# Navori QL • RFP Documentation

## Introduction

This document is meant as a resource to assist Navori partners when responding to RFPs (request for proposals). You will find below a detailed and complete assessment of each component that makes up the Navori QL digital software platform. On the last page you will find a list of suggested applications. We recommend Navori partners use the information contained in this document as a reference and edit the material as required.

## Navori QL Server

Navori QL Server is delivered as a system service which can be run on any Windows 7, Windows 8 or Windows Server equipped PC. Here are the main benefits of running Navori QL Server as a service:

- Lower software maintenance costs.
- More reliable.
- Easier to deploy.

### *Navori QL Server offers the following features and benefits:*

- Navori QL Server is compatible with Microsoft IIS 7 and Microsoft SQL Server R2 or more recent.
- Navori QL Server's SQL database can be hosted on the local PC or on any remote SQL Server.
- Administrators can use Microsoft SQL Server Express in the beginning and migrate to a commercial SQL Server version at any time in the future.
- The maximum database size Microsoft Server Express supports is 4 Gb. However, when used with a commercial SQL Server version the maximum database size will increase depending on the version of Microsoft SQL Server installed.
- Navori QL Server supports Windows PC Players, the QL Stix 2400 / 3400 Android players and many Android tablets.
- Media content can be stored on the local user's PC, on a remote file server or any type of network attached storage device (NOTE: media is <u>not</u> stored in the SLQ database itself).
- Users interact with Navori QL Server using Navori QL Manager which is a Microsoft Silverlight application.
- Navori QL Server downloads all future software updates automatically. The QL Server application is updated by the administrator as required but the QL Player software can update itself autonomously if configured to do so.
- Navori QL Server is able to function when there are no user sessions currently opened in Windows Server.
- Navori QL Server is…
    - Compatible with all commercially available anti-virus solutions.
    - Compatible with all current virtualization and cloud computing technologies.
    - Compatible with any content delivery network technology.
    - Compatible with any internet proxy server.
    - Compatible with http and https connections.

- The QL Server administrator can specify which communication ports the application will use.
- Navori QL Server is compatible with Microsoft Active Directory which handles user access security. User connects automatically to QL Manager and is assigned their own profile without the need for manual authentication. Otherwise users will log in using QL's own authentication system.
- Navori QL Server is certified for up to 50,000 Players. Complex operations are performed almost instantly even on very large networks.
- Navori QL Server supports load balancing for very large networks.
- Navori QL Server is compatible with Content Delivery Networks such as Microsoft Azure making sure content is delivered in the fastest and most cost-effective way.
- Content updates are now possible for "disconnected" Windows devices via USB memory key. This feature helps deliver content where network connectivity or internet access is difficult or not supported. For example, highly secure locations, trade show environments, some mobile applications, etc…
- Navori QL Server is compatible with all database systems and social media sites. Twitter, Facebook and many others are supported. There is no programming required.

### *Navori QL Server SDK:*

- The QL Server SDK is a web service that lets users access and manage Navori QL through their own software applications for automating common tasks.

  With the QL Server SDK, third party developers can:
  - Create groups and subgroups
  - Copy content
  - Create and edit QL Manager user's views and rights
  - Purge expired accounts and players with associated content

## Navori QL Manager

Navori QL Manager features a web 2.0 interface. Content is updated without having to refresh the web page. Navori QL Manager supports rich content and a Windows application "look and feel" within any internet browser.

### *Navori QL Manager offers the following features and benefits:*

- Due to its web-based nature, Navori QL Manager is compatible with the following operating systems: Microsoft Windows, Apple Mac OS and Linux.
- Navori QL Manager is compatible with all popular web browsers, such as Microsoft Internet Explorer version 7+, Apple Safari version 4+, Firefox version 3.6+ and Opera.
- There is no software to install (aside for the one-time installation of Microsoft Silverlight).
- The QL Manager interface is available in the following languages: Arabic, English, French, German, Spanish, Portuguese and Chinese.
- Email alert notifications can be sent out automatically over http and https SMTP mail servers.
- QL Manager can handle more than 999 simultaneous user connections due to QL Server code and database stored procedure optimizations.

- Navori QL Manager can control Windows PC Players, Navori QL Stix Android devices and other approved Android devices (for example: Galaxy Tab, Asus Transformer Pad, Outform and RTC Edge industrial-grade interactive tablets).

### *Administrators can assign the following rights to each user:*

- Which network (group/sub-group) of Players each user can see and access. Visibility can also be limited to a single Player or many players via group and category control.
- Which content library users can see and access.
- Which playlist users can see and access.
- Which tasks each user is authorized to perform.
- Which alerts the user will receive based on a predefined profile.
- Which events the user will be notified of based on a predefined profile.
- User accounts can be programmed to become active and expire at any time which lets administrators pre-configure user accounts.
- Administrators can enforce a disk storage quota for each user account. This will limit how much data each user can upload to the system.
- Users can either be permitted to log in form any location or restricted to up to 10 locations (via fixed IP address).
- Users can be allowed to access the status of a Player, which playlist is currently being displayed, the user name of the person that sent the last update, the state of the Player's content download progress and confirmation of its successful completion. All this information is provided in real time.
- Users can be allowed to review a list of previously recorded alerts and events relative to each Player under their control.
- Users can be notified when content requiring their approval has been uploaded to the Navori QL Server. They can in turn log in to approve the material at which time the user requesting approval will also be notified.
- Users can be allowed to retrieve proof of playback data for any Player under their control. These users can generate detailed reports based on the criteria of their choice.

### *Player profiles and properties that you can control from any PC via Navori QL Manager:*

- Manage your Navori QL Player software versioning in real time. Enable auto-software updates for your Players or perform manual updates at your leisure.
- All Player licenses can be managed centrally from Navori QL Manager.
- Navori QL Player uses a modular design and each module (feature) can be activated by the vendor whenever their customers purchase them. Activation is automatic and completely "hands free" and the list of activated modules per Player can be reviewed in Navori QL Manager.
- Users can configure a set of common parameters which are stored as Player profiles. Profiles are managed in Navori QL Manager and stored centrally on the Navori QL Server.
- Here are the features you can set in the Player technical profiles:
    - Player PC Screen suspend/resume time for each day. You can also skip entire days. Feature also works in reverse for overnight applications (screens on at night, off during the day).
    - Default media content that will be shown when nothing is scheduled.
    - Enable/disable automatic Player software updates.
    - Date and time synchronization between Player and Server PCs.
    - Time at which the Player PC will reboot automatically.
    - Set the interval at which the Player will purge unused content.
      Any content not listed as part of a current of future schedule will be deleted.

    - Set the interval at which the Player will upload its reports to the Server.
    - Set the Player data storage threshold. Users will be notified when exceeded.
- All Players sharing a technical profile are automatically updated when a user or administrator modifies any of the values or settings listed above.
- Player PC screen suspend/resume settings stored in technical profiles can be overridden on individual Players as required.
- Users and administrators can create and assign an unlimited number of profiles.
- Player properties that are unique to each Player:
    - Multi-time zone management. Players automatically adapt to the local time zone.
    - Player PC resolution automatically registered at Server level.
      Multi-screen layouts are also supported.
    - Centralized Player software license management.
    - Core Player PC statistics collected and managed centrally: PC performance index, graphic driver, Microsoft Direct-X and Internet Explorer versions.
    - Users can upload up to 25 media files or assign URLs to each Player in a group. Content is called up by adding one or more placeholders in any playlist. This is so you can assign a playlist to a group of Players and display both common and local content within the same group. Players that have no content assigned will skip the placeholder and play the next item in the playlist.
    - Assign categories and sub-categories to enable cross group/sub-group selections to simplify the Player update process.

### *User management in Navori QL Manager:*

- User access is controlled via a domain structure.
    - The root level domain is the highest level. User accounts created at this level will have access to the entire network.
    - Administrators create domains below the root to provide secure access to any given group. This can also include any sub-group below the selected group. Users created at this level will have access to the group and sub-groups that part of this domain and nothing else.
    - Sub-domains are created to provide secure access to any sub-group. This can include the group directly above the sub-group which is sometimes necessary to let users access content stored at the higher level. Users created at this level will have access to the group and sub-groups selected to be part of this domain.
    - It is possible to have multiple levels of sub-groups. Each level can be assigned its own sub-domain. This will support for example a national, regional and local organization.
- Domains can only be created by administrators.
- Every user in a domain shares access to the same group/sub-group structure; however, each user account can have different rights.
- Administrators can create an unlimited number of user accounts in each domain under their control.
- Each user account is assigned a domain (or sub-domain), a rights profile, an alert profile and an event profile. Navori QL Server is delivered with preconfigured rights, alert and event profiles that administrators can edit as necessary. Administrators can also create custom profiles.
- Rights that can be assigned to a user account:
    - Can create other users? (If yes, account will be considered administrator).
    - Can edit Player properties?
    - Can edit group properties?
    - Can access the Player monitoring window?

  - Can access the content playback reporting?
  - Can edit the on-screen ticker?
  - Does this user require his content to be approved by someone else?
  - Is this user authorized to upload new media to the Server?
  - Is this user authorized to edit the scheduling (planning)?
  - Is this user authorized to access/modify the playlist merging settings?
  - Is this user authorized to send updates to the Players?
- List of the alerts that can be sent to a user (based on their profile):
  - Player has not communicated with the Server within last X minutes or hours.
  - Player has had problems downloading content.
  - A live data feed is no longer available.
    (Meaning a template or ticker could currently be displayed with no live data).
  - Player has shut down unexpectedly.
  - There is no content in the scheduling grid (meaning the default media is currently being shown on one or more Player screen).
  - Player has an issue playing some content.
  - Free space on a Player's hard drive has fallen below a preset level.

- List of the events that can be sent to a user (based on their profile):
  - Player has received an update (new instructions, new content…).
  - Content on Player has expired.
  - Content approval has been requested.
  - Content has been approved.
  - Player PC's screen has been activated (powered-on and image visible).
  - Player PC's screen has been suspended (low-power mode, no image shown).
  - Notify if Player software has been updated.

### *User accounts:*

- The following information is stored with each user account:
  - Name, email, address, city, state/province, zip/postal code, landline phone, mobile phone, Skype user ID, country name, time zone.
  - Account validity range (start/expiry).
  - Account login name.
  - Account password.
  - Disk quota.
  - IP restriction
    (when enabled, administrator can list up to 10 static IP addresses per user account and wildcards are supported, ex. 192.168.*.*).
  - User rights profile.
  - User alert profile.
  - User event profile.
  - Notification type (email, QL Manager Dashboard).

### *Player monitoring:*

- The following information is tracked and displayed in the Monitoring window:
  - Date of the last Player update sent.
  - Name of the user that send the update.
  - Real-time Player content/programming download status.
  - Name of the playlist currently running on the Player.

- Status of the Player indicated by a color code:
  - Grey = Player deactivated/not activated.
  - Blue = Player operating according to normal parameters.
  - Yellow = Player has recorded a non-critical alert.
  - Red = Player has recorded a critical alert.
- RS232 or HDMI-CEC status indicated by a color code. This applies to screens or other devices that are monitored via RS232.The color value can list one of 3 results:
  - 1 = Will display the RED indicator in the Monitoring window
  - 2 = Will display the BLUE indicator in the Monitoring window
  - 3 = Will display the YELLOW indicator in the Monitoring window
  - The status value can be edited according to your needs.
- The system supports stored monitoring queries to help facilitate Player monitoring tasks on large networks. Users can pre-select various selection criteria to filter monitoring results. These queries are then saved in a drop-down list for use by other users.

### *Proof of playback reporting:*

Each Player generates and compiles its own proof of playback reports. Reports are uploaded to the Navori QL Server at a preset interval (happens every hour by default but this parameter can be modified in the Player profile). Navori Server integrates every report into its SQL database. This design is extremely efficient and makes the system very scalable.

The proof of playback reporting can be queried using various criteria. For example, you can perform searches based on any given period or date range. You can sort the results with a primary and secondary key (content name, customer name or advertising reference) and aggregate the results by group name or Player category. You can export the results as a Microsoft Excel or CSV formatted text file.

### *Content library:*

Each group and sub-group level features its own content library. To share content amongst multiple sub-groups, simply import the content at the group level and ensure all sub-group users have been given access to the group above their sub-group.

- Navori QL supports the following media types and formats:
  - Animations: Flash SWF (interactive Flash content is supported).
  - Audio: mp3, wav
  - Bitmaps (static images): bmp, gif, jpeg, png.
  - Videos: avi, flv, h.264, mpeg-1, mpeg-2, MP4, QuickTime MOV, Windows WMV.
  - Web: html, s-html, asp, jsp.
  - Streaming video: unicast (http common to Windows and Android) /multicast (RTP, UDP specific to QL Player running on Windows).
  - Broadcast TV/video feeds: via Hauppauge TV tuner cards (Hauppauge WinTV software required).
- Media properties that can be assigned and managed in Navori QL Manager:
  - General properties:
    - Descriptive name
    - Duration
    - Content active/inactive
    - Duration override (SWF only)
    - File type/extension
    - User account name (who uploaded/edited the content)

        - Date of the upload
        - Dimensions (resolution, in pixels)
        - Bit rate
        - Frames per second
    - Playback effects:
        - Assign bitmap transitions
          (fade in, zoom out, wipe, slide in with directional options)
        - Trim video/flash clip
          (define start frame/end frame to eliminate black frames or to shorten clip)
        - Cropping (for images, videos, Flash and web pages)
        - Loop content
        - Hide ticker while media is playing
        - Mute audio
    - Assign validity period:
        - User may assign one or more validity periods to each media in the library.
        - Validity periods are based on a time/day of the week basis.
          (e.g. clip X can only be shown between 8 and 10 AM weekdays or on specific days and this rule will apply for the next month).
    - Advertising
        - Customer name
        - Advertising reference
    - Keywords
        - Users can assign as many keywords (metadata) as they want.
        - Keywords are taken into account during searches.
    - Attached files:
        - Add up to 8 file attachments to each media file.
        - Attached files will be sent with the media file at the next Player update.

### *The Template Designer:*

Navori QL Manager lets users create and manage sophisticated templates quickly and efficiently using the built-in Template Designer. Templates are saved in the media library and added to playlists like any full screen content.

- Template Designer features:
    - WYSIWIG designer application that offers an easy to use and friendly interface.
    - Users can design templates with a solid color background or use a bitmap image (keywords supported for background image searches).
    - Templates can be duplicated via copy/paste.
    - Templates automatically adjust to the Player's screen resolution. Any bitmap image selected as a background is dynamically resized to match the template dimensions.
    - Users can create templates that span multiple screens (video wall applications).
    - Users can add the following content zones to any template:
        - Static text zone.
        - Display the current time in a zone. Time is retrieved from the Player PC itself so local time at the Player's location will be displayed.
        - Display the current date in a zone. Date is retrieved from the Player PC itself.

- Geographic shape (rectangular/oval) with support for borders, solid color background, gradients, transparency.
- Display live text data (Media RSS/RSS/XML or self-hosted data) in one or more zones (one data field per zone). Multiple feeds are supported in a single template. Display records from multiple feeds simultaneously without using a data grid. Links to images are supported in Media RSS and XML feeds. Images are resized automatically according to Player's resolution. Ideal for weather forecasts, traffic information, news with images, financial and sports oriented content.
- Display live text data (Media RSS/RSS/XML or self-hosted data) in a grid (show entire database or select fields in a grid). Multiple data grids/RSS feeds are synchronized. Links to images are supported in Media RSS and XML feeds. Images are resized automatically according to Player's resolution.
- Template image zone. Can contain any image file and when the image is dragged into the template it will become the topmost layer. Only text and template image layers can be positioned on top of media and playlist zones. PNG files with transparent backgrounds are supported. Transparency is retained when the bitmap is dragged onto the ticker area. Bitmaps elements are imported and stored with the template itself. These images are also shared with the ticker designer.
- Media zone. Can contain any type of media including live TV. Users can add multiple media items in succession (similar to a playlist but self-contained inside the media zone). Media zones will loop by default but you can set them to play through once and pause at the end.
- Playlist zone. Can contain any playlist (assuming playlist does not contain a template itself). Zone content is managed at the playlist independently from the template. Playlist zones will loop by default but you can set them to play through once and pause at the end.

- The following content zones can be rotated up to 360 degrees: Text, date, time, shape and template image.
- By default, empty templates are set to 15 seconds and dynamically adapt to the longest media or playlist zones as they are added. If there are multiple content zones, the shorter zone(s) will loop until the end of the longest zone. Users may also set the template to a fixed duration in which case content zones will either loop or play once and pause until the template reaches its conclusion.
- Text, date, time, real-time data zones all support a wide range of typographic controls.
  - Fonts (Any font installed on the Player PC can be used. If another font is selected, Player will substitute with the closest Microsoft font equivalent).
  - Font size (user selectable and typed-in).
  - Font style: normal, bold, underline, italicize, align left/center/right.
  - Font color/transparency.

  - Text data field support:
    - 3D transitions (fade, fade and grow, horizontal wipe, fade up).
    - Field synchronization.
    - Adjustable data refresh rates.
    - Alphabets supported: Latin, Asian and Arabic.
  - All types of Media RSS/RSS/XML, twitter feeds are supported. Select which columns/rows of data are to be shown.
  - Self-hosted databases are stored in the Navori QL Server's SQL database. Users enter data via an "Excel"-like grid. Select which columns/rows of data are to be shown.
  - HTML5 content it supported (both hosted on a web server or "download and play"). Content interactivity is respected.
  - Font sub-families are supported.
- Use templates to create smart menu boards; live TV with advertising content; conference room reservations; doctor waiting room information and more…

### *Tickers:*

Navori QL Manager lets users create and manage the display of live text data overlays quickly and efficiently. Users can enhance the ticker's design using various graphical tools they access via the Ticker Designer. Tickers are shown on a QL Player's screen as the topmost layer, floating above any programmed media. Tickers are not scheduled like traditional media or templates. Tickers are displayed when any playlist is programmed and/or be shown only during specific playlists.

The ticker is an overlay element that will always appear on top of any content being shown on the Player's screen.

- Navori QL Manager features the Ticker Designer.
  - WYSIWIG designer application that features a user friendly interface.
  - By default, tickers are always scaled to the width of your Player's screen and assigned a height of 200 pixels. In this configuration, Navori QL Player will display the ticker across the bottom of any screen regardless of its orientation. However, users can also position tickers anywhere on screen by specifying an area that is scaled to the screen's resolution (same width and height as the screen). When configured in this way users can position digital on-screen graphics anywhere on the Player's screen, like a watermark.
  - Tickers can be duplicated via copy/paste.
  - Tickers can be temporarily disabled by selecting the "Hide Ticker" option in the media/template properties. The ticker is restored once the media/template has finished playing.
  - By default, the ticker's background is transparent. Users can add a solid shape, a transparent shape or use no background element at all.

- The ticker's background graphic can be rectangular or oval and be assigned a border color in any thickness. The border can be solid or transparent. The graphic itself can be shown in a solid color or a 2 color gradient. Transparency is also selectable for each color.
- Users can add the following content zones to any ticker:
  - Geographic shape (rectangular/oval) with support for borders, solid color background, gradients, transparency.
  - Static text zone.
  - Display the current time in a zone. Time is retrieved from the Player PC itself so local time at the Player's location will be displayed.
  - Display the current date in a zone. Date is retrieved from the Player PC itself.
  - Display live text data (RSS/XML or self-hosted data) in one or more zones (one data field per zone).
  - Display graphics in a bitmap zone. This zone can contain any type of supported bitmap. PNG files with transparent backgrounds are supported. Transparency is retained when the bitmap is dragged onto the ticker area. Bitmaps elements are imported and stored with the ticker itself. These images are also shared with the ticker designer.
- Text, date, time, real-time data zones all support a wide range of typographic controls.
  - Fonts (Any font installed on the Player PC can be used. If another font is selected, Player will substitute with the closest font available).
  - Font size (user selectable and typed-in).
  - Font style: normal, bold, underline, italics. Align text left/center/right.
  - Font solid color/transparency.
- Text data fields support:
  - 3D transitions (fade, fade and grow, horizontal wipe, fade up).
  - Field synchronization.
  - Adjustable data refresh rates.
  - Alphabets supported: Latin, Asian and Arabic.
- All types of RSS/XML feeds are supported, including feeds with links to images. Select which columns/rows of data are to be shown. All databases are supported.
- The following content zones can be rotated up to 360 degrees: Text, date, time, shape and template image.
- Self-hosted databases are stored in the Navori QL Server's SQL database. Users enter data via an "Excel"-like grid. Select which columns/rows of data are to be shown.
- By default, tickers duration is set to 15 seconds and as you add data feeds, duration will match the data feed. So, if your data feed has 5 records, the ticker will play all the records and go to the next ticker in the list. If there are no other tickers in the list, it will simply start back at the first record and loop. Users may also set the tickers to a fixed time in which case data feed content will loop for the duration specified.

- Tickers are commonly used to display weather forecasts, sport scores, live news feeds, stock market statistics, currency rates, entertainment/medical news, Twitter/Facebook and other social media feeds. Users can create and display on-screen graphics to show their corporate logo or any other type of information.

### *Playlists:*

Playlists are lists of media items that you want to schedule. You can create an unlimited number of playlists and assign them to time slots in the planning window. When you update your QL Players, they will show the playlist's content according to your schedule (time slots).

- Users can upload up to 8 media files or assign URLs to each Player (this is configured in the Player properties). Content is called up by adding one or more placeholders in any playlist. This is so you can assign a playlist to a group of Players and display both common and local content within the same group. Players that have no content assigned to a placeholder will skip it and play the next item in the playlist.
- Media items will play according to their position in the playlist. Media items can be reordered simply by drag and drop or you may set the playlist contents to play at random.
- Each playlist can have one or more tickers assigned to it. These tickers will be shown until the end of the playlist's programmed time slot.
- Playlists automatically calculate their duration based on the items they contain. You simply add and remove items and the playlist recalculates its duration on the fly. If the assigned timeslot is longer than the playlist, the content will loop until the scheduled end time.
- Playlists can also be assigned to a group that contains multiple levels of sub-groups. This will support for example a national, regional and local organization. Playlists in the upper levels can be made available to lower levels permitting global/local playlist management.
- Users can drag and drop multiple items to add them to a playlist simply by holding down the control (Ctrl) key while they select and drag the media items into the playlist.

### *Scheduling (planning):*

Each playlist you wish to display on your Players must be assigned one or more time slots. Users drag and drop the playlist in the planning grid and then specify how long they want this playlist to run.

- The planning grid provides a visual representation of your weekly programming. If the grid is empty and users push an update to their Players, they will show the default media. To display playlists users must drag and drop them onto the grid and assign a time slot.
- Time slots are assigned in one of two ways.
    - By selecting the start and end time.
    - By selecting the start time and the number of loops. The software will calculate the end time based on the total duration of the items in the playlist and the number of loops.
- The system supports two types of programming techniques.
    - Sequential programming: This is when time slots follow one another. For example, playlist A runs from 8 to 10AM, B from 10 to 11AM, etc…
    - Overlapped programming: This is when two or more time slots overlap one another. For example, playlist A runs from 8 to 10 AM, playlist B runs from 8 to 11 AM, etc…

- When time slots overlap, the system will merge the contents of the playlists together dynamically based on the following rules:
    - Merge sequentially: All the items of playlist A will play followed by playlist B and playlist C.
    - Reorder as selected: You can define how many items in each playlist will play in sequence. For example, 2 items of playlist A followed by 6 items of playlist B and 3 items of playlist C. With this option, playlist A will play its first 2 items on the first pass, the next two on the second and so on…
- It is possible to mix merging rules so one time slot always plays all the items in its playlist and the second only a preset number of items in its playlist at each pass.
- The system supports a maximum of 3 overlapped time slots regardless of the options selected.
- Users can zoom in or out the scheduling grid by positioning the cursor inside the grid and using the mouse's scroll wheel.
- Users can edit (stretch or shrink) a time slot interactively using their mouse or by typing in the start/end time.
- Individual time slots or an entire day's programming can be copied and pasted in the grid as many times as required. For example, schedule a time slot on Monday from 8 to 10 AM and copy/paste it into each successive weekday.
- Users can duplicate entire days or an entire week of programming. Programming can be replicated across any period (weeks, months, years). Any programming conflict is automatically resolved according to user defined settings (overlap or replace existing programming).
- Users can also delete programming for the day, week or for any given period.

## Navori QL Player Windows

Navori QL Player is the playback application that you install out in the field to play the programming you prepare in Navori QL Manager.

- Navori QL Player is a software application that is made up of 3 modules.
    - Navori QL Engine: This is the proprietary playback engine.
    - Navori QL Conductor: This is the module that manages QL Engine and ensures it is operating at peak efficiency.
    - Navori QL Guard: This is the watchdog application that ensures all the modules are running properly.
- Navori QL Player is compatible with Microsoft Windows XP, Vista, Windows 7 and Windows 8 (all versions) in both 32 and 64 bit.
- Playback of scheduled content is precise down to the frame. When playing Flash or video content, timing is based on the exact number of frames to play. It is not based on a theoretical duration.
- If necessary, Navori QL Player will accelerate media playback to catch up on less powerful hardware. This acceleration is imperceptible to the viewer but it ensures the Player is always synchronized with its scheduling.
- The Navori QL Player Engine is fully compatible with multi-core/multi-threaded CPUs. New content frames are pre-buffered while other content is playing.
- Content transitions smoothly from one clip to the next. There are never any black frames or stuttering visible during transitions. Provides a TV-like experience for the viewer.

- Navori QL Guard is the watchdog application that performs many background tasks:
    - Watches over the Player and ensures it is always operating at peak efficiency.
    - Detects if there are any memory leaks.
    - Monitors RAM, Handles, GDI and Threads.
    - Detects and prevents Microsoft Windows on screen messages.
    - Notifies Navori QL Server if any problem is detected and sends out alerts.
        - In the event any content cannot be displayed the QL Guard sends out an alert and QL Player skips the content. The screen is not affected and viewers are unaware there has been a problem.
        - RSS or XML data feed unavailable. Affected template or ticker is skipped until data feed access is restored. This process is completely automated.
- Navori QL Player manages the activation and deactivation of Energy Star compliant screens without the need for any additional hardware or cabling (such as is the case with RS232 or HDMI=-CEC remote control). Select at what time the screen should be activated and deactivated for each day. You can even leave screens deactivated for entire days.
- Navori QL Player switches between full screen and template content seamlessly. You can mix and match content without any limit.
- Web based content is never cached ensuring you only see the most current data. This is crucial when displaying database driven web sites. If Navori QL Player cannot fully resolve the web page within its allocated duration it will skip the content entirely. This ensures web pages are displayed on screen in their entirety.
- Navori QL Player is certified stable for 24/7 - 364 content playback. There are no memory leaks.
- Navori QL Player is extremely efficient. It is designed to operate on low power/low cost computer platforms such as ATOM/ION2 PCs.
- Navori QL Player processes all its proof of playback reports locally and then uploads them to Navori QL Server at a preset interval.
- Each Player communicates in real-time with QL Server.
  Here is a list of the data that is transmitted:
    - Content and programming download progress.
    - Player status
    - The playlist that is currently playing.
- Navori QL Player synchronizes on-screen media down to the frame ($1/30^{th}$ of a second). This is valid for all video and Flash content on single screens, multi-screens, in full-screen and in templates.
- The Player's playback window is completely programmable independently from the PC's video settings. This means you can display the playback window in any size and position on screen. This is required for LED billboards for example.
- Navori QL Player supports both landscape and portrait mode. There is no loss of performance when used in either screen orientation.
- Navori QL Player is compatible with multi-screen/multi-channel playback. Use a single screen to display unique content on 2 or more screens (as many as your PC and video card hardware supports).
- Navori QL Player can synchronize video clips when playing content on multiple screens or in multiple zones on a single screen.
- Content can be scaled across multiple screens. Maximum supported resolution: 7,000 x 7,000 pixels.
- When playing content across multiple screens, Navori QL Player can assign individual media to each screen and switch seamlessly to scaled media across all screens.
- Titling text layer can span multiple screens.

- Navori QL Player can detect if programmed content is available (downloaded) and ready to play. If clip is unavailable, Player will skip the clip and load the next available content. This process is completely seamless and imperceptible.
- Navori QL Player supports live TV broadcasts and external video feeds via Hauppauge TV Tuner hardware. The TV tuner module supports ATSC, analog/digital cable and satellite broadcasts, s-video, composite and any other type of feed compatible with the Hauppauge tuner selected.
- TV tuner content is managed just like any other supported media. You can play back TV Tuner content in full screen mode or in a zone. Zones can be positioned anywhere on screen.
- TV channels are managed automatically regardless of their location (country/region). For example, TV channels can vary from one region to another. Sometimes the channel identifier will change or sometimes the channel will be available from different sources such as digital over-the-air signal, cable or satellite feed. Navori QL Player will detect and adapt to these source changes seamlessly without any user interaction.
- Most streaming video formats are supported via an add-on.
- Each Navori QL Player generates its own proof of content playback logs independently. Logs are automatically uploaded back to Navori QL Server at a preset interval (by default, uploads occur every hour but this setting is user configurable). This system is extremely efficient as QL Server only needs to consolidate the results of each Player's report into its own SQL database. Since each Player processes its own reports independently, users can run large networks without impacting the Server's performance.
- Navori QL Player/QL Server communication is optimized so Players consume very little bandwidth when passing on status updates and event reports.
    - Bandwidth consumption rate for Navori QL Player set to a default refresh rate of 15 seconds (includes activity from the Real-Time Monitoring and Playback Reporting modules): 0.586 Mb per hour.
    - NOTE: This rate does not take into account Player content updates (media file downloads) and/or data downloads associated with playing back content from a URL or RSS/XML data feed.
- Navori QL Player communicates with QL Server via http or https connection (full-duplex). Communication is performed in real-time.
- Administrators can assign a custom communication port.
- All internet proxy servers are supported (Microsoft Windows or Proxy authentication).
- Navori QL Player uses a fixed data packets size. Any data transfer interruption is automatically resumed.
- Navori QL Player performs automatic data integrity checks and data packet reconciliation.
- The Navori QL Conductor service improves reliability and ensures QL Player and QL Server are always communicating.
- Navori QL Guard is a service that ensures QL Conductor and QL Player are always running at peak efficiency. QL Guard will also re-launch QL Player if it stops responding or if preset health parameters are exceeded.
- Whenever Navori publishes an update, Administrators are alerted so they can perform a manual update of their server. If the QL Player auto-update feature has been enabled, it will detect the new version. QL Player will then download and apply the patch. Next, the Player PC will be rebooted automatically and the new version will be active. There is no user interaction required once auto-update is activated.
- Navori QL Player can be configured so it automatically synchronizes its clock and date settings with QL Server. QL Player will detect time zone and summer/winter time changes automatically.
- Whenever Navori QL Player is installed, the application performs an automatic configuration of the operating system and optimizes the PC for digital signage use. All third party modules and

applications required by QL Player are installed and configured so the PC is ready to perform as a dedicated digital signage appliance. If the QL Player installer detects any pre-existing issue on the PC that could cause instability or other potential failure it will stop the installation process and advise the user.

- Navori QL Player is compatible with Microsoft Windows Active Directory for user account management.
- Navori QL Player is compatible with wireless internet technologies such as GSM, LTE, 3G and 4G.
- Navori QL Player can operate in "disconnected" mode for extended periods (several weeks) assuming the Player has previously received a content and programming update that spans the period. As long as there is content scheduled, QL Player will display the content regardless of its connection state.
- Disconnected players can be updated via the USB add-on. No network connection is required.
- Navori QL Player will only display fully resolved web pages (html content). If the Player cannot fully download all the necessary elements to display a complete page, the URL will be skipped and Player will switch to the next item in the playlist. Web pages (URLs) are preset to 15 seconds by default in QL Manager. Users can modify the duration of each URL according to their needs but must also take into account the complexity of the web content to be displayed and the bandwidth available at the Player end.
- If a user schedules a web page (URL) and the content is not available, Navori QL Player will detect the missing content and skip it until it is available. This situation typically occurs when there is a network connection issue at the HTML server.

### *Player Performance:*

- Able to display in full HD: Video content, Flash, HTML or HD TV broadcasts while using less than 30% of the CPU's resources.
- Playback of content, titling and transitions is supported by the graphic card's GPU, not the CPU.
- Compatible with fanless/small form factor ION based PCs since QL Player requires so little CPU resources.
- Compatible with all Windows versions including Windows 7 in 32 and 64 bits.
- Navori QL Player manages multiple threads and multi-core CPUs natively. Software loads are spread amongst each core with each core being assigned a content stream or titling.
- Compatible with content delivery network servers (CDN): These are mirrored HTTP servers. QL Players will automatically download the content from the CDN server that is the closest to its physical location.
- Player programming updates take place in background (on-air updates). Current Player programming is not affected during content updates.
- Navori QL Player is compatible with most anti-virus software applications.
- Navori QL Player is compatible with most of the PC remote control software applications.
- Software installation and activation only takes a few minutes (online process).
- Navori QL Player can be installed on a closed network environment. Users do not require an open internet connection to download and activate the software.
- Users can enable an auto-purge feature to ensure hard drives do not get filled with obsolete content. This feature is fully configurable and recommended for PCs that use solid-state hard drives (SDD) or low capacity external drives.
- Navori QL Player writes and manages its own detailed log files. Expired logs are purged automatically to conserve hard drive space.
- Each Navori QL Player can be assigned its own default media which will be displayed if there is no content scheduled (and the screens are on) or in case of extreme problem so there is always content displayed on screen at any time.

## Navori QL Player Android

The Navori QL Player Android is the playback application that you install on any Android device such as smartphones, tablets or HDMI players.

- Navori QL Player Android supports all the features of QL Player Windows including : automatic layout resize, xml and Media RSS support, multi-feed support, datagrids, media and playlist zones, template images and more...
- QL Player Android can be locked down so users interacting with content will have no access to the Android desktop. A conductor setting ("QL Player lockdown") must be activated manually for this feature.
- QL Player Android features a proprietary color balance and brightness algorithm which improves the quality of content displayed on this platform. This proprietary code is embedded in the QL Player software and allows the content's color and brightness to be displayed with the same quality as in Windows.
- Ethernet LAN proxy with authentication is now supported through third party software.

## Navori QL Stix 2400

QL Stix 2400 is Navori's own Android player which is delivered pre-configured and ready to play.

- 100% plug & play operation. Software Player ships pre-installed.
- Fully tested and guaranteed 100% compatible with the Navori software platform.
- Plays 1080p video, Flash 11, HTML5 as well as all other Navori QL Player compatible content.
- Multi-layer with transparency, tickers, data-feeds, real-time monitoring and playback reporting all supported.
- On-board WiFi and includes an RJ45 Ethernet adapter.
- Uses 20 times less power than a traditional PC.
- Weighs less than 29 grams. No mount required.
- No cable clutter. USB powered right from the screen.
- Compatible with SaaS and self-hosted installations.

## Navori QL Stix 3400

QL Stix 3400 is Navori's newest and most powerful Android player which is delivered pre-configured and ready to play. The QL StiX 3400 is fully HDMI-CEC compatible – allowing the user to remotely control on-site hardware and run diagnostics which can easily triple the life span of the hardware. This command and control protocol is currently available under various brand names on both consumer and professional display devices from major vendors. This technology supersedes the RS-232 protocol which is more complex to manage and requires extra cabling to deliver similar functionality.

- All the features of the QL Stix 2400 plus:
    - This device is fully 1080p compliant. No video upscaling is performed.
    - Supports HDMI-CEC to fully remote-control compatible displays. Turn displays on/off and receive status updates through the Navori QL Manager interface.

# Suggested applications/projects:

### *Interactive kiosks/Wayfinding:*

- Since Navori QL supports interactivity either from a keyboard and mouse or touch-screen, users can easily adapt their own interactive Flash or HTML applications and leverage the software's content management and scheduling capabilities.
- By adding the Navori Spy module, users can further enhance their applications. Navori Spy will send QL Player to the background when any activity is detected. Any Flash, HTML or third party application can be launched enabling the viewer to interact with the screen. After a preset period of inactivity Navori QL Player is returned at the forefront, once again displaying the scheduled content.
- Key benefits: No programming necessary, easy to configure and update, supports a wide range of third party software applications.
- Applications: E-commerce, wayfinding, museum information kiosks, etc…

### *Dynamic menu boards:*

- Navori QL provides does much more than just display live data from public RSS and XML feeds. Users can create and serve their own data feeds using QL Manager. Data is displayed on QL Players without the need for any programming.
- Using this functionality, restaurant owners and operators can build and maintain a database of menu items and prices. Menu data can be displayed in a table format using Navori QL's Data Grid feature making it easy to create sophisticated digital menu boards.
- Ongoing maintenance is simple. Users simply edit the data in QL Manager and the Player's menu is updated automatically.
- Key benefits: Instant data updates without any programming. Decreased printing costs.
- Applications: Quick service restaurants, take-out counters, exterior restaurant signage, etc…

### *Hotel/conference room signage:*

- Navori QL's live data support makes it an excellent choice for hotel signage applications.
    - Tickers can be used to display live data such as: local news, weather forecasts or traffic information.
    - Room management systems can interface with QL's data feed manager to publish conference room scheduling information, welcome visitors or more. Integrate with Micros and Dean Evans reservation systems.
    - Easy to program and display live data from web sites. Show airline arrivals/departure times, flight delays, etc…
- Key benefits: Instant data updates without any programming. Show live data from third party web sites. Interface with proprietary room management systems.
- Applications: Hotels, convention centers, exhibition halls, museum exhibits, etc…

### *Mobile digital signage:*

- Navori QL Player is compatible with wireless technologies such as GSM, LTE, 3G and 4G making it an ideal platform for mobile digital signage applications.
- Navori QL Player is designed to operate in low-bandwidth environments and in locations where internet connectivity is intermittent. Content is only downloaded once and then only if it has been modified. In cases where wireless internet is not practical, use of the Navori USB content update add-on is recommended.
- Low bandwidth requirements mean lower communication costs.
- Automatic purge of expired media content prevents data storage problems on smaller solid-state hard drives often used for mobile applications.
- Navori QL Player is highly efficient meaning it performs quite well on lower-end PCs. These are the types of PC platforms typically used in mobile applications.
- Since Navori QL Player is compatible with Android tablets, users can also deploy mobile/connected interactive applications in taxi cabs, mass-transit, trains and any other type of mobile installation. When paired with the Navori Spy module you can achieve highly interactive mobile advertising applications.
- Key benefits: Low hardware requirements. Operates flawlessly on less than optimal network connections or disconnected. Instant data updates without any programming. Real-time PC and Android Player status updates.

### *"Location Aware" mobile signage:*

- Navori offers a GPS add-on that lets users deploy location aware mobile signage applications. In this scenario, busses and taxis fitted with the proper equipment can display digital signage content based on waypoints laid out on a map. As the vehicle approaches the waypoint, currently scheduled content is interrupted and replaced by the content assigned to the waypoint location. As the vehicle moves away the scheduled content is restored.

- Applications: Announcing bus stops via MP3 audio messages, advertising businesses close to a bus stop or other geographic location (landmark, etc…)

### *Trade shows:*

- Navori QL is an ideal choice for trade show applications.
    - Content can be pre-loaded at one location and updated on-site at any time.
    - No fixed IP required at the Player end. Simplifies deployment in remote locations where static IP is not available or simply not economically feasible.
    - Configure system to communicate via proxy servers.
    - Switch from full screen media to multiple clips on screen in independent media/playlist zones.
    - Supports live RSS/XML data. Content can be updated from any location where there is internet access.
    - Local Player content supports wayfinding applications. Show unique content on individual Players in the same group.
    - Content can be assigned specific playback days/times via validity periods.

  - Support for video wall or any other complex multi-screen configuration.
  - Players rely on a multi-level watchdog system to ensure QL Player is always operating at peak efficiency.
- Key benefits: No static IP required. Content can be updated on the fly. Complex scheduling scenarios supported.
- Applications: Trade show booths, entrance signage, kiosks, wayfinding, conference room signage, etc...

### *Corporate communication/call centers:*

- Navori QL can accommodate any corporate communication project.
  - Display real-time greetings for visitors via QL Player's live data support (template or ticker).
  - Change programming on the fly.
  - Available TV tuner module supports over-the-air, cable or satellite broadcasts.
  - Display live data without the need for programming languages.
  - Integrate with MS-Exchange using third party solution from Simego.
- Key benefits: QL Manager's interface is easy for non-technical/non-creative personnel to master. Supports all popular multimedia formats. Templates/tickers support live RSS/XML data feeds as well as self-hosted data feeds.
- Applications: Publish staff training content, re-broadcast seminar videos, send out messages from senior management, display caller wait times for call center team members, etc…

### *Health care:*

- Navori QL Manager has an easy to use interface making it easy for non-technical personnel such as doctor's assistants and receptionists to perform all content management and scheduling tasks.
- Display health related RSS feeds and schedule web content (WebMD for example).
- Already being used by healthcare professionals around the world.
- Key benefits: Easy to learn and use. Health care professionals can display medical information and urgent public notices quickly and efficiently. Secure.
- Applications: Health care offices and waiting rooms. Dentist, chiropractor, ophthalmologist, general practitioner offices, etc…

### *Education:*

- Navori QL is an excellent communication platform that is well suited for the educational sector.
  - Communicate instantly across an entire campus or target content for specific buildings/areas.
  - Flexible user access management. Assign specific screens/playlists to faculty and others to students (Campus TV). Validate student content before publishing.
  - Display private intranet or public web site content.
  - Trigger custom alerts and announcements across campus instantly.

- Key benefits: Flexibility and immediacy. No specific skills required to add/edit/manage content. Secure (meets IT personnel requirements). Can run on low power PC hardware components.
- Applications: Signage installed in campus quad/dormitory, common areas, conference/seminar rooms, library, teacher's lounge, etc…

### *High security applications:*

- Navori QL is suitable for high security environments.
    - Internet proxy servers supported.
    - HTTPS is supported.
    - Private networks are supported.
    - User account controls (assign IP restrictions, account expiry date).
- Specify which content plays where. For example, sensitive or private content can only be displayed at certain times, on specific days. Restrict access to certain playlists. Restrict access to certain aspects of the network via user profiles:
    - Certain users can upload content, others not.
    - Certain users can upload content but it must be approved by their superior before being published to the Players.
    - Control access to select groups and sub groups of Players.
    - Control access to monitoring, playback reporting and technical settings.
- Key benefits: Ease of use and deployment. Public internet access is not required. Sophisticated user account controls.
- Applications: Banking, government, hospitals, pharmaceutical labs, aerospace companies, military, etc…

### *Retail:*

- Navori QL becomes powerful a promotional tool when deployed in any retail environment.
    - Enforce rule based programming so product ads are shown during specific periods, at pre-programmed times, on specific days regardless of when they are scheduled.
    - Have on-screen ads expire automatically to match your advertising calendar.
    - Display live POS data via Navori QL's RSS/XML data support or use self-hosted data feeds that are stored right in QL Server itself.
    - Create attention grabbing layouts using QL Manager's template and ticker designers.
    - Display both global and location specific content throughout your network. Show a mix of generic advertising and switch any time to local ads for each screen location (e.g. show a sale on suits on the screen located in the men's wear department and an ad for frozen dinners in the food section).
- Deploy screens in various orientation and layouts (landscape, portrait, multi-screen banners, totems or video walls).
- Key benefits: Programming flexibility. Support for all popular multimedia formats. Sophisticated template and ticker designer. Local content support. Proof of playback reporting, highly reliable Player software and built-in watchdog app.
- Applications: Queuing control, aisle end dynamic signage, wayfinding, etc…

### *Multi-tenant networks:*

- Navori QL was designed for networks that require complete isolation between multiple tenants. The platform lets administrators assign each tenant their own domain ensuring users can only see their own group/sub-group hierarchy. The system is secure, reliable and features a wide range of user access controls which are essential to any network operator.
    - QL administrators are in complete control of the network.
        - Create user accounts that have a predefined expiry date.
        - Users can be locked out at any time.
        - Fully programmable user rights. Create group specific administrators, managers and user accounts.
        - Assign and manage user IP restrictions (up to 10 static IPs can be assigned per user account). E.g. user can log in to the system from his office but not from home. This type of control is essential for business applications.
        - Control access by group or individual sub-group(s). Root level administrators are in total control of what users can see and access on the system.
    - Grow your network at your own pace. Start on a Windows 7 based PC with SQL Server Express and upgrade later to a Windows Server/commercial SLQ Server license later on.
    - QL is optimized for growth. Each QL Player collects and processes its own proof of playback reports, then uploads them to the Server. QL Server integrates individual reports into a central database. Adding large numbers of Players will have minimal impact on the Server.
    - Navori QL data backup and migration is quick and painless.
- Key benefits: Ease of use/administration. Powerful profile based user and player property management. Designed for growth. Extremely scalable.
- Applications: Large network operators, SaaS providers, etc…

### *Advertising networks:*

- Navori QL offers features that are extremely important for advertising network operators.
    - Proof of playback reporting with a comprehensive set of filters that include: report date/period range and content name. Results can be filtered by Player group or by category.
    - Users also have the option of tagging each content item with metadata (customer name and ad reference) which can be used to filter proof of playback results.
    - It's also possible to exclude partial content played from the results so only content that has played fully will be reported on.
    - Content playback can also be controlled using various rules. For example, content can be assigned a validity period so it can only be shown on screen for a specific number of days/weeks/months and it's also possible to restrict playback to specific days of the week or hour ranges. Once these settings have been applied, content will only play according to these rules once they are added to playlists and scheduled.

  - Playlists can be merged together to create organic programming that goes beyond individual time slots and you can manage the number of items per playlist that will be shown at any given time. For example, you can merge a playlist that contains advertising with another that only contains news items. By controlling the merging method one can ensure a more enjoyable content mix for any time period. This is handled automatically by the system.
- Key benefits: Easy to manage. Flexible rule-based content programming.
- Applications: Advertising networks, retail store operators, mall owners.

### *Banking/Institutional applications:*

- Navori QL supports queuing applications so you can manage your visitor messaging and advertising using a single platform. Using the Navori Player SDK, individual content or entire playlists can be triggered from various external sources. Combine this with Navori QL's support for external data to create flexible and efficient queue management applications.
  - Keep customers and visitors informed of the queue progress and any changes in status in real time. Display wait times, teller availability and more.
  - Deliver crowd pleasing content and news feeds.
- Navori QL's Player SDK can also be used for crowd management, emergency broadcasts and more. The trigger can be sensor based or the software can interface with external systems. All popular development languages are supported (C, C++, .Net, etc..)
- Key benefits: Ease of use/administration. Trigger based system that can be programmed easily.
- Applications: Any type of queuing application such as in banks, hospitals, car rental agencies, insurance desks, government institutions, retail, etc…