



Official Air-Stream Wireless Newsletter

Air-Stream EARC

The long wait is finally over. The Air-Stream EARC major upgrades are now complete. Over \$3500 of equipment fully donated by members and City Technology has now been installed and is available for all members to connect too. The project has taken over year to complete but the results are worth the wait.

For those that haven't been following the project, there was a complete overhaul of the equipment at the site. The upgrades included the installation of 4 x 2.4GHz 120 Degree sectors, 4 x 5.8GHz 120 Degree Sectors and an upgraded backbone connection to Gulfview Heights. The upgrades included the decommissioning of the old point to point links running to Salisbury North, Uleybury and Gould Creek, with Uleybury already connected to the sectors and Salisbury North able to connect (Gould Creek has been offline due to poor

signal for a long time now). Future plans include the installation of a small low powered server for running Air-Stream Services as well as the installation of a PTP Backbone link to the upcoming Suntrix-Hermatige Node.

The final stage of the upgrades were completed by Dan, Farkenutz, Blue18 and myself (Nekron) on the 27/9/2013 . It was a quite a busy day with all 6 x sector antennas being installed, 2 x Grid antennas being removed, the installation of a Nanobridge M5-25 to Gulfview Heights, installation of a managed switching the rack, termination of all of the toughcable, removal of the old routers and radios and the installation of new caballing connecting into VK5LZ.

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Upcoming events

30/10 - Members Meeting (Parkside)
13/11 - Committee Meeting
23/11 - Air-Stream Annual General Meeting

Did you know?

Your Air-Stream membership gets you much more than just a membership to the Air-Stream community, it also gives you discount at many of our sponsors and connected companies! Just visit <http://www.air-stream.org> membership/member-discounts for more information!





Air-Stream EARC (cont)

Since these upgrades there are now 5 clients already connected to the tower, with potentially many more now able to connect that previously were unable to connect to the network. As the site has both 2.4ghz and 5.8ghz sectors available, clients will have the option of choosing the best solution depending on their locations, noise, LoS and equipment availability. The sectors are running Ubiquiti Rocket M2 and M5 radios, with the 2.4ghz sectors running standard 802.11n so that existing hardware can be used. At this stage the 5.8ghz sectors are also running 802.11n, however we are looking at changing over to using Ubiquiti Airmax.

After all of the upgrades done, there is actually nothing left running at the site from the existing installation other than a single 24V Switched Mode Power Supply.

On Level 4 of the tower, the new hardware consists of:

- 4 x Ubiquiti 2.4GHz 120 Degree Sectors
- 4 x Ubiquiti 5.8GHz 120 Degree Sectors
- 4 x Ubiquiti Rocket M5
- 4 x Ubiquiti Rocket M2
- 2 x Mikrotik RB750UP
- 24 Port 10/100 Managed Switch

Level 5 hardware includes:

- Ubiquiti Nanobridge M5-25
- Passive PoE Injector

- 5 Port Unmanaged Switch

The plan included pre work for future upgrades on level 5, this can be seen in many pictures on gallery. It consists of extra cables running to the two windows on Level 5 that Air-Stream have access too. The current plan includes a Point to Point backbone to the upcoming Hermitage site, as well as potentially replacing the Gulfview Heights backbone to the higher gain Rocket Dish + Rocket M5 Combination. However more planning and approvals are required before this can happen.

These upgrades would not have been possible without the support of City Technology who donated 4 x Ubiquiti Airmax 2.4GHz 120Degree Sector Antennas. Nor would it have been possible without the donations of various Air-Stream Members.

Several Members donated large amounts of hardware and time to this project, A special Thank you to Farkennutz whom supplied the majority of the Steel and done all of the fabrication for the upgrades, Romanov, Dan and Blue18 for time throughout the installation and their donations of hardware, Biggy and Pazza for there donations of hardware. Finally thanks to the Air-Stream Network Team for their support over the last year during the planning phase of this project. Without the dedication all of these people this project would not have been possible.





Air Stream Pasadena Rebuild

Pasadena is one of the longest running nodes on the network and has had many upgrades over the years. In early 2013 it was reinstalled with links to Woodville Gardens, Melrose Park 2 and Highgate Park.

With its excellent coverage Colonel Light Gardens, Seaton and Ascot Park connected while Melrose Park 2 was decommissioned.

In October this year high winds one evening caused the mast to bend taking out all links except Colonel Light Gardens. A plan to rebuild Pasadena was made.

Fortunately the only damage to equipment was some slight damage to the Ubiquiti Bullet M2 which caused it to have booting issues.

The replacement mast donated from the decommissioned Melrose Park 2 node was clamped to the remaining mast as the current mounts were custom made and only suit the old mast. The mast is slightly larger, stronger and taller.

All links were re-established with Seaton and Ascot Park now getting dedicated backbones. Another Ubiquiti NanoBridge M5 was added for Ascot Park, with that addition another Mikrotik RB750UP was added to the site to cater for the extra power needed. Client access is with the existing 8db Superpass omni and a replaced Ubiquiti Bullet M2.

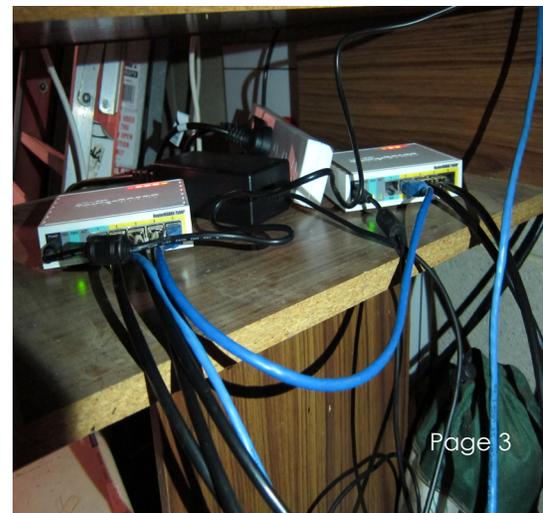
All remaining cat5e cable and connectors was replaced with Ubiquiti TOUGHCable and TOUGHCable Connectors.

Pasadena is now the best setup it has ever been and is an important part of the network as it is the only other node that

provides north-south links besides Highgate Park.

With this new setup there is the possibility for other nodes to connect to it such as West Beach on the Ascot Park link and the new nodes around Grange, Seaton and Fulham Gardens on the Seaton link.

Thanks to Drgeforce3, Didz and Drift who helped while seabird2k was away.



Network Update...

Cement Hill Maintenance

One of the most impressive hardware failures in a while included 2 x Mikrotik RB750UP's, a scorched RJ45 crimp and all of the Ubiquiti radios resetting to factory defaults.

Initially thought to be a power supply failure now appears may have been either a short on the PoE lines due to water ingress or a close by lightning strike. Either way this has caused the need to replace both RB750UP's and restore the configurations on all of the radios up the mast.

As was originally planned for this visit, the two northern facing sectors have had their down tilt adjusted by approximately 3 degrees to allow better coverage to clients where its needed. This was required as these sectors were originally installed blind as there were no clients when Cement Hill was built back in January this year.

Cement Hill currently has six clients connected to its 4 sectors (2 x 2.4ghz and 2 x 5.8ghz) and a backbone link to Highgate Park.

A future visit is required to install a more robust power and earthing system to help prevent similar failures in the future.

Keep an eye on the Air-Stream Tracker for information on any upcoming maintenance or upgrades.

The visit was conducted by Stormshaker, Nekron, Justo and Tanuki.

Paradise 1 Upgrades

With assistance of an Elevated Work Platform, Ubiquiti Nanobridges with RF Armor shielding kits were installed at Paradise 1. These Nanobridges are connecting to Paradise 2 and Devast8a. In addition to these the backbone link to Rostrevor was upgraded to a Ubiquiti 30dBi Rocket dish and Rocket M5.

Ottoway Maintenance

Recent maintenance was conducted at Air-Stream Ottoway, Operated by Firefox Ottoway is an essential node within the network. This maintenance was required due to the decommissioning of Port Adelaide. The majority of the links at Port Adelaide were relocated to Ottoway.

This maintenance visit was to realign the Ubiquiti Rocket dishes to Sefton Park, Ingle Farm and Northfield. A faulty Nanobridge to Mainsfield Park was also replaced.

Due to the nature of the masting at this site, an Boom Type EWP is required to undertake any work on the mast.

West Beach

West Beach was another of the sites that was lucky enough to receive a visit by Firefox with the EWP. A Rocket Dish was aligned to Pasadena 2, In addition to this a water filled Bullet was replaced and a NanoBridge was aligned to Carrick Hill.

Air-Stream Goonwood

Air-Stream Goonwood is a brand new site owned by Dragoon. This site was recently built, it has a connection to Sefton Park. The site is operating a 2.4GHz omni which already has a client connected This site is one to keep an eye on in the future as I am sure dragoon has plans to improve it and add services for members to use.

Parafield Gardens

Parafield had somewhat of a birthday recently, the realignment of the backbone was realigned to Air-Stream Ingle Farm. This realignment allows Parafield Gardens to get significantly improved speed and stability.

If you wish to submit Network Updates for AirZine. Email committee@air-stream.org



Northfield Upgrades



Since its first installation many years ago Air-Stream Northfield has become a significant node within the network.

Northfield sat dormant in Air-Stream for several years due to failed hardware, however earlier this year Air-Stream Northfield had a major upgrade with the installation of a Ubiquiti Bullet M2 omni, Nanobridge Point to Point link to Valley View and a 5GHz 120Degree Sector covering from Mawson Lakes around to Ottoway.

Since the recommissioning of this site its importance rapidly became clear. Providing alternate paths between east and west hence providing much needed redundancy for members.

After several months of operation it was clear the significance of this site, The Network Team identified two potential backbone connections for the site. Air-Stream Modbury North and Air-Stream UniSA.

The Network Team allocated this upgrade to Nekron who promptly enlisted the assistance of Firefox, Machspeed, Farkennutz and Blue18.

The upgrades had stumbled beginnings due to poor weather conditions. The first site visit only managed a 30 minute window to climb the tower. As the climb itself takes about 10-15minutes to complete this doesn't really leave much time to do anything. The little time that was available was used to re-align the sector to face further west. When the wind started to pick up it was time for the climber to retreat and call it a day.

This initial climb provided some useful information about the installation on the tower, as photos of the equipment up the tower are somewhat non-existent. It was discovered that the way the outrigger was built meant that no more equipment would be able to be attached. This was due to concerns of the extra wind loading on the outrigger.

The possibility of installing a second smaller outrigger below our existing one was discussed with the site manager. They agreed that it would be the easiest and safest way to add more equipment to the tower. From there a plan was formed for a second visit.

The second visit lasted even less time than the first, the wind was even worse and the climb wasn't even attempted.

The third visit proved the winner, armed with a brand new outrigger pre-assembled with two new Ubiquiti Nanobridge M5-25 the build team consisting of Nekron, Machspeed and Farkennutz set out to the site.

Northfield is the tallest lattice tower that Air-Stream currently occupies, thus there are some very specific safety procedures.

All work at Northfield starts out the same way, setting up an exclusion zone around the tower. This allows us to minimise the number of people in the drop zone around the tower and help prevent any injuries to people on the ground from any falling objects. As from those heights even cable ties hurt slightly.

For working on the tower at Northfield the

Network Team developed a Standard Work Procedure (SWP) which in addition to Job Safety Analysis (JSA) form some what of a "How-To" guide to working safely around the tower. The documents include checks for everything from checking the tower for obvious defects such as excessive corrosion or missing guy wires to the minimum requirements for the climbing equipment.

Anyway back to the upgrades... The pre-assembled outrigger with the Nanobridges had two brand new lengths of Tough cable pre-terminated and cable tied. With a lot of rope and two people on the ground pulling, the outrigger slowly ascended the tower. Eagerly awaiting its arrival the climber secured the new outrigger to the tower with a work line and proceeded to install the new mounting brackets which mate the tower and outrigger. This whole process took about an hour.

The alignment of the antennas is always a fun one when the person doing the alignment is 25m above you.

Aligning the two new backbones took about an hour to get right, thankfully it was all worth it with excellent signal to UniSA and greatly improved speed. The Modbury North link still requires alignment at the remote end but showed promising numbers during the upgrades.

Once again thanks to all those that helped out with these upgrades.

-Nekron



What is “Air-Stream?”

Air-Stream Wireless was established by a handful of dedicated wireless enthusiasts in 2001 and became an Incorporated Association in September 2002. It is the first and largest Community Wireless Network (CWN) in South Australia to successfully build a Wide Area Network (WAN) using wireless technologies.

With hundreds of active members the network now forms part of the largest community wireless network in Australia and is continuing to grow with the help of wireless enthusiasts and radio amateurs across Adelaide and Australia.

Our Mission:

Air-Stream Wireless is a non-profit community group who use Wireless LAN in combination with software and other technologies to deploy a Wide Area Network (WAN) that supports community participation, local content and communications.

Strategic Plan:

For this mission to become reality members of Air-Stream Wireless shall work together to achieve the following goals:

Maintain and develop Core Router Nodes, Network and Member management systems to ensure continuity and reliability for all members.

Continued to grow the network and promote the benefits of Community Wireless Networks in Australia.

Continue to provide education on the regulatory framework for running a Community Wireless Network such as the “Public Park Concept”

Provide an open platform for members, developers and other community groups to discuss and share information on the effective use of wireless technologies.

Develop tools that allow members to easily access distribute and create local content.

Deploy numerous free community hot-spots in public spaces, to garner broader community awareness, participation and sponsorship for Air-Stream Wireless.

Promote the benefits of community participation, support the production and distribution of local content and communication systems.

Air-Stream Wireless supports Free and Open Source Software (FOSS) which is widely used across the network to host essential services such as the Members Database, DNS and Email which have all been developed voluntarily by members.

Similarly, the wireless equipment deployed uses a part of the radio spectrum which is also free to be used by anyone, provided the radiated power is kept down. Called the “Public Park Concept” it is relatively unregulated by the Australian Communications & Media Authority (ACMA) who allow all users the same rights regardless of who they are - business, telecommunications carriers, government departments or private citizens.

Upcoming projects

As always there are many projects underway in the Air-Stream network. The Network Team is currently working on Suntrix-Hermitage. This site is situated in Lower Hermitage. Progress has been made with the hole for the foundation now being in place. However due to recent action by the council, this project has stalled.

We are not giving up on this project, however we do have a considerable amount of paperwork ahead of use with planning and building approvals. A stern reminder that always check your zoning and be aware of any restrictions in place in your area. Keep your eyes on the Tracker and future editions of AirZine for updates on the Hermitage Project.

The Air-Stream Network Team and Air-Stream Members are always working upgrading the network, Improving speeds and link stability is an on-going task.

We are always keen to hear from our members and other wireless groups, For submissions to AirZine or suggestions for articles email committee@air-stream.org

Air-Stream Node Spotlight

The Node Spotlight is a chance for members to show off their site, here are a couple of interesting ones that are a little different from the normal Air-Stream installation.



Parafield Gardens 4

Air-Stream Parafield Gardens 4 has been operating since 2011. This site has had many changes over the last couple of years. Running trials with configurations of hardware in various ISM bands including 900MHz, 2.4GHz and 5GHz.

What make Parafield Gardens 4 one of the unique sites within Air-Stream is the Lattice mast used which allows the owner to easily climb the tower to change antennas and equipment.

Due to its location Parafield Gardens 4 has many connection options, with excellent views of the Para Hills area.

The Parafield Gardens mast currently consists of the following hardware:

- 3 x Ubiquiti Nanobridge M5-25
- Ubiquiti Bullet M2-ti + Superpass Omni
- Rocket M5 + 120degree Sector
- Wispstation M5 + Commtenna
- Rocket M900 + 2 x Hills 13db Yagis
- 2 x Mikrotik RB750UP
- 1 x Mikrotik RB751
- 1 x Mikrotik RB433AH



Seaton 2

Air-Stream Seaton 2 has been around for a few years now. Originally built when Mikrotik gear was the normal. This site has had several different configurations since then.

The original mast consisted of a Hills Telo-mast installed on a satellite dish mount on the gutter. This was a little light duty for what the site owner had in mind.

Since its original installation the site has had two different variations of masting and a couple more iterations of the wireless hardware.

The current connections at the site include:

- Sefton Park - Rocket M5 + 28dbi Gridwok
- Grange2 - Ubiquiti Nanobridge M900
- Grange - Ubiquiti Nanobridge M5-25



Para Hills 5

Air-Stream Para Hills 5 is an Air-Stream Core node. This means that its managed by the Air-Stream Network Team.

This site is an interesting one due to a couple of neat little features.

This site is fully PoE powered. This isn't all that exciting until you realise that there is only one cable running up to the mast yet there are several devices.

Down in the communications room at the end of the 50m+ run of CAT5e there is a custom built PoE injector which supplies a Mikrotik RB750UP up on the mast.

The RB750UP has the ability to split the PoE out to the multiple devices on the mast.

Currently there is only one backbone running at this site back to Air-Stream UniSA. There is also a 2.4GHz Omni and a 5GHz Sector covering the Para Hills and Parafield Gardens areas.

Check out the Air-Stream Gallery for more pictures of Para Hills 5 and many other nodes.