# ONVIF

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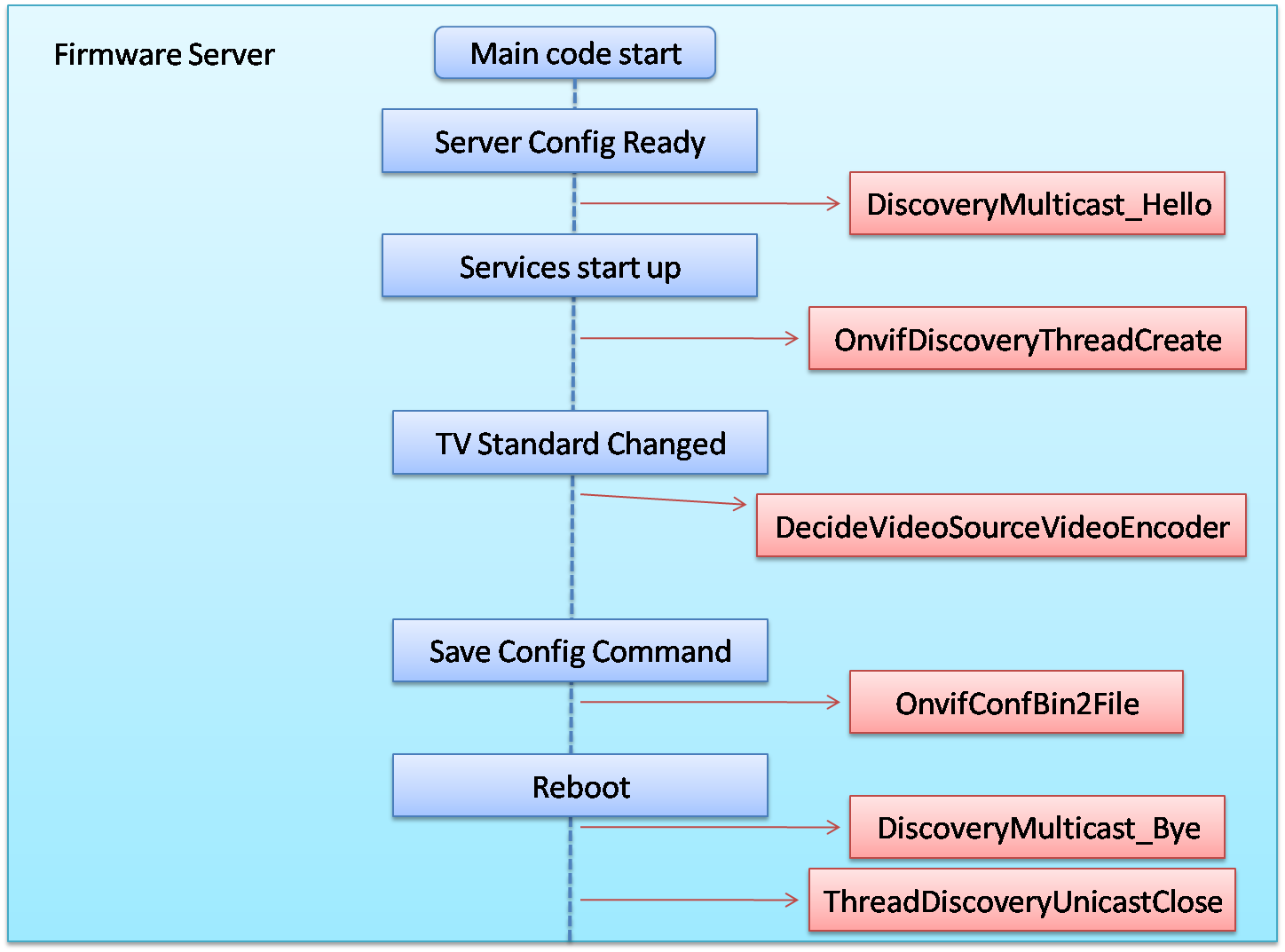
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## Introduction

ONVIF is an open industry forum for the development of a global standard for the interface of IP-based physical security products. The ONVIF specification will ensure interoperability between IP-based physical security products regardless of manufacturer. This Conformance Process Specification of the Open Network Video Interface Forum (ONVIF) defines the requirements for claiming conformance with the ONVIF specifications. It covers both conformance requirements for Network Video Transmitters, e.g. Network Cameras and Video Encoders, as well as Network Video Clients, e.g. Network Video Recorders or Video Management Software applications.

## User flow

1. Need to call the ONVIF API “DiscoveryMulticast\_Hello” in FW\_Server(aistreamer) brings up stage.
2. Need to call the ONVIF API “OnvifDiscoveryThreadCreate” in creation all kinds of thread stage.
3. When the TV standard is writeable or can be auto detected (please reference VIDEO\_TV URL command in SYSTEM CGI), it must change ONVIF configuration structure. In this time, need to call ONVIF API “DecideVideoSourceVideoEncoder” to verify Video Source and Video encoder in ONVIF configuration.
4. ONVIF have some configurations must be saved to flash, so need to call ONVIF API “OnvifConfBin2File” fulfill the save command.
5. When FW\_Server(aistreamer) want to leave, need to leave before the call ONVIF API “DiscoveryMulticast\_Bye”. And also need to call ONVIF API “ThreadDiscoveryUnicastClose” to close the thread.
6. Attention: Please every Platform owner review all about ONVIF need to implement functions.

<User flow of ONVIF>

## Config file

The config file will put the “/etc/config/onvif.conf” in run time stage. It can see the config items as below.

DISCOVERY\_MODE='0' /\* 0: Discoverable, 1: NonDiscoverable \*/

METADATAVERSION='1' /\* default start number is 1 \*/

VIDEO\_TV='2' /\* 1: NTSC, 2: PAL \*/

VIDEO\_SOURCE1='0,user0,0,0,0,0,720,576'

VIDEO\_ENCODER1='HighResolution\_MPEG4,HighResolution MPEG4,0,1,720,576,80,0,0,0,0,0,0,PT0S'

VIDEO\_ENCODER2='VGA\_MPEG4,VGA MPEG4,0,1,640,480,80,0,0,0,0,0,0,PT0S'

VIDEO\_ENCODER3='HighResolution\_JPEG,HighResolution JPEG,0,0,720,576,80,0,0,0,0,0,0,PT0S'

VIDEO\_ENCODER4='VGA\_JPEG,VGA JPEG,0,0,640,480,80,0,0,0,0,0,0,PT0S'

VIDEO\_ENCODER5='0,user0,0,1,720,576,80,0,0,0,0,0,0,PT0S'

VIDEO\_ENCODER6='1,user1,0,1,720,576,80,0,0,0,0,0,0,PT0S'

MEDIA\_PROFILE1='1,HighResolution\_MPEG4,HighResolution MPEG4,0,0'

MEDIA\_PROFILE2='1,VGA\_MPEG4,VGA MPEG4,0,1'

MEDIA\_PROFILE3='1,HighResolution\_JPEG,HighResolution JPEG,0,2'

MEDIA\_PROFILE4='1,VGA\_JPEG,VGA JPEG,0,3'

SCOPES='0,onvif://www.onvif.org/type/video\_encoder'

SCOPES='0,onvif://www.onvif.org/type/audio\_encoder'

SCOPES='0,onvif://www.onvif.org/hardware/'

SCOPES='0,onvif://www.onvif.org/name/ACD2100'

SCOPES='1,onvif://www.onvif.org/location/'

SCOPE\_LOCATION\_COUNT='1'

## APIs

### OnvifConfInit

Read ONVIF config file and convert to ONVIF structure, if there is no config file in the /etc/config/ folder, the ONVIF structure of the default value will be created. The Structure of the ONVIF prototype as below,

typedef struct {

int state; /\* Server State Configurations \*/

int tv; /\* VIDEO\_TV, TVStandard\_NTSC or TVStandard\_PAL \*/

/\* Discovery: GetDiscoveryMode, other sub items \*/

int DiscoveryMode;

char EndpointAddr[MAX\_UUID\_LEN];

int MetaDataVerion; /\* Must be saved to flash memory \*/

Acti\_Scopes Scopes;

/\* SOAP-ENV: Header's elements \*/

struct d\_\_AppSequenceType AppSequence;

/\* Get WSDLURL \*/

char WsdlUrl[64];

/\* Get Capabilities \*/

char MediaXAddr[64];

/\* StreamURI \*/

char StreamUri[128];

/\* SnapShotURI \*/

char SnapshotUri[128];

/\* DO config \*/

Acti\_RelayOutput RelayOutput[2];

/\* Date&Time:GetNTP,GetSystemDateTime \*/

char \*ntpip;

char TZString[64];

/\* Network: DNS, GetZeroConfiguration, NetworkProtocols, NetworkDefaultGateway \*/

char \*dnsip[2];

char \*LLIP;

char \*Gateway;

int HttpPort;

#ifdef SUPPORT\_HTTPS

int HttpsPort;

#endif

/\* Media configuration \*/

enum tt\_\_Mpeg4Profile ProfileType;

/\* videosources \*/

int SourceTokenCnt;

Acti\_VideoSources SourceToken[MAX\_VS\_LIST];

/\* VideoSourceConfiguration \*/

int VsCnt;

Acti\_VideoSourceConfig vsConf[MAX\_VS\_LIST];

/\* VideoEncoderConfiguration \*/

int VeCnt;

Acti\_VideoEncoderConfig veConf[MAX\_VE\_LIST];

/\* profile configuration \*/

int ProfileCnt;

Acti\_MediaProfile profile[MAX\_PROFILE\_LIST];

} tOnvifConf;

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
void OnvifConfInit (void);

#### <parameters>

None

#### <return value>

None

### soap\_handler

This function mainly capabilities can fully control gsoap and ONVIF by the Http Library. Platform owner should not need to take care it, just for reference.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
 int soap\_handler(int socket);

#### <parameters>

socket – Accepted socket descriptor by Http Library

#### <return value>

OK – Success.  
ERR – Failure.

### DiscoveryMulticast\_Hello

A device in discoverable mode MUST sends multicast Hello messages once connected to the network or sends its Status changes according to [WS-Discovery]. Otherwise, a device in non-discoverable SHALL not send [WS-Discovery] messages.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
void DiscoveryMulticast\_Hello (void);

#### <parameters>

None

#### <return value>

None

### DiscoveryMulticast\_Bye

A device in discoverable mode SHOULD send a one-way Bye message when it prepares to leave a network as described in [WS-Discovery].

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
void DiscoveryMulticast\_Bye (void);

#### <return value>

None

### OnvifDiscoveryThreadCreate

Base on [WS-Discovery] specification, CLIENT will request a Probe message through multicast/unicast at any time, the device must be create new thread to take care them.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
Int OnvifDiscoveryThreadCreate (void);

#### <return value>

OK – Success.  
ERR – Failure.

### ThreadDiscoveryUnicastClose

Close the discovery thread. If device service entered the STOP stage or system will be rebooted, the discovery thread must be closed.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
Int ThreadDiscoveryUnicastClose (void);

#### <return value>

OK – Success.  
ERR – Failure.

### DecideVideoSourceVideoEncoder

This function for special cases as the TV standard is writeable or can be auto detected. When the TV standard has changed, the video resolution capabilities and frame rate capabilities will be updated, at this time the media profile in ONVIF structure also must be updated.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
void DecideVideoSourceVideoEncoder (void);

#### <return value>

None

### OnvifConfBin2File

Prepared ONVIF config file saved to the flash. When the device receives a SAVE command, ONVIF config file should be saved to flash together with update.conf. This function provides ONVIF config structure convert into the text file.

#### <sysopsis>

#include "soapStub.h"  
#include “stdsoap2.h”  
Int OnvifConfBin2File (char \*filename);

#### <parameters>

filename – ONVIF config file name (include path)

For example, the path in /etc/config and the name of the file is onvif.conf in the Platform A.

#### <return value>

OK – Success.  
ERR – Failure.