Samsung Network Device SDK

IP Installer Guide

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Preface

Purpose

This document describes the method to scan and install the IP address of Samsung Network Cameras.

Audience

This document focuses on describing the protocol of IP scan and install of Samsung Network Cameras.

Scope

This document describes the protocol and data structure of IP scan and installation protocol.

Organization

This document logically divided into 2 parts:

Part I, IP scan and install for IPv4

Part II, IP scan and install for IPv6

Revision History

Version	*Description*	*Release Date*
0.0	Editing according to the standard document format	15th,AUG, 2010
1.0	Editing the data structure according to source code	25th AUG, 2010

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Chapter 1. Introduction

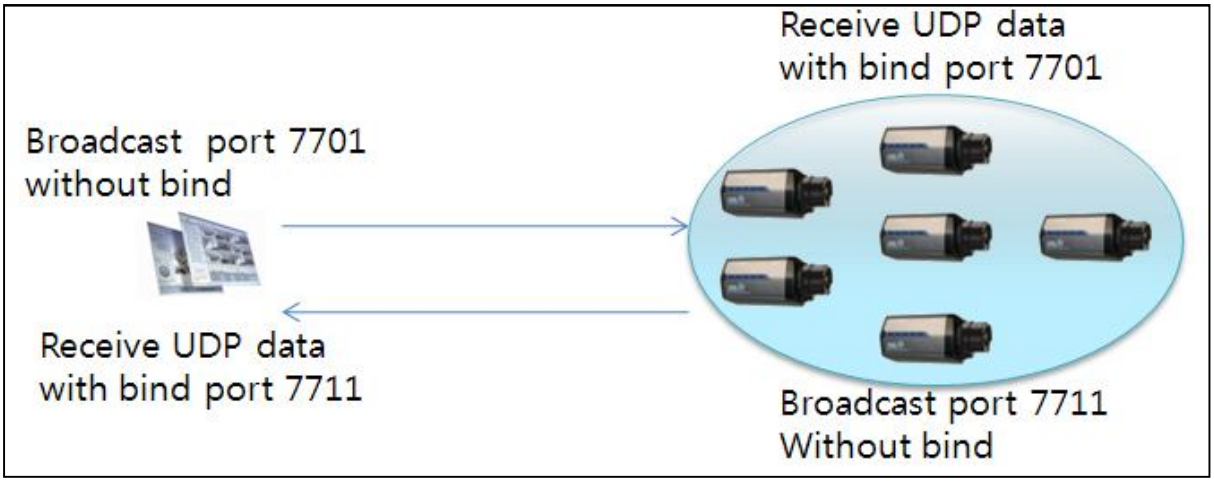
This document describes the IP-Installer (IP-Scanner) protocol guide.

Some of Samsung Techwin's Network Device support IPv4 and IPv6. Some of device support only IPv4.

This document describes both IPv4 and IPv6 protocol. CMS S/W can use this document for own purpose.

Chapter 2. IPv4

2.1 Communicate Port



2.2 Data Format

Name	Type	Size	Description
nMode	unsigned char	1	Mode, refer to below table 1
chPacketID	unsigned char[18]	18	Packet value
chMAC	char[18]	18	Camera MAC address
chIP	char[16]	16	IPv4 address
chSubnetMask	char[16]	16	Subnet mask
chGateway	char[16]	16	Gateway
chPassword	char[20]	20	Password
nPort	Unsigned short	2	Port
nStatus	Unsigned char	1	Port mapping return value
chDeviceName	Char[10]	10	Camera name
nHttpPort	Unsigned short	2	HTTP port
nDevicePort	unsigned short	2	Device port
nTcpPort	unsigned short	2	TCP port
nUdpPort	unsigned short	2	UDP port
nUploadPort	unsigned short	2	Upload port

nMulticastPort	unsigned short	2	Multicast port
nNetworkMode	1	1	Static or DHCP mode
chDDNS	char[128]	128	DDNS address

Struct define in C++.

```
typedef struct DATAPACKET_IPv4_T
{
    unsigned char mode;
    unsigned char packet_id[18];
    char mac_addr[18];
    char ip_addr[16];
    char subnetmask[16];
    char gateway[16];
    char password[20];
    char reserved1;
    unsigned short port;
    unsigned char status;
    char device_name[10];
    char reserved2;
    unsigned short http_port;
    unsigned short device_port;
    unsigned short tcp_port;
    unsigned short udp_port;
    unsigned short upload_port;
    unsigned short multicast_port;
    unsigned char network_mode;
    char ddns_url[128];
    char reserved3;
} __attribute__ ((__packed__)) datapacket_v4_t;
```

<Field description>

1) nMode

Command	Value	Description
DEF_REQ_SCAN	1	
DEF_REQ_APPLY	2	
~~DEF_REQ_REBOOT~~	~~3~~	

DEF_REQ_PORTMAPPING	4	
DEF_RES_SCAN	11	
DEF_REQ_APPLY	22	
DEF_REQ_PASSERR	33	
DEF_REQ_PORTMAPPING	44	
DEF_REQ_PORTMAPPINGERR	55	
DEF_REQ_ROUTERCONERR	66	
DEF_REQ_APPLYERR	77	

2) chPacketID

This value is used to identify Client. Samsung use this value as unique ID drived from MAC address of PC and random value.

2.3 IP Scan

2.3.1 Request

Name	Type	Size	Value
nMode	unsigned char	1	1 (DEF_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of Client
chMAC	char[18]	18	Not Used
chIP	char[16]	16	Not Used
chSubnetMask	char[16]	16	Not Used
chGateway	char[16]	16	Not Used
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	Not Used
nStatus	Unsigned char	1	Not Used
chDeviceName	Char[10]	10	Not Used
nHttpPort	Unsigned short	2	Not Used
nDevicePort	unsigned short	2	Not Used
nTcpPort	unsigned short	2	Not Used
nUdpPort	unsigned short	2	Not Used
nUploadPort	unsigned short	2	Not Used
nMulticastPort	unsigned short	2	Not Used
nNetworkMode	1	1	Not Used
chDDNS	char[128]	128	Not Used

2.3.2 Response

Name	Type	Size	Value
nMode	unsigned char	1	11 (RES_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of camera
chMAC	char[18]	18	MAC of Camera
chIP	char[16]	16	IP address of Camera
chSubnetMask	char[16]	16	Subnet Mask of Camera
chGateway	char[16]	16	Gateway of Camera
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	http port for web-connection
nStatus	Unsigned char	1	Success or not of upnp port mapping
chDeviceName	Char[10]	10	Model Name
nHttpPort	Unsigned short	2	http port for web-connection
nDevicePort	unsigned short	2	Port number to connect using protocol document
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1), PPPoE(2)
chDDNS	char[128]	128	DDNS url ※1

※1 : chDDNS has the DDNS URL. If camera registered successfully the URL to DDNS server, this field is filled by the registered URL. If camera fails to register, this field is filled by the URL that is made based on the IP. (ex : http://192.168.1.200:8080")

nDevicePort : Port number to connect using SVNP, VNP or SSNP protocol

2.4 IP Setting

2.4.1 Request

Name	Type	Size	Value
nMode	unsigned char	1	2 (DEF_REQ_APPLY)
chPacketID	unsigned char[18]	18	Unique Value of Client
chMAC	char[18]	18	Mac Address of Camera

chIP	char[16]	16	IP address of Camera. Valid only if (nNetworkMode == 0)
chSubnetMask	char[16]	16	Subnetmask of Camera
chGateway	char[16]	16	Gateway of camera
chPassword	char[20]	20	Password to connect camera with admin privilege
nPort	Unsigned short	2	The same value of nHttpPort
nStatus	Unsigned char	1	Not used
chDeviceName	Char[10]	10	Not used
nHttpPort	Unsigned short	2	Port number to change
nDevicePort	unsigned short	2	Port number to connect using SVNP
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1)
chDDNS	char[128]	128	

Using this command, client can change the IP ytpe, address and port number

2.4.2 Response

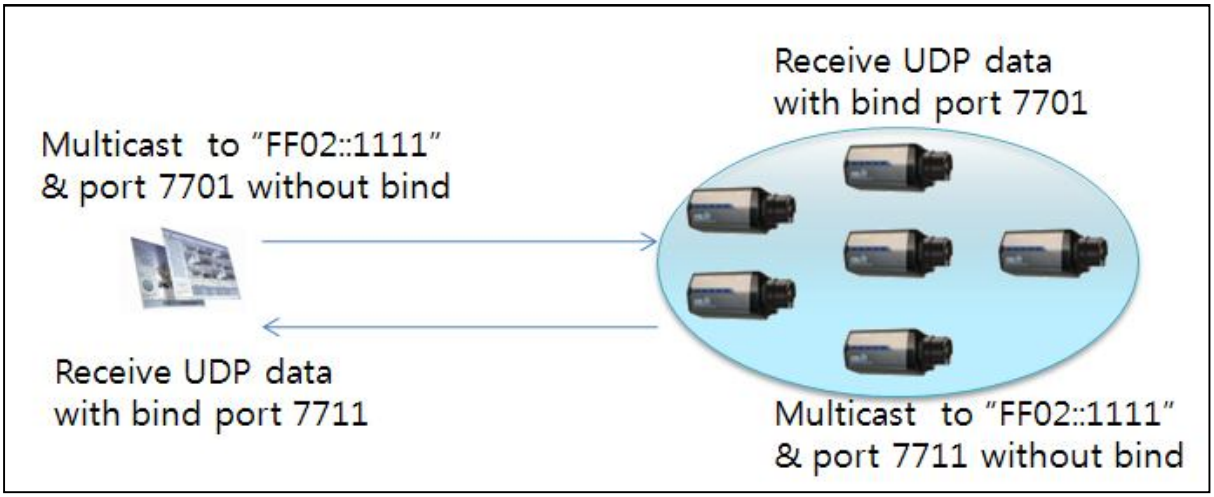
Name	Type	Size	Value
nMode	unsigned char	1	11 (RES_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of camera
chMAC	char[18]	18	Mac Address of Camera
chIP	char[16]	16	IP address of Camera
chSubnetMask	char[16]	16	Subnet Mask of Camera
chGateway	char[16]	16	Gateway of Camera
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	http port for web-connection
nStatus	Unsigned char	1	Success or not of upnp port mapping
chDeviceName	Char[10]	10	Model Name
nHttpPort	Unsigned short	2	Port number to change
nDevicePort	unsigned short	2	Port number to connect using

			protocol document
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1)
chDDNS	char[128]	128	

Changed Values are filled.

Chapter 3. IPv6

3.1 Communicate Port



3.2 Data Format

Name	Type	Size	Description
nMode	unsigned char	1	Mode. Refer to below table 1
chPacketID	unsigned char[18]	18	Packet value
chMAC	char[18]	18	Camera MAC address
chIP	char[16]	16	IPv4 address
chSubnetMask	char[16]	16	Subnet mask
chGateway	char[16]	16	Gateway
chIpv6addr	Char[40]	40	IPv6 address
chPassword	char[20]	20	Password
nPort	Unsigned short	2	Port
nStatus	Unsigned char	1	Port mapping return value
chDeviceName	Char[10]	10	Camera name
nHttpPort	Unsigned short	2	HTTP port
nDevicePort	unsigned short	2	Device port
nTcpPort	unsigned short	2	TCP port
nUdpPort	unsigned short	2	UDP port

nUploadPort	unsigned short	2	Upload port
nMulticastPort	unsigned short	2	Multicast port
nNetworkMode	1	1	Static or DHCP mode
chDDNS	char[128]	128	DDNS address

Struct define in C++

```
typedef struct DATAPACKET_IPv6_T
{
    unsigned char mode;
    unsigned char packet_id[18];
    char mac_addr[18];
    char ip_addr[16];
    char subnetmask[16];
    char gateway[16];
    char ipv6_addr[40];
    char password[20];
    char reserved1;
    unsigned short port;
    unsigned char status;
    char device_name[10];
    char reserved2;
    unsigned short http_port;
    unsigned short device_port;
    unsigned short tcp_port;
    unsigned short udp_port;
    unsigned short upload_port;
    unsigned short multicast_port;
    unsigned char network_mode;
    char ddns_url[128];
    char reserved3;
} __attribute__ ((__packed__)) datapacket_v6_t;
```

<Field description>

1) nMode

Command	Value	Description
DEF_REQ_SCAN	1	

DEF_REQ_APPLY	2	
~~DEF_REQ_REBOOT~~	~~3~~	
~~DEF_REQ_PORTMAPPING~~	~~4~~	
DEF_RES_SCAN	11	
DEF_REQ_APPLY	22	
DEF_REQ_PASSERR	33	
DEF_REQ_PORTMAPPING	44	
DEF_REQ_PORTMAPPINGERR	55	
DEF_REQ_ROUTERCONERR	66	
DEF_REQ_APPLYERR	77	

2) chPacketID

This value is used to identify Client. Samsung use this value as unique ID drived from MAC address of PC and random value.

3.3 IP Scan

3.3.1 Request

Name	Type	Size	Value
nMode	unsigned char	1	1 (DEF_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of Client
chMAC	char[18]	18	Not Used
chIP	char[16]	16	Not Used
chSubnetMask	char[16]	16	Not Used
chGateway	char[16]	16	Not Used
chIpv6addr	Char[40]	40	IPv6 address
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	Not Used
nStatus	Unsigned char	1	Not Used
chDeviceName	Char[10]	10	Not Used
nHttpPort	Unsigned short	2	Not Used
nDevicePort	unsigned short	2	Not Used
nTcpPort	unsigned short	2	Not Used
nUdpPort	unsigned short	2	Not Used
nUploadPort	unsigned short	2	Not Used
nMulticastPort	unsigned short	2	Not Used
nNetworkMode	1	1	Not Used
chDDNS	char[128]	128	Not Used

3.3.2 Response

Name	Type	Size	Value
nMode	unsigned char	1	11 (RES_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of camera
chMAC	char[18]	18	MAC of Camera
chIP	char[16]	16	IP address of Camera
chSubnetMask	char[16]	16	Subnet Mask of Camera
chGateway	char[16]	16	Gateway of Camera
chIpv6addr	Char[40]	40	IPv6 address
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	http port for web-connection
nStatus	Unsigned char	1	Success or not of upnp port mapping
chDeviceName	Char[10]	10	Model Name
nHttpPort	Unsigned short	2	Port number to change
nDevicePort	unsigned short	2	Port number to connect using protocol document
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1), PPPoE(2)
chDDNS	char[128]	128	DDNS url

※1 : chDDNS has the DDNS URL. If camera registered successfully the URL to DDNS server, this field is filled by the registered URL. If camera fails to register, this field is filled by the URL that is made based on the IP. (ex : http://192.168.1.200:8080")

nDevicePort : Port number to connect using SVNP, VNP or SSNP protocol.

3.4 IP Setting

3.4.1 Request

Name	Type	Size	Value
nMode	unsigned char	1	2 (DEF_REQ_APPLY)

chPacketID	unsigned char[18]	18	Unique Value of Client
chMAC	char[18]	18	Mac Address of Camera
chIP	char[16]	16	IP address of Camera. Valid only if (nNetworkMode == 0)
chSubnetMask	char[16]	16	Subnetmask of Camera
chGateway	char[16]	16	Gateway of camera
chIpv6addr	Char[40]	40	IPv6 address
chPassword	char[20]	20	Password to connect camera with admin privilege
nPort	Unsigned short	2	The same value of nHttpPort
nStatus	Unsigned char	1	??
chDeviceName	Char[10]	10	Model name of camera
nHttpPort	Unsigned short	2	Port number to change
nDevicePort	unsigned short	2	Port number to connect using SVNP
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1)
chDDNS	char[128]	128	

Using this command, client can change the IP ytpe, address and port number

3.4.2 Response

Name	Type	Size	Value
nMode	unsigned char	1	11 (RES_REQ_SCAN)
chPacketID	unsigned char[18]	18	Unique Value of camera
chMAC	char[18]	18	Mac Address of Camera
chIP	char[16]	16	IP address of Camera
chSubnetMask	char[16]	16	Subnet Mask of Camera
chGateway	char[16]	16	Gateway of Camera
chIpv6addr	Char[40]	40	IPv6 address
chPassword	char[20]	20	Not Used
nPort	Unsigned short	2	http port for web-connection

nStatus	Unsigned char	1	Success or not of upnp port mapping
chDeviceName	Char[10]	10	Model Name
nHttpPort	Unsigned short	2	Port number to change
nDevicePort	unsigned short	2	Port number to connect using protocol document
nTcpPort	unsigned short	2	Not used
nUdpPort	unsigned short	2	Not used
nUploadPort	unsigned short	2	Not used
nMulticastPort	unsigned short	2	Not used
nNetworkMode	1	1	Netowrk IP type Static(0), DHCP(1), PPPoE(2)
chDDNS	char[128]	128	

Changed Values are filled.