Gorba

icenter.webmedia

3.x

Development Documentation

Version:	V3.0
State:	Released
Classification:	Internal use only
Author:	ocs
Creation date:	2017-09-05
Repository:	<Repository>

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Table of contents

Modification management

Version	Date	Name	Dept.	Modifications	State
V0.10	17.08.2011	SEM	DEV	document creation	Draft
V0.20	05.09.2011	SEM	DEV	various changes + new chapter 3	Draft
V0.30	08.09.2011	SEM	DEV	rework chapter 3 based on LEF inputs	Draft
V0.40	23.09.2011	SEM	DEV	updates after review from STS	Draft
V0.50	03.10.2011	SEM	DEV	updates after review from DAC Event Cycles removed various small improvements	Draft
V1.0	05.09.2017	OCS	DEV	Rewrite for icenter.webmedia 3.0	Draft

Review

Version	Date	Name	Dept.	Remarks
V0.30	15.09.11	STS	DEV	
V0.40	27.09.11	DAC	DEV	
V1.0	07.09.17	LEF	DEV	Reviewed and updated with minor fixes

Release

Version	Date	Name	Dept.	Remarks
V1.0	07.09.17	OCS	DEVq	Release

References

[1] Development Documentation icenter media
\\Softwareserver_Release\Documents\01_icenter\18_icenter.media\icenter.media V3.8\EN\icenter.media V3.8_User_manual_EN_2016.12.21.pdf
[2] Documentation imotion media player / Video support (Internal document, do not distribute it!)
\\Softwareserver\Release\Documents\02_imotion\02_TFT\06_imotion Media Player

Abbreviations

ICM icenter media
ICWM icenter web media = CMS
CMS content management system
OBC onboard computer

1 Introduction

1.1 Basics

Icenter.webmedia (icwm) is the content management system for the passenger information devices (TFT) from Gorba installed in buses and trams. This document gives an overview about the features of this software and explains the general functionality. It is not a user documentation but it can be the base for creating a user manual with more details. Typically, documentations for clients focus on topics for the (customer) specific usage and contain more step-by-step solutions using more screenshots.

Icwm support the following main functions:

- content management
- playlist management
- chain management
- unit management / update view
- user and tenant (rights) management (not yet implemented)

1.2 Limitations

ICWM is a content management system. Transport companies or even their advertising partners can manage contents (pictures, videos) for TFTs.

In contrast Icenter media (ICM) [1] is an administration tool and is dedicated to only create the frame project for TFTs. Within this frame project the company can define slots for transport related passenger information (like pearl cord, transfer screen, etc.) and additionally slots for ICWM content. It is important to mention that without an adequate project created in ICM the contents managed using ICWM are not shown on TFTs.

ICWM is not responsible for the update process. With ICWM you can start an update and check the results but finally the update is performed by icenter update which is installed on back end and as well on the TFTs.

1.3 Software Environment

ICWM is a web application so it is hosted on a web server and runs in web browsers. Therefore, no software installation is necessary on the client PC. The hosting is currently only on Azure supported. ICWM uses some features of Service Fabric, therefore only Service Fabric Environments are currently supported. On Premise installations are planned but not yet available.

Browsers:

- MS Internet Explorer 10 or higher, Mozilla Firefox v50 (and higher) and Google Chrome v50 (and higher)

1.4 Software Parts

ICWM is composed out of multiple services. This services are also called microservices. All services are communicating over REST APIs. A façade service is used to hide all backend services from the frontend application; this façade is called icenter.webmedia API. All calls from the frontend application are redirected through this API.

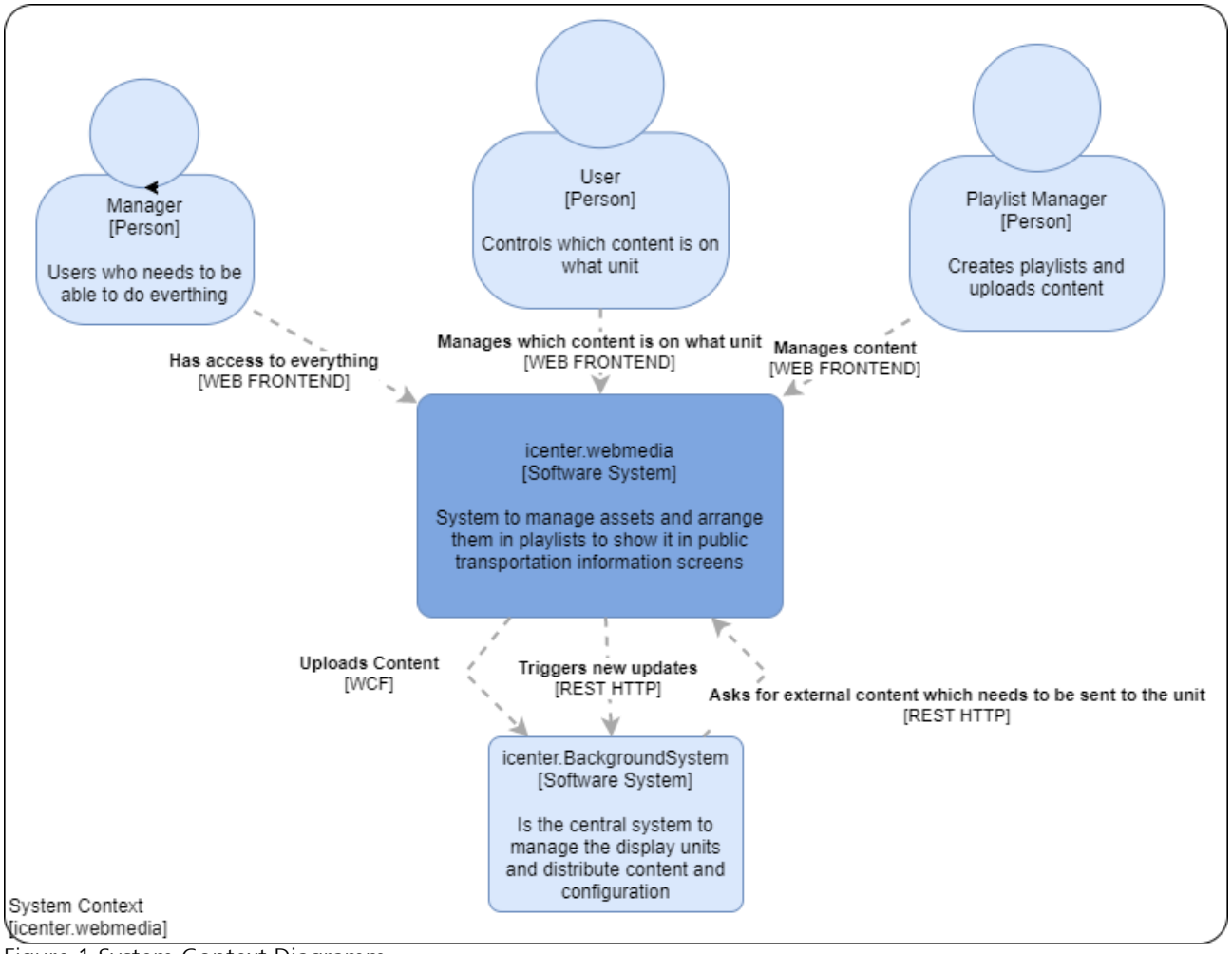

Figure 1 System Context Diagramm

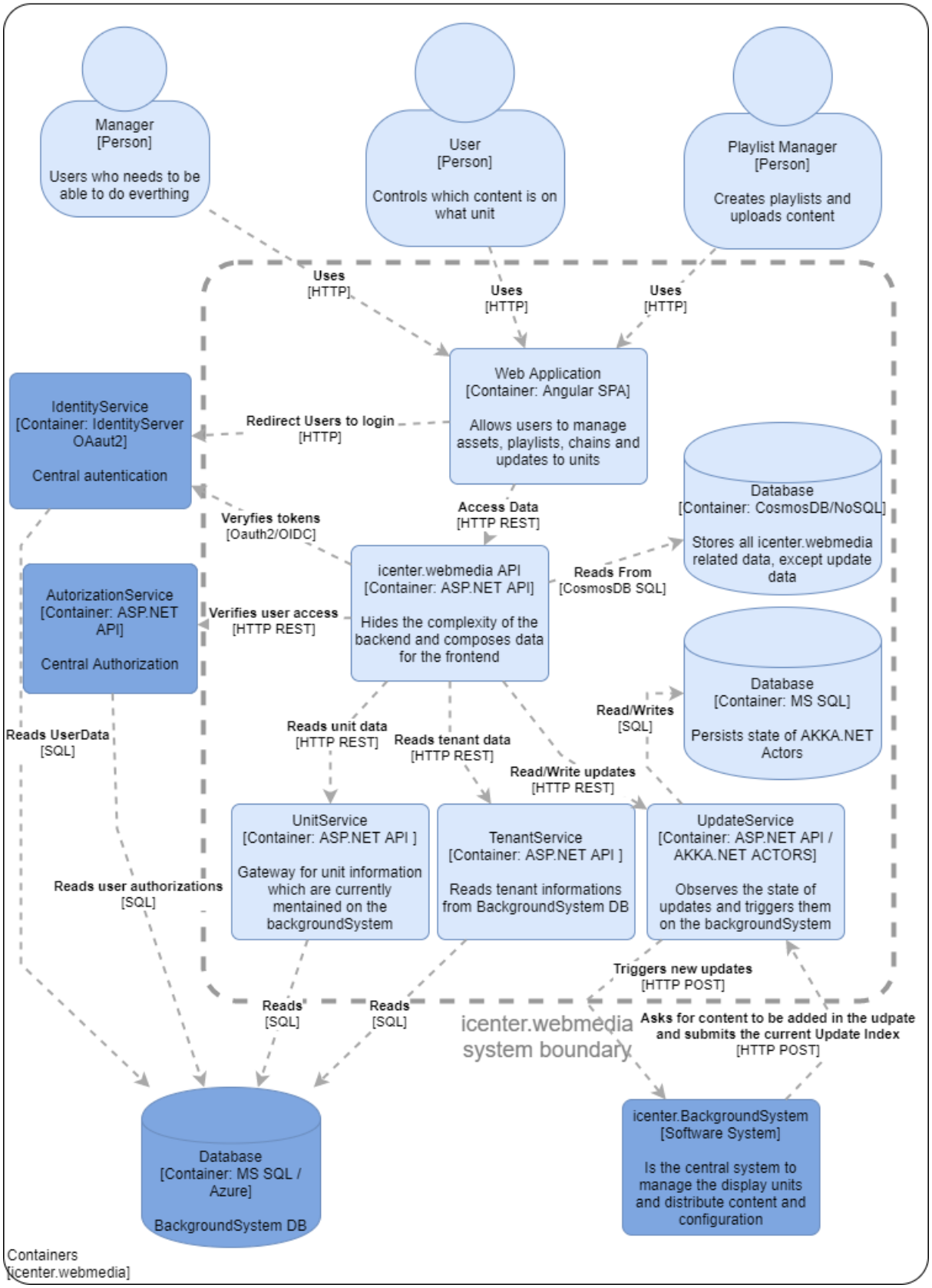

Figure 2 Container Diagram

1.5 Installation

ICWM is deployed with an automated deployment system which is based on VSTS (Visual Studio Team Services). A release/deployment of a new version can be triggered out of the VSTS platform. This

automated deployment deploys and installs a new version on an existing Service Fabric Cluster and removes the old versions. An on-premise installer will be available once on-premise installations are supported.

2 Software Features

2.1 Introduction

Before the user can work with icwm he needs user credentials (user name, password) to login to the system. The creation of these users is a task for the system administrator. The login itself is not done in ICWM, but the user gets redirected to a central login. The user gets redirected back to ICWM after a successful login.

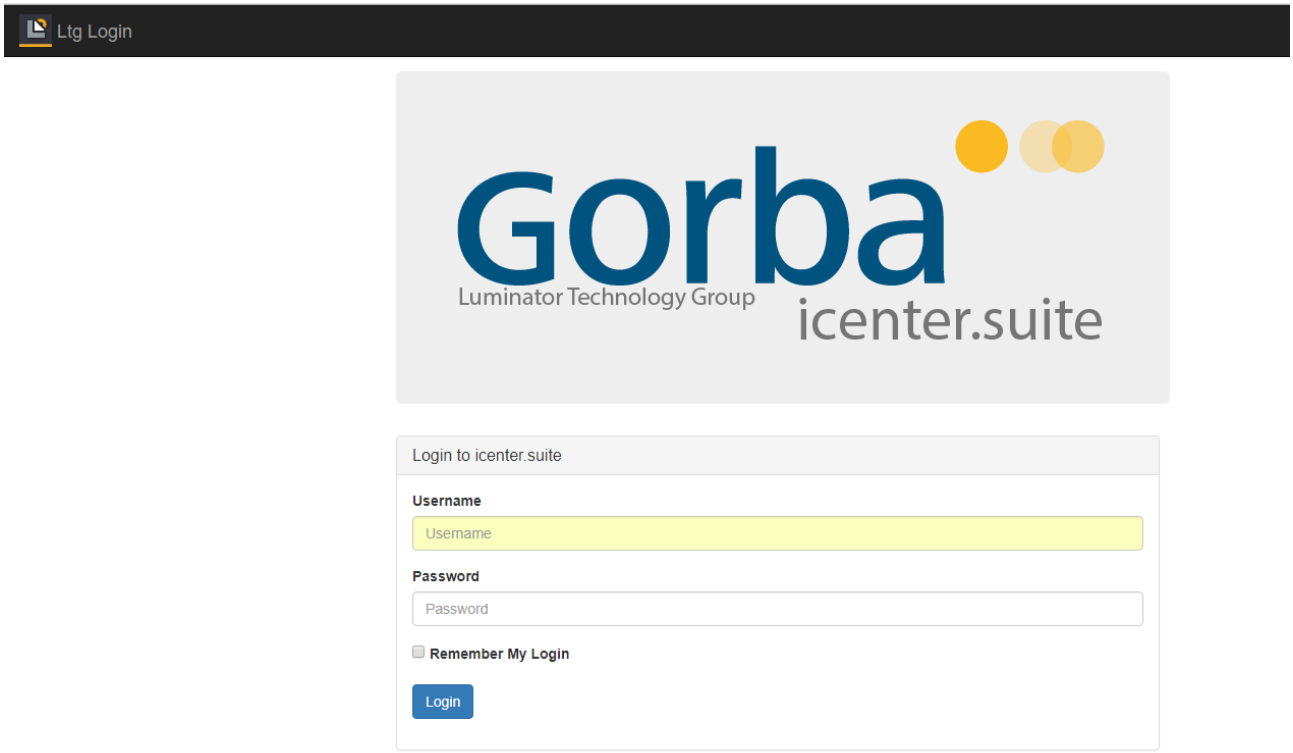

Figure 3 – Login form

2.2 Assets Management

In the assets (content) management you can organize contents, basically videos and pictures. From local hard drive or from network you can choose contents and upload them to the icwm system. Afterwards those are stored in the database. To get more details about supported videos on target please refer to [2].

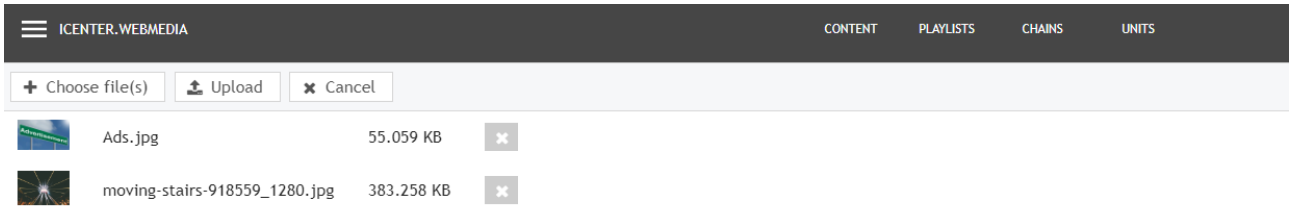

Figure 4 – Adding content

After importing a content file, you can define some content specific parameters. (NOTE: first import the file and only then change the Content Description). There are two important settings available – how long the content should be shown ("Duration") and criteria when the asset should be played.

Conditions from the same type are connected using OR whereas conditions with different types using AND. Example:

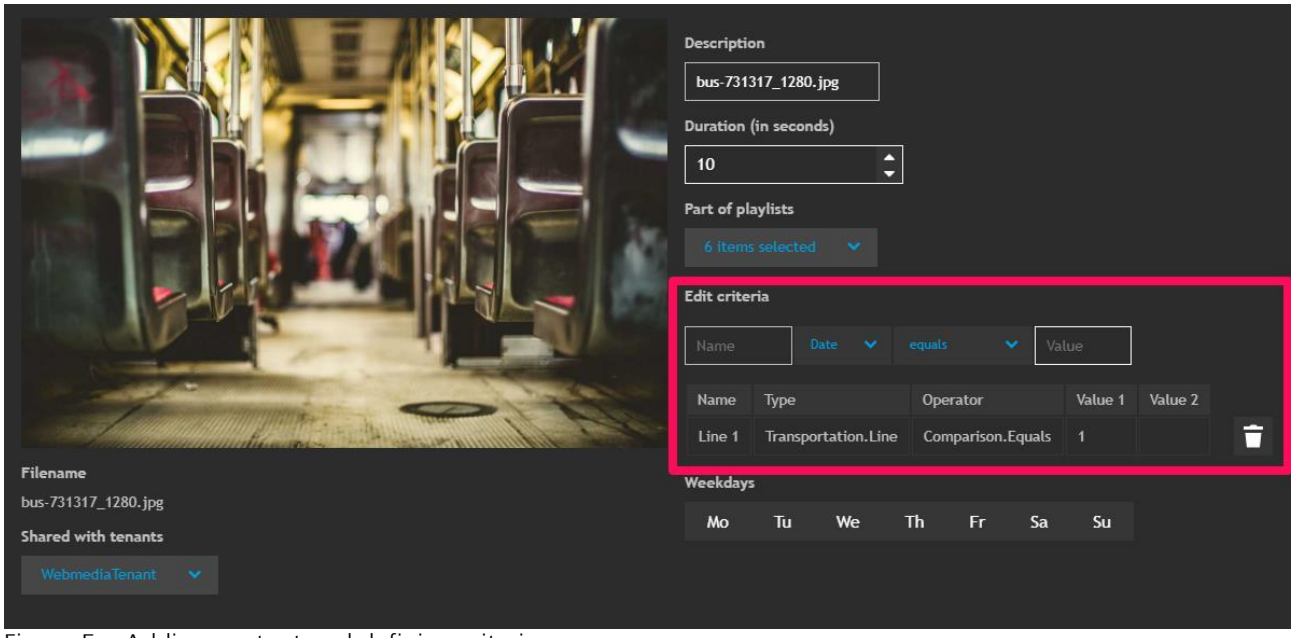

Figure 5 – Adding content and defining criteria

Contents are only shown on TFT if all conditions are fulfilled. This feature is typically used for advertisements dedicated to special situations only (e.g. showing an ad in a tourist bus line number 1).

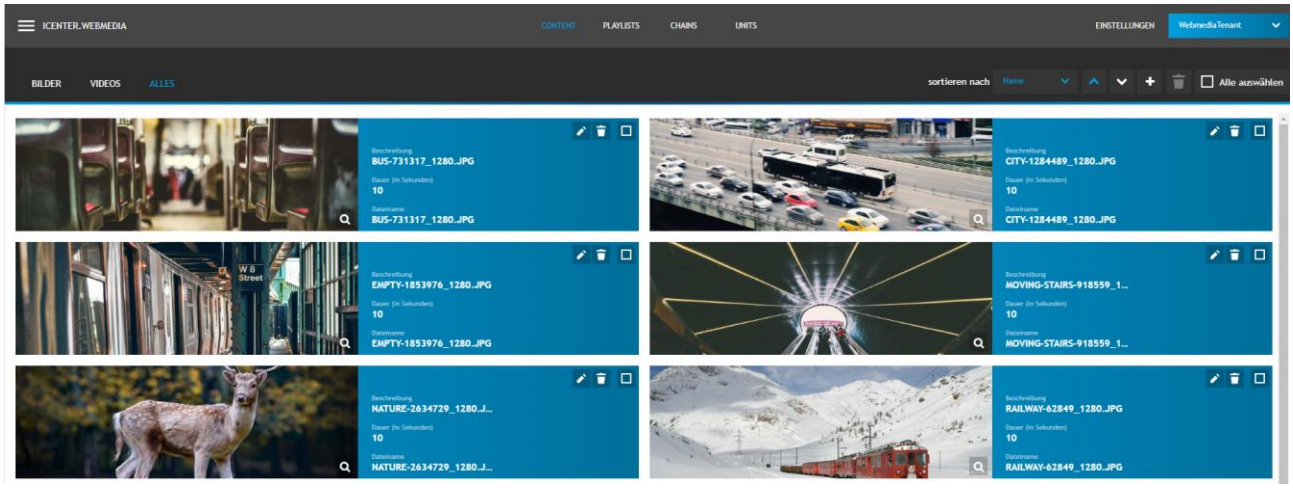

Figure 6 – Content overview

2.2.1 Sharing Assets with other tenants

Assets can be shared with other tenants to which the current user has access to. This feature reduces duplicated assets for different tenants. Note that all rules and criteria are shared too.

2.3 Playlist Management

Contents must be grouped using playlists. You can create as many playlists as you want. To keep an overview each playlist gets a name. A single content can be part of many playlists. It is important to decide on which position in the sequence of the playlist a content is located, e.g. you want to make sure that picture xyz is always shown first (put it on top). In the playlist overview window there is the possibility to get a quick overview about linked contents by using the "magnifier symbol".
Content can appear multiple times within the same playlist.

The following screenshot shows the dialogue where you can link contents to a playlist.

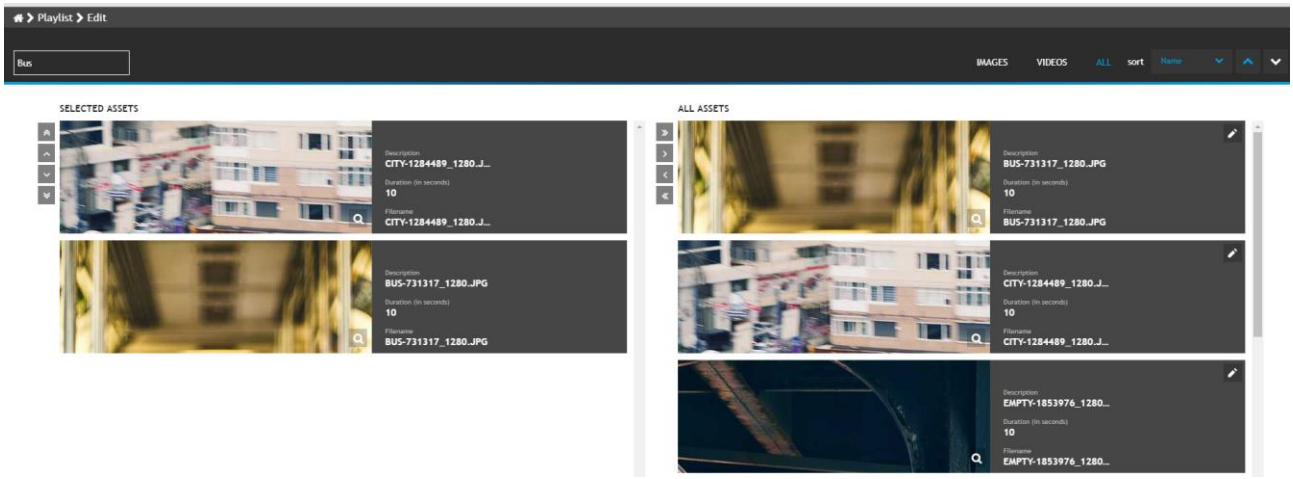

Figure 7 – Adding content to a playlist

2.4 Chain (Cycle) Management

2.4.1 Introduction

2.4.1.1 Cycles

Cycles are containers for playlists. You can add several playlists to a cycle. One individual playlist can be part of many cycles. Like playlists, cycles can apply conditions. A cycle without conditions is called

"Main cycle". Cycles that define conditions are called "Criteria Cycles". The same conditions are available as in the "content management function". Important – you need to link at least one playlist to the "Main Cycle". In the following example the "Playlist1" is linked to the "Main Cycle".

2.4.1.2 Chain

Chains are containers for cycles. A chain can contain one "Main Cycle", several (n) "Criteria Cycle".

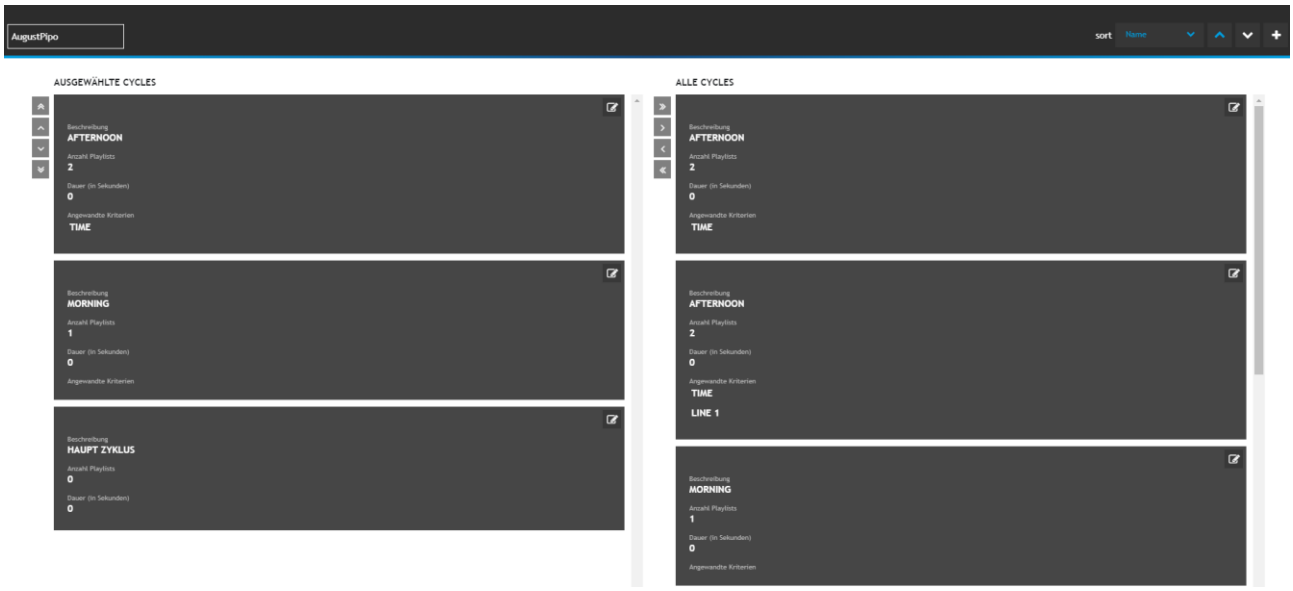

Figure 8 – Adding playlist to chains / cycles

With this concept, it is possible that a content x is linked with a condition a, is part of a playlist b and this playlist is part of a criteria cycle c. These criteria cycle e.g. is restricted to condition d. Finally, this leads to the situation that the content in only shown on TFT if the condition for the related criteria cycle is fulfilled AND the condition for the single content is fulfilled.

(In other words: If a Content has a condition and is added to a Playlist which is part of a Criteria Cycle (with conditions), these conditions must both apply in order the content is shown (Boolean AND operation). If the two conditions do not apply, the content resp. the cycle is simply skipped.)

Playlists within the cycle are going to be played in the defined sequence (top to bottom). You can use the Up and Down buttons to change this sequence. Once last playlist (meaning all Playlists within this Cycle) it is shown, then it will start with the 1st playlist within the cycle again. And similarly - if the last content in a playlist has been played it will start with the 1st content again.

Important: Cycles are played in endless loops.

2.4.2 Priority of criteria

"Priority of criteria" – this is the philosophy of playing cycles but what does it mean? The project may have many cycles but only one of them can be valid at a specific time. An important fact how the play sequence will look like is the definition of the cycle sequence.

So as an example – on top position there is a Main Cycle which has no criteria (meaning it is always valid). The 2nd cycle afterwards has one condition (only valid if the line number = 2). In this case there is a problem – the 2nd cycle will never be played. The reason for that is the following. The player starts with the 1st cycle in the list – it has no conditions so it will be played. After this cycle was played completely it starts the same procedure from top of the cycle again. So the 2nd cycle is not played at all.

If you want to avoid this behavior you should set the cycle with the condition (line number = 2) on the top. In that case, it plays this cycle (if the bus operates one line number = 2) and if the bus doesn't operate on line number 2, it skips this cycle and checks if the next one is valid. In our example the next one has no conditions, so it is played. The general logic for defining cycles is – place the cycles with strictest conditions at first and only after the ones with less conditions (top to down approach).

Keep in mind – the complete cycle sequence is started again in case the player notifies a change in the linked conditions.

Example:

Cycle1 (line = 2)
Cycle (line = 5)
Cycle3 (no conditions)

Imagine the case where the current line number = 6. The player checks the 1st cycle – it can't be played because it needs the number = 5. It checks the 2nd cycle – can't be played too. But the last cycle can be played because there are no conditions.
After a while the vehicle changes the line number to 2. In that moment (player notifies a change in linked conditions) the cycle checking sequence starts again. So, the player checks from beginning: Can I play Cycle1? In this case, it can play Cycle1 because the condition is valid. So Cycle3 is interrupted and Cycle1 is going to be played.

Important
Please make sure that the "Main Cycle" contains at least one playlist. This playlist will be played in the webmedia slot in case no other criteria cycles are running.

Finally, you must link created chains to units (= TFTs) or unit groups. This is done in the function "unit management"

2.4.3 Criteria

The following criteria can be defined:

- **Date**, to specify the day(s) when the cycle should be displayed
- **Time**, to specify the time of the day when the cycle should be displayed
- **Line**, to specify the line number to restrict the units that can display the cycle

2.5 Integration in ICM

To play CMS contents ICM must contain a dedicated dynamic section [1], chapter 3.6.3.6. The Filename property of the section should be "webmedia/webmedia.wm2". If the player on TFT reaches this section it shows the next (valid) ICWM asset from the valid chain (top – down approach). If no valid content can be found (e.g. in case the content / cycle are linked with conditions which are not fulfilled) the dynamic section is going to be skipped.

2.6 Units

Each device installed in a vehicle is called Unit. In our case the Units are TFT, which must be supplied with data defined in our CMS. In the 1st step there is the need to define all Units. This is done in the section "Units".

The User can assign Chains to a specific group of units. Once the user changed the chain he/she needs to create a new Update. The Update can be named with an Update Tag to help the user to identity the current Update/Content on a specific Unit.

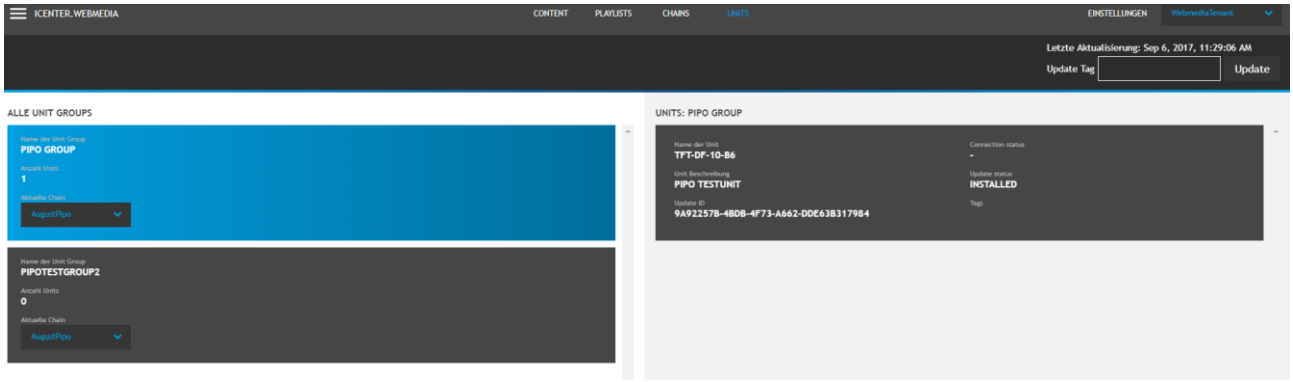

Figure 9 – Units view

2.7 Update and Monitor

Using update you can initiate the data transfer to all unit groups for the current used client. It is not possible to exclude some vehicles from this update procedure. There is the chance to enter a free text to this update. This may be helpful for you to identify this update later. If you don't fill this field the software generates an automatic tag with date and time stamp.

Connection status of the unit is currently not displayed. Tags are used to display additional information about a unit (Unit User Defined Properties) which is automatically set by the BackgroundSystem.

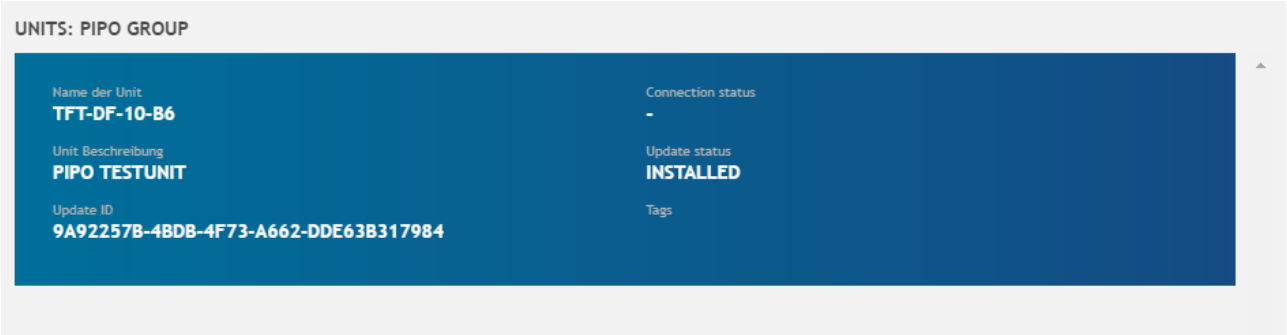

Figure 10 – Unit and Update status

2.7.1 Update status

Updates are not handled by ICWM. ICWM triggers new Updates on the remote BackgroundSystem. The content (webmedia.wm2) file is requested by the remote BackgroundSystem asynchronously. Thus, ICWM needs to keep track about every new Update in the System, no matter whether it was triggered by ICWM or not.

- **Created**: An update is generated but not yet requested by the BackgroundSystem
- **In Progress**: Content was requested by the remote BackgroundSystem, but the Update is not successfully installed yet.
- **Installed**: The current update is successfully installed on the Unit and the content should be displayed.

2.8 Additional Functions

With these functions the user can

- change his/her password to a new one
- select another client (mandator)
- logout from the system

These functions are self-explanatory so there is no need to give more details here.

Please keep in mind – for normal users it is not possible to change to another tenant. These users are linked to one tenant only. Typically, a root user and an administrator have the possibility to switch between different tenants.

2.9 Administrative Tools

2.9.1 Overview

There are further functions available, mainly to administer the system.

- options

2.9.2 Options

2.9.2.1 Introduction

The user can set several pre settings. So basically, this module is not altered in daily business – it is more a general configuration for the customer and project needs (done only once). The following sub chapters are going to give more details.

2.9.2.2 Presets

This function is used to define the default duration for contents to be shown. Currently we support it only for pictures. In the dialogue to define contents you can overwrite this preference by the real value if needed.

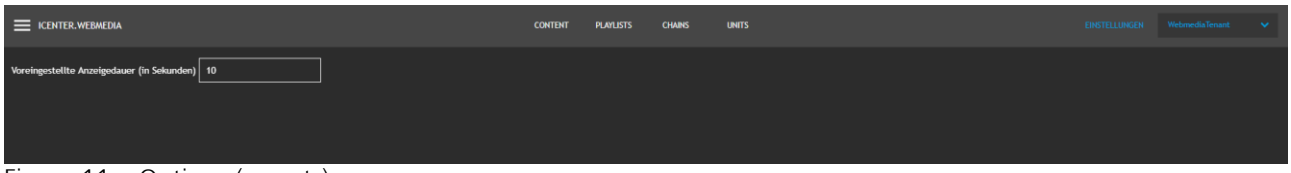

Figure 11 – Options (presets)

Videos are played completely.