KreaTV 4.7 Release note

KreaTV 4.7.honeydew.3

Replaces: KreaTV 4.6.1

1. Overview

This document describes the KreaTV Software 4.7 release listing new supported set-top box models and features that have been added. Configurations and known problems are also described.

For an overview of KreaTV 4.7 feature status (standard/optional, GA/release candidate/Technical Preview) and compliance with third party systems, please refer to the KreaTV 4.7 Product Specification.

This release note focuses on the increment from KreaTV 4.6.1. When not stated otherwise, features and improvements from KreaTV 4.6.1 are carried on to KreaTV 4.7.

1.1 New set-top box models introduced in KreaTV 4.7

- VIP2952

1.2 New features introduced in KreaTV 4.7

- HDMI CEC volume control
- DTCP-IP available as a Technical Preview
- Youtube Leanback support in Webkit available as a Technical Preview
- RTSP with UTC time reference

1.3 Other changes

- Upgrade to WebKit 536
- Upgrade SVG and embedded WebKit browser
- SSH IIP change
- Upgrade of third party software

2. New set-top box models

KreaTV 4.7 is the first release with official support in KreaTV for the new VIP2952 hardware model.

2.1 VIP2952

The VIP2952 features the powerful Broadcom 7241 system-on-chip (SoC). Similar to the VIP1853 and VIP2853 the VIP2952 set-top box has an optional slot-in hard disk. The external connectors on the VIP2952 are the same as on the VIP2853.

3. New Features

The following features are new in KreaTV 4.7. They are marked as release candidates during field trial of KreaTV 4.7 as they may contain undiscovered issues, but will reach official product availability (PA) status once approved in a field test environment.

3.1 VIP2952 specific features

The following sections describe new features only supported by newly added set-top box model VIP2952 introduced in KreaTV 4.7.

3.1.1 1+4 DVR Support

Benefit from VIP2952's high performance, 1 channel live watch + 4 channels DVR streams simultaneously are supported.

Buildtime Configuration

```
kreatv-option-dvr::max-recorders=4
```

Tweaking of this feature can be done by setting

`kreatv-option-dvr::disk-commit-interval=10000` (default value is 5000)

3.1.2 OLED

Some models of VIP2952 series support OLED display on STB frontpanel.

3.1.3 DirectFB graphics interface

DirectFB is used on VIP2952 to replace Kreatvgfx as the graphics interface.

Buildtime Configuration

Webkit:

```
kreatv-app-webkit-portal-directfb::startinfront
kreatv-app-webkit-portal-directfb::ntp_wait_limit=5
kreatv-app-webkit-portal-directfb::cache=0
kreatv-hal:hal=dfb
kreatv-app-directfb-subtitlerenderer:start
```

SVG:

```
kreatv-app-ekioh-portal-directfb::startinfront
kreatv-option-directfb-broadcom-driver
kreatv-hal:hal=dfb
kreatv-app-directfb-subtitlerenderer:start
```

3.1.4 EXT4 file system

EXT4 filesystem format is chosen for this hardware, while JFS is still used on other hardware models.

3.1.5 CSS3 3D / OpenGL

CSS3 3D transforms are hardware accelerated through OpenGL. This is supported by Webkit 536, but testing has been very limited on this feature. Please note that 3D transforms in WebKit are associated with a separate license.

3.2 HDMI CEC volume control

HDMI CEC volume control lets the STB remote control change or mute audio volume on an HDMI connected TV set. The implementation is based on the Remote Control Pass Through defined in Supplement 1 CEC 13.13 of the HDMI Specification.

3.2.1 New HDMI service

With KreaTV 4.7 an HDMI Service is introduced to gather HDMI functionality to one place i.e.:

- The new HDMI CEC volume control.
- The HDMI functionality previously provided by the AudioOutput service. Methods in AudioOutput for HDMI are still available but deprecated and will be removed in a future release.
- The HDMI CEC Standby feature that was implemented in the 4.6 project has been re-implemented within the new HDMI service.

3.2.2 Mapping keys and “Press and Hold” behavior

It's the application's responsibility to map the keys on RCU of STB to Volume up/down and Mute functionality of TV set. It's also the application's responsibility to send <User Control Pressed> messages repeated within specific interval to fulfill Press and Hold behavior defined in HDMI CEC Remote Control Pass Through feature.

3.2.3 Providing OSD Name to TV Set

A new Information Service (IS) object, `CFG_CEC_OSD_NAME`, is available to set the OSD (On Screen Display) name of STB. This means that the STB OSD name can be configured at build time through default IS object, and also at run time by setting a value for the object via Information Service.

The value stored in the CFG_CEC_OSD_NAME object is transmitted to the TV when the TV queries the STB with CEC message <Give OSD Name>.

3.2.4 Buildtime Configuration

- HDMI CEC is enabled on the hardware level for all STBs. Note there is no build time configuration for this.
- HDMI CEC standby feature is disabled by default for supported STB models. But it can be turned on by adding the following into the boot image configuration file:
  `kreatv-option-hdmiconfig:cec_system_standby=true`
- HDMI CEC Volume Control feature is disabled by default for supported STB models. But it can be turned on by adding the following into the boot image configuration file:
  `kreatv-option-hdmiconfig:cec_remote_control_passthrough=true`

3.2.5 KreaTV Documentation

`<sdk_root>/doc/iip_doc/kreatv-option-hdmicec.html`
`<sdk_root>/doc/platform/services/hdmi_service.html`

3.3 Experimental Youtube Leanback support

The feature is defined as “the ability to run the YouTube Leanback interface from within a portal UI”.

The feature shall provide a good end user experience and be perceived as functionally complete, but it is implemented as a Technical Preview.

3.3.1 Limitations

The solution is not certified with YouTube.

Only MP4 stream format is supported.

In the standalone WebKit Browser, the YouTube Leanback site actively prevents loading in an html <iframe>.

In order to integrate YouTube Leanback into an SVG portal UI, the Leanback site is loaded in an embedded Webkit browser using the SVG <browser> tag.

3.3.2 Buildtime Configuration

```
kreatv-option-mediasource-container-mp4
```

3.4 DTCP-IP

DTCP-IP is short for Digital Transmission Content Protection over Internet Protocol, a specification for copy protection of copyrighted content that is transferred over digital interfaces in home networks that adhere to IP. Under this specification, digital content can be shared securely between devices in a user's home but not shared with third-parties outside the home network. Using an authentication scheme, DTCP-IP allows the user to designate devices in the home network as trusted destinations that can transfer data back and forth, but DTCP-IP will not allow the content to be transmitted over the Internet to be shared outside of the home network.

This feature is provided as a Technical Preview.

3.4.1 Use Case

Whole home DVR

- One STB acts as a DTCP-IP capable server and allows DTCP-IP capable devices such as other STB's to play its recorded content over DLNA. Sharing of live content is also a possibility.
- A STB acts as a DTCP-IP capable client and plays recorded content from another STB. Playing of live content is also a possibility.

3.4.2 Limitation

DTCP-IP is expected to work on newer generation STBs, i.e. VIP11x3, VIP2853 and VIP2952, but not on VIP19x3, VIP1003 or VIP1853.

3.4.3 Buildtime Configuration

```
kreatv-option-license::file=<path to kreatv_dtcpip.license>
kreatv-option-dtcpservice:server_port=<custom port>
```
(this is optional)

3.4.4 KreaTV Documentation

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

3.5 RTSP with UTC time reference

Support KreaTV rtsp session that handles UTC timestamp correctly.

3.5.1 Background

KreaTV 4.7 introduces support for RTSP with UTC time reference. This is in addition to the existing support for NPT time reference. The feature is based on RFC2326.

A possible use case for this feature is TVOD (Television Video On Demand) and TSTV (TimeShifting TV) where programs on a channel can be played using RTSP by giving a start and stop time in absolute time.

3.5.2 Limitation

This feature is limited to Espial's VOD server Mediabase 10.1 (previously known as Kasenna).

3.5.3 KreaTV Documentation

```
<sdk_root>/doc/reference/streamer_elements/rtsp_source_element.html
<sdk_root>/doc/platform/media/media_player_parameters.html
```

4. Other Changes

The following chapters describe changes and improvements to existing features.

4.1 WebKit 536

KreaTV 4.7 upgrades the HTML browser to Ekioh WebKit 536 (release 2.2.7.3). This replaces Ekioh Webkit 534 which was introduced by project KreaTV 4.6.

4.1.1 Features

The Ekioh Webkit 536 integration in KreaTV 4.7 has the following feature highlights:

- Performance increase compared to KreaTV 4.6
    - Added hardware accelerated graphical compositing
    - JIT is enabled
    - Hardware accelerated CSS3 2D transforms on all target STB models
    - Added support for requestAnimationFrame API
- CSS3 3D transforms hardware accelerated through OpenGL (only applicable for VIP2952 which has OpenGL support).
- Small increment in html5 score.

4.1.2 Limitations

Hardware accelerated compositing uses graphic memory so the amount of reserved graphical memory may need to be increased in the bootimage configuration. Acceleration is enabled by default but can be disabled at bootimage build time (by `kreatv-app-webkit-portal:vendor_config=browser.compositing.enabled:false`).

The use of JIT gives a boost to JavaScript execution to the cost of increased memory (RAM) usage, the increase is portal application dependent.

4.1.3 Buildtime Configuration

The buildtime configuration parameters are compatible with WebKit 534. Please check the “kreatv-app-webkit-portal” IIP description and “HTML Portal Application” section in SDK documentation for further information.

4.1.4 KreaTV Documentation

Please see the Ekioh documentation in the SDK manual for more details.
`<sdk_root>/doc/portals/html/ekioh_webkit_doc.html`

4.2 SVG Upgrade

KreaTV 4.7 upgrades the Ekioh SVG browser to Ekioh release 2.2.7.3.

4.2.1 Notable features in new version of SVG

It is now possible to activate Selenium web driver for automated tests and performance measurements. Activation is done by a configuration parameter in the ekioh config file. This feature is not for deployment and not expected to be verified in system test. If this feature becomes crucial as a test tool we may add requirements for it at a later stage.

4.2.2 Buildtime Configuration

`kreatv-app-ekioh-portal`

Please check the "`kreatv-app-ekioh-portal`" IIP description and "SVG Portal Application" section in the SDK manual for more information.

4.2.3 KreaTV Documentation

Please see the Ekioh documentation in the SDK manual for more details.
`<sdk_root>/doc/portals/svg_portal_applications/ekiohdoc.html`

4.3 SSH IIP change (backward incompatible)

4.3.1 Background

In KreaTV 4.6, telnet was replaced by SSH to enhance security. But there is still a security issue if default values are used. Users of KreaTV 4.6 should be aware that default values shall not be used.

In KreaTV 4.7 the ssh iip parameters are required to be explicit. Default values are not used. Now the behavior of the iip parameters is:

- At least one of the access methods should be specified: key or password
- If no access method is specified, SSH server installation will fail when building

4.3.2 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>
```

4.3.3 KreaTV Documentation

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

4.4 Removed IIPs

4.4.1 IIP kreatv-option-toi2

`kreatv-option-toi2` is deprecated.

4.5 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 534 browser is upgraded to Ekioh WebKit 536 browser. Third party software versions can be seen from the OpenSource Notice, see <sdk_root>/doc/portals/svg_portal_applications/open_source_notice.html

4.6 TOI changes between KreaTV 4.6.1 and KreaTV 4.7

4.6.1 Versions

Release	Identity	TOI version
KreaTV 4.7	KreaTV4.7.honeydew.3	2.2.36a3 (2013-09-19)
KreaTV 4.6.1	KreaTV4.6.1.cornsilk.2	2.2.2b (2013-06-27)

Any TOI change in subsequent maintenance releases of KreaTV 4.7 will be versioned as 2.2.36a<x> where x=2,3, …

If you use any of the optional interfaces known as TEI these may also have changed. You are encouraged to compare the IDL files for the interfaces that are applicable to your configuration.

4.6.2 New interfaces

The following interfaces are new in KreaTV 4.7 compared to KreaTV 4.6.1:

- ToiDiscoveryService
- ToiHdmiService
- ToiMediaProducer
- ToiNetBridgeDevice

4.6.3 Modified interfaces

The below interfaces are modified in KreaTV 4.7 compared to KreaTV 4.6.1. As envisaged when releasing KreaTV 4.6 a dedicated media producer interface has now replaced the distributor support in the media session interface.

Interface	Changes
ToiAssetManagerService	Added properties • PROPERTY_INFO_CLEARCONTENT • PROPERTY_INFO_MEDIAPROFILE • PROPERTY_INFO_LANGUAGES
ToiAudioOutputConfiguration	The following are deprecated (use corresponding method in ToiHdmiService instead) • TToiHdmiConnectionStatus • TToiHdcpStatus

	• TToiManufacturerInfo • TToiBinary • TToiHdmiSinkInfo • getHdmiSinkInfo() Added field HdcpStatus in TToiHdmiSinkInfo.
ToiChannelService	Added properties • PROPERTY_CLEARCONTENT • PROPERTY_MEDIAPROFILE • PROPERTY_LANGUAGES Added methods • setProperties() • removeProperties()
ToiDlnaContentDirectoryService	getOperationObjectResult() now allows large IPC messages
ToiInformationService	Added Platform Objects • CFG_MEDIA_AUDIO_PRIORITYORDER • CFG_AUDIOOUTPUT_DOLBYVOLUME_ENABLED • CFG_MEDIA_TELETEXTSUBTITLING_VERTICALADJUSTMENT • CFG_MEDIA_TELETEXTSUBTITLING_TRANSPARENCY • CFG_MEDIA_CLOSEDCAPTION_PREVIEWPOSITION • CFG_MEDIA_CLOSEDCAPTION_PREVIEWTEXT • CFG_MEDIA_CLOSEDCAPTION_PREVIEWENABLED • CFG_CEC_OSD_NAME Added Application Objects • CFG_PORTAL_STARTURL • CFG_PORTAL_TIMELIMIT Added System Objects • VAR_CAPABILITIES_TIMESHIFT • CONST_ARCHITECTURE_DEVICE Deprecated objects • CFG_ARCHITECTURE_TARGET. Use CONST_ARCHITECTURE_DEVICE instead. • CFG_ARCHITECTURE_BOOTIMAGECOMPATIBILITY • CFG_ARCHITECTURE_DBLCOMPATIBILITY • VAR_MEDIA_TIMESHIFTBUFFER_AVAILABILITY. Use VAR_CAPABILITIES_TIMESHIFT instead.
ToiMediaService	ON_PRODUCER_STATUS_CHANGED event has replaced ON_DISTRIBUTOR_STATUS_CHANGED
ToiMediaPlayerBase	Added constants • POSITION_FRAME_FORWARD • POSITION_FRAME_BACK • CAPABILITY_ADVANCE_FRAME Added Bit 8 (CAPABILITY_ADVANCE_FRAME) to capabilityMask

ToiMediaService	Added constants • REASON_COMMAND_ADVANCEFRAME_FORWARD • REASON_COMMAND_ADVANCEFRAME_BACKWARD • REASON_ERROR_STREAM_PARSING_FAILED Removed TToiDistributorState Added PLAYER_AUDIO to TToiPlayerType TToiProducerInfo has replaced TToiDistributorInfo Added methods • createProducerInstance() • enumerateProducers() has replaced enumerateDistributors() • cancelTask() Removed methods • createSessionInstance() • enumerateDistributors()
ToiMediaSession	Removed • TToiDistributionId • TToiDistributionIdSequence • TToiDistributionProperty • TToiDistributionPropertySequence • TToiDistributionInfo Removed methods • enableDistribution() • setDistributionProperties() • disableDistribution() • getDistributionInfo() • getDistributionIds() Removed constants • TYPE_DISTRIBUTOR • TYPE_EXTENDED • PROPERTY_DISTRIBUTION_PROTOCOL_TYPE • PROPERTY_DISTRIBUTION_DRM_TYPE • PROPERTY_DISTRIBUTION_CLIENT_MAC_ADDRESS • PROPERTY_DISTRIBUTION_TRANSCODING_AUDIO_LANGUAGE • PROPERTY_DISTRIBUTION_TRANSCODING_DVS_ENABLED • PROPERTY_DISTRIBUTION_STARTPOSITION • PROPERTY_DISTRIBUTION_TIMESHIFT_ASSET Added constants • TYPE_PRODUCER
ToiNetConfiguration	Added • NET_DEVICE_TYPE_BRIDGE to TToiNetDeviceType • booleans IsEnabled and IsReady to TToiNetDeviceInfo • TToiNameServerSequence • TToiSearchPathSequence • TToiDnsInfo

	Added methods • getDnsInfo()
ToiNetConfigurationSession	Added methods • setEnabled()
ToiNetIpDevice	Added • TToiInterfaceIdSequence • ADDRESS_ACQUISITION_LINK_LOCAL • TToiAddressFamily • TToiScope • serverIpAddress to ToiNetPiDeviceDhcpStatus • addressFamily to ToiNetIpDeviceInterfaceInfo • scope to ToiNetIpDeviceInterfaceInfo Added to ToiNetIpDeviceNetStatistics • bytesSent • bytesReceived • packetsSent • packetsReceived • errorsSent • errorsReceived • unicastPacketsSent • unicastPacketsReceived • discardPacketsSent • discardPacketsReceived • multicastPacketsSent • multicastPacketsReceived • broadcastPacketsSent • broadcastPacketsReceived • unknownProtoPacketsReceived Added methods • getInterfaces()
ToiNetMocaDevice	Added • maxPhyRate to ToiNetMocaDeviceMocaLocalNodeStatus • transmittedPacketCount to ToiNetMocaDeviceMocaRemoteNodeStatus Changed type* from long to long long in TToiMocaRemoteNodeStatus struct • ReceivedPacketCount • ReceivedUncorrectablePacketCount
ToiNetService	Added events • ON_DEVICE_ENABLED_STATUS_CHANGED • ON_DEVICE_READINESS_CHANGED • ON_DHCP_RENEWAL_ATTEMPT_COUNT_CHANGED • ON_DHCP_RENEWAL_SUCCESS_COUNT_CHANGED

ToiPlatformService	Added • REMOVE_BOOKINGS to TToiResetFlag. • TToiDatabaseFlag • TToiDatabaseType • TToiTime • ToiPlatformServiceDatabaseInfo Added methods • getDatabases()
ToiResourceService	Added • RESOURCE_TRANSCODER Modified TToiActivityType • ACTIVITY_PRODUCER has replaced ACTIVITY_DISTRIBUTOR • ACTIVITY_CONSUMER has replaced ACTIVITY_STANDALONE
ToiSoftwareObserver	Changed notifications • OnAddRefResponse() • OnReleaseResponse() They now take a IToiSoftwareService::TToiIpInfoSequence parameter instead of a IToiSoftwareService::TToiIpList
ToiStorageDevice	Added • TToiHealth Methods changed to not support internal storage devices • mountPartition() • unmountPartition()
ToiStorageService	Added notifications • ON_DEVICE_HEALTH_CHANGED

5. Known issues and limitations

5.1 No YouTube Leanback certification

The feature is considered a technical preview.

5.2 Local re-encryption is not supported by VIP2952

Support for local re-encryption is not available for the VIP2952 models in KreaTV 4.7.

5.3 Macrovision and Teletext signals conflict in an analog video output

Macrovision copy protection pulses could interfere with Teletext if they're transmitted in the same VBI lines of the video signal on analogue video outputs (SCART/S-Video/CVBS). On VIP2952 Macrovision pulses supersede Teletext and they can be interpreted as valid Teletext by some existing decoders under some circumstances, resulting in corrupted displays. On VIP2853 and VIP11x3 Teletext supersedes Macrovision pulses disturbing or even eliminating the Macrovision copy protection.

It's not recommended to use the VBI teletext feature (kreatv-option-teletextvbi) together with Macrovision. Instead, a NPAPI browser plugin should be used for displaying teletext data as graphics (kreatv-option-npapi-teletext) if Macrovision is enabled.

5.4 Other notes

- It's not possible to get drop-down menu in ComboBox due to a Webkit bug.
- USB timeshift feature is supported by KreaTV, but the performance and quality is dependent of the USB device used.
- When upgrading from KreaTV 3.x releases it is recommended to first upgrade to KreaTV 4.4 and after that upgrade to KreaTV 4.7. By doing this intermediate step you can avoid problems sometimes seen with STB settings stored in flash.
- Infocast example configuration files use Motorola bootcast IDs and need to be modified to work with ARRIS branded STBs.

5.5 Definition of severity for bugs

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

Bug issue severity	Bug definition
Critical	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: Product interoperability (total or partial outage). A reduction in the capacity capability, that is, traffic/data handling capability, such that expected loads cannot be handled. Any loss of emergency capability (for example, emergency 911 calls). Safety hazard or risk of security breach.
Major	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: Reduction in product's capacity (but still able to handle the expected load). Any loss of administrative or maintenance visibility of the product and/or diagnostic capability. Repeated degradation of an essential component or function. Degradation of the product's ability to provide any required notification of malfunction.
Minor	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.

5.6 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-20351	Critical	4.6.1.cornsilk.2	4.7.honeydew.1	VIP1113: Audio noise when zapping
KREATV-20354	Critical	4.6.1.cornsilk.2	4.7.honeydew.1	VIP1113: Audio disappears on HDMI in some cases
KREATV-18883	Major	4.6.1.cornsilk.2	4.7.honeydew.1	STi7105 based boxes: Graphics issues when using 1080p render/displaybuffers in 50fps.
KREATV-20682	Major	4.6.1.cornsilk.2	4.7.honeydew.2	RF input hangs and repeats at high CPU load.

5.7 Unresolved Issues

Issue or CR No.	Severity	Found in software version	Description
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-18285	Minor	4.6.1.cornsilk.2	Graphical glitches when modifying size of renderbuffer.
KREATV-18713	Major	4.7.honeydew.1	VIP2952: HLS playback of Securemedia encrypted content not restored after passive standby. Zapping needed to recover.
KREATV-15852	Minor	4.7.honeydew.1	VIP2952: Distorted picture when switching video mode from or to 576p on some TV-sets.
KREATV-13377	Minor	4.7.honeydew.1	Some IR keyboard key presses generate wrong characters.

6. 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	
VIP2952	4.5 or newer	

CA System	Type	Platforms
Verimatrix – ECM use case	VCAS 2.2.1 VCAS 2.3.1 VCAS 2.4.1 VCAS 3.0 VCAS 3.1	All
Verimatrix – HLS DRM use case	VCAS 3.0 VCAS 3.1	All
SecureMedia - ECM and HLS DRM use cases	Encryptonite ESAM 2.1 Encryptonite ESAM 2.3	All

System	Description	Standard/ Optional
Encoders		
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

7. Supported build servers

- CentOS release 6.2 (Final)
- CentOS release 6.3 (Final)
- CentOS release 6.4 (Final)
- Fedora release 12 (Constantine)
- Fedora release 13 (Goddard)
- Fedora release 14 (Laughlin)
- Fedora release 15 (Lovelock)
- Fedora release 16 (Verne)
- Fedora release 17 (Beefy Miracle)

8. External Interfaces and Protocols

Interface	Version	Supported by	Added in Version
KreaTV TOI/C++	2.2.36a3	KreaTV Application Platform	4.7
KreaTV TOI/JS	2.2.36a3	KreaTV Portal Application	4.7

9. Toolchain (SDK++ only)

Architecture	Tool Chain Version
VIP1003/VIP19x3/VIP1853 (STi7105),VIP2853/VIP11x3(STiH207)	4.0.0
VIP2952(BCM7241)	2.0.2

10. Server Versions

Server	Version
Infocast server	3.1

11. 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.

12. Licenses

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 4.7.

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

13. Availability

KreaTV 4.7 has been developed, tested and verified in the KreaTV 4.7 generic environment. System verification is done using browser based portal applications. KreaTV 4.7 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.

14. 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.

15. 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 TAC.Helpdesk@arrisi.com.

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

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