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<b>Revision Author(s)</b>	<b>stefan berglind</b>

# Level 1

**Revision History** – see Workflow History for approvers and approval dates, and Notice for release dates

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# KreaTV 4.6.1 Release Note

## *Replaces: KreaTV 4.6*

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This document describes the KreaTV Software 4.6.1 release, which includes all features and improvements of KreaTV 4.6 and will fully replace the latter.

This release note therefore focuses on the difference between KreaTV 4.4 and KreaTV 4.6.1.

New supported set-top box models and new features have been added. Configurations and known problems are also described.

For an overview of KreaTV 4.6.1 feature status (standard/optional, GA/release candidate/Technical Preview) and compliance with third party systems, please refer to the KreaTV 4.6.1 Product Specification.

## **1. NEW SET-TOP BOX MODELS INTRODUCED IN KREATV 4.6**

- VIP2853
- VIP1113
- VIP1103

## **2. NEW FEATURES INTRODUCED IN KREATV 4.6.1**

- Power management is now available as a Technical Preview.
  - Support for various energy saving programs
  - Auto power down

## **3. NEW FEATURES SINCE KREATV 4.4**

- New set-top box model specific features
  - ZigBee RF4CE support
  - Secure Digital (SD) card
- New bootloader specific features
  - Fast boot
  - Boot splash
  - Version handling
- New media format support
  - Added support for Dolby Digital Plus (DD+) Audio
  - Added seek support for Matroska, MP3, WMA and LPCM in DLNA
- Added Verimatrix encryption support for HLS
- Added HLS parameter monitoring
- Added Internet surf support in WebKit
- Added support for HDMI On/Off signalling (CEC type)
- Added support for WebKit 2D graphics on 3D content

- Added support for CA system RSA key access
- New NPAPI browser plugin for Verimatrix error monitoring
- New Peer Messaging Service

## 4. OTHER CHANGES

- Upgrade to WebKit 534
- Upgrade SVG and embedded WebKit browser
- Media player improvements
  - Increased position range to 64 bits
  - Improved pace and position reports
  - Media buffer info
  - Start timeshift playback from any position
- Changes in media format configuration
- Changes to License File system
- Replaced telnet with SSH
- Changes in SDK structure
- Removed Bitband support
- Changes in TOI/TEI API
- Removed IIPs
- Upgrade of third party software

## 5. NEW SET-TOP BOX MODELS

KreaTV 4.6 is the first release with official support for the successors to the VIP19x3, VIP1003 and VIP1853 models.

### 5.1. VIP2853

The VIP2853 features the new STiH207 system-on-chip (SoC) and replaces VIP19x3 and VIP1853. Similar to the VIP1853 the VIP2853 set-top box has an optional slot-in hard disk. The external connectors on the VIP2853 are the same as on the VIP1853.

### 5.2. VIP1103, VIP1113

The VIP1103 and the VIP1113 are also based on the STiH207 SoC and replace the VIP1003. To attain the compact size the number of external connectors has been reduced to an absolute minimum. Both models have HDMI, Ethernet and a composite (CVBS) analog output and the VIP1113 also have a USB port.

## 6. NEW FEATURES

The following features are new in KreaTV 4.6. They are marked as release candidates during field trial of KreaTV 4.6 and 4.6.1 as they may contain undiscovered issues, but will reach official product availability (PA) status once deployed in a live environment.

## 7. MODEL SPECIFIC FEATURES

The following chapters describe new features only supported by newly added set-top box models supported in KreaTV 4.6.

### 7.1. ZigBee RF4CE Support

To enable hidden installations the VIP1113 is equipped with an RF4CE transceiver. The VIP2853 can optionally be outfitted with the same transceiver. Currently only the ZigBee remote control (ZRC) profile is supported.

### 7.2. Remote control pairing

Pairing is done the first time the STB is booted. Note that the VIP1113 can handle IR remotes and radio remotes in parallel. Because of this you are required to pair even an IR remote with the STB. The steps are identical no matter which type of remote is used.

### 7.3. Buildtime Configuration

No build time configuration needed. All pairing is handled by the KreaTV boot loader.

### 7.4. Secure Digital (SD) card support

The VIP1113 is equipped with a microSD card reader which initially is intended to be used for timeshift purposes. ARRIS is in the process of evaluating SD cards. The same limitations as per USB timeshift applies.

#### 7.4.1. Buildtime Configuration

creatv-option-sd-card

creatv-option-license::file=<path to creatv\_timeshift\_external.license>

creatv-option-dvr::storage-handling-mode=external

## 8. NEW BOOTLOADER

To support the new STB models the KreaTV 4.x bootloader is introduced. The main features are:

- STiH207 SoC support
- Large page NAND flash memory support
- RF4CE support
- Fast Boot

Fast Boot is an optimized booting procedure that is radically different from the existing boot procedure.

### 8.1. Fast Boot

The basic idea is to skip the second stage boot loader (DBL) in the boot flow as much as possible. This is done by letting the first stage boot loader (RBL) decide whether to launch the platform software directly or if the DBL is needed. The main criterion for the RBL is if there is a repackaged platform software image stored in flash. If there is then the RBL will launch it otherwise the DBL is launched.

This means that the DBL cannot be relied on to automatically download a new boot image at each reboot. Instead the platform will use the specified kernel order and splash order provided by DHCP options (for instance) and scan the update channels for new software. If new software is detected the platform will signal this to the boot loader which will start the DBL on next reboot. The following parameters are used for determining versions:

HTTP boot:

- `<KernelVersion></KernelVersion>`
- `<SplashVersion></SplashVersion>`

Bootcast:

- `bc_kernel_version`
- `bc_splash_version`

At the next reboot the RBL will launch the DBL instead and download the new boot image. The behavior is controlled through `kreatv-option-swupdate`. By default the platform manager will check for updates once per hour.

Fast boot is limited to VIP2853/VIP11x3 STB models.

## 8.2. Buildtime Configuration

# Default configuration used

`kreatv-option-swupdate:poll_interval=60,force_update=false`

# Configuring software update intervals

`kreatv-option-swupdate:poll_interval=<time in minutes between checks>`

# Forcing updates. Not recommended for use. Will emulate old-fashioned boot.

`kreatv-option-swupdate:force_update=true`

## 8.3. KreaTV Documentation

`<sdk_root>/doc/booting/general/boot_procedure.html`

`<sdk_root>/doc/booting/infocast/bootcast_info.html`

`<sdk_root>/doc/booting/methods/http_boot.html`

## 8.4. Boot splash

Because of the changes to the booting process the traditional boot progress display with dots is deprecated. Custom made boot splashes in the bitmap format are still possible. KreaTV will display error messages on screen in case of failures.

## 8.5. KreaTV Documentation

`<sdk_root>/doc/booting/general/splashscreen.html`

## 9. POWER MANAGEMENT

Power management basically adds two features:

- Auto power down (APD). This is a mechanism that puts the STB in a predefined power profile.
- Support for low power modes. A handshaking mechanism for synchronizing application and services prior to switching power profiles have been introduced.

### 9.1. Information Objects

The following information objects related to power management have been added to `ToiInformationService`:

- `CONST_POWER_APD_MAX`. Denotes the maximum timespan before APD is activated. Resolution is given in seconds.
- `CONST_POWER_APD_DEFAULT`. Denotes the default timespan before APD is activated. The value depends on which energy saving program is chosen. See below. Resolution is given in seconds.
- `CONST_POWER_LOWEST_PROFILE`. Denotes what the configured lowest power profile is.
- `CFG_POWER_APD_TIMEOUT`. Denotes the current timespan before APD is activated used by KreaTV. Setting this to zero is equal to disabling APD. Resolution is given in seconds.

### 9.2. Buildtime Configuration

#Default configuration

```
kreatv-option-powermanagement:lowest_profile=lowest_possible,scheme=auto,
power_client_limit=0
```

#Configuring the least energy consuming profile to be used by the system

```
kreatv-option-powermanagement:lowest_profile=<passive_standby | active_standby | active_standby_low | auto>
```

**Note:** Do NOT use `active_standby_low` without consulting ARRIS first!

#Configuring energy saving program

```
kreatv-option-powermanagement:scheme=<estar | pcoc | auto>
```

#Configuring the number of clients that have the opportunity to control power profile #switches

```
kreatv-option-powermanagement:power_client_limit=<Integer, 0 or larger>
```

**Note:** Only meaningful if combined with the power management license.

#Configuring the platform with the time, given in seconds, the device will wait on the network

#to become fully active before completing wakeup from passive standby.If set to zero

#network recovery is disabled and the application itself is responsible for waiting for the #network to become available.

```
kreatv-option-powermanagement:network_recovery_timeout=<Integer, 0 or larger>
```

### 9.3. KreaTV Documentation

```
<sdk_root>/doc/reference/iip_doc/kreatv-option-powermanagement_all.html
```

```
<sdk_root>/doc/platform/services/power_management.html
```

## 10. NEW MEDIA FORMAT SUPPORT

The following media formats and media format capabilities have been added in KreaTV 4.6.

### 10.1. Dolby Digital Plus (DD+) Audio format

Added support for Dolby Digital Plus (DD+, E-AC-3) audio format with support for 7.1. It is possible to playback streams with DD+ audio from all media formats/containers supported by KreaTV 4.6.

#### 10.1.1. Buildtime Configuration

creatv-option-license::file=<path to creatv\_audio\_decode\_eac3.license>

### 10.2. Matroska, MP3, WMA and LPCM seek in DLNA

Seek support has been added to Matroska files and audio only MP3, WMA and LPCM files via DLNA. In previous release only normal playback without seek capabilities was supported.

## 11. HLS ENCRYPTION

KreaTV 4.6 has support for HLS (Http Live Streaming) and HLS encryption allows playback of HLS content that is protected by a DRM system. The KreaTV DRM architecture allows concurrent conditional access systems to be used on a per-session basis.

The application is responsible for setting the content type to LiveTV or VOD using the streamer parameter HlsContentType. It's also responsible for setting the DRM system type HlsDrmType to "SecureMedia" or "Verimatrix" or "None". The appropriate CA daemon will use this information together with the encryption key messages in the HLS playlist to obtain the keys from the CA server.

HLS Encryption has the same limitations as HLS for clear stream.

### 11.1. SecureMedia

KreaTV 4.6 support for playback of encrypted HLS VOD content and encrypted HLS Live content.

#### 11.1.1. Buildtime Configuration

creatv-option-ca-securemediaservice:hlsclient, authorization-method=request\_service, config=<path to sm\_http.ini>

#### 11.1.2. KreaTV Documentation

<sdk\_root>/doc/reference/iip\_doc/creatv-option-ca-securemediaservice\_st40.html

### 11.2. Verimatrix

KreaTV 4.6 implements support for Verimatrix-encrypted HLS streams on ST-based set-top boxes. The Verimatrix ViewRight Web client requires Verimatrix VCAS3.1 server or later.

#### 11.2.1. Buildtime Configuration

creatv-option-hls-verimatrix:infile=<path to infile.ini>

#### 11.2.2. KreaTV Documentation

<sdk\_root>/doc/reference/iip\_doc/creatv-option-ca-securemediaservice\_st40.html

<sdk\_root>/doc/reference/iip\_doc/creatv-option-hls-verimatrix\_st40\_vip19x3.html

## 12. HLS PARAMETER MONITORING

KreaTV 4.6 has support for improved HLS status monitoring. A number of parameters have been added for supervision of HLS, and the supervisor application can subscribe and read these parameters using ToiMediaPlayerBase::subscribeParameter() and ToiMediaPlayerBase::getParameter().

### 12.1. KreaTV Documentation

<sdk\_root>/doc/reference/streamer\_elements/hls\_source\_element.html



<sdk\_root>/doc/platform/media/media\_player\_parameters.html

## 13. INTERNET SURF IN WEBKIT (TECHNICAL PREVIEW)

KreaTV 4.6 supports basic internet surf as part of portal in WebKit 534.

This feature is provided as a Technical Preview.

To use this feature the portal is expected to open an IFrame for the internet surf session.

The `cfg.portal.whitelisturls` information object (previously known as `config.portalurls`) specifies the list of trusted portal URLs. The browser will enter internet surf mode when opening any URL that does not match this list. Example:

```
<PortalURLs>
  <PortalURL>http://videostore.myportalserver.com/portal/start/</PortalURL>
  <PortalURL>http://videostore.myportalserver.com</PortalURL>
  <PortalURL>http://myotherserver.com</PortalURL>
</PortalURLs>
```

Here, “open” means to load a URL as a new page, HTML Frame or HTML IFrame. But merely following a hyperlink and thereby replacing the current page does not constitute an “open” operation in this sense.

When the browser opens a frame in internet surf mode, all KreaTV TOI plugins and all other NPAPI plugins are disabled.

Example, continued from above:

If the browser loads `http://videostore.myportalserver.com/portal/start/init.html`, it will enter portal mode. And if the browser loads `http://stuff.internet.com` it will enter internet surf mode (since `internet.com` is not in `cfg.portal.whitelisturls`). But if the browser follows a hyperlink from `videostore.myportalserver.com` to `stuff.internet.com` it will still be in portal mode, and TOI and other plugins will still work! This must be avoided. Care must therefore be taken not to allow any links from trusted portals to internet content.

### 13.1.1. Passing Key Events from Internet Surf Session to Portal

When a internet site is opened in an IFrame, normal sandboxing rules for HTML frames apply. This means that the portal will for example not be able to detect when a user presses EXIT or similar on the RCU to end the internet surf session and get back to the portal. To overcome this problem, the portal requires some custom method of monitoring the key presses in the internet surf session. The parameter `"passthrough_keys"` of `"kreatv-app-webkit-portal"` IIP in WebKit 531 served such a purpose, but has been removed in WebKit 534. Instead the new key monitor service in the `"kreatv-option-keyman"` IIP is intended for this. Please refer to description of the `"kreatv-option-keyman"` IIP and the `"TEI key monitoring service"` documentation in SDK manual for further information.

### 13.1.2. Limitations

- Some internet sites use the X-Frame-Options HTTP response header to guard against being opened in a Frame on an IFrame. These sites will not be compatible with the internet surf feature in WebKit in 4.6, and will fail to load.
- There is no process separation between the portal and the internet surf session. This means that a malicious internet site can force an unexpected reboot of the STB.
- Many internet browser features are missing:
  - There is no virtual keyboard
  - There is no mouse pointer
  - There is no progress bar when loading web pages
  - There are no scroll bars

- There is no custom support for highlighting the currently selected link on the web page, making navigation on some pages difficult.
  - The scrolling of a web page can only be done by jumping between the links on the web page. This means that some parts of a web page may become inaccessible.
  - Internet surf typically requires more fonts installed on the STB.
  - Internet surf typically requires more memory, it's a known issue that the STB may crash or reboot due to out of memory when doing internet surf browsing. To prevent this from happening, the "soft\_memory\_limit" parameter of "kreatv-app-webkit-portal" should be used.
- Note that this parameter is also applicable for Webkit internet surfing in Ekioh SVG browser.

### 13.1.3. Buildtime Configuration

kreatv-app-webkit-portal  
kreatv-option-keyman

### 13.1.4. KreaTV Documentation

<sdk\_root>/doc/reference/tei\_keyman\_js/interfaceTeiKeyMonitorService.html

## 14. HDMI POWER ON/OFF SIGNALLING (CEC TYPE)

KreaTV 4.6 adds limited support for CEC (Consumer Electronics Control) to interact with other HDMI CEC devices. Current KreaTV CEC support is limited to automatic power on/off and input selection.

When CEC is enabled in KreaTV a CEC compatible TV will follow the standby mode of the STB. When the STB goes to active mode it will also request the TV to select the HDMI input connected to the STB.

### 14.1.1. Limitations

1. When the STB turns the TV off, at least 4 seconds should elapse before manually turning on the TV as the STB may otherwise turn it off once again. The same applies when turning on. Note carefully that this timespan may differ between TV-models and makers.
2. The STB can only control one TV set at a time.
3. Supported communication is limited to communication from the STB to external devices and not the other way around

### 14.1.2. Buildtime Configuration

kreatv-option-hdmicec::system\_standby=true

### 14.1.3. KreaTV Documentation

<sdk\_root>/doc/reference/iip\_doc/kreatv-option-hdmicec.html

## 15. WEBKIT 2D GRAPHICS ON 3D CONTENT

KreaTV 4.6 adds support for drawing 2D graphics, such as subtitles or application graphics, on top of side-by-side or top-bottom 3D content. If configured correctly the STB will detect the 3D mode of the content and automatically signal the TV through HDMI to switch to corresponding 3D mode. All graphics is then duplicated according to the 3D mode and displayed as 2D on top of the 3D content to the viewer.

To configure the automatic 3D mode switching AVM (Adaptive Video Mode) rules should be used. A new condition <Content3dFormat> and a new action <Video3dAction> has been added.

### 15.1.1. Limitations

1. 3D in combination with Picture-In-Picture (PiP) is not supported.
2. 3D in combination with Picture-In-Graphics (PiG), i.e. not fullscreen, is not supported. Instead the same image will be displayed for both left and right eye, effectively only showing 2D video in PiG mode.
3. 3D in combination with teletext is not supported.

### 15.1.2. Buildtime Configuration

```
kreatv-option-adaptive-videomode-rules::without-defaults
kreatv-option-adaptive-videomode-rules::<path to xml file defining AVM 3d strategy rules>
```

Or use the default example 3D rules located in /etc/adaptive\_videomode/KreaTV\_3D.xml on the STB.

### 15.1.3. KreaTV Documentation

For more information on how to define AVM rules that controls 3D actions, see

```
<sdk_root>/doc/platform/services/video_output_service.html
```

## 16. CA SYSTEM RSA KEY ACCESS

KreaTV 4.6 implements an API to perform RSA operations using the RSA key pair that is present in VIP19x3, VIP18x3, VIP28x3, VIP11x3.

This feature provides support for providing certificates (STB certificate and SubCA certificate), and RSA operations using both public and private portions of the RSA key associated with the STB certificate.

### 16.1.1. KreaTV Documentation

```
<sdk_root>/doc/resources/ca_systems/motcertificate.html
```

## 17. VERIMATRIX NPAPI ERROR MONITORING

In previous KreaTV releases a Verimatrix NPAPI plugin was developed to be able to expose various Verimatrix errors to the application portal. The operator can use the plugin to display error messages for the user when there is a CA problem. Unfortunately there was some drawbacks in the interface making it hard for the application to know when the problem had recovered.

In KreaTV 4.6 the Verimatrix NPAPI plugin has been enhanced to report Verimatrix errors more accurately. The portal can then by listening for OnKeyStatusUpdated together with OnError, decide when to show or hide the CA error popup.

A new error notification is sent when setting the ECM to Verimatrix fails. This is to detect when a stream cannot be decrypted from the start due to wrong authorization as opposed to being in the clear. In both cases the key valid status remains false.

### 17.1.1. Suggested portal heuristics

If it is known that the stream is Verimatrix encrypted (ECM style, not NULL packet), an ON\_KEY\_STATUS\_UPDATED event should be raised a few seconds after starting the stream. ON\_ERROR\_OCCURED events can be considered cleared whenever ON\_KEY\_STATUS\_UPDATED toggles the event member variable, keyStatus.isKeyValid, to true. Also if ON\_ERROR\_OCCURED is raised, and keyStatus.isKeyValid is false for a few seconds during a session, or is toggled to false by ON\_KEY\_STATUS\_UPDATED during the session, then there is an error condition. If it cannot be known whether streams are encrypted or not, it is probably best to clear the error condition when a session closes to avoid false positives.

### 17.1.2. Buildtime Configuration

```
kreatv-option-ca-verimatrix: inifile=<path to verimatrix.ini>, rootcert=<path to rootcert_.pem>
```

### 17.1.3. KreaTV Documentation

```
<sdk_root>/doc/reference/tei_verimatrix_js/interfaceTeiVerimatrixObserver.html
```

```
<sdk_root>/doc/reference/tei_verimatrix_js/interfaceTeiVerimatrixKeyStatusUpdatedEvent.html
```

```
<sdk_root>/doc/reference/tei_verimatrix_js/interfaceTeiVerimatrixErrorOccurredEvent.html
```

## 18. STB PEER MANAGER

A new service “peer manager service” is introduced in KreaTV 4.6. The peer manager service is designed as a peer-to-peer message service for enabling communication between the STB and an external device (mobile phone, tablet, etc). The communication could also occur between STBs, i.e. the external device could be another STB.

The STB peer manager service supports both UDP and TCP based connections from external devices. It incorporates a plugin mechanism to improve the communication efficiency. Custom message protocol can be implemented by writing a peer manager plugin, to filter in incoming messages from the external device.

The external client needs to initiate the communication and must be aware of the IP address of the STB.

### 18.1.1. Buildtime Configuration

kreatv-option-peerman (optional: tcp\_port=xxxxx udp\_port=xxxxx or use default)

### 18.1.2. KreaTV Documentation

<sdk\_root>/doc/platform/peerman/peerman\_basics.html

<sdk\_root>/doc/platform/peerman/peerman\_tcp\_example.html

## 19. OTHER CHANGES

The following chapters describe changes and improvements to existing features.

## 20. WEBKIT 534

KreaTV 4.6 removes Ekioh WebKit 531 support and introduces a new Ekioh WebKit 534 (release 2.2.4) browser. There are some optional features existing in WebKit 534 that are currently untested by ARRIS. They can be used but come without any warranty. These features are:

- Geolocation
- Web Storage
- Web SQL
- Web Sockets
- Web Workers
- Shared Web Workers
- XPath
- Details element
- Meter element
- Progress element

### 20.1.1. Arabic Fonts Support

Both WebKit and SVG browsers in KreaTV 4.6 have support for Arabic fonts. Right-to-left is supported in both browsers, whereas shaping characters is only supported in SVG. This will be added for WebKit in a following release.

### 20.1.2. Removal of <VideoPlane> Tag

The <VideoPlane> tag has been removed in WebKit 534. Only the <video> tag should be used to place the video element within a HTML page. The <video> tag is new and defined in HTML5. For more information, please refer to the HTML5 standard.

Notes for using the <video> tag in WebKit 534:

- The "controls" attribute of the HTML5 video tag is not supported.
- The following warning message will be printed out in case a portal is still using the videoplane element: “<videoplane> is not supported, please use <video> instead”.
- There are two ways to use the HTML5 video tag:
  - use '<video src="...">' then use the HTML5 video tag method such as <video::play()> to control video playback
  - use '<video src="toi://">' then use the KreaTV TOI media player API to control media playback.
- The <VideoPlane::subtitles> attribute has been removed and has no correspondent in the <video> tag. In order to toggle subtitle display on and off, the new information object “CFG\_PORTAL\_SUBTITLES\_ENABLED” must be used.

### 20.1.3. Masteraudio for <video> tag

CFG\_PORTAL\_MASTERAUDIO defines the master audio used for application/portal to specify which volume should be considered as the global volume when controlled from the video tag in HTML/SVG.

Setting analog as master audio will impact the analog audio output, while setting decoder as master audio will impact all of the audio outputs including HDMI, SPDIF, ANALOG and VCR outputs. Any pass-through audio will not be affected by volume adjustments. If nothing is set or an invalid value is set, it will default to analog.

This only affects which audio type is adjusted when using the <video> tag volume control. No other audio setting functions are affected by this parameter.

### 20.1.4. WebKit User Agent

Default User Agent for WebKit is “Mozilla/5.0 (Linux) AppleWebKit/534.51 (KHTML, like Gecko) Ekioh/2.2.4.7-moto-mob Safari/534.51”. The User Agent for Webkit can be changed by using the “kreatv-option-is-default” IIP in the boot image configuration file, e.g. “cfg.webkit.useragent=<new user agent>”

### 20.1.5. Buildtime Configuration

Some ARRIS-specific extensions and IIP configuration parameters have been deprecated or removed when upgrading from WebKit 531 to WebKit 534. Please check the “kreatv-app-webkit-portal” IIP description and “HTML Portal Application” section in SDK documentation for further information.

## 21. SVG UPGRADE

KreaTV 4.6 upgrades the Ekioh SVG browser to Ekioh release 2.2.4. This upgrade includes for example Arabic font support. Please see the Ekioh documentation in the SDK manual for more details.

<sdk\_root>/doc/portals/svg\_portal\_applications/ekiohdoc.html

### 21.1.1. Embedded Browser Upgrade to WebKit 534

Just like the previous KreaTV release, internet surf is supported in a SVG embedded browser by the <ekioh::browser> tag in SVG. The embedded HTML browser has also been upgraded from WebKit 531 to WebKit 534.

### 21.1.2. Limitations

Please note that the parameters listed below are not supported in the IIP “kreatv-app-ekioh-portal” in this version. Please refer to the IIP description in the SDK manual for more details:

- cache
- http\_secure\_mode
- xhr\_policy

Subtitle toggling support is different in this version. The original property oipf:subtitleDisplay is not supported any more. Instead, like in the WebKit 534 browser, the new information object “CFG\_PORTAL\_SUBTITLES\_ENABLED” is used by applications to control subtitle toggling.

### 21.1.3. SVG User Agent

The default User Agent for SVG is “Ekioh v2.2.4.7-moto-mob (Jan 28 2013) r10403”. The User Agent for SVG can be changed by subparameter “svg.network.useragent” of parameter “vendor\_config” of IIP “kreatv-app-ekioh-portal” in the boot image configuration file, e.g. “kreatv-app-ekioh-portal:vendor\_config=svg.network.useragent:<new user agent>”.

### 21.1.4. Embedded Webkit Browser User Agent

The User Agent for embedded Webkit can be changed by IIP “kreatv-option-is-default” in boot image configuration file, e.g. “cfg.webkit.useragent=<new user agent>”.

### 21.1.5. Buildtime Configuration

kreatv-app-ekioh-portal

For Embedded HTML browser support in SVG:  
kreatv-option-ekioh-browsertag:soft\_memory\_limit=50000

Please check the “kreatv-app-ekioh-portal” IIP description and “SVG Portal Application” section in the SDK document for more information.

### 21.1.6. KreaTV Documentation

<sdk\_root>/doc/portals/svg\_portal\_applications/ekiohdoc.html

## 22. MEDIA PLAYER IMPROVEMENTS

### 22.1. Increased position range to 64 bits

Previously the media player in KreaTV was limited to handle positions represented by a 32-bit value. This limitation made it impossible use continuous timeshift or VOD sessions longer than 25 days. In KreaTV 4.6 the supported position range has therefore been increased to a 64-bit value representation. To be backward compatible with the old interface for retrieving position, i.e. `ToiMediaPlayerBase::getPosition()` and `ToiMediaPlayerBase::ON_POSITION_CHANGED` event, those have been left as-is and are still limited to 32-bit positions. To fully utilize 64-bit positions, new interfaces for retrieving positions and buffer information have to be used. These are described in the following sections.

#### 22.1.1. KreaTV Documentation

<sdk\_root>/doc/reference/toi\_js/interfaceToiMediaPlayerBase.html

### 22.2. Improved pace and position reports

As part of introducing support for 64-bit positions a new pace and position reporting interface has been added. All information regarding pace and position for the current playback session is now reported in a single struct containing position, position range, requested pace, target pace and current pace.

#### 22.2.1. Position range

The position range is a new concept that defines the current seekable position range valid for `ToiMediaPlayer::playFromPosition()` in the current playback session. Common examples:

<i>Live</i>	[-1, -1]
<i>DVR playback</i>	[0, asset duration]
<i>VOD playback</i>	[0, VOD duration]
<i>Live+Timeshift</i>	[timeshift buffer start, timeshift buffer end]

#### 22.2.2. Requested, Target and Current pace

The pace report has been expanded to also include latest requested pace and target pace. This makes UI implementations and application decisions more convenient.

<i>Requested</i>	Latest pace requested by the application, e.g. by using <code>play()</code>
<i>Target</i>	The target pace the platform is trying to achieve, based on limitations of the stream source (e.g. VOD server) or the hardware (e.g. decoder)
<i>Current</i>	The current (actual) playback pace, based on e.g. the Presentation Time

Stamp (PTS) in the stream

### 22.2.3. KreaTV Documentation

See API documentation for `ToiMediaPlayerBase::getPositionInfo()` and `ToiMediaPlayerBase::ON_POSITION_STATUS_CHANGED` in

`<sdk_root>/doc/reference/toi_js/interfaceToiMediaPlayerBase.html`

### 22.3. Media buffer info

In addition to the improved position reports there is a new interface for reporting buffer information, also supporting 64-bit values, called `ToiMediaPlayerBase::getMediaBufferInfo()`. The buffer information "bufferCapacity", "bufferUsed", "bufferStartPosition" in `ToiTimeshiftInfo` which can be retrieved through `ToiMediaPlayer.getTimeshiftInfo()` are now deprecated. Information on the range and saturation of the buffer can be received via this new interface. The saturation level is a value between 0 and 1 representing the fullness of the buffer. The calculation is either size- or time-based, depending on the buffer allocation type. The media session has media buffer info when the capability `CAPABILITY_MEDIA_BUFFER` is set.

#### 22.3.1. KreaTV Documentation

See API documentation for `ToiMediaPlayerBase::getMediaBufferInfo()` and `ToiMediaPlayerBase::ON_MEDIA_BUFFER_STATUS_CHANGED` in

`<sdk_root>/doc/reference/toi_js/interfaceToiMediaPlayerBase.html`

### 22.4. Start timeshift playback from any position

In previous KreaTV releases, starting playback from the timeshift buffer when playing live was limited to using either *pause* or *rewind*. As *rewind* only starts from the end of the timeshift buffer when buffering is active this limitation is quite inconvenient when using continuous timeshift. KreaTV 4.6 introduces support for entering the timeshift buffer from live playback using `ToiMediaPlayer::playFromPosition()` directly, regardless if the timeshift state is stopped or buffering. The position range valid for `ToiMediaPlayer::playFromPosition()` can be retrieved using `IToiMediaPlayerBase::getPositionInfo()` previously described in the position range definition above.

#### 22.4.1. KreaTV Documentation

`<sdk_root>/doc/reference/toi_cpp/interfaceIToiMediaPlayer.html`

## 23. CHANGES IN MEDIA FORMAT CONFIGURATION

### 23.1. Transport protocol and media format handling decoupled

In previous KreaTV releases, transport protocol handling and media format handling was spread between the streamer source element and the framing element. Now the streamer framework has been refactored to a full decoupled framework for transport protocol and media format support. Three generic source elements have been added which are responsible for handling HTTP, FILE and DLNA transport protocols. A plugin mechanism has been introduced into these generic source elements wherein each plugin is responsible for handling one media format.

This has some impact on the streamer configuration and a typical media format configuration may now look like the following example.



### 23.1.1. Buildtime Configuration

# Transport protocol support

```
kreatv-option-mediasource-protocol-http
kreatv-option-mediasource-protocol-file
kreatv-option-mediasource-protocol-dlna
```

# Format handler support

```
kreatv-option-mediasource-container-asf
kreatv-option-mediasource-container-ts
kreatv-option-mediasource-container-ps
kreatv-option-mediasource-container-matroska
kreatv-option-mediasource-container-mp4
kreatv-option-mediasource-container-wav
kreatv-option-mediasource-elementary-mp3
kreatv-option-mediasource-elementary-aac
kreatv-option-mediasource-elementary-pcm
kreatv-option-wma
kreatv-option-wmv
```

### 23.1.2. KreaTV Documentation

<sdk\_root>/doc/reference/streamer\_elements/overview.html

## 24. CHANGES IN LICENSE FILE SYSTEM

The license file version has been upgraded from version 1 to version 2 in KreaTV 4.6. Older licences files of version 1 before KreaTV 4.6 will not be applicable to KreaTV 4.6.

Each license starting from 4.6 is restricted to work only within one software release. E.g. a licence file valid for 4.6 will not be valid for 4.7.

If a license is invalid or missing, the corresponding feature will be disabled and a message is printed in the log:

“Note: No license for timeshift.external”

### 24.1.1. Buildtime Configuration

```
kreatv-option-license::file=<path to license>
```

## 25. REPLACED TELNET WITH SSH

Since telnet has no security, a deployed STB running software which includes telnet is vulnerable to attack. In KreaTV 4.6 the SSH IIP is enhanced and now is a qualified replacement for the Telnet tool. The operator can use SSH in the STB for secure data communication, remote shell services or command execution, etc.

There are two ways to use SSH. One is password based access and another is RSA key based access.

### 25.1.1. Password based access

A DES encrypted password is specified as an argument to the kreatv-tool-ssh IIP, and the user (must be “root”) will receive a prompt to enter the password when logging in to the secure shell of STB.

### 25.1.2. RSA key based access

For RSA key based access, an RSA public key file is specified as an argument to the kreatv-tool-ssh IIP, and the user will login to the secure shell of STB successfully if the correct RSA private key is available on the host PC.

### 25.1.3. RSA key example

To generate a key, on your host PC do the following

```
cd ~/.ssh
```

```
ssh-keygen -f mystbkey -C 'A comment' -N '' -t rsa -q
```

This will generate a public key (mystbkey.pub) and a private key (mystbkey). Specify the public file in the boot image configuration:

```
kreatv-tool-ssh::key=<path_to>/mystbkey.pub
```

Access the STB from the host PC with:

```
ssh root@<STB IP address>
```

Or from any other PC by explicitly specifying the private key:

```
ssh -i mystbkey root@<STB IP address>
```

#### 25.1.4. Limitations

Multi-user management is not supported. Only root is supported.

#### 25.1.5. Buildtime Configuration

# Password based access:

```
kreatv-tool-ssh::password=<DES encrypted password string>,port=<custom port>
```

# RSA key based access

```
kreatv-tool-ssh::key=<PATH_TO_KEY>
```

#### 25.1.6. KreaTV Documentation

```
<sdk_root>/doc/reference/iip_doc/kreatv-tool-ssh_st40.html
```

## 26. CHANGES IN SDK STRUCTURE

The top level of the SDK contained too many directories, therefore a cleanup and rearrangement of the directory structure has been made.

#### Moved to /dist

```
/sdk, /3pp, /bin, /config, /include, /noarch, /host, /st40
```

#### Moved to /tools

```
/rpms -> /tools/linux
```

```
/sst -> /tools/splash-screen-toolkit
```

```
/windows -> /tools/windows
```

#### Moved to /examples

```
/examples -> /examples/c++
```

```
/toi_js -> /examples/webkit-portal
```

#### Top level directories unchanged

```
/build_scripts, /doc, /products
```

## 27. REMOVED BITBAND SUPPORT

Starting from KreaTV 4.6, the support for the discontinued BitBand Visio VOD server and Maestro Streaming Gateway has been removed. It is still possible to play VOD assets from BitBand Visio server by using “rtsp://” protocol, but the playback effect is not guaranteed.

## 28. TOI/TEI API CHANGES

This chapter describes API changes that have not been discussed as part of new features or other changes. Apart from the changes mentioned in this document, there are a number of minor changes and improvements that will not be described here. A complete changelog of the TOI API is available in the KreaTV documentation:

`<sdk_root>/doc/reference/toi_cpp/release_note_toi_page.html`

For detailed documentation on specific API functions:

`<sdk_root>/doc/reference/index.html`

### 28.1.1. New API for downloading and assigning posters to assets

The API for downloading and assigning posters to assets have changed due to the WebKit upgrade. XHR can no longer be used. Instead `ToiStorageFile.download()` should be used.

`<sdk_root>/doc/reference/toi_js/interfaceToiStorageFile.html`

`<sdk_root>/doc/portals/examples/samples_poster.html`

### 28.1.2. Power management API

This release contains the new power management API. The API is contained in:

- `IToiPowerControl`
- `IToiPowerControlObserver`
- `IToiPlatformService`

Please read the user documentation carefully when integrating it.

### 28.1.3. New Net Service APIs

This release contains a number of new Net Service interfaces (`ToiNetConfiguration`, `ToiNetEthernetDevice`, `ToiNetService`, `ToiNetConfigurationSession`, `ToiNetIpDevice`, ...) These will eventually replace the existing net configuration Information Service objects in a future KreaTV 4.x release. But for now this should be considered Technical Preview and should not be used in live environments.

### 28.1.4. Upcoming producer interface will replace existing distribution support

In next release (KreaTV 4.7) the distribution support will be moved from the media session interface to a dedicated producer interface to support a variety of distribution and transcoding scenarios. As a result, the related methods and data structures will be removed from the media session interface. For the same reason, the distribution functionality in `ToiMediaService` and the notification `ToiMediaService::ON_DISTRIBUTOR_STATUS_CHANGED` will be changed to reflect the new producer framework.

### 28.1.5. Deprecated API functionality

The following API functions are marked as deprecated in KreaTV4.6. Deprecated functions still work as expected but alternative replacement API is preferred if not stated otherwise. Functions marked as deprecated may also be removed in future KreaTV releases.

#### **`ToiPlatformService::setStandby()`**

This call will silently be ignored if called when `ToiPowerControl` has been build-time configured for control by one or more applications. However `ToiPowerControl` is subject to change and should not be integrated until next release.

#### **`ToiMediaService::createSessionInstance()`**

Replaced by use of the Consumer session. Use `ToiMediaService::createConsumerInstance()`, `consumer.Open()` and then `ToiMediaService::openSession()` to get equivalent behavior.

#### **`ToiMediaPlayerBase::ON_POSITION_CHANGED`**

Limited to 32 bit values and the same information using 64 bit values can be obtained by using `ToiMediaPlayerBase::ON_POSITION_STATUS_CHANGED`

#### **`IToiInformationService::GetObjectToFile()`**

Use `IToiInformationService::GetObject()` instead.

**IToiInformationService::SetObjectFromFile()**

Use IToiInformationService::SetObject() instead.

**ToiMediaSession::TYPE\_EXTENDED**

No longer used in favor of TYPE\_CONSUMER

**ToiMediaSession::getAssetId()**

This method is not reliable since several assets may be used simultaneously in the same session. Use ToiMediaService::enumerateRecorders() instead.

**ToiDlnaContentDirectoryService::getCdsOperationManager()**

Replaced by ToiDlnaService::getDlnaOperationManager()

**ToiMediaPlayerBase::SOURCE\_BITBAND**

Official bitband support has been removed.

**ToiMediaPlayerBaseTimeshiftInfo::bufferCapacity****ToiMediaPlayerBaseTimeshiftInfo::bufferUsed****ToiMediaPlayerBaseTimeshiftInfo::bufferStartPosition**

Position is limited to 32bit values and the same information using 64bit values can be obtained from ToiMediaPlayer::getMediaBufferInfo()

**ToiMediaPlayerBaseStreamInfo::playTime**

The same information can be obtained from either ToiMediaPlayerBase::getPositionInfo() or ToiMediaPlayer::ON\_POSITION\_STATUS\_CHANGED

**TeiVerimatrixService::setConfiguration()**

No longer supported and will be removed in next release

**TeiVerimatrixService::setRootCertificate()**

No longer supported and will be removed in next release

**28.1.6. Removed previously deprecated API functionality**

The following API functionality has been deprecated for several releases and has now been removed.

**ToiInformationService::CFG\_LOCAL\_TIMEZONE**

Replaced by ToiInformationService::CFG\_LOCALE\_TIMEZONE instead

**ToiMediaPlayerBase::ON\_ACTIVE\_COMPONENT\_CHANGED**

Replaced by ToiMediaPlayerBase::ON\_STREAM\_INFO\_CHANGED which provides the same information.

**ToiMediaPlayerBase::getActiveComponents()**

Replaced by ToiMediaPlayerBase::getStreamInfo() which provides the same information.

**29. REMOVED IIPs****29.1.1. IIP kreatv-option-disable-36khz-ir-receiver**

Since the 36kHz IR receiver is only available on STi7109-based set-top boxes and we no longer support those models, the IIP “kreatv-option-disable-36khz-ir-receiver” has been removed from KreaTV 4.6.

### 29.1.2. kreatv-option-time-updater

This IIP does not work and is removed.

### 29.1.3. kreatv-option-ca-securemedia

The kreatv-option-ca-securemedia IIP has been merged with the kreatv-option-ca-securemediaservice IIP. Only use the kreatv-option-ca-securemediaservice IIP from now on.

### 29.1.4. kreatv-option-ui-langs

Obsolete and removed.

## 30. THIRD PARTY SOFTWARE UPGRADES

Many third party software components have been upgraded to newer versions for better functionality and performance. Notably the Ekioh SVG browser is upgraded and Ekioh WebKit 531 browser is upgraded to Ekioh WebKit 534 browser. Third party software versions can be seen from the OpenSource Notice, see [http://<sdk\\_root>/doc/portals/svg\\_portal\\_applications/open\\_source\\_notice.html](http://<sdk_root>/doc/portals/svg_portal_applications/open_source_notice.html).

## 31. KNOWN ISSUES AND LIMITATIONS

### 31.1. Local re-encryption support VIP2853 and VIP11X3

Support for local re-encryption has been temporarily disabled for the VIP2853 and VIP11X3 models. The reason is that the STiH207 has hardware based support which ARRIS wants to take advantage of and to avoid having to migrate assets.

### 31.2. Recovery from passive standby VIP2853 and VIP11X3

It takes approximately seven seconds for the STB to recover from passive standby after pressing the standby button. This is not a bug.

### 31.3. Verimatrix libraries with support for external root certificates not delivered for VIP2853 and VIP11X3

The Verimatrix libraries supporting external root certificates for VIP2853 and VIP11X3 has not been received by Motorola yet. It will be integrated in upcoming releases. Customers that are eager to try out Verimatrix support on mentioned hardware can try and configure Verimatrix to use embedded root certificates. Please see the Verimatrix documentation.

### 31.4. Timeshift on USB sticks and SD card

There is a large variety of USB-sticks and SD cards on the market and the quality varies dramatically. The memory performance is not only dependent on the maximum read-/write-speed, the consistency in data rate is also very important. Some memories have shown to have sufficient average data rate to support the feature but failed intermittently due to inconsistent actual data rate and low worst case response time. Some memories have also shown to have a short life time and degraded performance over time.

#### General recommendations

- Do not stress I/O operations by rapidly discarding and starting timeshift buffering
- Flash memory devices should have at least 30-40% free space to avoid performance degradation. Do not underestimate this recommendation.
- Use the performance check utility available in KreaTV IToiStorageDevice::runPerformanceCheck(). This is no guarantee but might give an indication that the memory is not performing well.

#### USB sticks

- USB 2.0 or higher

#### SD Cards

- class 6 or higher

### 31.5. USB Dongle

When using an usb-dongle, the NYX RCU is supported by default. If an user need to use the MRCU180 RCU, it is required to build with rcmaps option plus "usbdongle\_rcu\_kreatvir\_37" as external parameter, i.e. adds such line to build image config file: kreatv-option-rcmaps:external=irmap\_default.conf,external=usbdongle\_rcu\_kreatvir\_37.conf.

Note: It's not possible to use an USB dongle together with a NYX RCU and MRCU180 RCU at the same time. Some button in RCU will be mapped to some undesired keycode to STB.

### 31.6. Infocast Latency in IGMP v2 Network

KreaTV is capable of running in both IGMP v3 and IGMP v2 networks, and will run with the following behaviour by default: detect and use IGMP v3 if router and other network devices support it, and fall back to use IGMP v2 if a router or network device which is only IGMP v2 capable is detected. It is known that the fallback latency from IGMP v3 to IGMP v2 in the STB will possibly be up to 1 minute. This may result in the STB getting the Whitelist and other information objects from Infocast server a bit late, which in turn may cause the white screen to be visible during the startup of the browser.

This can be avoided by forcing KreaTV to always use IGMP v2. Do this by adding the following to the bootimage config file:

kreatv-option-procfs:sys/net/ipv4/conf/eth0/force\_igmp\_version=2

### 31.7. Other notes

- It is not possible to start a recording playback until about 4 seconds after it has been created. (ARRIS Internal Bug KREATV-14039)
- It's not possible to playback the recorded asset if the recording was interrupted by power lost when recording length was less than 30s.(ARRIS Internal Bug KREATV-5979)
- It's possible that up to 30s data will be lost after reboot if power cycling a recording DVR.(ARRIS Internal Bug KREATV-5589)
- Scheduled booking entries may not be saved if power cycled STB within 3 seconds after those booking entries are created by KreaTV Scheduler Server. (ARRIS Internal Bug KREATV-13622)
- USB hubs are not officially supported, since it might affect performance. (ARRIS Internal Bug KREATV-12609)
- Edgeware Reflex Server may report wrong pace to STB when doing FFWD to particular stream. This will result in STB showing wrong pace on GUI but the playback will be fine. (ARRIS Internal Bug KREATV-11215)
- It's a know issue that video settings will get lost when doing upgrade from KreaTV 3.8.5 to KreaTV 4.x. However it's OK to upgrade from KreaTV 3.8.3 to KreaTV 4.x. (Internal Bug KREATV-6953).

## 32. DEFINITION OF SEVERITY FOR BUGS

These definitions are based on the quality assurance standard TL 9000.

Bug issue severity	Bug definition
Critical	<p>Conditions that severely affect the primary functionality of the product and because of the business impact to the customer requires non-stop immediate corrective action, regardless of time of day or day of the week as viewed by a customer on discussion with the organization such as:</p> <ol style="list-style-type: none"> <li>1. Product interoperability (total or partial outage).</li> <li>2. A reduction in the capacity capability, that is, traffic/data handling capability, such that expected loads cannot be handled.</li> <li>3. Any loss of emergency capability (for example, emergency 911 calls).</li> <li>4. Safety hazard or risk of security breach.</li> </ol>
Major	<p>Product is usable, but a condition exists that seriously degrades the product operation, maintenance or administration, etc., and requires attention during pre-defined standard hours to resolve the situation. The urgency is less than in blocking situations because of a lesser immediate or impending effect on problem performance, customers and the customer's operation and revenue such as:</p> <ol style="list-style-type: none"> <li>1. Reduction in product's capacity (but still able to handle the expected load).</li> <li>2. Any loss of administrative or maintenance visibility of the product and/or diagnostic capability.</li> <li>3. Repeated degradation of an essential component or function.</li> <li>4. Degradation of the product's ability to provide any required notification of malfunction.</li> </ol>
Minor	<p>Other problems of a lesser severity than critical or major such as conditions that have little or no impairment on the function of the system.</p>

### 33. RESOLVED ISSUES

The tables below present the number and title of the issues in ARRIS internal issue database. The information presented is kept to a minimum in order to simplify the presentation. In order to get more information regarding the specific issue please contact ARRIS.

Issue or CR No.	Severity	Found in software version	Fixed in software version	Description
KREATV-4434/ KREATV-9651	Minor	4.3.0.11	4.6.burlywood.1	Video halts for a while the first time you do pause/play to enter the timeshift buffer
KREATV-7382	Minor	4.4.popeye.1	4.6.burlywood.1	DHCP user class is not handled by STB
KREATV-9742	Major	4.4.firebrick.5	4.6.burlywood.1	DVR: Subtitle of a stream being recorded and played has timing and refresh problems
KREATV-11272	Major	4.4.firebrick.6	4.6.burlywood.1	STB sometimes doesn't register presses from the remote control with NEC protocol
KREATV-15037	Major	4.4.firebrick.9	4.6.burlywood.1	Some streams cannot be viewed using SecureMedia + HLS VOD. When they are opened, sometimes platform restarts.
KREATV-15038	Major	4.4.firebrick.9	4.6.burlywood.1	When some streams are played with SecureMedia HLS VOD, it pauses automatically after a while.
KREATV-11293	Major	4.6.burlywood.1	4.6.burlywood.2	Webkit restarts when zapping in teletext channel.
KREATV-13970	Major	4.6.burlywood.1	4.6.burlywood.2	During activity in background, sometimes focus indicator is incomplete in Webkit.
KREATV-14669	Major	4.6.burlywood.1	4.6.burlywood.2	Webkit hangs when using non-integer value in a javascript translate.
KREATV-14529	Major	4.6.burlywood.1	4.6.burlywood.2	Access to ARRIS Broadband Certificate not implemented for STi207
KREATV-15020	Major	4.6.burlywood.1	4.6.burlywood.2	No Arabic font shaping in Webkit.
KREATV-15229	Major	4.6.burlywood.1	4.6.burlywood.2	HLS playlist from Envivio server not working correctly when used with



				encryption.
KREATV-15262	Major	4.6.burlywood.1	4.6.burlywood.2	Dolby Digital Plus - No audio when playing MP4 asset with EAC3 codec through HTTP and DLNA.
KREATV-15401	Major	4.6.burlywood.1	4.6.burlywood.2	When reaching end or beginning while trick playing a 3D asset, state is not changed to paused.
KREATV-15408	Major	4.6.burlywood.1	4.6.burlywood.2	HLS/SecureMedia: MAC address must be lower case and no colons to be compliant with SecureMedia/Dreampark
KREATV-15721	Major	4.6.burlywood.1	4.6.burlywood.2	STB crashes when kreatv-tool-cpload is included in bootimage
KREATV-15856	Major	4.6.burlywood.1	4.6.burlywood.2	Package 'binutils' is required
KREATV-15843	Major	4.6.burlywood.1	4.6.burlywood.2	HDMI-CEC not working on specific Samsung TV (model UA40C7000WR)
KREATV-15877	Major	4.6.burlywood.1	4.6.burlywood.2	Expected commands like "arrow up", tab completion, "ps" etc do not work in SSH console if you only include SSH iip
KREATV-16014	Major	4.6.burlywood.1	4.6.burlywood.2	Ekioh SVG does not support 16-bit image pixel depth
KREATV-16024	Major	4.6.burlywood.1	4.6.burlywood.2	need build_vip1 lx3.sh in SDK
KREATV-16077	Major	4.6.burlywood.1	4.6.burlywood.2	SVG porting layer spams pixmap allocation info in log
KREATV-16186	Major	4.6.burlywood.1	4.6.burlywood.2	Customer SVG portal hangs the graphics rendering
OKKRTVFW-549	-	-	-	Pairing file disappears during fast boot  <i>* The fix of this issue requests a FW upgrade on VIP1113 to 4.4.2. or newer version.</i>
KREATV-17245	Critical	4.6.burlywood.2	4.6.burlywood.3	Wrong network mask was set when enabling fast boot for VIP28X3 and VIP11X3.

KREATV-17045	Major	4.6.burlywood.2	4.6.burlywood.3	Inserting iframe with URL returning JSON page results in playback of the src URL by player.
KREATV-16008	Major	4.6.burlywood.1	4.6.burlywood.3	16khz audio does not work on hdmi (but works on scart).
KREATV-16004	Major	4.6.burlywood.1	4.6.burlywood.3	Ekioh causes very high cpu load when no date/time is set on STB.
KREATV-16644	Major	4.6.burlywood.2	4.6.burlywood.3	VOD Edgeware Orbit: If playing one stream fails, and then after that, all played streams have grey screen until reload of portal
KREATV-16680	Major	4.6.burlywood.2	4.6.burlywood.3	High speed zapping between HTTP MP4 assets causes streamer crash
KREATV-16879	Major	4.6.burlywood.2	4.6.burlywood.3	Infocast config missing all support for newer hardware
KREATV-14752	Major	4.6.burlywood.1	4.6.burlywood.3	SecureMedia implementation lacks support for ES level encryption
KREATV-15967	Major	4.6.burlywood.1	4.6.burlywood.3	SVG browser plugin InvokeDefault broken XBUGZ 7331
KREATV-16329	Major	4.6.burlywood.1	4.6.burlywood.3	XHR sockets not closed in SVG
KREATV-17443	Major	4.6.burlywood.1	4.6.burlywood.4	VOD: Position/Range interpreted are not matching the ones sent from server
KREATV-15050	Critical	4.4.popeye.1	4.6.burlywood.4	Local re-encrypted assets recorded on GEARSTICK or 4.4 can't be played back on later KREATV releases (4.4 and 4.6)
KREATV-17516	Major	4.6.burlywood.3	4.6.burlywood.4	Teletext interfaces "toggleHold(),toggleZoom(),toggleReveal()" are missing in NPAPI plugin
KREATV-17652	Critical	4.6.burlywood.3	4.6.burlywood.4	Platform crashes on boot with certain splash images
KREATV-17682	Critical	4.6.burlywood.3	4.6.burlywood.4	Dolby Digital Certification - Two Channel Downmix - No Lt/Rt mode for DD+ streams
KREATV-17836	Critical	4.6.burlywood.3	4.6.burlywood.4	Dolby Digital Certification - No AC3 audio available when using passthrough mode on STiH207 boxes in combination with certain receivers

KREATV-17684	Critical	4.6.burlywood.3	4.6.burlywood.4	Dolby Digital Certification - Loudness matching - Mpeg-1 L2 audio output mismatch for DD and DD+
KREATV-17840	Major	4.6.burlywood.3	4.6.burlywood.4	SDK Inforcast and bootiamge: Fast boot doesn't work for VIP2853 and VIP11x3.

## 34. UNRESOLVED ISSUES

Issue or CR No.	Severity	Found in software version	Description
KREATV-4144	Minor	4.3.0.11	DVR, picture jumping back and forth at some positions when rewinding in asset.
KREATV-7754	Major	4.4.popeye.1	STB rebooted due to Out of memory during kms1624 playback over the weekend.
KREATV-15403	Minor	4.6.burlywood.1	PIP: Incorrect video output after changing video modes repeatedly
KREATV-16022	Major	4.6.burlywood.1	Intermittent loss of audio during HDMI plug fest on VIP1113
KREATV-16724	Major	4.6.burlywood.1	Kasenna trickplay REW issues
KREATV-17794	Major	4.6.burlywood.3	Webkit 534 cuts words containing special characters erroneously XBUGZ 7377

## 35. COMPATIBILITY

Hardware	Firmware	Comment
VIP1903 VIP1963 VIP1003	3.11 or newer	Running firmware version 3.15 or newer is recommended although not required.
VIP1853	3.17 or newer	
VIP1903C VIP1963C	3.12 or newer	Running firmware version 3.18 or newer is recommended although not required.
VIP1103 VIP2853	4.4.1 or newer	
VIP1113	4.4.2 or newer	

CA System	Type	Platforms
Verimatrix v 2.3.1 and 3.0 (ECM and HLS)	HW Accelerated AES	All
Verimatrix v 2.3.1 and 3.0 (ECM and HLS)	HW Accelerated AES	All
SecureMedia(ECM and HLS)	Encryptonite ESAM 2.1	All

System	Description	Standard/Optional
<b>Encoders</b>		
Modulus	SE-4100 series, SE-5100 series, SE-6000 series	S
Tandberg	Openstream 5.1, both for redirecting to IP VOD and to DVB-C VOD	S

## 36. EXTERNAL INTERFACES AND PROTOCOLS

Interface	Version	Supported by	Added in Version
KreaTV TOI/C++	2.2.2b	KreaTV Application Platform	4.6.1
KreaTV TOI/JS	2.2.2b	KreaTV Portal Application	4.6.1

## 37. TOOL CHAIN

Architecture	Tool Chain Version
VIP1003/VIP19x3/VIP1853 (STi7105),VIP2853/VIP11x3(STiH207)	3.0.0

## 38. SERVER VERSIONS

Server	Version
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## 39. RECOMMENDED H264 ENCODER SETTINGS

We recommend these settings for H264 stream encoders to get the best possible performance on ARRIS VIP set-top boxes:

- 2 IDR frames/second
- CPB = max 1700 ms
- Random Access Indicators must be enabled to support trick play for recorded content.

## 40. LICENCES

Starting from KreaTV 4.2 the concept of licenses was introduced. These are not distributed in the standard software kits but are available separately as they are customer and build specific. Licenses bundled to hardware might be included in the standard software kit in future releases of KreaTV 4.6.

The following licenses exist:

- kreatv\_audio\_decode\_aac.license
- kreatv\_audio\_decode\_ac3.license
- kreatv\_audio\_decode\_eac3.license
- kreatv\_audio\_decode\_mp3.license
- kreatv\_ca\_cgmsa.license
- kreatv\_ca\_macrovision.license
- kreatv\_dlna\_dmp.license
- kreatv\_dlna\_dmr.license
- kreatv\_dlna\_dms.license
- kreatv\_power\_management.license
- kreatv\_timeshift\_external.license
- kreatv\_video\_decode\_h264.license
- kreatv\_video\_decode\_mpeg2.license
- kreatv\_video\_decode\_wmv3.license

## 41. AVAILABILITY

KreaTV 4.6 has been developed, tested and verified in the KreaTV 4.6 generic environment. System verification is done using browser based portal applications. KreaTV 4.6 can be made available upon request to other parties pending approval from Product Management for purposes such as integration, lab-testing or other purposes if mutually agreed.

## 42. OPEN SOURCE SOFTWARE ATTRIBUTION

The KreaTV SDK includes a number of Open Source Software components. Use of OSS comes with obligations, of which a common one is the obligation to show attribution information to the end user. This attribution information is usually an aggregate of license texts and explicit acknowledgements. It also informs end users of where to write to request source code for OSS that has such source code redistribution obligations.

When a boot image is created using a recent KreaTV SDK release, the build system will automatically assemble all attribution information for those IIPs enabled in the configuration file. The final boot image will include a file in its file system, /usr/share/license/opensourcenotice, generated to one of the formats HTML, SVG or plain text. The end user must be able to navigate to see the contents of this file (the attribution information). It should be reachable within a few steps from the top level screen / main menu.

For browser specific examples of implementation, see the chapter “Open Source Notice” in the KreaTV Documentation, under the “Portals” tab and the SVG and HTML browser sections.

## 43. GETTING HELP

To get assistance with your ARRIS product or solution, or to access learning materials, a valid service level agreement (SLA) is required.

**Technical Assistance Center (TAC)** provides access to technicians 24 hours a day, 7 days a week for all products. Contact the TAC by email at [kreatvsupport@motorola.com](mailto:kreatvsupport@motorola.com).

Contact the TAC regarding urgent severity cases at 888-944-HELP (888-944-4357) or dial direct at +1-8477254011.