1. Object Definition

Table 5-1 Object Definition

No.	Object Name	Overview
1	PSLOOKUP Control	It is the OCX Control for using PS-LOOKUP functions from an application. It is used for port number setting and event notification.

5.1.1.1. PSLOOKUP control

[Property]
long   OnDevLookupEnable
long   OnErrorEnable

[Event]
void   OnDevLookup (BSTR   macAddr,
                     BSTR   ipAddr,
                     BSTR   ipv6Addr,
                     long   portNo,
                     BSTR   camName,
                     BSTR   modelName);
void   OnError(long errorCode, BSTR description)   ;

5.2. PSLookup Group

5.2.1. Property

5.2.1.1. OnDevLookupEnable

Object	PSLOOKUP Control
Property	**OnDevLookupEnable**
long	OnDevLookupEnable

Description

Set/Get the setting whether use the OnDevLookup event or not.
This functions is not supported by recorders(HD300, NWDR except NV Series, NX Series and HD600/700).

Value

0 : Not use event
Except 0 : Use event

Return value

None

Error

Note

Sequence

Sample program code

[Visual Basic 2012] ..¥Sample Program¥PS-LOOKUP¥Visual Basic 2012¥301_PSLookup
[Visual C# 2012] ..¥Sample Program¥PS-LOOKUP¥Visual CSharp¥301_PSLookup
[HTML] ..¥Sample Program¥PS-LOOKUP¥HTML ¥301_PSLookup

Reference

5.2.1.2. OnErrorEnable

Object　　　　**PSLOOKUP Control**

Property　　　　**OnErrorEnable**

long　　OnErrorEnable

Description

Set/Get the setting whether use the OnError event or not.

Value

0 : Not use event
Except 0 : Use event

Return value

None

Error

Note

Sequence

Sample program code

Reference

5.2.2. Event

5.2.2.1. OnDevLookup

Object	PSLOOKUP Control
Event	**OnDevLookup**

void	OnDevLookup (
	BSTR macAddr,
	BSTR ipAddr,
	BSTR ipv6Addr,
	long portNo,
	BSTR camName,
	BSTR modelName
	);

Description

Notify to detect device to the specified application.
This functions is not supported by recorders(HD300, NWDR except NV Series , NX Series and HD600/700).

Argument

	macAddr	Character strings (24 or less characters)	The MAC address of a detected device.
	ipAddr	Character strings (16 or less characters)	The IPv4 address of a detected device.
	ipv6Addr	Character strings (16 or less characters)	The IPv6 address of a detected device. When there is no IPv6 address, this area is set to ""(empty).
	portNo	1 – 65535	The HTTP port number of a detected device.
	camName	Character strings (32 or less characters)	The camera name of a detected device. When there is no camera name setting, this area is set to "" (empty). Depending on the model, camera name cannot be acquired even if camera name is set. The maximum length of camera name is 15.
	modelName	Character strings (16 or less characters)	The model of a detected device.
			* Please use these parameters in only OnDevLookup function. When finish OnDevLookup function, memory for these parameters are released.

Return value

      None

Error

Note

Sequence

Sample program code

[Visual Basic 2012] ..¥Sample Program¥PS-LOOKUP¥Visual Basic 2012¥301_PSLookup
[Visual C# 2012] ..¥Sample Program¥PS-LOOKUP¥Visual CSharp¥301_PSLookup
[HTML] ..¥Sample Program¥PS-LOOKUP¥HTML ¥301_PSLookup

Reference

5.2.2.2. OnError

Object	PSLOOKUP Control
Event	**OnError**

void   OnError(
                long   errorCode,
                BSTR   description
                );

Description

Notify the error to the specified application.

Argument

	errorCode	Negative value	Error code number
	description	Character strings	Detailed error description *** This parameter is valid in the inside of OnError function. When OnError function is finished, this memory is freed.**

Return value

None

Error

Note

Sequence

Sample program code

Reference

6. Operation Procedure and Sequence

6.1. PSLookup

6.1.1. Operation Procedure

Start detecting device

No.	Property / Method	Parameter	Description
1	OnDevLookupEnable	Notify or not (long)	When starting to notify OnDevLookup event, set OnDevLookupEnable to "1". e.g.) 1
-	(OnDevLookup)	MAC address, IPv4 address, IPv6 adress, port number, camera name, model (BSTR, BSTR, BSTR, long, BSTR, BSTR)	Notify the specified application of device detection.

Stop detecting device

No.	Property / Method	Parameter	Description
2	OnDevLookupEnable	Notify or not (long)	When stopping to notify OnDevLookup event, set OnDevLookupEnable to "0". e.g.) 0

6.1.2. Sequence
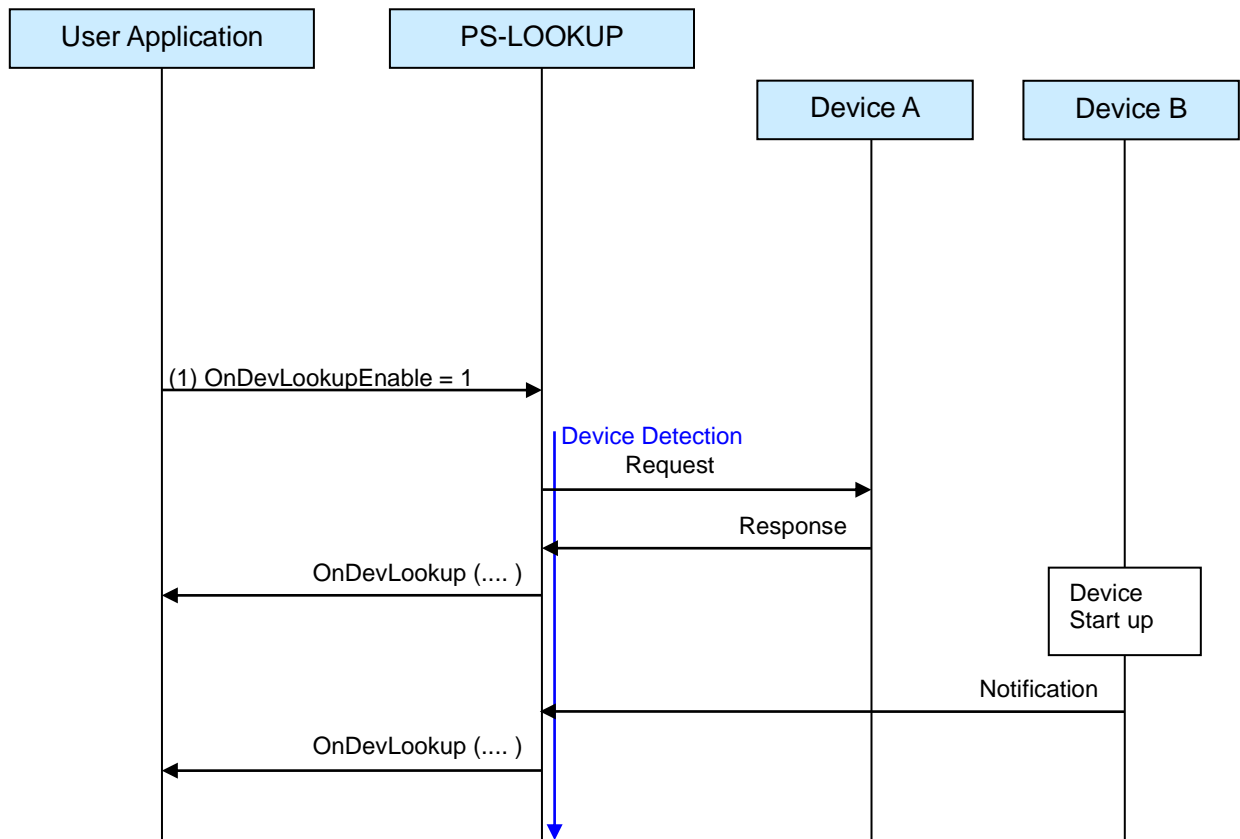
Start detecting device

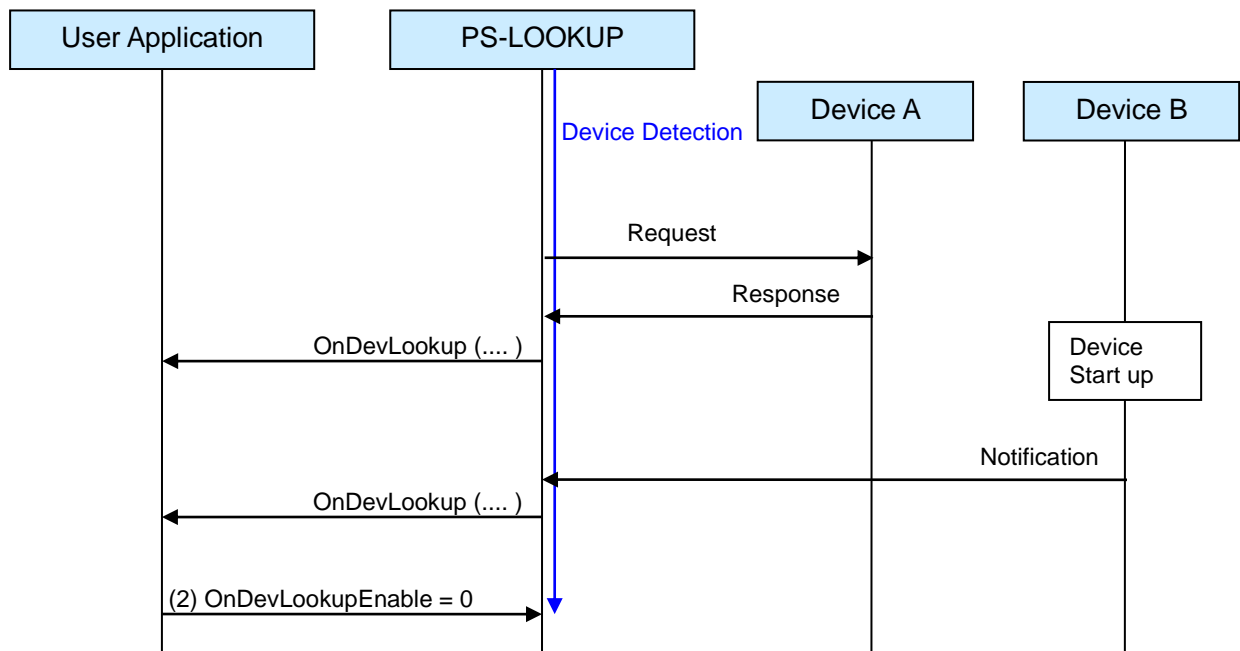**Figure 6-1 Start detecting device**

Stop detecting device

Figure 6-2 Stop detecting device

7. Error Code List

The error code is defined by the following format. (decimal, 8digits)

$-D_1A_1C_1M_1M_2Z_1Z_2Z_3$

-D1 Category	A₁ Level	C₁ Source	M₁M₂	Z₁Z₂Z₃ Code	Error Description
-6 PS-LOOKUP	1:error 2:warning	1:PS-LOOKUP error	(internal use)	103	Internal process error (WSAStartup)
				104	Internal process error (Get address information)
				105	Internal process error (Create socket)
				106	Internal process error (Bind socket)
				107	Internal process error (Select socket)
				109	Internal process error (Receive device information)
				110	Internal process error (Sent Information Request)
				201	SDK internal error
				202	SDK internal error
				203	SDK internal error
				204	SDK internal error
				401	In detecting devices
				501	Fatal error (Create thread)
				502	Fatal error (Create object)
				503	Fatal error (Memory allocation)