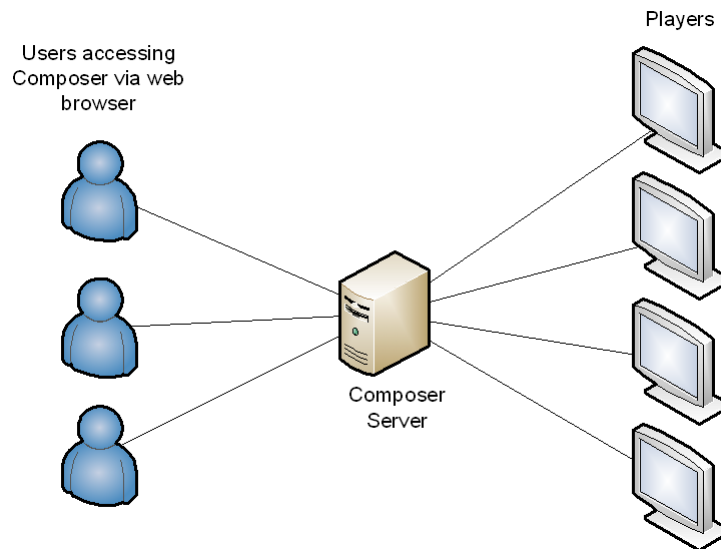




Network and Security Guide

Inspired XPert



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Networking and Security Guide

Introduction

This guide explains the networking requirements for an IS XPert installation and any security issues that users should be aware of. An IS XPert installation consists of the following:

- Composer - Content Management application
- Babel - Data Integration application
- A number of Players - customized PCs running the Player application which renders and displays signage content on attached screens
- Previewer - Modified Player application used to preview signage content before display
- Post Office - Data transfer application - transfers updated signage content from Composer to the Players for display

Composer users access the Composer server over the network using a web browser and Microsoft Silverlight client. The Composer Server is connected via the network to a number of IS XPert Players. Each Player is attached to one or more display. FIG. 1 provides a simplified overview of this arrangement:

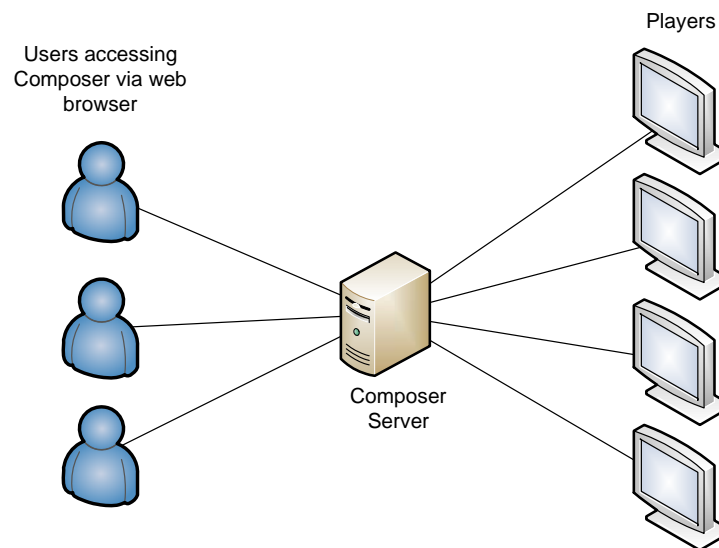


FIG. 1 Composer Server Network Overview

IS XPert Components

The different IS XPert components are described in detail below:

IS XPert Components	
Component	Description
Composer	Web based client/server Content Management application used to configure Playlists and Messages for display on IS XPert Players. All Composer data is stored in a SQL Server database. The Composer client is implemented using Microsoft Silverlight. The Composer web application runs under either IIS or the Cassini web server
Post Office	Application used to transfers updated content comprising new or changed Playlists and Messages from Composer to the IS XPert Players via FTP. The Post Office Application is installed on the same machine as Composer by default.
Player	Customized PC running Player application. Renders and displays signage content on attached screen or screens
Babel	Data integration application, used to integrate data from selected sources such as RSS feeds, Twitter, XML, Picassa, Flickr and Google Calendar, etc. with signage content. Each IS XPert Player hosts a copy of Babel.
SQL Server	Microsoft SQL Server Database, used to store Composer data
Previewer	Custom version of the Player application used to preview Messages prior to display

The following table describes the applications installed on each IS XPert Player:

IS XPert Player Main Components	
Component	Description
Player Application	Software which renders signage content to an attached screen or screens
Web configuration Tool	Web based tool to configure Player settings e.g. screen resolution and to setup data feeds for Player
Serial port controller	Allows remote control over the Player serial port. A typical use would be to power on/off an attached display.
Babel	Data Integration Application

Network Ports and Protocols used by IS XPert

The IS XPert component applications use a number of network ports for communication and data transfer, see FIG. 2 for details.

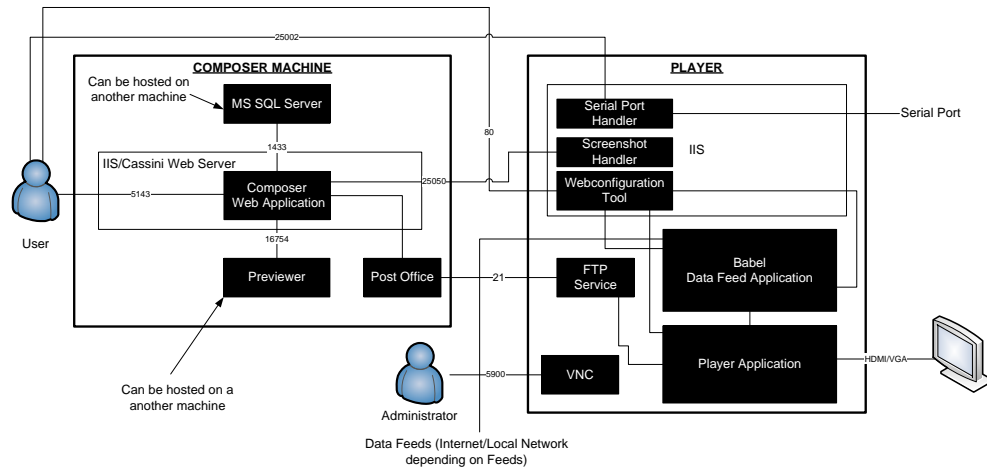


FIG. 2 Detailed Network Diagram showing ports used by IS XPert Components

The following protocols are used:

- HTTP for Serial port control and to fetch data feed information. HTTP is also used to access the Player web-configuration tool (webconfig)
- HTTPS to access the Composer silverlight web client.
- FTP for Publishing changes to Messages/Playlists and for transferring media files between the Post Office and the Players
- VNC for maintenance to Player PCs for problems which cannot be fixed via remote updates or through webconfig. Note, this facility is rarely used

By default Composer uses the Cassini webservice as it allows users to get up and running out of the box however AMX recommend that users switch to IIS for greater security and scalability.

Security

All communication between Composer Silverlight clients and the Composer Server uses HTTPS and is secured using RSA public/private key encryption. Communications between Composer and SQL Server and Composer and the Players is unsecured, as a result you should make sure that Composer and the Players are installed on a private secure network protected by a firewall. The Player webconfiguration tool uses SHA1 encryption for the login password.

Network Bandwidth Requirements

The IS XPert solution uses network bandwidth when transferring new Messages, Media (image or video files) and Playlists to Players, this happens whenever a user updates a Playlist with new Messages and publish the changes to the Players. Once content has been published to a Player it is retained and will continue to play, it does not need to be republished. If you plan to show digital tv or other digital video streams using the Livemedia capabilities, then you will need to reserve some bandwidth to carry this data.

A small amount of network bandwidth is also used for

- Player status updates e.g. screenshots, network status
- Data Feeds, fetching data from the internet or local network to integrate with signage content

The highest bandwidth usage occurs when transferring video to Players as part of video messages. If you frequently change the content you want to display on a Player and that content contains a lot of videos then it will impose a higher burden on your network. However if your content does not need updating regularly (more than once or twice a day) or in a time critical manner then you will not need a large bandwidth, 100Mbit/s should suffice.

As an example a 30 sec 1080p h264 HD video could require approximately 30MB (on average the bit rate for an 1080p video is 8-15 Mb/s). The following table shows the approximate time required to transfer a video of this size to a large installation of 400 Players

Transfer Time to send HD Video Clip to 400 Players	
Network Speed	Time Needed
100Mbit/s	20 minutes
1Gbit/s	2 minutes

If you adding 5 new videos of this size then the transfer could take 1 hour over a 100Mbit/s network. However typically you would only be updating your signage to this extent on a monthly basis at most, for example to coincide with a new advertising campaign.

Networking Hardware Requirements

Networking kit requirements:

- AMX recommend that you provide a DHCP Server (or router with DCHP Server facility) to give fixed IP addresses to the IS XPert Players based on their MAC Addresses. This is the easiest and most flexible way to configure Player IP addresses. IS XPert Players are setup to use DHCP out of the box.
- If you plan to display a digital video stream on your Players then you will need to ensure that your routers and switches support IGMP snooping

Network Setup for displaying Video Feeds

IS XPert Players can display digital video streams in selected areas of your Player screens using the Livemedia system. FIG. 3 shows how to connect a Vision2 system to an IS XPert system to display video streams from the Vision2 server, it also shows a video encoder used to display analogue video channels.

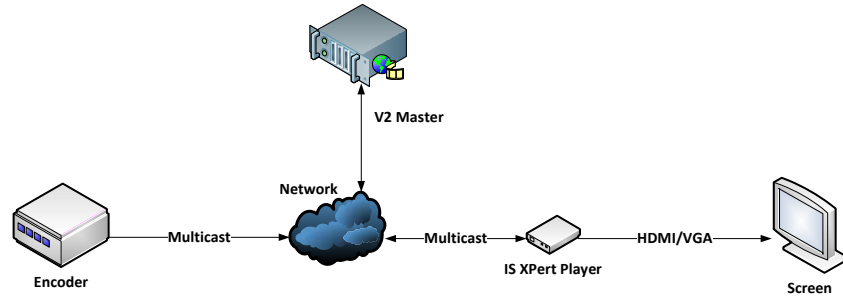


FIG. 3 Network setup to display analogue/digital video streams on IS XPert Players



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