



Personal Continue Watching Solution

2.9

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It's smarter, it's safer. It's VO.


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1 Introduction

This guide provides an overview of the Personal Continue Watching (PCW) feature, as well as best practice recommendations for its implementation in client applications.

PCW aims to boost customer engagement by enabling customers to easily continue watching contents previously started, and by promoting next available episodes of seasons being followed.

PCW is personalized to the individual user level (i.e. profile) as opposed to the account level to provide a highly personalized service.

The feature includes the following:

- **Next to Watch:** Returns a list of contents that includes content items the profile began watching but did not complete, as well as the next available episode of each series that the profile has been following. This feature creates a continuous experience between visits.
- **Resume Watching:** Allows the profile to continue watching a specific content item previously started from the point at which they last stopped watching. The feature also provides the profile's viewing information for a specified content item, i.e. the percentage of the content item already watched.
- **Already Seen:** Indicates whether the profile has completed watching each of a list of specified content items.
- **Automatic Next Episode:** Enables the app to automatically play the next episode as soon as the play of the previous episode is completed.

1.1 In this Guide

This guide includes the following chapters:

Topic	Content
2 Version Information	Provides information on changes made to the guide in this version.
3 Feature Description	Describes the Personal Continue Watching feature.
4 Operations	Describes configurations in the Personal Continue Watching feature.
5 Application Developer Guide	Describes how to apply Personal Continue Watching related service capabilities in the client application.
6 RiGHTv Content Definition	Describes how content should be defined in RiGHTv to enable PCW to operate.



Topic	Content
7 PCW Service Monitoring	Describes how to monitor the PCW service.
8 Architecture	Describes the PCW architecture.

2 Version Information

This topic describes changes made to this document since the previous release.

This chapter includes the following sections:

2.1 What's New

2.1.1 Version 2.9

Add the feature You Also Visited to view a list of content already visited in external OTTs. See [3.5 You Also Visited](#).

Add the following endpoints to support the You Also Visited feature: See [5 Application Developer Guide](#)

- *GET pcw/ottviews*
- *DELETE pcw/ottviews/{id}*
- *DELETE pcw/ottviews/{id}/pinned*
- *DELETE pcw/ottviews/{id}/pinned*

Add configuration parameter *offlineExpirationTimeForOTTViews*. After this time content items are removed from the You Also Visited list. See [4 Operations](#)

2.1.2 Version 2.8 SR1

Added *ratingName* and *ratingLevel* parameters in the response of *GET pcw/viewingPositions* to filter the content available in Continue Watching carousel by parental rating level and to enable enforcing entering a PIN in the client application to view certain content.

See [5.2.1 Display Continue Watching Lineup](#)

2.1.3 Version 2.8

Added support for content aggregation when configured:

- Resume watching continues on the content from the provider that was most recently watched.
- Added the configuration parameter *universalIdAggregation* to support content aggregation for Automatic Next Episode. See [4.1.3 Central Configuration Properties](#)
- Added query parameter *seriesUniversalId* to *GET /viewingPositions* to support content aggregation and filter results by series.
- Added query parameter *universalId* to *GET //viewingPositions* to support content aggregation for the viewing position of content.
- Added query parameter *seasonUniversalId* to *GET //viewingPositions* to support content aggregation for the viewing position of episodes in a season.

See [5 Application Developer Guide](#)



2.1.4 Version 2.7 SR2

Added the parameter *useExternalProgramId* in the Configuration to enable using the external program ID for timeshifted content. See [4.1.3 Central Configuration Properties](#)

Supported from RiGHTv 9.1 SR34.

2.1.5 Version 2.7 SR1

The following parameters were added to the Central Configuration in MongoDB. Each parameter represents the maximum length of time (minutes) that an offline job can run before an alert is sent to the logs.

- offlineAddNewEpisodeNpvrMaxTime
- offlineAddNewEpisodeTstvMaxTime
- offlineAddNewEpisodeVodMaxTime
- offlineCleanupVodMaxTime
- offlineCleanupTstvMaxTime
- offlineCleanupNpvrMaxTime

See [4 Operations](#)

Added the following monitoring metrics for offline jobs.

- offline_job_execution_time_newEpisode_VOD
- offline_job_execution_time_newEpisode_TSTV
- offline_job_execution_time_newEpisode_nPVR
- offline_job_execution_time_cleanupVOD
- offline_job_execution_time_cleanupTSTV
- offline_job_execution_time_cleanupnPVR

See [7 PCW Service Monitoring](#).

2.1.6 Version 2.7

Added parameter *filterExcludedEverywhere* in the [configuration](#). When set to *true*, excluded content is not returned in the viewing history using *GET /viewingPositions/{contentID}* or *GET /viewingPositions/viewType=viewing-history*. See [5 Application Developer Guide](#)

2.1.7 Version 2.6

There were no changes in this version.

2.1.8 Version 2.5

There were no changes in this version.

2.1.9 Version 2.4

Add support for deployment with Kubernetes. See [4 Operations](#)

2.1.10 Version 2.3

There were no changes in this version.

2.1.11 Version 2.2

Updated the [4 Operations](#) section with:

- configuration file details
- log details

Added the [8 Architecture](#) section.

2.1.12 Version 2.1

In this version the following new features were added:

- Cleanup was added for personal recordings and VOD. See [4.2 Cleanup](#) for details.
- Support for filter the Continue Watching lineup by genre. See [5.2.1 Display Continue Watching Lineup](#) for details.

2.1.13 Version 2.0

In this version the following new features were added:

- Support for timeshifted content.
- Support for personal recordings.
- The *viewSource* parameter was added to *GET /viewingPositions* to identify the source of viewed content.
- [5.2.4 Display Continue Watching Lineup Either by Episodes or Content](#) for episodes only or for content only.

2.2 Deprecation

No deprecations were performed since the previous version.

3 Feature Description

This chapter describes the Personal Continue Watching feature.

The user must be logged into both RiGHTv and COMPASS to use the PCW feature.

PCW is supported for personal recordings on the profile level. For more information see the Personal Recording Solution.

This chapter includes the following sections:

- [3.1 Next to Watch](#)
- [3.2 Already Seen](#)
- [3.3 Resume Watching](#)
- [3.4 Automatic Next Episode](#)
- [3.5 You Also Visited](#)

3.1 Next to Watch

The Next to Watch feature returns a list of contents that includes content items the profile began watching but did not complete, as well as the next available episode of each series that the profile has been following. This feature creates a continuous experience between visits.

Feature	Description
Content Items Returned	<p>The Next to Watch feature returns personalized lists of contents that include:</p> <ul style="list-style-type: none"> • VOD, personal recordings (for NPVR 1.0) and timeshifted content and episodes that the profile previously began watching but did not complete. • The next episode to be watched of each VOD series that the profile has watched an episode of if available in the catalog. If the profile has watched the latest available episode of a series, the next episode will be returned as soon as it becomes available.
Definition of Viewing Completion	<p>The Operator can define globally the percentage of a content item or episode's duration that the profile must have watched for the viewing of that content item or episode to be considered complete.</p> <p>For VOD and timeshift content, if an asset chapter was defined in RiGHTv called <i>CreditStart</i> indicating the start of credits, with a value, viewing until this chapter can be used to indicate viewing is complete. Use the RiGHT VOD API <i>createAsset</i> and set <i>chapter.name</i> to <i>CreditStart</i>. See RiGHT VOD API documentation for details.</p>



Feature	Description
Returned Information	<p>The following information is returned to the client app for each content item returned:</p> <ul style="list-style-type: none"> Content information including parental rating information. Watched status of the content item (new, in progress, completed). The position reached by the profile during the last viewing session. Total duration of the content item. Percentage of duration watched by the profile. The source of the viewed content (timeshifted TV, personal recording, VOD). The last time the content was viewed in ISO 8601 format.
Filters	<p>A range of filters can be applied to limit which contents are included in the Next to Watch list returned.</p> <ul style="list-style-type: none"> Include only contents that the profile is entitled to watch according its parental rating level. Include only specific contents (by content ID). Include only contents viewed from a specific source (VOD, personal recordings and/or timeshifted TV). Include only specific content types (content or episodes). Include only content belonging to specific genre.
Services Supported	<ul style="list-style-type: none"> VOD Timeshifted content Personal recordings
Content Ordering	<p>The most recently viewed content items are listed first.</p>
Unavailable Content Exclusion	<p>Content no longer available in the Operator's catalog is not returned by Next to Watch lists.</p>
Device Independence	<p>Which content items are listed, and the order in which they are listed, are not dependent on the device on which they were viewed or on the device on which the Next to Watch list is being displayed.</p>

Feature	Description
Support for Content Aggregation	<p>When content aggregation is configured in the Service Delivery Platform, and the <i>seriesUniversalId</i> filter is provided, the next-to-watch episode presented will be the representative content for the next episode based on the priorities set in the configuration. If the next episode is missing from the highest priority content provider, the content will be provided from the next content provider in the list based on the priorities set.</p> <p>For more information on configuring Content Aggregation see the Content Aggregation for RiGHTv Integration Guide.</p>

3.2 Already Seen

The Already Seen feature indicates whether the profile has completed watching each of a list of specified content items.

Whereas the Next to Watch feature returns the next episode to be watched for each series the profile is following, the Already Seen feature provides the profile's viewing information on episodes already watched.

Feature	Description
Content Items Supported	Already Seen indication is provided for the following content types: <ul style="list-style-type: none"> • VOD content and episodes • Timeshifted content • Personal recordings
Returned Information	The following information is returned to the client app for each content item returned: <ul style="list-style-type: none"> • Content information including parental rating information. • Watched status of the content item (new, in progress, completed). • The position reached by the profile during the last viewing session. • Total duration of the content item. • Percentage of duration watched by the profile. • The source of the viewed content (timeshifted TV, personal recording, VOD). • The last time the content was viewed in ISO 8601 format.
Services Supported	<ul style="list-style-type: none"> • VOD • Timeshifted content • Personal recordings
Content Ordering	The most recently viewed content items are listed first.
Device Independence	The Already Seen status information returned for each content item is independent of the device on which the content item was last viewed and of the device currently in use.

Feature	Description
Support for Content Aggregation	<p>When content aggregation is configured in the Service Delivery Platform, and the <i>universalId</i> filter is provided, returns the content and viewing information for the representative content.</p> <p>When content aggregation is configured in the Service Delivery Platform, and the <i>seasonUniversalId</i> filter is provided, returns the content and viewing information for the representative episode in the season.</p> <p>Supported for VOD content only.</p> <p>For more information on configuring Content Aggregation see the Content Aggregation for RiGHTv Integration Guide.</p>

3.3 Resume Watching

The Resume Watching feature allows the profile to continue watching a specific content item previously started from the point at which they last stopped watching. The feature also provides the profile's viewing information for a specified content item, i.e. the percentage of the content item already watched.

Feature	Description
Content Items Supported	<p>Duration watched status information and the ability to resume watching from the last watched point are supported for the following content types:</p> <ul style="list-style-type: none"> • VOD content and episodes • Timeshifted content • Personal recordings
Returned Information	<p>The following information is returned to the client app for each content item returned:</p> <ul style="list-style-type: none"> • Content information including parental rating information. • Watched status of the content item (new, in progress, completed). • The position reached by the profile during the last viewing session. • Total duration of the content item. • Percentage of duration watched by the profile. • The last time the content was viewed in ISO 8601 format.
Services Supported	<ul style="list-style-type: none"> • VOD • Timeshifted content • Personal recordings



Feature	Description
Device Independence	The duration watched status information returned for each content item, and the point from which a content item resumes playing, are independent of the device on which the content item was last viewed and of the device currently in use.

3.4 Automatic Next Episode

The Automatic Next Episode feature enables the app to automatically play the next episode as soon as the play of the previous episode is completed.

Feature	Description
Content Items Supported	Automatically playing the next episode is supported for the content type - episodes.
Returned Information	<p>The following information is returned to the client app for each content item returned:</p> <ul style="list-style-type: none"> • Content information for the next available episode including parental rating information. • Watched status of the next available episode (new, in progress, completed). • The position reached by the profile during the last viewing session. • Total duration of the episode. • Percentage of duration watched by the profile. • The last time the content was viewed in ISO 8601 format.
Services Supported	<ul style="list-style-type: none"> • VOD • Timeshifted content • Personal recordings
Device Independence	The duration watched status information returned for each content item, and the point from which a content item resumes playing, are independent of the device on which the content item was last viewed and of the device currently in use.

Feature	Description
Support for Content Aggregation	<p>When content aggregation is configured in the Service Delivery Platform, and the <i>universalIdAggregation</i> filter is set to true, the automatic next episode played will be the representative content for the next episode based on the priorities set in the configuration. If the next episode is missing from the highest priority content provider, the content will be provided from the next content provider in the list based on the priorities set.</p> <p>For more information on configuring Content Aggregation see the Content Aggregation for RiGHTv Integration Guide.</p>

3.5 You Also Visited

The You Also Visited feature allows the profile to view a list of content already visited in external OTTs.

Content is automatically removed from the You Also Visited list, by default every 72 hours (configurable). Content can be pinned to prevent it being removed from the You Also Visited list.

Feature	Description
Content Items Supported	You Also Visited is support for VOD movies and series.
Returned Information	<p>The following information is returned to the client app for each content item returned:</p> <ul style="list-style-type: none"> • Content information including parental rating information. • The last time the content was viewed in ISO 8601 format. • Indication of whether the content is pinned.
Services Supported	VOD
Content Ordering	The most recently viewed content items are listed first.
Device Independence	The You Also Visited status information returned for each content item is independent of the device on which the content item was last viewed and of the device currently in use.

4 Operations

This chapter describes deployment, configurations and logs in the Personal Continue Watching feature.

This chapter includes the following sections:

4.1 Configuration

4.2 Cleanup

4.3 Logs

4.1 Configuration

PCW can be deployed with a JAR file or with Kubernetes.

4.1.1 JAR Deployment

4.1.1.1 application.properties File

The *application.properties* file in the JAR contains default properties that can be overridden with a new *application.properties* file placed in the same directory as the JAR file. The following are the default properties in the *application.properties* file.

General Settings

Property	Value	Remarks
logging.level.root	INFO	Define the log level. Use DEBUG to include more information in logs.
logging.level.com.vo	INFO	Define the log level for the package. Use DEBUG to include more information in logs.
ops.logging.prodlogs.filter.ignored-paths	/actuator	Exclude a URL from the production logs. For example, ops.logging.prodlogs.filter.ignored-paths:/actuator,/health
server.port	8080	

Oracle Settings

Property	Value	Remarks
spring.datasource.url	jdbc:oracle:thin:@<ip>:<port>:<SID>	The database URL, correct IP, port and SID must be provided.
spring.datasource.username	The database username	
spring.datasource.password	The database password	

Application Environment

Property	Value	Remarks
logging.path	\${user.dir}/logs	The log files location.
passivesite.enabled	true	When set to true, the offline processing scheduler is off but all endpoints are active. When set to false, only offline processing is running on this instance. The parameter can also be provided also during app execution by using : java -Dpassivesite.enabled=false -jar pcw-service-2.x.x.jar
spring.data.mongodb.uri	mongodb://<username>:<password>@<ip>:<port>/admin	
spring.data.mongodb.database	pcw	

4.1.2 Kubernetes Deployment

The following describes the *configmap.yaml* which is used to configure PCW when deployed with Kubernetes.

Property	Default Value	Remarks
DB_MODE_MONGO	"{{ .Values.db_mode_mongo }}"	
LOGGING_LEVEL_ROOT	"{{ .Values.logging.root_log_level }}"	Define the log level. Use DEBUG to include more information in logs.
LOGGING_LEVEL_API-LOG:	"{{ .Values.logging.api_log }}"	Define the log level for tracking client requests. Use DEBUG to include more information in logs.
LOGGING_GROUP_COM_VO	"com.vo"	
LOGGING_LEVEL_COM_VO	"INFO"	
SPRING_DATASOURCE_URL	"jdbc:oracle:thin:@{{ .Values.oracle.host }}:{{ .Values.oracle.port }}:{{ .Values.oracle.sid }}"	
SPRING_DATASOURCE_USERNAME	"{{ .Values.oracle.user }}"	
SPRING_DATASOURCE_PASSWORD	"{{ .Values.oracle.password }}"	
SPRING_DATASOURCE_DRIVER-CLASS-NAME	"oracle.jdbc.OracleDriver"	



Property	Default Value	Remarks
SPRING_DATA_MONGODB_URI	"{{ .Values.mongo.uri }}"	
SPRING_DATA_MONGODB_DATABASE	"{{ .Values.mongo.pcw_db }}"	
PASSIVESITE_ENABLED	"true"	
OPS_LOGGING_PRODLOGS_FILTER_IGNORED-PATHS	"/actuator"	Exclude a URL from the production logs.
SPRINGFOX_DOCUMENTATION_SWAGGER_V2_PATH	"/api-docs"	
SERVER_SERVLET_CONTEXT-PATH	"{{ .Values.api_base_path }}"	
SERVER_PORT	"{{ .Values.service.port }}"	
SPRING_JACKSON_DATE-FORMAT	"com.vo.pcw.RFC3339DateFormat"	
SPRING_JACKSON_SERIALIZATION_WRITE_DATES_AS_TIMESTAMPS	"false"	
SPRING_MAIN_ALLOW-BEAN-DEFINITION-OVERRIDING	"true"	
MANAGEMENT_ENDPOINTS_WEB_EXPOSURE_INCLUDE	"*"	
SPRING_JPA_OPEN-IN-VIEW	"true"	

Property	Default Value	Remarks
SPRING_CLOUD_CONFIG_LABEL	"{{ .Values.tenant.name }}"	Used when central configuration properties are stored in Central Settings. The value should be injected during PCW installation by providing it in the <code>values.yaml</code> : For example: <code>tenant:</code> <code>name: tenantname</code> The name must be used when send requests to PCW.
SPRING_CLOUD_CONFIG_URI	"http://central-settings.{{ .Release.Namespace }}:8080"	Used when central configuration properties are stored in Central Settings.

4.1.3 Central Configuration Properties

The following are the default configuration values in MongoDB in the configuration collection:

Property	Default Value	Remarks
useExternalProgramId	false	Enables using the RiGHTv external program ID for timeshifted content (<code>viewSource=tstv</code>). If set to <i>false</i> , uses the internal program ID.
completionThreshold	90	The percentage of a content that must be viewed to be considered complete.
completionEpisodeThreshold	85	The percentage of an episode that must be viewed to be considered complete.
adultContentLevel	18	The parental rating level considered to be adult content.

Property	Default Value	Remarks
schedulerOfflineCron	0 0/5 * * * *	How often to process offline processes. Default is every 5 minutes.
confCheckCron	0 0/5 * * * *	How often to checked if a new configuration appeared in the configuration collection. Default is every 5 minutes.
cacheClearCron	0 0/1 * * * *	How often to clear the cache. Default is every 1 minute.
useExternalHouseholdId	true	When set to true the service uses the external <i>householdId</i> obtained from cookies. When set to false, the <i>householdId</i> is taken from the Household View where external <i>householdId</i> (obtained from the cookie) is a key.
language	es	
pcw.maxNextToWatchRequestsLimit	10	The maximum number of results that can be returned by next-to-watch.
cacheControl	next-to-watch=private,no-cache next-episode=private,no-cache viewing-history=private,no-cache	Describes what is returned in the <i>Cache-Control</i> response header. For example: <pre>"cacheControl": { "next-to- watch": "private, no- cache", "next- episode": "public, max- age=600", "viewing- history": "private, max- age=3600" },</pre>

Property	Default Value	Remarks
analyticsParams	isEnabled=false kafkaRestPort=8080 collectorUrl=localhost:2181 zookeeperSessionTimeout=10 operatorId=default-operator threadPoolSize=10 implClassName=com.vo.interceptor.Interceptor	Parameters related to integration with Business Analytics integration.
customProperties	[]	List of properties that can be returned by <i>GET /viewingPositions</i> For example "customProperties": ["property1", "property2" ,"property3"],
rightvAesSecurityKey	M7!4tTs0y1W\$7^5y	Used to decode the authorization cookie.
cacheContentAvailability	true	When set to <i>true</i> then the data from content availability (V_CONTENT_AVAILABILITY) can be taken from cache.
cacheContentAvailabilityCron	0 0/1 * * *	How often the cache for content availability is cleared.
validateLastEpisode	false	When set to <i>true</i> then checks if the episode is the last episode in the season.
systemLanguage		When the system supports only a single language, this optional configuration allows statically defining the language that should be used while ignoring any value provided in the Accept-Language header.

Property	Default Value	Remarks
npvrAvailability	730	The availability period in days for a recording.
npvrViewExpiration	730	The expiration period in days for a recording view.
cleanupJobExecution	0 0/30 * * *	How often to run the cleanup job. Default is every 30 minutes
completionThresholdNpvr	90	The percentage of a content recording that must be viewed to be considered complete.
completionEpisodeThresholdNpvr	85	The percentage of an episode recording that must be viewed to be considered complete.
tstvAvailability	730	The availability period in days for time-shifted content.
tstvViewExpiration	730	The expiration period in days for time-shifted content view.
tstvLagTime	0	The lag time in seconds for time-shifted content.
completionThresholdTstv	90	The percentage of a time-shifted content that must be viewed to be considered complete.
completionEpisodeThresholdTstv	85	The percentage of a time-shifted episode that must be viewed to be considered complete.
creditsChapterName	CreditStarts	The name used in RiGHTv to define an asset chapter that indicates that the start of credits.

Property	Default Value	Remarks
cleanupDeletionDelay	30	Specifies for how long after an asset is deleted in the SDP Platform, the corresponding content in PCW is not deleted. Default is 30 days.
cleanupTstvOn	false	Defines if cleanup of expired time=shifted content items in viewing_info is done or not. Default is false
filterExcludedEverywhere	false	When set to <i>false</i> , excluded content is removed from the Next to Watch list. When set to <i>true</i> excluded content is also removed from the viewing history.
offlineAddNewEpisode NpvrMaxTime	60	The maximum length of time (minutes) that the add new NPVR episode offline job can run before an alert is sent to the logs.
offlineAddNewEpisode TstvMaxTime	120	The maximum length of time (minutes) that the add new timeshifted content offline job can run before an alert is sent to the logs.
offlineAddNewEpisode VodMaxTime	60	The maximum length of time (minutes) that the add new VOD content offline job can run before an alert is sent to the logs.
offlineCleanupVodMax Time	50	The maximum length of time (minutes) that the VOD cleanup offline job can run before an alert is sent to the logs.

Property	Default Value	Remarks
offlineCleanupTstvMaxTime	50	The maximum length of time (minutes) that the TSTV cleanup offline job can run before an alert is sent to the logs.
offlineCleanupNpvrMaxTime	60	The maximum length of time (minutes) that the NPVR cleanup offline job can run before an alert is sent to the logs.
universalIdAggregation	false	Set to <i>true</i> to present the representative content for the next episode based on the priorities set in the configuration. If the next episode is missing from the highest priority content provider, the content will be provided from the next content provider in the list based on the priorities set. Relevant when content aggregation is configured, and <i>viewType=next-episode</i> .
offlineExpirationTimeForOTTViews	72	The time in hours after a content is removed from the You Also Visited list. After this time period the content is not returned by <i>GET pcw/ottviews</i> .

After updating the configuration it is possible to refresh the configuration manually before *confCheckCron* is executed using the following command:

```
curl -X POST http://<ip>:8080/actuator/refresh
```

4.1.4 Schedule Configuration

4.1.4.1 Offline Processing Scheduler Configuration

The scheduler uses the *offline_sync* collection to store information about the last synchronization time. The document must be inserted manually into the collection:

```
{
  "_id" : "LAST_SYNC_TIME",
```



```

    "value" : "1621518480054",
    "_class" : "com.vo.pcw.model.mongo.OfflineSyncWithMongo"
}

```

4.1.4.2 Cleanup Processing Scheduler Configuration

The scheduler uses the *offline_sync* collection to store information about the cleanup time. The document is inserted automatically during first process execution. No additional configuration is needed.

```

{
    "_id" : "LAST_CLEANUP_SYNC_TIME",
    "value" : "1593344364000",
    "_class" : "com.vo.pcw.model.mongo.OfflineSyncWithMongo"
}

```

4.2 Cleanup

4.2.1 Personal Recordings Cleanup

viewSource=personal-recordings

Personal recordings are deleted in the following cases:

- The profile deleted a recording.
- The recording expiration period in RiGHTv was reached.

A recording that is in status complete *and* is an episode in a series will not be deleted if it is the last episode that the profile watched in the season.

4.2.2 VOD Content Cleanup

viewSource=vod

VOD content is deleted when an asset with an asset ID in RiGHTv that corresponds to the *contentId* in PCW, is deleted.

VOD content that is an episode in a series is not deleted if it is the last episode that the profile watched in the season.

After an asset is deleted in RiGHTv, the corresponding content in PCW is only deleted after 30 days. This enables recreating assets inside the 30 day time frame without losing the viewing position.

A recording that is in status complete *and* is an episode in a series will not be deleted if it is the last episode that the profile watched in the season.

4.2.3 Time-shifted Content Cleanup

viewSource=tstv

The cleanup for time-shifted content is defined in the database.

Expired viewings for time-shifted content are deleted after 2 years. Next-to watch episodes will no longer be available after this time.



4.3 Logs

This section describes the PCW log files.

4.3.1 JAR Deployment

4.3.1.1 Access Log

This log provides information related to API calls by the client application.

For example:

```
08-07-2019 17:25:23.537 DC-6755HKG4765 DEBUG - New event for profile FG3455 created
```

4.3.1.2 System Log

The system log provides general system information.

For example:

```
08-07-2019 17:25:23.537 54243 [http-nio-8084-exec-1] INFO defaultLogger - Service started successfully Personal Continue Watching 2 - OSP configuration guide. Document version 0.1 Confidentiality: Confidential 1
```

4.3.2 Kubernetes Deployment

By default, the log is printed in JSON format.

For example:

api-log for tracking client requests:

```
{"@timestamp":"2021-11-04T11:23:23.440+01:00","thread_name":"http-nio-8080-exec-1","level":"DEBUG","logger_name":"api-log","message":"found viewSource in request: PERSONAL_RECORDING","component":"Monolith","application_name":"profile-continue-watching","application_version":"2.3.2-SNAPSHOT"}
```

General service behavior tracking:

```
{"@timestamp":"2021-11-08T09:53:28.786+01:00","thread_name":"http-nio-8080-exec-2","level":"DEBUG","logger_name":"c.v.p.s.ViewingPositionServiceImpl","message":"params: profileId=20, viewType=next-to-watch, contentId=null, minPrLevel=null, maxPrLevel=null","DEVICEID":"5341109","component":"Monolith","application_name":"profile-continue-watching","application_version":"2.3.2-SNAPSHOT"}
```



```
{"@timestamp":"2021-11-08T09:53:28.796+01:00","thread_name":"http-nio-8080-exec-2","level":"INFO","logger_name":"PROD_LOGS","DEVICEID":"5341109","duration":17,"status":0,"http":{"method":"GET","path":"/personalization/v1/viewingPositions","query":"viewSource=PERSONAL-RECORDING&viewType=next-to-watch&limit=10&offset=0","status_code":200},"component":"Monolith","application_name":"profile-continue-watching","application_version":"2.3.2-SNAPSHOT"}
```

5 Application Developer Guide

The chapter explains how to apply Personal Continue Watching (PCW) related service capabilities in the client application and demonstrates best practices in application design.

For details on the APIs and parameters see the accompanying file *pcw.v.2.x.yaml*.

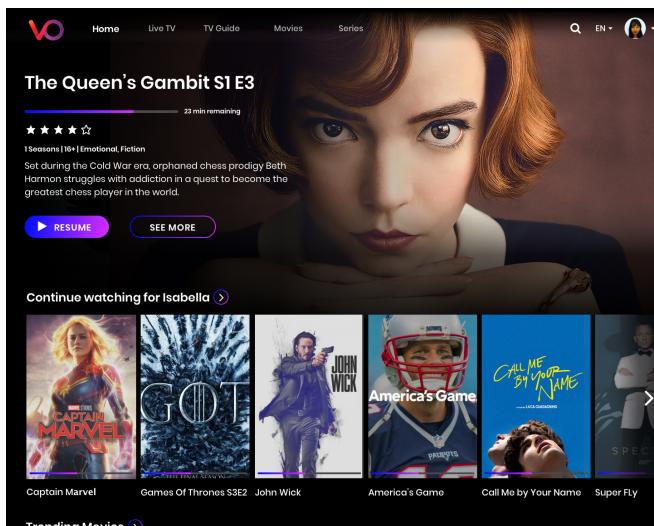
Note

The *pcw.v.2.x.yaml* is best viewed in Google Chrome.

5.1 Best Practices for Screen Creation

The following describes best practices for implementing PCW features in screens in the client application.

5.1.1 Home Screen

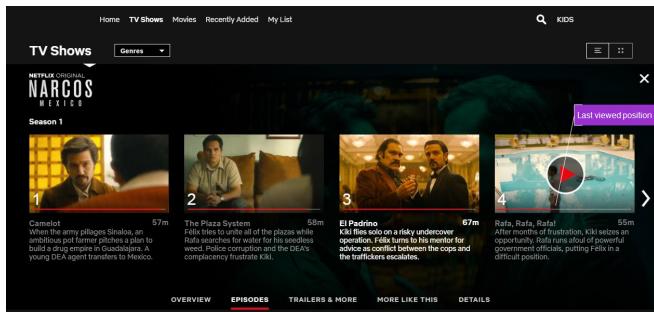


The Home screen is the screen to which the logged-in profile's app opens on start-up. The Home screen may include the following:

Home Screen	Action
A Continue Watching lineup that includes content items the profile began watching but did not complete, as well as the next available episode of each series that the profile has been following.	5.2.1 Display Continue Watching Lineup
Alternatively display two separate Continue Watching lineups for episode and for content.	5.2.3 Display Separate Continue Watching Lineups for Episodes and Content
Alternatively display one Continue Watching lineup only for episodes or one only for content.	5.2.4 Display Continue Watching Lineup Either by Episodes or Content
Display the last viewed position and status for a list of contents to enable the Already Seen and Resume Watching features	5.2.6 Display Viewed Position for a Lineup of Contents
Display the last viewed position for a specific content to enable the Resume Watching feature.	5.2.5 Display Viewed Position for a Single Content
Exclude specific content from the profile's Continue Watching lineup.	5.2.10 Exclude Specific Content from the Continue Watching Lineup
Display a You Also Visited lineup.	5.2.11 Display You Also Visited Lineup
Remove a content item from the You Also Visited lineup.	5.2.12 Delete a Content Item from You Also Visited Lineup
Pin a content item to the You Also Visited lineup.	5.2.13 Pin a Content Item to the You Also Visited Lineup
Remove the pin for a content item from the You Also Visited lineup.	5.2.14 Remove the Pin for Content in the You Also Visited Lineup



5.1.2 TV Seasons Screen



The TV Seasons screen displays available episodes for a TV show season for the logged-in profile.

The TV Seasons screen may include the following:

TV Seasons Screen	Action
Display the last viewed position and status for a list of contents to enable the Already Seen and Resume Watching features	5.2.6 Display Viewed Position for a Lineup of Contents

5.1.3 Movie Screen

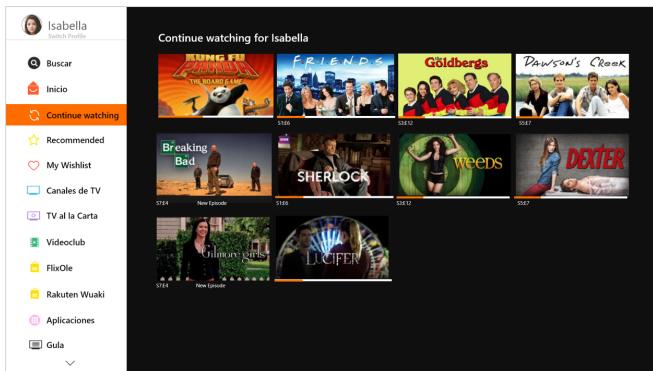


The Movie screen displays information for a specific content for the logged-in profile.

The Movie screen should include the following:

Movie Screen	Action
Display the last viewed position for a specific content to enable the Resume Watching feature.	5.2.5 Display Viewed Position for a Single Content

5.1.4 Dedicated Personal Continue Watching Screen



The Dedicated Personal Continue Watching screen displays the logged-in profile's Continue Watching lineup and the viewing position for each content.

The Dedicated Personal Continue Watching screen may include the following:

Dedicated Personal Continue Watching Screen	Action
A Continue Watching lineup that includes content items the profile began watching but did not complete, as well as the next available episode of each series that the profile has been following.	5.2.1 Display Continue Watching Lineup
Display a Continue Watching lineup for the logged-in profile to filter the Next to Watch feature by genre.	5.2.1 Display Continue Watching Lineup
Alternatively display two separate Continue Watching lineups for episode and for content.	5.2.3 Display Separate Continue Watching Lineups for Episodes and Content
Alternatively display one Continue Watching lineup only for episodes or one only for content.	5.2.4 Display Continue Watching Lineup Either by Episodes or Content
Display the last viewed position and status for a list of contents to enable the Already Seen and Resume Watching features	5.2.6 Display Viewed Position for a Lineup of Contents
Display the last viewed position for a specific content to enable the Resume Watching feature.	5.2.5 Display Viewed Position for a Single Content

Dedicated Personal Continue Watching Screen	Action
Exclude specific content from the profile's Continue Watching lineup.	5.2.10 Exclude Specific Content from the Continue Watching Lineup

5.1.5 Binge Viewing Experience



The binge watching experience enables a continuous viewing experience by automatically playing the next available episode.

Binge Watch Experience	Action
Define when viewing of the current episode is considered complete:	<ol style="list-style-type: none"> If an asset chapter was defined in RiGHTv called <i>CreditStart</i> indicating the start of credits, with a value, viewing until this chapter can be used to indicate viewing is complete. Use the RiGHTv VOD API <i>createAsset</i> and set <i>chapter.name</i> to <i>CreditStart</i>. See RiGHT VOD API documentation for details. See RiGHT VOD API documentation for details. If there is no asset chapter defined in RiGHTv called <i>CreditStart</i>, the client application should define the episode's duration that the profile must have watched for the viewing of the episode to be considered complete.
When either the time defined by <i>CreditStart</i> is reached or when the episode viewing is considered complete, display a popup with the next available episode for the currently viewed episode.	5.2.7 Display Next Available Episode
If the user accepts or the message popup times out, notify PCW to stop playing the current episode and start playback of the next episode.	5.2.8 Register a Client Event

5.2 Actions

Note

All fields are optional unless marked as Mandatory.

5.2.1 Display Continue Watching Lineup

Display a Continue Watching lineup for the logged-in profile to enable the Next to Watch feature.

Use `GET pcw/viewingPositions` and specify:

Query Parameter	Description
offset	The (zero-based) offset of the first item in the collection to return. The default value is 0.
limit	The number of items to return. Minimum value is 0, default value is 20.
viewType	Specify <i>next-to-watch</i> to get a list of contents that includes content items the profile began watching but did not complete and the next episode to be watched of a series that the profile has watched an episode of, if available in the catalog. (Mandatory)
maxPrLevel	The maximum level of parental rating. The returned list will contain only contents with no parental rating or with a parental rating level equal to or less than the specified level.
minPrLevel	The minimum level of parental rating required. When provided, the returned list will contain only contents with a parental rating level equal to or greater than this level.
viewSource	The source of the viewed content: <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD - VOD content • ALL The default value is <i>VOD</i> . From version 2.0.
contentType	Leave empty to return both content and episodes. Valid values: content, episode. The default value is <i>all</i> .



Query Parameter	Description
seriesUniversalId	When content aggregation is configured, returns the representative content of the next episode to be watched of a series that the profile has watched an episode of, if available in the catalog.

For example,

```
GET pcw/viewingPositions?viewType=next-to-
watch&viewSource=TSTV,VOD,PERSONAL_RECORDING&offset=0&limit=10
```

To display a Continue Watching lineup for the logged-in profiles time-shifted TV only (both content and episodes):

```
GET pcw/viewingPositions?viewType=next-to-
watch&viewSource=TSTV&offset=0&limit=10
```

Note

The parental rating name and level is returned in the response under *content*. The values returned can be used to determine whether the client application should display the content in the carousel and whether to enforce entering a PIN to view content.

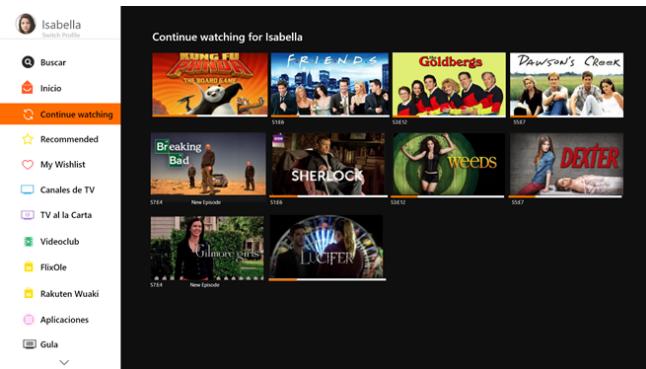


Response

Parameter	Description
content	<p>The content details.</p> <ul style="list-style-type: none"> id: The content ID type: The content type name: The content name duration: The content duration episodeNumber: The episode number seasonName: The season name seasonNumber: The season number seriesName: The series name seriesId: The series ID ratingName: The parental rating name ratingLevel: The parental rating level images: Images attached to the content (name, path) seriesImages: Images attached to the series (name, path) customProperties: key, value
status	<p>New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode.</p> <p>InProgress - A content being watched by the user and not yet completed.</p> <p>Completed – A content that the user completed watching.</p>
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.
viewSource	<p>The source of the viewed content:</p> <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD - VOD content <p>From version 2.0.</p>



5.2.2 Display Continue Watching Lineup by Genre



Display a Continue Watching lineup for the logged-in profile to filter the Next to Watch feature by genre.

Use `GET pcw/viewingPositions` and specify:

Query Parameter	Description
offset	The (zero-based) offset of the first item in the collection to return. The default value is 0.
limit	The number of items to return. Minimum value is 0, default value is 20.
viewType	Specify <i>next-to-watch</i> to get a list of contents that includes content items the profile began watching but did not complete and the next episode to be watched of a series that the profile has watched an episode of, if available in the catalog. (Mandatory)
maxPrLevel	The maximum level of parental rating. The returned list will contain only contents with no parental rating or with a parental rating level equal to or less than the specified level.
viewSource	The source of the viewed content: <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD - VOD content • ALL The default value is <i>VOD</i> . From version 2.0.

Query Parameter	Description
contentType	Leave empty to return both content and episodes. Valid values: content, episode. The default value is <i>all</i> .
genre	The genre external ID for which to get content and viewing information. Currently, only one genre can be specified. Call RiGHTv Front-end Integration API <i>GetGenreList</i> to get the list of genres.
seriesUniversalId	When content aggregation is configured, returns the representative content of the next episode to be watched of a series that the profile has watched an episode of, if available in the catalog.

```
GET pcw/viewingPositions?viewType=next-to-
watch&viewSource=TSTV,VOD,PERSONAL_
RECORDING&genre=externalid&offset=0&limit=10
```

Response

Parameter	Description
content	The content details.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.
viewSource	The source of the viewed content: <ul style="list-style-type: none">• PERSONAL_RECORDING - recordings per logged-in profile• TSTV - timeshifted content (Catch-Up or Start Over)• VOD - VOD content From version 2.0.



5.2.3 Display Separate Continue Watching Lineups for Episodes and Content

Display two separate Continue Watching lineups, one for episodes and one for content, for the logged-in profile in the same screen.

Use `GET pcw/viewingPositions` and specify:

Query Parameter	Description
offset	The (zero-based) offset of the first item in the collection to return. The default value is 0.
limit	The number of items to return. Minimum value is 0, default value is 20.
viewType	<p>The viewing information to retrieve. (Mandatory)</p> <ul style="list-style-type: none"> • next-to-watch - a list of contents that includes content items the profile began watching but did not complete and the next episode to be watched of a series that the profile has watched an episode of, if available in the catalog. • viewing-history - a list of content viewed by the profile (excluded content is not returned) • next-episode - the next available episode
grouping	Set to <code>true</code> to return the 2 separate lineups one for episodes and one for content. The default value is false.
maxPrLevel	The maximum level of parental rating. The returned list will contain only contents with no parental rating or with a parental rating level equal to or less than the specified level.
viewSource	<p>The source of the viewed content:</p> <ul style="list-style-type: none"> • personal-recording - recordings per logged-in profile • tsv - timeshifted content (Catch-Up or Start Over) • vod - VOD content <p>The default value is <code>vod</code>. From version 2.0.</p>
seriesUniversalId	When content aggregation is configured, returns the representative content belonging to the specified series.



For example,

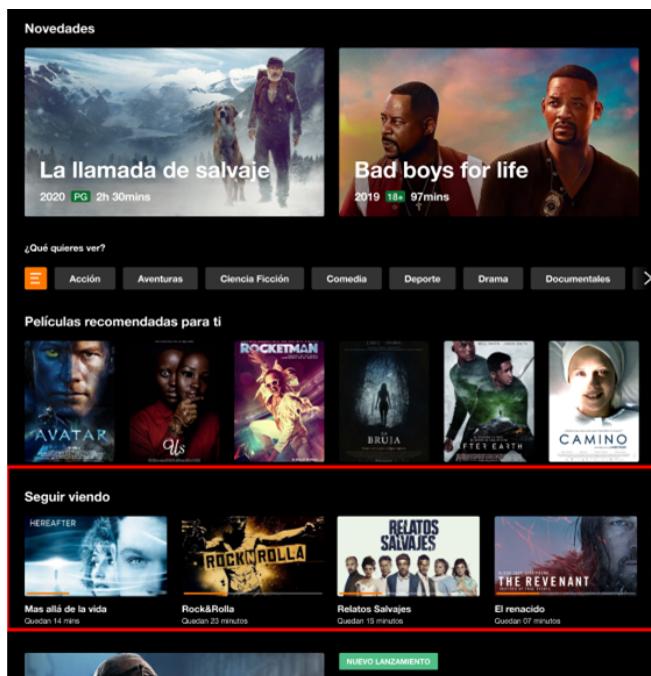
```
GET pcw/viewingPositions?viewType=next-to-watch&grouping=true&offset=0&limit=10
```

Response

Parameter	Description
content	The content details grouped by episodes and content.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.
viewSource	The source of the viewed content: <ul style="list-style-type: none"> • personal-recording - recordings per logged-in profile • tsv - timeshifted content (Catch-Up or Start Over) • vod - VOD content From version 2.0.

5.2.4 Display Continue Watching Lineup Either by Episodes or Content

Display a Continue Watching lineup either for episodes only or for content only, for the logged-in profile. From version 2.0.



Use `GET pcw/viewingPositions` and specify:

Query Parameter	Description
offset	The (zero-based) offset of the first item in the collection to return. The default value is 0.
limit	The number of items to return. Minimum value is 0, default value is 20.
viewType	<p>The viewing information to retrieve. (Mandatory)</p> <ul style="list-style-type: none"> next-to-watch - a list of contents that includes content items the profile began watching but did not complete and the next episode to be watched of a series that the profile has watched an episode of if available in the catalog. viewing-history - a list of content viewed by the profile (excluded content is not returned) next-episode - the next available episode

Query Parameter	Description
maxPrLevel	The maximum level of parental rating. The returned list will contain only contents with no parental rating or with a parental rating level equal to or less than the specified level.
viewSource	<p>The source of the viewed content.</p> <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD - VOD content • all <p>The default value is <i>VOD</i>. From version 2.0.</p>
contentType	The type of content to return. Valid values: content, episode. The default value is <i>all</i> .
universalIdAggregation	When content aggregation is configured, and <i>viewType=next-episode</i> , set to <i>true</i> to present the representative content for the next episode based on the priorities set in the configuration. If the next episode is missing from the highest priority content provider, the content will be provided from the next content provider in the list based on the priorities set.

For example,

```
GET pcw/viewingPositions?viewType=next-to-watch&viewSource=VOD,TSTV,PersonalRecording&contentType=CONTENT&offset=0&limit=10
```

Response

Parameter	Description
content	The content details for either the specified episodes or content.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.
viewSource	The source of the viewed content: <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD- VOD content From version 2.0.

5.2.5 Display Viewed Position for a Single Content

Get the last viewed position of a single content either to present to the user or to play the content from the last viewed position to enable the Resume Watching feature.

Excluded content is not returned.

Use *GET pcw/viewingPositions/{contentId}* and specify:



Query Parameter	Description
contentId	<p>The content ID for which to get content and viewing information. (Mandatory for this use case).</p> <ul style="list-style-type: none"> • For VOD: use the RiGHTv external asset ID • For TSTV: use the RiGHTv internal program ID • For NPVR: use the RiGHTv internal recording ID
viewSource	<p>The source of the viewed content. If not provided the default source type used is <i>vod</i>.</p> <ul style="list-style-type: none"> • personal-recording - recordings per logged-in profile • tsv - timeshifted content (Catch-Up or Start Over) • vod - VOD content • all <p>The default value is <i>vod</i>. From version 2.0.</p>

For example,

GET pcw/viewingPositions/EP523423

Response

Parameter	Description
content	The content details.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.



Parameter	Description
viewSource	<p>The source of the viewed content:</p> <ul style="list-style-type: none"> • personal-recording - recordings per logged-in profile • tsv - timeshifted content (Catch-Up or Start Over) • vod - VOD content <p>From version 2.0.</p>

5.2.6 Display Viewed Position for a Lineup of Contents

Display a lineup with the last viewed position and status for a list of contents to enable the Already Seen and Resume Watching features.

Excluded content is not returned.

Use *GET pcw/viewingPositions* and specify:

Query Parameter	Description
contentId	<p>The content IDs for which to get content and viewing information. (Mandatory for this use case).</p> <ul style="list-style-type: none"> • For VOD: use the RiGHTv external asset ID • For TSTV: use the RiGHTv internal program ID • For NPVR: use the RiGHTv internal recording ID <p>Only one of <i>contentId</i>, <i>universalId</i> or <i>seasonUniversalId</i> should be provided.</p>
viewType	Specify <i>viewing-history</i> to get a list of contents viewed by the profile. (Mandatory for this use case)
maxPrLevel	The maximum level of parental rating. The returned list will contain only contents with no parental rating or with a parental rating level equal to or less than the specified level.
viewSource	<p>The source of the viewed content. If not provided the default source type used is <i>vod</i>.</p> <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV- timeshifted content (Catch-Up or Start Over) • VOD - VOD content • all <p>The default value is <i>VOD</i>.</p> <p>From version 2.0.</p>



Query Parameter	Description
contentType	The type of content to return. Valid values: content, episode. The default value is <i>all</i> .
universalId	When content aggregation is configured, and <i>viewType=viewing-history</i> , returns the content and viewing information for the representative content. Only one of <i>contentId</i> , <i>universalId</i> or <i>seasonUniversalId</i> should be provided. Only supported for <i>viewSource=VOD</i> .
seasonUniversalId	When content aggregation is configured, and <i>viewType=viewing-history</i> , returns the content and viewing information for the representative episode. Only one of <i>contentId</i> , <i>universalId</i> or <i>seasonUniversalId</i> should be provided. Only supported for <i>viewSource=VOD</i> . Only one of <i>contentId</i> , <i>universalId</i> or <i>seasonUniversalId</i> should be provided. Only supported for <i>viewSource=VOD</i> .

For example,

```
GET pcw/viewingPositions?viewType=viewing-history&contentId=EP23423,EP12345,EP45567
```

Response

Parameter	Description
content	The content details.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.



Parameter	Description
viewSource	<p>The source of the viewed content:</p> <ul style="list-style-type: none">• PERSONAL_RECORDING - recordings per logged-in profile• TSTV- timeshifted content (Catch-Up or Start Over)• VOD - VOD content <p>The default value is <i>VOD</i>. From version 2.0.</p>

5.2.7 Display Next Available Episode

Display the next available episode for the currently viewed episode to enable the Automatic Next Episode feature.

Use *GET pcw/viewingPositions* and specify:

Query Parameter	Description
contentId	<p>The content ID of the current episode.</p> <ul style="list-style-type: none"> • For VOD: use the RiGHTv external asset ID • For TSTV: use the RiGHTv internal program ID • For NPVR: use the RiGHTv internal recording ID
viewType	<p>Specify <i>next-episode</i> to get the viewing information for the next available episode. (Mandatory for this use case).</p> <p>When content aggregation is configured, and <i>universalAggregation</i> is set to <i>true</i> in the Configuration, presents the representative content for the next episode based on the priorities set in the configuration. If the next episode is missing from the highest priority content provider, the content will be provided from the next content provider in the list based on the priorities set.</p>
viewSource	<p>The source of the viewed content. If not provided the default source type used is <i>VOD</i>.</p> <ul style="list-style-type: none"> • PERSONAL_RECORDING - recordings per logged-in profile • TSTV - timeshifted content (Catch-Up or Start Over) • VOD - VOD content <p>The default value is <i>VOD</i>. From version 2.0.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Note</p> <p>When <i>viewType=next-episode</i>, <i>viewSource</i> cannot be set to <i>ALL</i>.</p> </div>

For example,

```
GET pcw/viewingPositions?viewType=next-episode&contentId=EP23423
```

Response

Parameter	Description
content	The content details of the next available episode.
status	New – A new episode that was added to the VOD catalog. This episode will be offered to the users who have completed watching the previous episode. InProgress - A content being watched by the user and not yet completed. Completed – A content that the user completed watching.
viewDuration	The amount of time the content has been viewed (seconds).
viewPercentage	The percentage of the content that has been viewed.
lastViewTime	The last time the content was viewed in ISO 8601 format.
viewSource	The source of the viewed content: <ul style="list-style-type: none">• PERSONAL_RECORDING - recordings per logged-in profile• TSTV - timeshifted content (Catch-Up or Start Over)• VOD - VOD content From version 2.0.

5.2.8 Register a Client Event

Registers a new client event in the platform when the user stopped watching content.

Use *POST pcw/clientEvents* and specify:

Query Parameter	Type	Description
ClientEvent	String	The type of client event. Valid values: VIEW_STOP In the Body specify the following properties: <ul style="list-style-type: none">• contentId - the ID of the content in which viewing was stopped. (Mandatory)• viewDuration - the position from the start of the content where it was stopped in seconds. (Mandatory)• viewSource - the source of the viewed content (personal-recording, tstv, vod). The default value is vod.



For example,

```
POST pcw/clientEvents
```

Body

```
{
  "type": "VIEW_STOP",
  "properties": [
    {
      "name": "contentId",
      "values": [
        "SHREK"
      ]
    },
    {
      "name": "viewDuration",
      "values": [
        "600"
      ]
    },
    {
      "name": "viewSource",
      "values": [
        "vod"
      ]
    }
  ]
}
```

5.2.9 Mark a Personal Recording Position

Saves a resume position for a personal recording or for a program consumed through the Catch-Up or Start Over service. This enables a user to resume watching a recording or program from a specific point. For NPVR 1.0 only. See the RiGHTv Front-end Integration API for details.

Name	Type	Description
recording_id	Number	The recording ID
program_id	Number	The internal ID of the program (relevant for Catch-up and Start Over).
position	Number	The number of milliseconds that elapsed since the start of the recording or program.



Name	Type	Description
program_external_id	String	The program external ID. Will be ignored if program_id is provided. The program_external_id is unique within a channel only. For Start Over and Catch-Up services when supplying only the program_external_id, it is possible that the same ID is used for multiple programs in different channels, resulting in an exception. Use program_external_id together with channel_external_id to ensure the marked position is saved for the desired program.
channel_external_id	String	The channel external ID of the channel on which the program was broadcast. For Start Over and Catch-Up services when supplying only the program_external_id, it is possible that the same ID is used for multiple programs in different channels, resulting in an exception. Use channel_external_id together with program_external_id to ensure the marked position is saved for the desired program.

For example, to mark a position in personal recording content:

```
/MarkRecordingPosition?recording_id=123&position=10000
```

For example, to mark a position in timeshifted content:

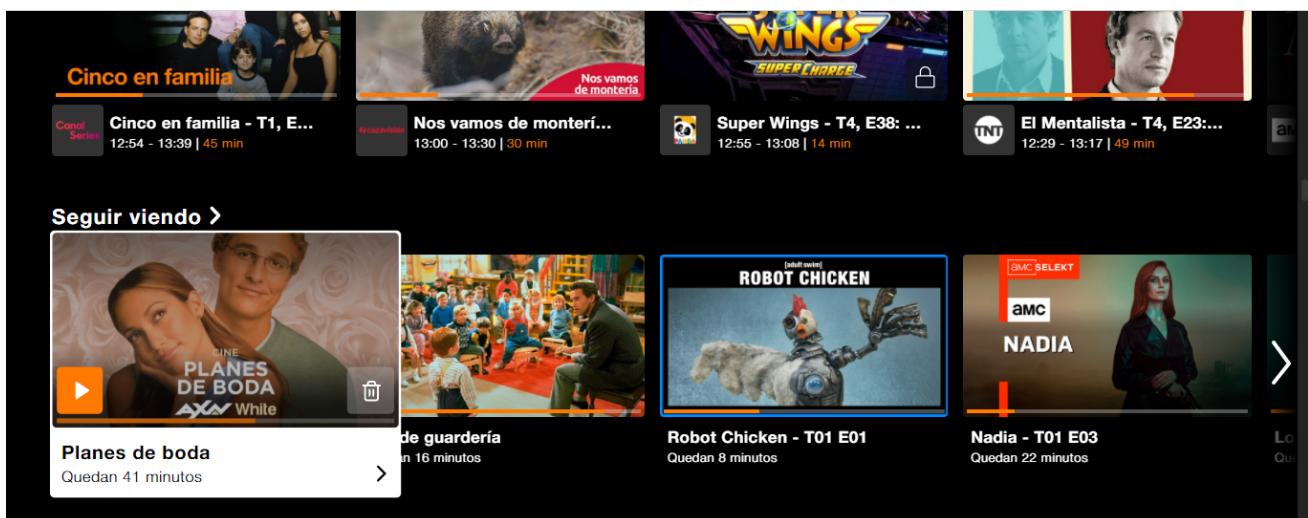
```
/MarkRecordingPosition?program_id=123&position=10000
```

5.2.10 Exclude Specific Content from the Continue Watching Lineup

Set specific content to exclude from the profile's Continue Watching lineup. If the specified content is watched again, it will reappear in the profile's Continue Watching lineup.

Excluded content is not returned in the Viewing History list (using *GET pcw/viewingPositions/viewType=viewing-history*).





Use `PUT pcw/viewingPositions/{contentId}/excluded` and specify:

Path Parameter	Description
contentId	<p>The content ID to exclude from Next to Watch lists. (Mandatory)</p> <ul style="list-style-type: none"> For VOD: use the RiGHTv external asset ID For TSTV: use the RiGHTv internal program ID For NPVR: use the RiGHTv internal recording ID

For example,

```
PUT pcw/viewingPositions/EP23423/excluded
```

5.2.11 Display You Also Visited Lineup

Display a list of content viewed by the profile in external OTTs to enable the You Also Visited feature.



Use `GET pcw/ottviews` and specify:

Query Parameter	Description
offset	The (zero-based) offset of the first item in the collection to return. The default value is 0.
limit	The number of items to return. Minimum value is 0, default value is 20.

For example,

```
GET pcw/ottviews?limit=5
```

Response

Parameter	Description
id	The OTT view ID.
ottContent	The OTT content details: <ul style="list-style-type: none"> • type: The type of content - series or content. • name: The content name. • parentalRating: The cont <ul style="list-style-type: none"> • name: The parental rating name. • level: The parental rating level (0-9999) • images <ul style="list-style-type: none"> • name • path • customProperties <ul style="list-style-type: none"> • key • value
lastViewTime	The last time the content was viewed, in ISO 8601 format.
pinned	Indicates whether the content is pinned. Content is automatically removed from the You Also Visited list every x hours (configurable - see 4.1.3 Central Configuration Properties). Pinned content is not removed from the list by this cleanup job.

5.2.12 Delete a Content Item from You Also Visited Lineup

Delete a content item from the list of content viewed by the profile in external OTTs. The content item is removed from the You Also Visited lineup.



Use *DELETE pcw/ottviews/{id}* and specify:

Path Parameter	Description
id	The OTT view ID.

5.2.13 Pin a Content Item to the You Also Visited Lineup

Pin a content item to the list of content viewed by the profile in external OTTs to prevent it being automatically removed from the You Also Visited list after 72 hours (default).

Note

Pinned content is not deleted and is not removed by the cleanup job even if the item is no longer available in the catalog.

Use *PUT pcw/ottviews/{id}/pinned* and specify:

Path Parameter	Description
id	The OTT view ID.

5.2.14 Remove the Pin for Content in the You Also Visited Lineup

Remove the pin for a content item in the list of content viewed by the profile in external OTTs. The content item will be automatically removed from the You Also Visited list after 72 hours (default).

Use *DELETE pcw/ottviews/{id}/pinned* and specify:

Path Parameter	Description
id	The OTT view ID.

6 RiGHTv Content Definition

This chapter describes how content should be defined in RiGHTv to enable PCW to operate.

6.1 Live Content

The series entity in RiGHTv represents a season in a series.

Attribute	Comment
seriesID	Should be unique per series. RiGHTv does not enforce this restriction.
season	Should be a numeric value.
numberOfEpisodes	Should hold the number of episodes in each season.

6.2 VOD Content

Attribute	Comment
episodeId	Should be a numeric value.

7 PCW Service Monitoring

This chapter describes how monitor offline jobs in the PCW microservice.

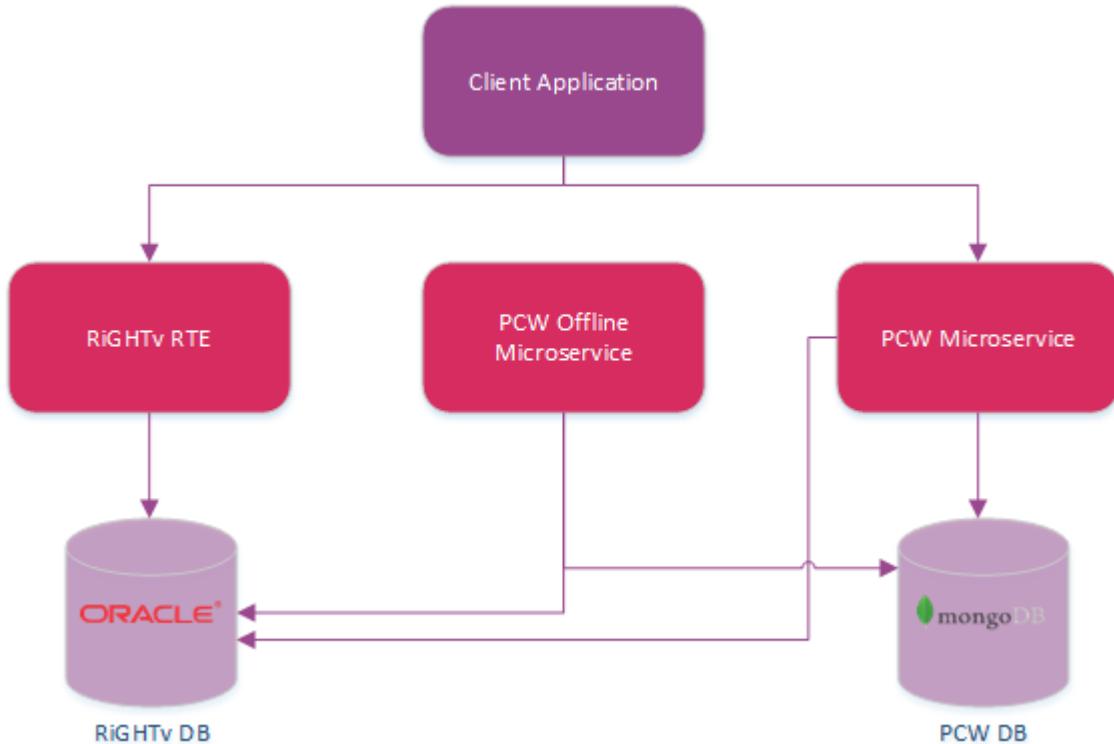
Metric Name	Description	Units & Measuring Method	Expected Value	Error Value	Call to Action
offline_job_execution_time_newEpisode_VOD	PCW offline job execution time for adding new VOD episodes is taking longer than X. Default is 60 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why it is taking so long to add new VOD episodes.
offline_job_execution_time_newEpisode_TSTV	PCW offline job execution time for adding new TSTV episodes is taking longer than X. Default is 120 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why it is taking so long to add new TSTV episodes.
offline_job_execution_time_newEpisode_nPVR	PCW offline job execution time for adding new nPVR episodes is taking longer than X. Default is 60 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why it is taking so long to add new NPVR episodes.
offline_job_execution_time_cleanupVOD	PCW offline job execution time for cleaning up VOD episodes is longer than X. Default is 50 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why PCW offline job execution time for cleaning up VOD episodes is slow.
offline_job_execution_time_cleanupTSTV	PCW offline job execution time for cleaning up TSTV episodes is longer than X. Default is 50 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why PCW offline job execution time for cleaning up TSTV episodes is slow.



Metric Name	Description	Units & Measuring Method	Expected Value	Error Value	Call to Action
offline_job_execution_time_cleanupnPVR	PCW offline job execution time for cleaning up NPVR episodes is longer than X. Default is 60 minutes. Configurable in the Central Configuration .	gauge	0	1	Investigate why PCW offline job execution time for cleaning up NPVR episodes is slow.

8 Architecture

This chapter describes the PCW architecture.



- **PCW offline microservice:** The offline microservice is responsible for the following:
 - Synchronization of the VOD contents availability and relevant metadata
 - Identifying new TV series episodes added to the services.
 - Creation of new content to watch (episodes) entries for the relevant users
 - Cleanup of expired/deleted viewing data
- **PCW microservice:** A dedicated microservice that exposes the APIs for viewing event collection, contents to watch, watched content, and next episode retrieval. Content related metadata such as posters and content names are retrieved from the RiGHTv database.
- **PCW database:** A dedicated data store that is used for storing the following:
 - Viewing info (viewing position)
 - Linear content broadcast time
 - Series/season episodes information