Using AnsuR ASIGN over BGAN
Optimal Image and Video Communications
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1 Overview

ASIGN, or “Adaptive System for Image communications In Global Networks”, is the optimal image communication management solution for transferring high quality digital photos, video and associated data, such as GPS and metadata tags, at highest possible speed and lowest possible cost – while maintaining access to full image quality, from locations anywhere in the world. This enables photographers in the field, e.g. as part of disaster assessment teams, or other observers, to communicate what has happened, and where, almost instantly to a web based data management server system. ASIGN is more than just an advanced image compression system. It is a total management system including robust protocols, tools and databases for high bandwidth demanding visual data/metadata that is urgently needed somewhere else.

Images can be with multiple parties anywhere in the world the same minute us was shot – anywhere in the world. ASIGN is made in particularly for Inmarsat BGAN.

ASIGN can be used by large disaster management organizations, and is developed with the United Nations. It can be used by defense and civil protection, by journalists who want to be first to publish or anyone who wants a rapid and cost-efficient visual communication system for global operations. While developed for BGAN, ASIGN also supports mobile links or any challenging or non-challenging IP communication link.

Figure 1: Conceptual overview of ASIGN with input, server and output.

2 Three SW Units make ASIGN

The system consists of three different software components. Below is a description of each of the components. The two clients, Trigger and Receiver, run on Windows, Mac OS and Linux while the server runs on Linux. ASIGN can be used only for input management, output management of for a complete system with both features.

1 In this note the term image commonly refers both to moving images (video) and photos
2.1 ASIGN Trigger

The ASIGN Trigger, i.e. sender, is responsible for acquiring the live or still images, GPS tagged or not, from cameras, memory cards or hard drives, processing them for ASIGN, and sending them to the ASIGN server. The Trigger can communicate with Wireless Camera or directly via cable. Optimized image transfer can be automatic - at the push of the shutter – or manual.

While first images are unsolicited by the server (hence “triggered by events), the Trigger is connected to the server and is online for control and further solicited commands.

The Trigger can integrate the visual data with various sensors, such as wind, temperature, humidity etc. so that a multi-source observation is done.

ASIGN is automatic and made simple to use. After a first initial configuration, a one button “connect” is all that is needed.

2.2 ASIGN Server

ASIGN uses a two-step approach for image and video transfer. The initial “push” from the field observations is an adaptively sized small-sized image. Images or regions of interest with greater levels of detail can, up to the full size original, be requested from the ASIGN server later, where they also can be combined with expert advice, digital signal processing such as e.g. face recognition, GIS/maps and e.g. latest satellite earth observation data.

The server is the core component and the central ASIGN management system. With a web based interface it can be accessed from anywhere. The server has three main functions: A) Input management, B) Database management, processing, mapping and assessment support C) Output management. In addition it also does user and configuration management. While the use of GPS is optional, the server has a particular strength in GIS interface, online mapping, integration with maps and integration with other infrastructures. Recognizing the coordination of large scale events often is a challenge, the ASIGN server is in addition to the optimal and adaptive input management, also built to support efficient distribution of data, reliably and rapidly, to everything from single users to large user groups. Visual data of highest quality, bundled with maps, messages, orders, assessments and other associated data can be sent e.g. to the field, for notifying personnel of actions or events using visual data.

ASIGN is a multiuser capable system and can support a large number of senders and receivers.

2.3 ASIGN Receiver

After processing and assessment, the data can optionally be distributed anywhere globally and reliably via the output management system to a defined set of receivers. This distribution can be done using traditional uni-cast communications or the specially developed BGAN multicast system for efficient transfer via satellite.

The ASIGN Receiver reliably communicates with the server over any IP channel via unicast, or via the BGAN multicast system. It reliably catches, presents and displays data that has been sent, while also notifying the users. ASIGN receivers can also request finer levels of details of images and maps.
3 Typical Users

There is a large range of user groups for ASIGN, including

- military and governmental; scouting
- civil protection and emergency management
- rapid damage assessment and disaster management
- quality control and remote inspection with global expertise option
- situation awareness; know what is happening and when
- police operations
- environmental disaster management
- highly distributed news gathering
- photo journalism
4 United Nations Use Case

ASIGN has been successfully used by the UN on several missions to create near real-time maps.

Figure 1 United Nations Rapid Mapping

Figure 2: Hurricane Damage Assessment at Haiti with UN
5 Setting Up

5.1 System Requirements

ASIGN Trigger / ASIGN Receiver
Operating system: Windows XP, Windows Vista, Linux or Mac OS X.
Software: Java Runtime Environment version 6.0 or newer.

ASIGN Server
Linux-based server running Apache 2, PHP 5 and MySQL 5.0.

5.2 Installation

Installation of the ASIGN Trigger and the ASIGN Receiver on Windows XP/Vista is done by running the supplied installers, namely trigger-installer.exe and receiver-installer.exe. Installation on Mac Os X is done by dragging the applications ASIGN Trigger and ASIGN Receiver into the /Applications folder.

Installation of the ASIGN Server is not covered in this document.

5.3 Configuration

Configuring the Trigger
Configuration of the Trigger consists of the following steps:

- Configuring transfer of images from camera(s) to the Trigger.
- Configuring transfer of images to the ASIGN server.
  - This requires a configuration of server details (which server to connect to) and credentials (who is connecting).

This setup is typically done after the Trigger software is installed, and only has to be performed once. There should be no need to reconfigure after everything has been set up. Below is an illustration of the configuration we will set up.

Transfer from camera to Trigger
- The Enable Wireless Camera Input checkbox can be used to control whether or not the Trigger shall accept wireless transfer of images from cameras.
Directory polling is a mechanism that scans a given folder at regular interval for new images, and imports them, either by copying or moving them into the Trigger image library.

Directory polling is useful in cases where a third-party application is used for capturing/generating images, and stores them in a folder which is polled by the Trigger.

For wireless transfer, an Ad-Hoc wireless network needs to be set up between the camera and the computer, and the camera must be configured to connect to the Trigger for transferring images.

Transfer to the ASIGN Server

Setting up the connection from the ASIGN Trigger to the ASIGN Server is done by entering hostname, port, username and password into the configuration dialog as illustrated below.

Configuring the Receiver

Before connecting the Receiver to the Server, the receiver must be configured. Configuration is done by selecting Edit->Configuration and entering server Hostname and Port.
6  Using Assign

6.1  Transferring from the field to Server

Images will be automatically sent to the ASIGN Server when the shutter on the camera is pressed:

- If the camera is connected with Wi-Fi to the Trigger
- If the Trigger is connected to the Server (a green light is displayed in the bottom right corner of the Trigger window when it is connected)

As an alternative to wireless transfer, it is possible to import files into the ASIGN Trigger application. How this is done is illustrated below.

6.2  Operating the Server

At the Server, incoming data can be viewed and maps of areas where images are shot are displayed.

If needed, high quality image data can be requested from Triggers. The necessary data will then be transferred from the Trigger to the Server immediately, or whenever the Trigger connects if it was not connected when the request was placed. From the Server, information can be sent to receivers in the field running the ASIGN Receiver application.

Below is a screenshot of the ASIGN Server application.
7 Receiving

The ASIGN Receiver will receive data from the Server when it is connected. If the Receiver is not connected when the data is sent from the Server, the data will be received whenever the Receiver connects.

To connect the Receiver:

- Start the ASIGN Receiver application
- Enter the username and password in the respective fields at the bottom of the Receiver window.
- Click “Connect”. The red light should now switch to green.

8 Contact Details

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