Site Blocking Efficacy

Australia

Contents

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Introduction

This report was produced for Australian Screen Association (ASA) to give an initial assessment of the efficacy of the site blocking of 5 sites implemented in Australia in December 2016, using data from 1 October 2016 up to 31 March 2017.

The report is split into two sections. Part one of the report analyses the impact of site blocking on the sites which have been blocked so far within the country. The usage changes of these sites in Australia is then compared against global usage to evaluate the effectiveness of blocking in relation to each other and to the usage of a global control group. Part two focuses on the piracy landscape in Australia specifically. This section provides data and analysis regarding the piracy landscape in the country, looking at the most used content infringing sites in the region.
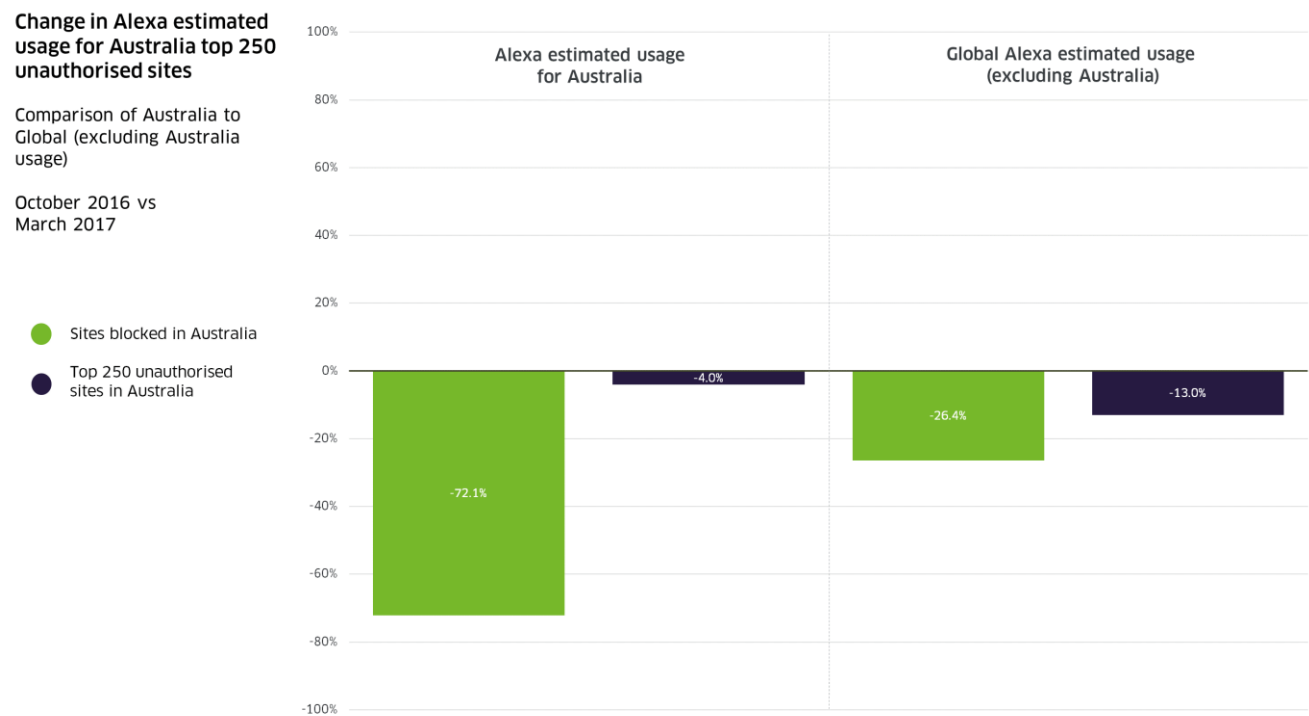
Key findings

The findings in this report show that site blocking in Australia has had a positive impact upon the usage of blocked piracy sites, reducing the usage in Australia of the websites targeted by the blocking orders by 71.7% since December 2016.

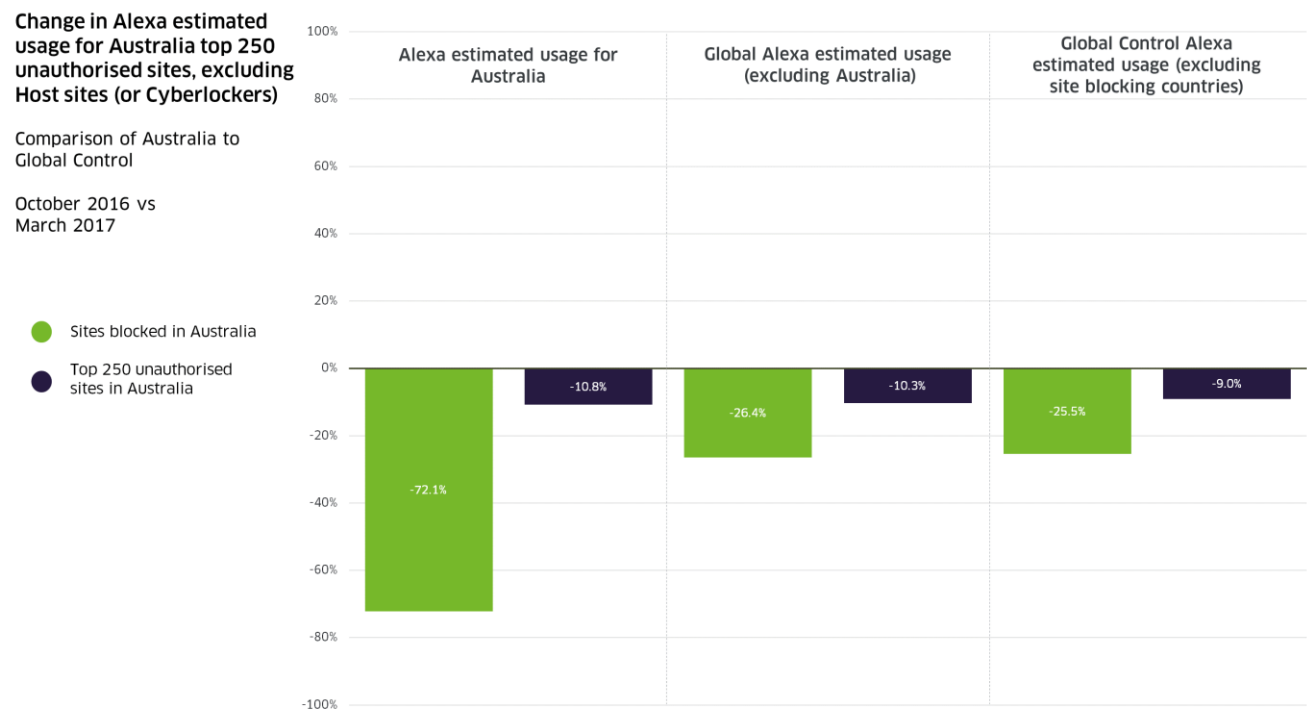The key points from this report are as follows:

- Site blocking in Australia has resulted in an overall usage reduction of 71.7% to the 5 sites affected by the blocking order when comparing usage in March 2017 to December 2016 when blocking was implemented, and by 72.1% since October 2016. This finding is consistent with usage patterns identified in other countries where usage decreases by around 70% initially;

- The usage of the top 50 sites in Australia has decreased by 7.7% since October 2016. The decreased usage of the now blocked Pirate Bay has contributed to this;

- The percentage of traffic to the blocked sites via proxies has increased by 43% since December 2016, when the blocking regime began. Usage of proxies has also increased in Australia over this period, this increase is primarily due to uptake in the usage of dedicated Pirate Bay proxies to circumvent the blocking of the site. Though proxies display an increase, the combined usage of the blocked sites and their associated proxies has decreased by 59.6% since blocking began in December 2016;

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- The graph below summarises the findings of this report and shows the change in usage for the top 250 unauthorised sites in Australia over the recorded period of October 2016 to March 2017 as compared with a non-blocking global control group. The blocked sites have decreased in usage by a total of 72.1% in Australia and by a lower 26.4% globally (excluding Australia). This shows that the blocks are having the desired impact having decreased usage of those sites in the target region by 45.7% more than they have decreased in the global control. Overall usage of the top 250 unauthorised sites has decreased by 4% in Australia and by 13% globally (excluding Australia). It is expected that the reason for this difference is that site blocking in Australia is not yet widespread enough to have an impact upon overall usage of the top 250 sites in the country, due to only five main sites having been blocked. Of these sites, one remains relatively popular in the region, whilst three were shut down before blocking took place – affecting the global usage comparison.

Change in Alexa estimated usage for Australia top 250 unauthorised sites

Comparison of Australia to Global (excluding Australia usage)

October 2016 vs March 2017

● Sites blocked in Australia

● Top 250 unauthorised sites in Australia

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- A second top 250 has been prepared to examine the impact of site blocking upon only the categories of site where blocking is possible. When host sites (or cyberlockers) are excluded there is a measured difference in the overall efficacy of site blocking in relation to the most popular sites being used in the country. The usage of these three categories of site in Australia is found to have reduced by 10.8% when comparing March 2017 usage to that of October 2016. This is a 6.8 percentage point higher decrease to that in the previous graph where hosting sites were also included. Overall, usage of site categories where blocking is possible has reduced - even when taking into consideration those sites which have not actually been blocked in Australia.

Change in Alexa estimated usage for Australia top 250 unauthorised sites, excluding Host sites (or Cyberlockers)

Comparison of Australia to Global Control

October 2016 vs March 2017

● Sites blocked in Australia

● Top 250 unauthorised sites in Australia

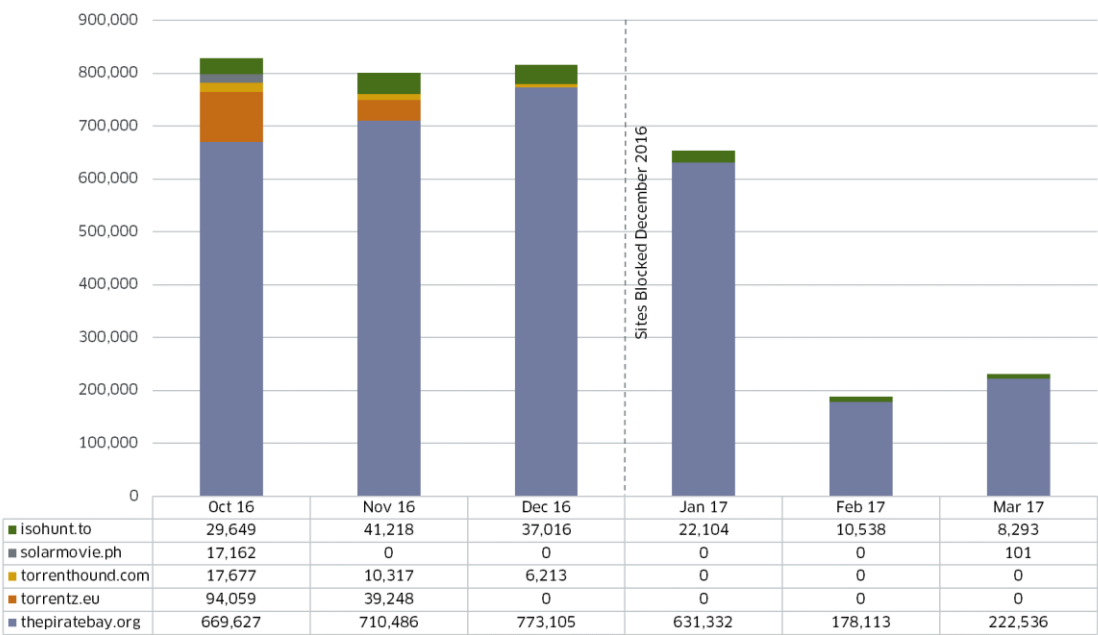|	Alexa estimated usage for Australia	Global Alexa estimated usage (excluding Australia)	Global Control Alexa estimated usage (excluding site blocking countries)
Sites blocked in Australia	-72.1%	-26.4%	-25.5%
Top 250 unauthorised sites in Australia	-10.8%	-10.3%	-9.0%

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Part one: Direct effect of site blocking

To understand the effect of site blocking on the targeted domains it is useful to start by looking at the direct impact on the sites themselves. Tracking Alexa data by territory enables INCOPRO to examine the trends in popularity and estimated usage. INCOPRO translates this Alexa data into Alexa estimated usage, which can give an indication of the usage of a given site in real terms (see *Appendix A: Methodology*). The graphs in part one of the report therefore show the Alexa estimated usage of the blocked sites in relation to before they were blocked.

Group 1

The first blocking order obtained in Australia targeted five sites, with the blocks implemented in December 2016 (a full list of domains subject to this blocking order has been included in *Appendix B)*. The stacked bar chart below shows the Alexa estimated usage in Australia for the sites which have been blocked in the country. Proxy usage of the blocked sites is considered in the following proxies section and has not been included in the analysis below.

Group 1

Sites Blocked in December 2016

	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17
isohunt.to	29,649	41,218	37,016	22,104	10,538	8,293
solarmovie.ph	17,162	0	0	0	0	101
torrenthound.com	17,677	10,317	6,213	0	0	0
torrentz.eu	94,059	39,248	0	0	0	0
thepiratebay.org	669,627	710,486	773,105	631,332	178,113	222,536

Of the 5 sites blocked in Australia only 3 record Alexa estimated usage in March 2017. Usage of the group as a whole has decreased significantly in the months immediately following the blocks, by 71.7% since December 2016. When comparing March 2017 usage to October 2016 there has been a 72.1% decrease over the 6-month period. It is important to note that before the block was implemented three of the sites shut down or otherwise removed their infringing functionality: SolarMovie (in July 2016)[1], Torrentz (in

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[1] https://torrentfreak.com/solarmovie-disappears-following-kat-shutdown-160721/

August 2016)[2] and TorrentHound (in September 2016)[3]. Due to this only the usage of The Pirate Bay and ISOHunt is likely to be of interest for further analysis.

ISOHunt usage also appears to be on a downward trend since blocking began. Having decreased month-on-month since December 2016, the 8,293 usage of the site in March 2017 is the result of a 77.6% decrease over the past 3 months. It is expected that usage of both sites will continue to remain at lower levels than they were, prior to blocking, if the blocks remain in place.
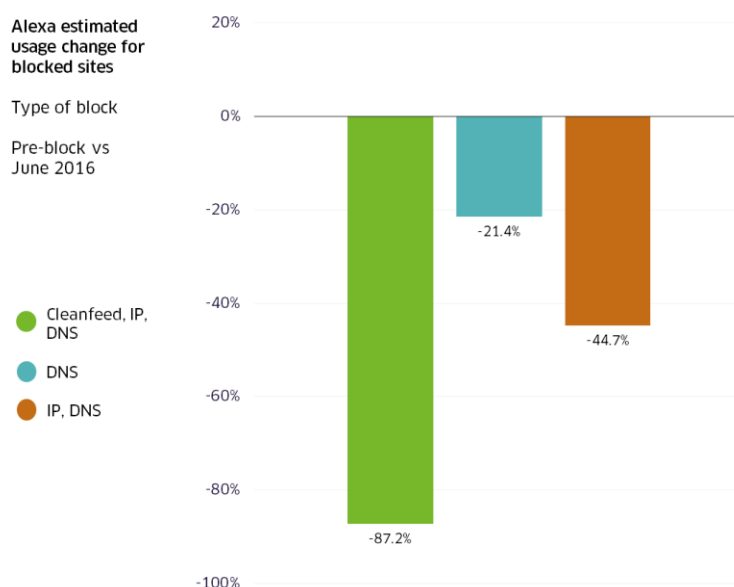
As the graph shows, the clear majority of usage for this group of sites can be attributed to The Pirate Bay. Usage of the BitTorrent platform dwarfs that of the other sites within the group, accounting for over 80% of the total usage of the group for the past six months, and 96.4% of the group's 230,930 estimated daily usage in March 2017. When comparing usage of the site in February and March it is clear that the blocking of the site has had a significant effect upon its usage, having reduced by 71.2% (550,569) since December 2016 when blocking began. Usage of the site shows a 24.9% (44,423) increase from February to March. The site has been significantly affected by blocking, manifesting in the drop since December 2016 but there is sign of a potential increase that is worth exploring further.

The blocking orders in Australia were implemented using DNS blocking only, as the court left it to the ISPs to decide the blocking method. INCOPRO carried out a previous study in September 2016 comparing the methods used for site blocking in Europe. This analysed three types of blocking methods: 1) hybrid IP address and URL filtering, 2) IP and DNS blocking combined, and 3) DNS only blocking. The graph to the right shows the results of this analysis.

Overall, DNS blocking alone gives a decrease in usage for the affected sites of 21.4%. The reason for the lower reduction is the simplicity by which a user can circumvent this type of block.

Whilst proxy and VPN services achieve the same goal, DNS blocking can be circumvented by changing the DNS server from that of the user's ISP to something like

Alexa estimated usage change for blocked sites

Type of block

Pre-block vs June 2016

- Cleanfeed, IP, DNS
- DNS
- IP, DNS

-87.2%
-21.4%
-44.7%

Google DNS or Open DNS who are not caught by these orders.[4] If DNS blocking continues to remain the only blocking method in Australia, and users become increasingly familiar with this method of circumvention, then it is conceivable that The Pirate Bay's usage levels could increase over time. Other blocking methods are likely to prove more effective.

Further to this point, it is worth noting that The Pirate Bay uses Cloudflare, a provider of content delivery network services, which means that the IP address assigned to the site is shared by other sites. IP address blocking as a supplementary method would not be possible as there is the risk of blocking sites that do not fall within the court order. Additionally, The Pirate Bay uses HTTPS (encrypted connections to its web server) that require more sophisticated methods of blocking. These points should be considered if other blocking measures are sought upon application to the court.

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[2] https://torrentfreak.com/torrentz-shuts-down-largest-torrent-meta-search-engine-says-farewell-160805/
[3] https://torrentfreak.com/torrenthound-shuts-down-another-big-torrent-site-bites-the-dust-160915/
[4] Tutorials are available online (e.g. *https://www.lifehacker.com.au/2016/12/how-to-bypass-isp-blocking-of-the-pirate-bay-and-other-torrent-sites-for-free/*) which make it simple for someone to change their DNS settings.

At this point in time usage of the blocked sites in Australia does not appear to have moved to alternative domains, though this will continue to be monitored in future reports. A full list of the blocked sites and their active alternate domains (between October 2016 and March 2017) can be found in *Appendix C*.

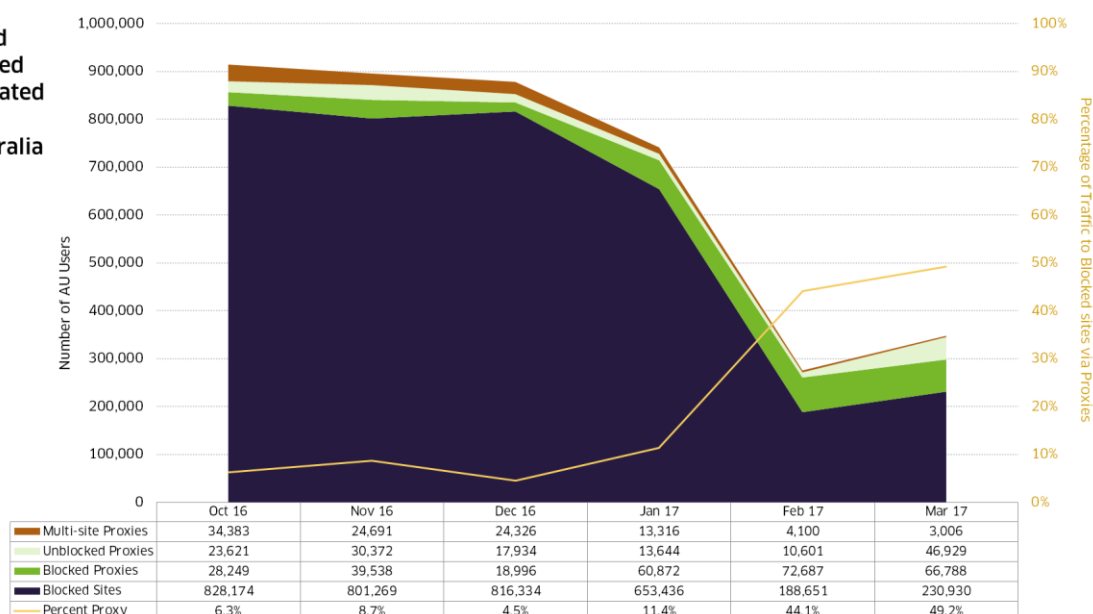## Proxy usage to circumvent website blocking

The analysis of the Alexa estimated usage for blocked sites detailed above did not include traffic going to proxies that were created to circumvent the ISP blocks. There are currently three types of site or service used to achieve this:

1) Dedicated sites offering access or a mirror of a specific blocked site
2) Sites offering access to more than one blocked site from one place ('multi-site proxies')
3) General purpose VPN or proxy services which offer access to any site

INCOPRO tracks all three categories; however, for the purposes of measuring traffic to unauthorised sites, only categories 1 and 2 have been considered in this report.[5] General purpose VPN and proxy services have been excluded because they allow users to access any website of their choice. As a result, it cannot be definitively concluded that they are being used to access unauthorised sites.

Although the potential for proxy use is ever present, only a few sites have a significant number of active proxies, such as those relating to The Pirate Bay. As part of the blocking order, a number of proxies were also included where they related to specific unauthorised sites. The graph below shows the estimated usage for those proxies caught under the order as well as those that were not (blocked proxies and unblocked proxies respectively).

Alexa estimated usage for blocked sites plus dedicated and multi-site proxies in Australia

	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17
Multi-site Proxies	34,383	24,691	24,326	13,316	4,100	3,006
Unblocked Proxies	23,621	30,372	17,934	13,644	10,601	46,929
Blocked Proxies	28,249	39,538	18,996	60,872	72,687	66,788
Blocked Sites	828,174	801,269	816,334	653,436	188,651	230,930
Percent Proxy	6.3%	8.7%	4.5%	11.4%	44.1%	49.2%

As the graph shows, usage of the blocked sites themselves display a drop as a result of the December 2016 block, which is slightly counterbalanced by a rise in proxy usage of the blocked sites. Estimated usage of the blocked sites through both blocked and unblocked proxies totals to 113,717 (comprised from 46,929 unblocked and 66,788 blocked usage) in March 2017, its highest on

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[5] Please note that where a proxy is hosted on a subdomain of a popular site this is not currently tracked by INCOPRO. This is a result of the way in which Alexa data is collected and made available to us. Where a domain can be attributed to infringement, for example the multi-proxy site unblocked.tw, this is tracked at the domain level and the usage included in the analysis in this section.

record. This usage has increased by 61,847 (119.2%) since October 2016 and by 76,787 (207.9%) when compared to usage before blocking took place in December 2016. Overall, the proxy usage relating to this group of blocked sites is almost solely attributable to Pirate Bay proxies - accounting for 112,954 (99.3%) of the total 113,717 proxy usage to blocked sites in March 2017. The rise in proxy usage after blocking was implemented is therefore due to The Pirate Bay users circumventing the site's blockade in this way. The usage of Pirate Bay proxies is explored in more detail on the subsequent page.

Though a relatively large number of proxy sites relating to the 5 blocked sites were also blocked in December 2016, the majority (99.3%) of blocked and unblocked proxy usage displayed in the graph relates only to sites providing access to The Pirate Bay. The reason for this is that three of the blocked sites (SolarMovie, Torrentz and TorrentHound) no longer offer infringing functionality, with two of the sites shutting down, therefore dedicated proxies for such sites would serve no purpose for previous users. It also appears that ISOHunt proxy usage is not an issue at this point in time, though this will be monitored in future reports.

There was an immediate surge in usage of the proxies following implementation of the blocks in December 2016, which can be seen in the green areas of the graph. Usage of the proxies which are blocked in Australia has increased by 47,792 (251.6%) when compared to December 2016, from 18,996 to 66,788. This increase is attributable to pirateproxy.vip which has itself increased by 50,226 (304.2%) since being blocked. Usage of the site accounts for 58.7% of all proxy usage to the blocked sites in March 2017. Pirateproxy.vip is a part of a wider network of proxy sites which also includes unblocked.tw (a multi-site proxy) and proxybay.one (an index of pirate bay proxies). The official twitter account of this operation shows how new domains are continuously added to stay ahead of site blocking efforts, as well as other actions such as domain suspensions.[6] Pirateproxy.vip was suspended in March 2017, with pirateproxy.cc appearing to be the new domain. Owing to this it is expected that usage of the pirateproxy.vip domain will drop off in the coming months and potentially divert to other unblocked proxies. Proxy usage, as it relates to the blocked sites, is discussed in more detail in the following section.

The combined usage of blocked sites and their blocked and unblocked proxies amounts to 344,647 in March 2017, meaning that there has been a 59.6% (508,617) overall usage decrease since December 2016. As can be seen from the percent proxy line, the percentage of users using proxies to access blocked sites increased sharply in the months immediately following implementation of the blocks. This percentage increased by 44.7% since December 2016, resulting in proxies being responsible for 49.2% of the usage to the group of blocked sites in March 2017, a 43% increase from the 6.3% seen in October 2016. This rise is due to a 585,404 (71.7%) decrease in blocked site usage, with proxy usage amounting to a larger proportion of total usage as a result of these changes.
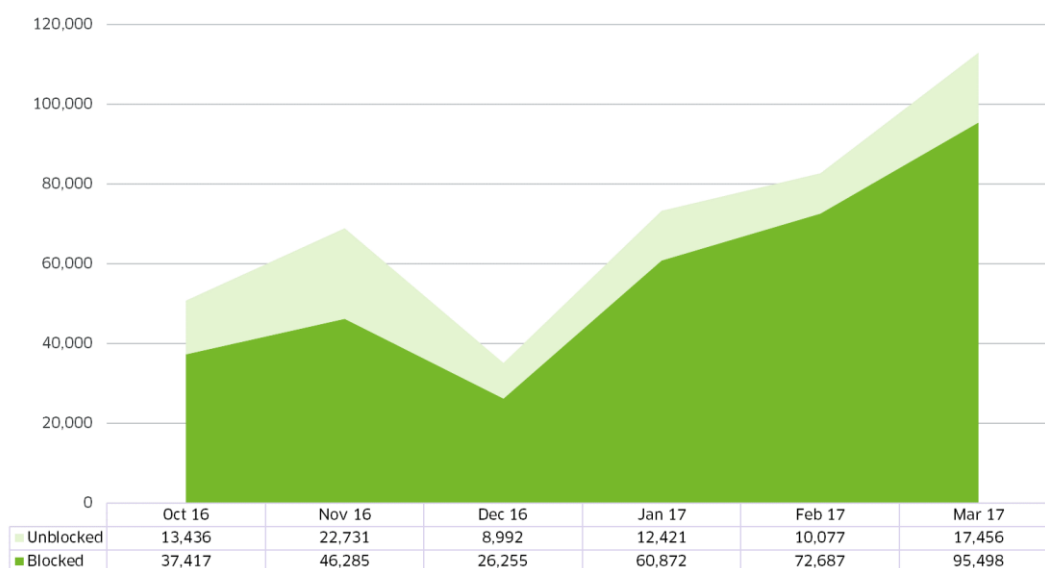
Proxy percentage could rise further if blocked site usage does not increase in the future. However, infringing users may instead choose to use a site which has not been blocked in the region rather than resorting to proxy usage. For example, users could switch from The Pirate Bay to another popular BitTorrent site, such as extratorrent.cc – the site with the third highest Australian usage in March 2017.

A second graph has been created to analyse Pirate Bay proxy usage in more detail due to Pirate Bay proxies being found responsible for 99.3% of the total March 2017 proxy usage. The stacked areas displays Pirate Bay proxy usage, with this usage separated between proxies which are blocked in Australia and proxies which are not blocked in Australia.

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[6] https://twitter.com/ThePirateProxy

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Australian Usage of The Pirate Bay Proxies

By Blocked and Unblocked Sites

|	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17
Unblocked	13,436	22,731	8,992	12,421	10,077	17,456
Blocked	37,417	46,285	26,255	60,872	72,687	95,498

As the graph shows, usage of dedicated Pirate Bay proxies is at its highest in March 2017. Over the reporting period, there was an overall 220.5% (77,707) increase in dedicated proxy usage since December 2016. The immediate rise visible from January 2017 onwards coincides with the blocking of The Pirate Bay. This shows that users were seeking alternative access following the blocks. The total 112,954 usage at the end of the recorded period is comprised from 95,498 blocked proxy usage and 17,456 unblocked proxy usage - respectively equating to 84.5% and 15.5% of the total Pirate Bay proxy usage.

The blocked usage is driven by two sites – pirateproxy.vip and pirateproxy.yt. In March 2017 pirateproxy.vip accounts for 59.1% (66,788) of all Pirate Bay proxy usage, and pirateproxy.yt for 18.1% (20,490). These sites are highlighted in part two of the report owing to their placement within the top 50 most popular piracy sites in the region. It should be mentioned that the blocked proxy sites have been blocked in the same way as discussed in the section above and are therefore affected by the same points – a change of DNS server could therefore impact upon the usage of blocked proxy sites. Furthermore, proxy sites such as pirateproxy.vip use Cloudflare and HTTPS which can also affect DNS blocking.

Google Trends search interest - Pirate Bay proxy - October 2016 to March 2017
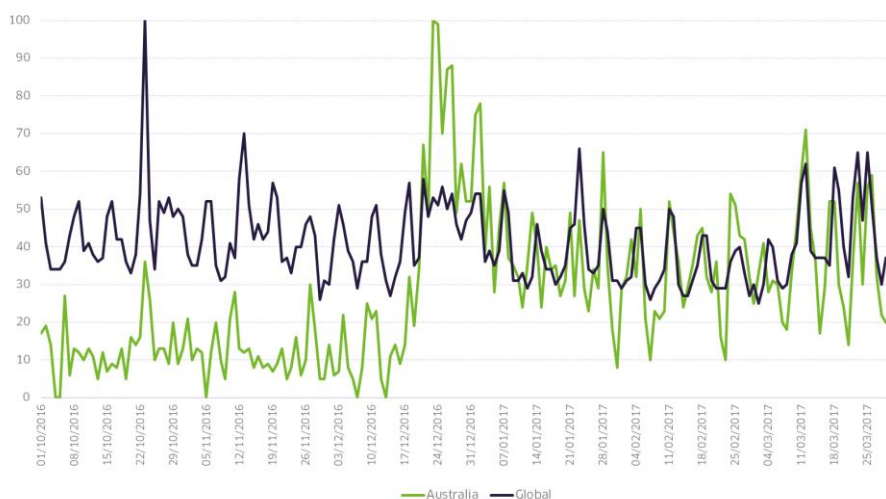
Google Trends data has been used to investigate the increase in Pirate Bay proxy usage in Australia. The graph compares search interest for the term 'Pirate Bay proxy' in Australia and globally between October 2016 and March 2017.

Google Trends data shows that global interest in Pirate Bay proxies has been relatively stable over the past 6 months. On the other hand, Australian interest shows a distinct increase over the same period after the spike in December 2016.

Blocking is likely to be the cause of this increased interest as there is a clear rise in searches for proxies. This data may go some way to explain why usage of blocked Pirate Bay proxies has increased since blocking began. Interest in dedicated proxies was previously low - only increasing after blocking of the primary thepiratebay.org domain began. This increase in interest is likely to have driven users to pirateproxy.vip and pirateproxy.yt.

All Pirate Bay Usage

March 2017

- Unblocked Proxy Usage
- Blocked Proxy Usage
- Blocked Site Usage
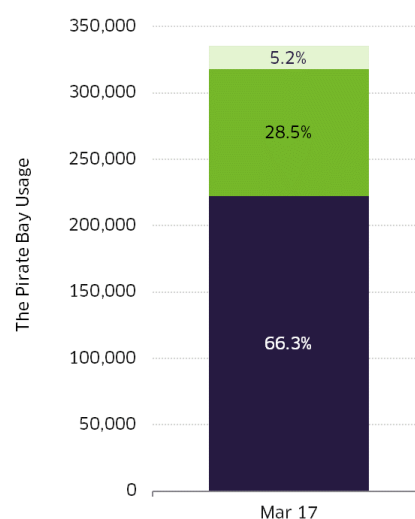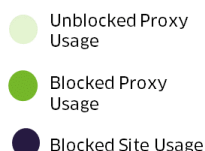
This increased frequency of searching by users, coupled with the fact that ISPS are using DNS blocking alone to prevent users visiting the sites, explains the increase over time of the blocked proxies. Whilst other methods of blocking could be considered to frustrate users of these proxies, it should also be noted that these users are clearly motivated to circumvent the blocks. This will likely mean that they are willing to seek out other forms of circumvention in order to continue their use of The Pirate Bay and therefore also avoid other more sophisticated blocking methods.

Global comparison

It is helpful to set the top 250 unauthorised sites against a global landscape for a control comparison, therefore the global Alexa estimated usage of the Australian top 250 unauthorised sites has been used for this purpose.
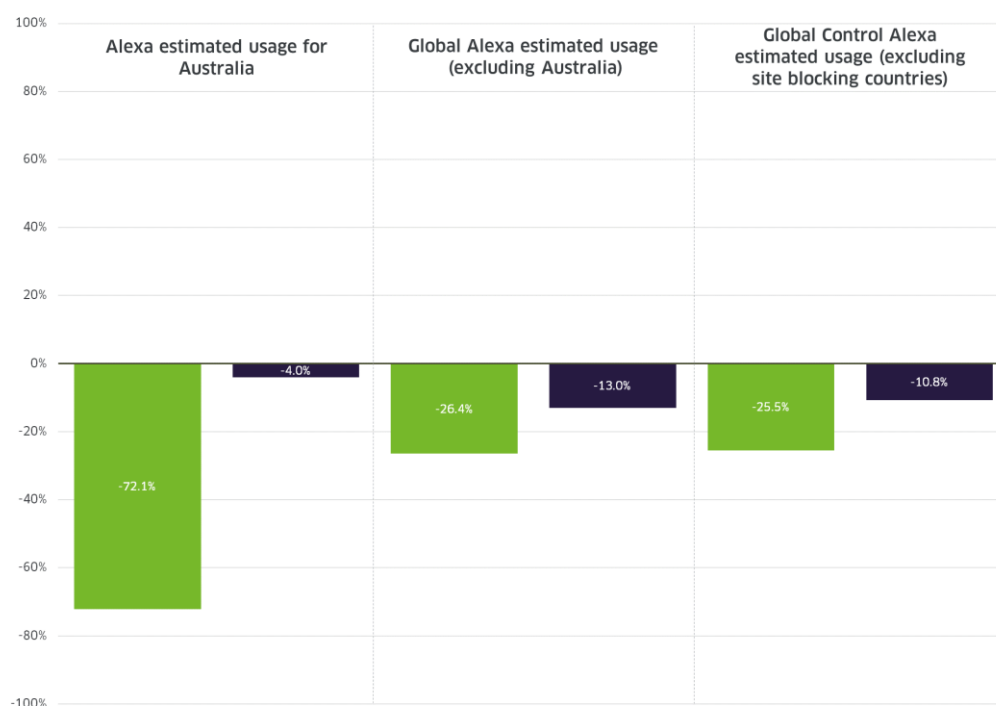
The global control group used in this report was created by excluding the usage of countries deemed as having substantial blocking procedures in place from the total global usage. This control group creates a useful dataset for the assessment of site blocking efficacy in Australian site usage as actions undertaken by the growing number of blocking countries is likely to have less of an impact upon the global control usage. In order to keep the control group as large as possible only countries which satsify particular threshold metrics have been excluded from the global usage. At this point in time in global site blocking, the excluded countries are deemed to be those having the most significance upon the potential for comparisons against a global control group (Portugal, Italy, Denmark, Russia and the United Kingdom). Australia has also been removed from this group.

The bar chart below provides a comparison of how the Alexa estimated usage of the 5 blocked sites (shown in green) has changed when compared to the overall top 250, as described earlier in this report (shown in purple). The Alexa estimated usage from October 2016, prior to the blocks, has been compared against the Alexa estimated usage after the blocks were implemented, in March 2017. A comparison is then made against a global usage (excluding Australia) and a global control to see if the downward trend is specific to Australia or also reflected in the rest of the world – this is shown on the right-hand side of the chart.

Change in Alexa estimated usage for Australia top 250 unauthorised sites

Comparison of Australia to Global Control

October 2016 vs March 2017

● Sites blocked in Australia

● Top 250 unauthorised sites in Australia

	Alexa estimated usage for Australia	Global Alexa estimated usage (excluding Australia)	Global Control Alexa estimated usage (excluding site blocking countries)
Sites blocked	-72.1%	-26.4%	-25.5%
Top 250	-4.0%	-13.0%	-10.8%

The key point of note is that the blocked sites in Australia have decreased by a total of 72.1% since October 2016. This indicates that the blocks are working as intended and have decreased the usage of the sites significantly since implementation. Global usage (excluding Australia) of the same sites has also decreased during this period, but by a smaller 26.4%. It is important to consider that this dataset includes some of the major site blocking countries which have been excluded from the global control. Usage of the blocked sites decreased by 25.5% for the global control, showing that the block of sites in the European countries excluded from the dataset was responsible for a 1% decrease to global usage (excluding Australia) of the sites.

It is important to highlight that although usage of the blocked sites in the Australia top 250 has declined globally in recent times, the blocking implementation in Australia is likely to have been responsible for the 45.7% greater decrease seen in the country than globally (excluding Australia). When comparing the usage change in Australia to that of the global control, site blocking is shown to have reduced usage by an extra 46.7% where the major site blocking countries have been removed from the dataset. In this way site blocking has been effective in reducing the usage of the site further than it likely would have otherwise reduced if access was not restricted.

Usage of the top 250 sites in Australia decreased by 4% (204,843) when comparing March 2017 to October 2016. Usage of the same sites reduced by 13% for the global (excluding Australia) group and by 10.8% for the global control group. The reason for the top 250 sites having decreased less for Australia than in the other datasets is that only 5 main sites have been blocked, The Pirate Bay is still relatively popular in the country and three of the other sites have shut down – affecting the usage change in other countries. It also appears that there may have been an increase in the usage of some unblocked sites as a result of the most popular site being blocked in the country, as is discussed towards the end of part two of this report.

A second top 250 has been prepared to examine the impact of site blocking upon only the categories of site where blocking is possible. The following comparison graph therefore excludes the 63 hosting-related sites which cannot be blocked from the top 250 and replaces them with sites where blocking orders could be possible in the future.

Change in Alexa estimated usage for Australia top 250 unauthorised sites, excluding Host sites (or Cyberlockers)

Comparison of Australia to Global Control

October 2016 vs March 2017

● Sites blocked in Australia

● Top 250 unauthorised sites in Australia

	Alexa estimated usage for Australia	Global Alexa estimated usage (excluding Australia)	Global Control Alexa estimated usage (excluding site blocking countries)
Sites blocked in Australia	-72.1%	-26.4%	-25.5%
Top 250 unauthorised sites	-10.8%	-10.3%	-9.0%

When only sites categorised as linking only, BitTorrent and other (proxy/streaming) sites are considered there is a measured difference in the overall efficacy of site blocking in relation to the most popular sites being used in the country. The usage of these three categories of site in Australia is found to have reduced by 10.8% when comparing March 2017 usage to that of October 2016. This is a 6.8% higher decrease to that in the previous graph where hosting sites were also included. Overall, usage of site categories where blocking is possible has reduced - even when taking into consideration those sites which have not actually been blocked in Australia.

The similar decrease across all datasets indicates that in this case the reduction of usage to the top 250 sites is not wholly due to blocking. Global (excluding Australia) usage of the top 250 sites is shown to have reduced by 10.3%, which is 2.7% less than the 13% reduction from the previous graph. The global control has been similarly affected, with a 1.7% smaller decrease to the top 250 sites following the removal of hosting sites.

These usage changes go to show that site blocking in Australia has had a positive impact in reducing the usage of affected sites in the country. This is demonstrated by a considerable difference in reduction to the other two datasets used for the comparison analysis above. However, as only a low number of sites have been blocked in the country this has not yet had a discernible impact upon the overall piracy landscape in the region, which has reduced somewhat in line with that of the comparison groups.

Part two: Piracy landscape in Australia

Part two of the report provides an overview of the landscape for websites that are used to obtain unauthorised film and television content in Australia. The websites considered in this report for the purposes of examining the piracy landscape are identified by INCOPRO's Infringement Index which is used to assess the extent to which each site either directly infringes or facilitates the infringement of copyright (be that knowingly or not), by providing access to protected film and television content without the licence or consent of the copyright owners in those works. Due to this, not all sites considered in this report necessarily directly infringe copyright; some may facilitate or enable access to unauthorised content (for example, some of the hosting sites) but may not be directly liable for copyright infringement whether because of the other functions provided by the site or because the site in question benefits from safe harbour protection. However, each site does provide users with the ability to access unauthorised content.

Analysis of top 250 sites

This section of the report provides an analysis of the 250 most popular unauthorised sites in Australia as at the end of March 2017. The domains making up this list have been categorised as BitTorrent sites, linking sites and hosting sites (or cyberlockers), with the remaining sites which do not fit into these categories being added to 'Other', e.g. Usenet index sites. This breakdown of the types of sites which are most used is useful for insight into the preferred method of content infringement. This helps with assessing not only where the biggest threat lies but also in formulating the best approach to tackle that type of infringement.
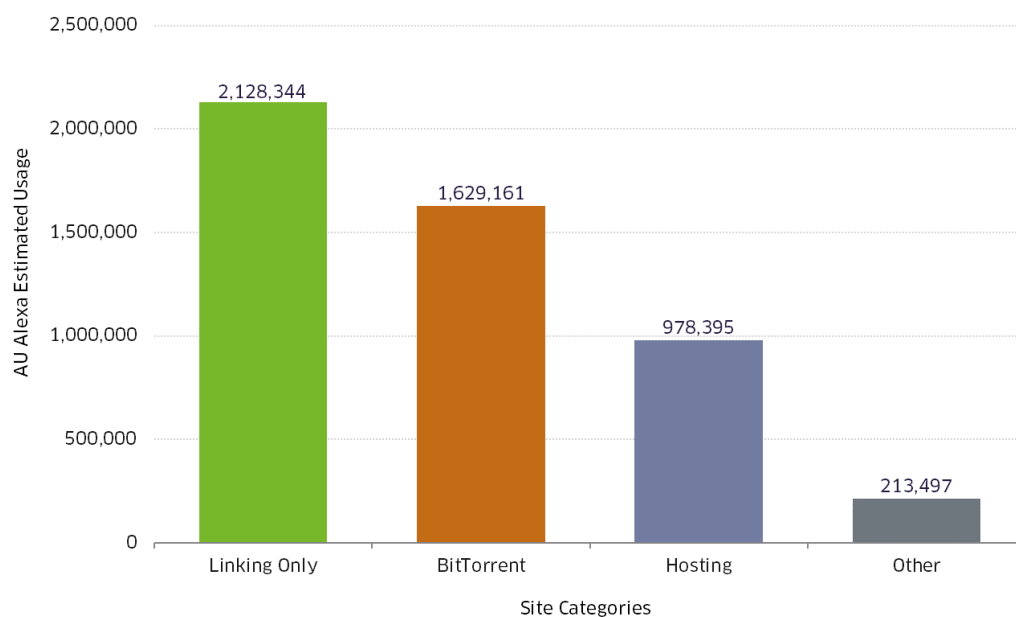
The breakdown between the four categories is shown in the pie chart (right). Linking sites are the most common route to unauthorised content in the region, responsible for 106 (42.4%) of the top 250 sites. The proportion of hosting and BitTorrent sites is relatively similar, accounting for 63 (25.2%) and 60 (24%) sites respectively. Of the top 250 sites, 21 (8.4%) are those categorised as other. These sites are predominately site proxies (12) and Usenet index sites (7).

To explore the role of each category as a part of the overall Australian piracy landscape the following graph displays March 2017 usage figures for each of the four categories of site which make up the top 250.

Australia Top 250 Sites

- Linking Only
- Hosting
- BitTorrent
- Other

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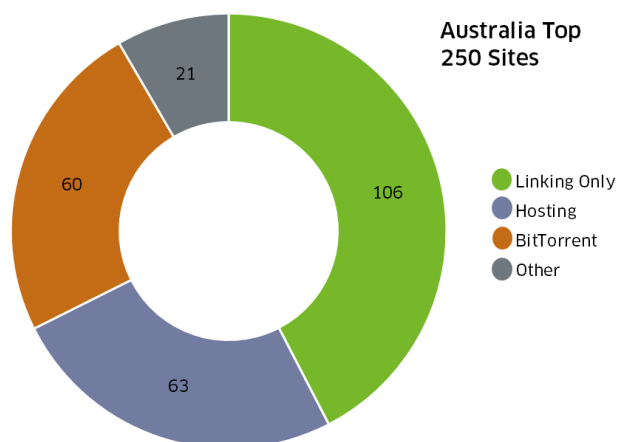
Australia Usage of Top 250 Sites by Category

March 2017

- 🟢 Linking Only
- 🟠 BitTorrent
- 🔵 Hosting
- ⚫ Other

The bars show usage of the top 250 sites to be split amongst linking sites (43%), BitTorrent sites (32.9%), hosting sites (19.8%) and sites categorised as other (4.3%).

In contrast to the pie chart, the popularity of BitTorrent sites is found to be widespread when considering usage figures. The 60 sites proportionately account for only 24% of the total 250 sites; however, in terms of usage figures the sites amount to 32.9% of the total estimated daily usage. In comparison, the 63 linking sites – amounting to 25.2% of the total count of 250 sites – account for 19.8% of total combined usage. There are 3 more hosting sites than BitTorrent sites, yet the overall share of total top 250 usage for hosting sites is 13.1% less than that of BitTorrent sites.

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Analysis of top 50 sites

The chart below shows the top 50 sites by Australia Alexa estimated usage for March 2017. The purple section of the bars represents primary domain usage and the grey section relates to alternate domain usage recorded for that site. Any sites that are currently subject to blocking orders in Australia are denoted by the two plus signs "++" next to their domain name on the charts.
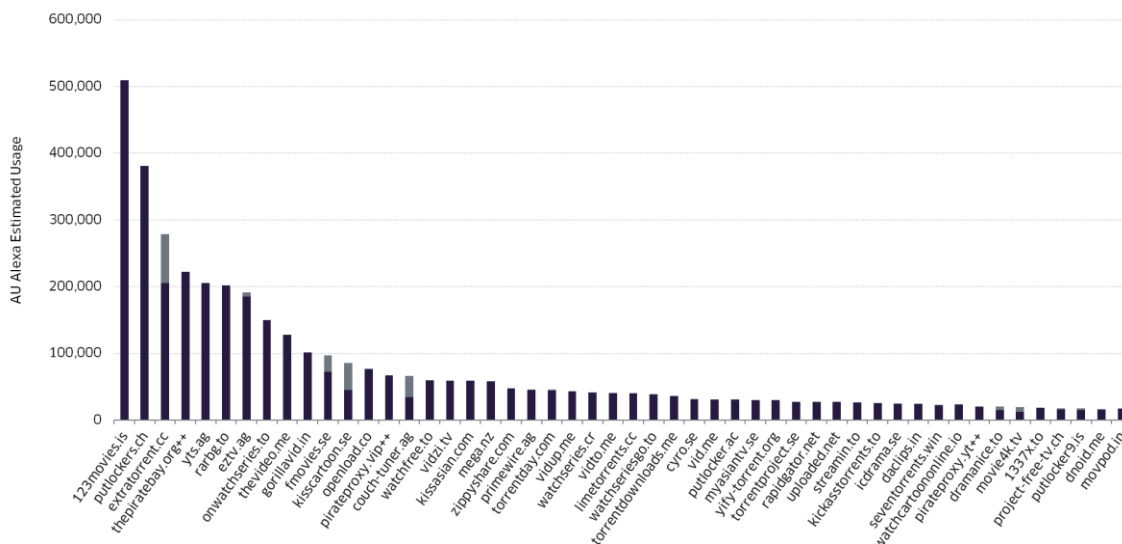
The top 3 sites in Australia during March 2017 were 123movies.is (video linking), putlockers.ch (video linking) and extratorrent.cc (BitTorrent). As can be seen from the sites listed, the most popular sites within Australia are predominately well-known sites which have previously established themselves as being popular in other territories.

The graph shows a long tail of usage for the most popular infringing sites in Australia, whereby usage is concentrated very highly amongst the most popular sites – particularly the top 10, which all demonstrate daily estimated usage of over 100,000. To illustrate this, usage of the top 10 in March 2017 amounted to 2,370,541, which accounts for 60.7% of the total 3,906,976 top 50 usage. The usage of the top three sites notably exceeds that of other sites in the group and in March 2017 the sites are responsible for 29.9% of total top 50 site usage. There is therefore a significant proportion of usage in the Australian piracy landscape belonging to a low number of sites – blocking these sites in the future would therefore have a considerable impact upon the wider piracy landscape in the region.

Alternate domain usage appears to be minimal in Australia. As mentioned in part one of the report, this is likely to be since site blocking in the country only covers a low number of sites so far and is relatively new, thus there is little need for visitors to use alternate domains in order to access infringing sites. Only three of the domains that are currently blocked are in the top 50 sites – thepiratebay.org, pirateproxy.vip and pirateproxy.yt. Usage of The Pirate Bay has dropped significantly since being blocked, though March 2017 usage remained high enough to place the site within the top 5. As discussed above, the blocking of sites in Australia is done by DNS blocking alone, which may result in the traffic to The Pirate Bay rising again over time. This combined with its huge popularity is likely to mean that it remains in a relatively high position over time.

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To further illustrate the dominant position of the most popular sites in the Australian piracy landscape the graph (right) displays the usage split between the top 50 sites and the other 200 sites which make up the top 250. As the graph shows, the top 50 sites are responsible for a considerable proportion of overall unauthorised site usage in the country, accounting for 78.9% (3,906,976) of the total 4,949,396 top 250 usage. Therefore, the remaining 200 most popular sites used in the region account for only 21.2% (1,042,420) of overall top 250 usage.

Australia Usage Split of Top 50/250 Sites

March 2017

● Top 50 Usage
○ Other 200 Sites Usage

UK Alexa Estimated Usage

4,949,396
3,906,976
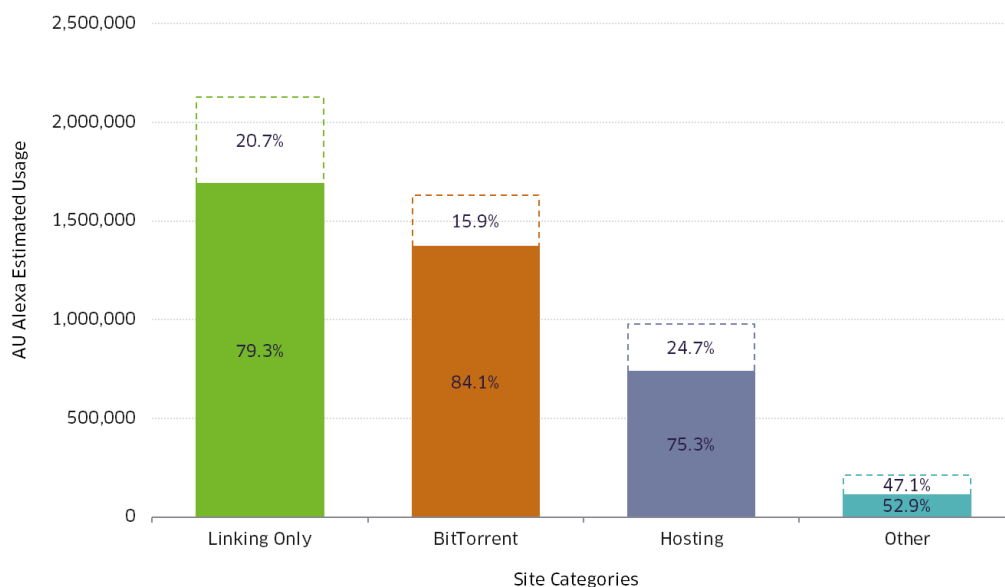1,042,420

Top 250 Usage
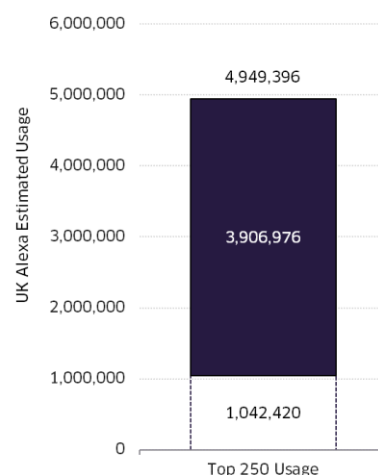
Top 50 category analysis

Usage of the site categories within the top 50 is split across linking sites (43.2%), BitTorrent sites (35.1%), hosting sites (18.9%) and other sites (2.9%). Overall, the usage data reflects that a major proportion of online infringement in the Australia is due to the popularity of linking and BitTorrent sites. The combined usage of these two categories of sites in the top 50 accounted for 78.3% of all top 50 usage in March 2017. Furthermore, the usage of all top 50 categories is found to account for a considerable majority of the top 250 usage of the same category types. To show this, the graph below displays the usage split between the top 50 sites and the other 200 sites which make up the top 250 for each of the four categories.

Australia Usage of Top 50/250 Sites by Category

March 2017

● Top 50 Linking Only usage
● Top 50 BitTorrent usage
● Top 50 Hosting usage
● Top 50 Other usage
○ Other 200 sites usage

AU Alexa Estimated Usage

Linking Only 20.7% / 79.3%
BitTorrent 15.9% / 84.1%
Hosting 24.7% / 75.3%
Other 47.1% / 52.9%

Site Categories

Top 50 linking only site usage amounts to 79.3% of the total top 250 linking only usage in March 2017 (1,687,903 out of 2,128,344). Similarly, top 50 BitTorrent usage is responsible for 84.1% of top 250 usage, accounting for 1,369,607 of the total 1,629,161. The combined top 50 usage of these two categories amounts to 61.8% of overall top 250 usage (3,057,510 out of 4,949,396). Overall, a significant amount of traffic to piracy sites in Australia belongs to the most popular sites, particularly the most popular linking only ant

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BitTorrent sites, as demonstrated by the top sites. Due to this, top 50 linking only and BitTorrent sites are deemed as being the biggest threat to rightsholders in the region.

Top 50 usage split

It is useful to understand how the traffic is distributed amongst the top 50 sites to discern the migration of users between sites over time. The chart below shows the percentage split of Australian Alexa estimated usage between the top 10 film and television specific content sites (purple section) and the remaining 40 sites (green section) of the top 50. The orange line represents the number of sites accounting for 80% of the Alexa estimated usage in the top 50.

Historical Usage Split - Australia Alexa Data
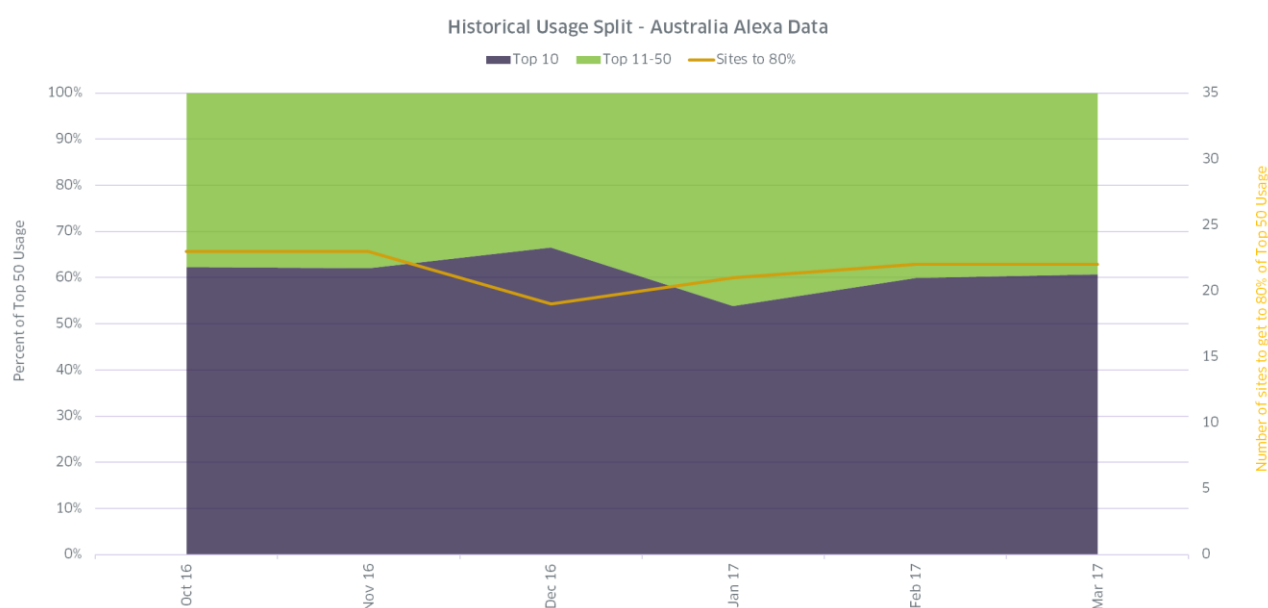
The top 10 sites currently account for 60.7% of Australian Alexa estimated usage in March 2017. The graph shows that a major proportion of the piracy landscape in Australia can be attributed to a small number of its most popular sites, and that this has been the case for some time. This figure has fluctuated over the past 6 months, between 66.5% at its highest in December 2016 and 53.9% at its lowest in January 2017.

In March 2017, 22 sites accounted for 80% of the total usage (as can be found in *Appendix D*), this is an increase of 4 since December 2016 when site blocking was implemented. The reason for this is likely to be that over this period users have begun to migrate to other sites, and in doing so have caused the top 80% of usage to come from a higher number of sites. Typically, the usage split would be expected to indicate changes in usage of infringing sites over time, especially when site blocking strategies are in place, with more sites accounting for the top 80% of top site usage, as a result of traffic dispersing.

The top 50 sites have decreased by 7.7% (328,038) since October 2016; the reduction of Pirate Bay usage as a result of site blocking is one of the main causes of this. However, top 50 usage has increased by 18.7 since December, indicating that some blocked site usage could have moved to sites which are not blocked in the country.

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It is useful for the purposes of assessing the efficacy of the site blocking measures, to compare the estimated usage of the March 2017 top 250 unauthorised sites in Australia against their usage in October 2016. The bar chart illustrating the top 50/top 250 usage split for October 2016 is shown to the right and can be contrasted with the same chart above for March 2017. Overall top 250 usage has decreased 4% overall, and 10.8% when cyberlockers are excluded, as also mentioned previously in this report.

Examining the composition of the sites that were most popular October 2016 versus those now popular in March 2017, reveals that 71 sites that were in the top 250 in October 2016 no longer appear in the top 250 for March 2017. The majority of the flux takes place in the long tail of sites below the top 50 (69 sites). Focussing on the top 50[7] shows that 37 of the sites that appeared in the top 50 in October are still within the top 50 in March 2017. Of these sites, one is currently blocked, that being The Pirate Bay, which has been discussed above. Two new entrants into the March 2017 top 50 are also linked to The Pirate Bay, being dedicated proxies (pirateproxy.vip and pirateproxy.yt).

Australia Usage Split of Top 50/ 250 Sites

October 2017
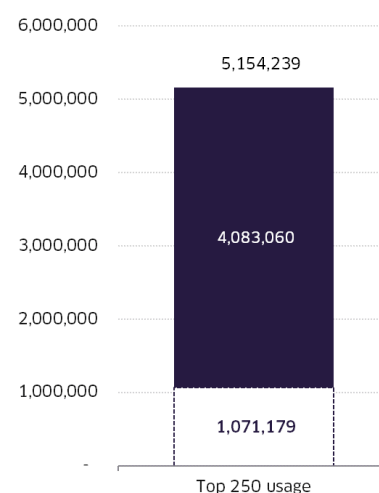
● Top 50 Usage
○ Other 200 Sites Usage

For the unauthorised sites that now appear in the top 50 for March 2017, all but 5 appeared in the top 100 previously. The 11 sites that have risen from outside the top 50 include 2 BitTorrent sites, 4 hosting sites (or cyberlockers), 2 linking sites and 3 categorised as 'other', which include the 2 proxies for The Pirate Bay.

From this analysis, two points should be borne in mind when choosing further sites for blocking. Firstly, there is a positive effect on the overall top 250 that has been caused by blocking some of the most popular sites in Australia. Further sites should therefore be selected from the top 50 to have a further impact. Secondly, up and coming sites should be identified where they enter the top 50 from outside over time. This could help to prevent sites from becoming popular where they are seen to be gaining traffic month on month.

Conclusion

The findings in this report show that the initial impact of site blocking in the country has been effective in reducing the usage of the blocked sites, with usage of the first group of blocked sites having reduced by 71.7% since implementation in December 2016. The positive impact of site blocking is further exemplified by the blocked sites having reduced by 72.1% since October 2016 in Australia and by only 25.5% for the global control group.

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[7] Please see Appendix E for the top 50 lists for October 2016 and March 2017.

Appendix A: Methodology

The websites contained in this report are identified by INCOPRO's Infringement Index; sites that either infringe copyright or that facilitate infringement of copyright (whether knowingly or not), by making available films and television programmes to the public, without the licence or consent of the owners of the copyrights in those works. Tracking Alexa data globally and by territory enables examination of the trends in popularity and estimated usage of sites in the Identify database. INCOPRO translates this Alexa data into Alexa estimated usage, which can give an indication of the usage of a given site in real terms, as explained further below. The data set used for the Australian landscape is based on all sites tracked in the Identify database with recorded usage in Portugal during the 6-month period between October 2016 and March 2017 which is referenced throughout report.

INCOPRO is able to track all domains related to each individual site. The usage value attributed to alternate domains will be highlighted where necessary and included separately in any graphs, so the impact of the extra data available is clear. This improves the accuracy of the data for each site and is referred to as "alternate domain usage". The inclusion of this data helps to show where site operators are using other domains, not subject to blocking, to circumvent the blocks and continue to attract users.

Where sites have a number of domains that work in a similar way, these can be identified in the graphs where sites show a split bar of data or are otherwise marked as illustrating the alternate domain usage data. Any sites shown in the graphs with 2 plus signs ('++') next to their domain name represent those sites that are subject to current blocking orders in Australia.

For the purposes of the analysis in this report, 2 data sets have been used:

1. INCOPRO used a list of 5 sites and that have been blocked in Australia. All active alternative domains and sites aimed at circumventing the blocking, i.e. proxies, have also been included. Where necessary a distinction has been made where these sites are blocked or unblocked in the country. The Australia Alexa estimated usage data covers the period from October 2016 up to the end of March 2017, providing a picture of the usage of these sites prior to the blocks, and then after the implementation of the blocks to assess their efficacy.

2. The top 250 unauthorised websites that make available film and television content available to Internet users in Australia without the licence or consent of the companies that are responsible for the production and distribution of such films and television programmes. Some of these sites may also make available other copyright content, such as The Pirate Bay. Sites that do not make available film and television content have not been analysed in this report. The top 50 unauthorised sites in Australia have been identified using INCOPRO's database of websites, Identify, and by reference to INCOPRO's "Infringement Index", combined with a usage metric derived from Alexa data, explained later in this appendix.

    The top 250 and top 50 site lists were compiled in April 2017, using the usage data from all primary/main domains in March 2017, together with any "alternate domain usage" (defined below) to calculate the most popular sites.

All sites were online at the time of data collection, but this is subject to change at any time due to the way in which these sites operate. It is also important to note that the 2 data sets described above are not mutually exclusive and have some overlap, as there are 3 blocked sites which currently still experience sufficient usage to place them in the Australia top 50.

The data used to prepare these reports is manually reviewed prior to analysis to ensure its quality. The lists of blocked sites included in this analysis can be found in Appendix B. Appendix D contains the complete list of the Portugal top 50 unauthorised sites referred to in this report.

INCOPRO chose Alexa as its first provider of traffic metrics and is working to integrate other data sources in the future. Many people have misconceptions regarding the data provided by Alexa, possibly due to several changes in methodology throughout their history and being slightly opaque about the detail of their data collection.

Prior to 2008, Alexa traffic estimates were based solely on their browser toolbar, which users had to manually install on their computer. In 2008 Alexa announced that they were no longer relying solely on the toolbar data, and instead pulled in data from a variety of sources, including buying data from ISPs. Alexa's methodology has changed again over the past few years, which appears to coincide with Alexa launching their direct site measurement program (Alexa Certified Metrics). Alexa has removed all text from their information pages regarding buying data from ISPs/collecting from a variety of sources, and now state the following (paraphrased):

- Traffic estimates are based on data from their global traffic panel, a sample of all internet users. The panel consists of millions of users using toolbars created by over 25,000 different publishers, including Alexa and Amazon.
- Some sites are directly measured by Alexa – site operators can sign up to Alexa's certified metrics program.
- Traffic Rank is a measurement of traffic to a website, relative to all other sites on the web and calculated using a combination of the estimated average daily unique visitors to the site and estimated number of page views.
- Alexa corrects for biases in the demographic distribution of site visitors, they correct for potential biases in data collected from the various browser extensions, to better represent the type of visitors who might not be in their measurement panel. That being said, biases still exist.
- Due to the concentration of visitors being on the most popular sites, it is difficult to accurately determine the rank of sites with fewer than 1000 monthly visitors. Therefore traffic rankings of 100,000 and above should be considered rough estimates. The closer a site gets to number 1, the more accurate its traffic ranking becomes.

Alexa's collection methods and traffic data were presented and explained in court last year by INCOPRO's Director of Technology, Bret Boivin. This evidence was accepted by the judge and formed an important part of the successful case against the defendant.

As there are several data providers that offer usage numbers for sites, and each provider applies a different methodology and draws data from different sources, INCOPRO has chosen to refer to the usage metric as an overall 'Alexa usage estimate'. This is to avoid inconsistencies with other data sources, and because the focus of this report is concerned with the impact of enforcement as opposed to the number of users for particular sites.

To determine this usage metric, we translate the Alexa reach, which is expressed as number of users per million, for each site and user percentages into estimates of the estimated usage of a website. To do this, the global internet population has been obtained from the latest ITU Facts and Figures (published February 2013). Alexa reach data is tracked automatically by our system, along with several other key metrics. For this calculation, the reach data is used with the ITU figure to produce the usage metric.

Alexa also makes data available for territories individually where the website has enough traffic data in that country. This is expressed as a percentage of all users visiting the site. This percentage figure is used in conjunction with the above reach calculation to get the Alexa estimated usage metric for the site in a given territory. We take the above calculations on a day-by-day basis and then calculate the median value for the month for each site, for both the global and country calculations. Given the fluctuations in numbers that can occur as a site decreases in popularity, this is the best way to remove any dramatic increases or decreases.

This Alexa usage estimate is used to show trends in relation to particular sites. Sites relevant to all aspects of the piracy landscape, from legitimate services to proxies used to circumvent ISP blocking measures are dynamically tracked by INCOPRO. We can also confidently assess the impact on other sites that are in the same type of "piracy market" and that might be expected to benefit from blocking applied to other sites. Our confidence on this stems from the fact that the INCOPRO system has tracked blocked sites and the

key other piracy sites for a substantial period and has also tracked all known proxies for such sites. This tracking has had to be meticulous because the tracking is then used to notify ISPs of site and proxy domains to be blocked. More data sources are being identified and included in INCOPRO's Site Intelligence Database (Identify) in the coming months, which will increase the data points available for comparison.

In this report, 'top x sites' refers to the most popular sites that are responsible for, or enable, the infringement of copyright in film and television content, as tracked by INCOPRO. The data used to prepare these reports is manually reviewed prior to analysis to ensure its quality.

Appendix B: Sites blocked in Australia

This report considers 59 domains (both unauthorised sites and the proxies that relate to them) subject to blocking orders in Australia in relation to 5 sites. These domains have been reproduced in full below:

Name	Host	Name	Host
The Pirate Bay	thepiratebay.se	Torrentz	torrentz.eu
The Pirate Bay	bayproxy.pw	Torrentz	torrentsmirror.com
The Pirate Bay	downloadbay.eu	Torrentz	torrentz.ch
The Pirate Bay	fastpiratebay.co.uk	Torrentz	torrentz.com
The Pirate Bay	fastpiratebay.eu	Torrentz	torrentz.hk
The Pirate Bay	magnetsearch.org	Torrentz	torrentz.in
The Pirate Bay	mypirateproxy.com	Torrentz	torrentz.li
The Pirate Bay	pirate.guru	Torrentz	torrentz.me
The Pirate Bay	pirateahoy.eu	Torrentz	torrentz.ph
The Pirate Bay	piratebay.host	Torrentz	torrentz-proxy.com
The Pirate Bay	piratebaymirror.eu	Torrentz	tz.ai
The Pirate Bay	piratebayproxy.be	TorrentHound	torrenthound.com
The Pirate Bay	piratebays.co	TorrentHound	torrenthound.at
The Pirate Bay	piratebays.co.uk	TorrentHound	torrenthound.cm
The Pirate Bay	pirateproxy.ca	TorrentHound	torrenthound.immunicity.info
The Pirate Bay	pirateproxy.tf	TorrentHound	torrenthound.ru
The Pirate Bay	pirateproxy.wf	TorrentHound	torrenthound.to
The Pirate Bay	pirateproxy.yt	TorrentHound	torrenthound.unlocktor.eu
The Pirate Bay	thebay.tv	TorrentHound	torrenthound-proxy.com
The Pirate Bay	thepiratebay.casa	IsoHunt	isohunt.to
The Pirate Bay	thepiratebay.cd	IsoHunt	isohunt.duhsoft.com
The Pirate Bay	thepiratebay.cr	IsoHunt	isohunt.kooabe.net
The Pirate Bay	thepiratebay.expert	IsoHunt	isohunt.st
The Pirate Bay	thepiratebay.org	IsoHunt	isohunters.net
The Pirate Bay	thepiratebay.uk.net	SolarMovie	solarmovie.ph
The Pirate Bay	thepiratebay.xn--fiqs8s	SolarMovie	solarmovie.is
The Pirate Bay	thepiratebay.xn--q9jyb4c	SolarMovie	solarmovie.com
The Pirate Bay	thepiratebay-proxy.com	SolarMovie	solarmovie.eu
The Pirate Bay	thepirateboat.eu		
The Pirate Bay	tpbmirror.us		
The Pirate Bay	urbanproxy.eu		

Appendix C: Alternate domain usage of blocked sites

The table below lists each site included in the first blocking wave implemented in Australia with any related alternate domains underneath. The yellow highlighted cells indicate the approximate implementation of the blocks. Only domains which received usage during the recorded period between October 2016 and March 2017 have been included.

Domain	Name	Category	Oct 16	Nov 16	Dec 16	Jan 17	Feb 17	Mar 17
thepiratebay.org	The Pirate Bay	Public P2P Portal	669,627	710,486	773,105	631,332	178,113	222,536
thepiratebay.la	The Pirate Bay	Public P2P Portal	1,066	-	-	-	-	-
torrentz.eu	Torrentz	Public P2P Portal	86,409	35,328	-	-	-	-
torrentz.com	Torrentz	Public P2P Portal	7,650	3,920	-	-	-	-
torrenthound.com	Torrenthound	Public P2P Portal	17,677	10,317	6,213	-	-	-
solarmovie.ph	Solarmovie	Linking Only	17,162	-	-	-	-	-
solarmovie.com	Solarmovie	Linking Only	-	-	-	-	-	101
isohunt.to	ISOHunt	Public P2P Portal	29,649	40,277	35,432	21,349	10,538	8,293
isohunt.st	ISOHunt	Public P2P Portal	-	941	1,584	755	-	-

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Appendix D: Australia Top 50 unauthorised sites

The sites with the shaded background account for 80% of the total Alexa estimated usage of the top 50 unauthorised sites. Sites already subject to blocking orders are marked with two plus signs "++" next to their domain name:

Number	Host
1	123movies.is
2	putlockers.ch
3	extratorrent.cc
4	thepiratebay.org++
5	yts.ag
6	rarbg.to
7	eztv.ag
8	onwatchseries.to
9	thevideo.me
10	gorillavid.in
11	fmovies.se
12	kisscartoon.se
13	openload.co
14	pirateproxy.vip++
15	couch-tuner.ag
16	watchfree.to
17	vidzi.tv
18	kissasian.com
19	mega.nz
20	zippyshare.com
21	primewire.ag
22	torrentday.com
23	vidup.me
24	watchseries.cr
25	vidto.me

Number	Host
26	limetorrents.cc
27	watchseriesgo.to
28	torrentdownloads.me
29	cyro.se
30	vid.me
31	putlocker.ac
32	myasiantv.se
33	yify-torrent.org
34	torrentproject.se
35	rapidgator.net
36	uploaded.net
37	streamin.to
38	kickasstorrents.to
39	icdrama.se
40	daclips.in
41	seventorrents.win
42	watchcartoononline.io
43	pirateproxy.yt++
44	dramanice.to
45	movie4k.tv
46	1337x.to
47	project-free-tv.ch
48	putlocker9.is
49	dnoid.me
50	movpod.in

Appendix E: Australia Top 50 unauthorised sites comparison

The following table compares the top 50 unauthorised sites in Australia in October 2016 to March 2017. The Alexa estimated usage is a combination of primary domain usage as well as the usage of any alternate domains where relevant (examples of this can be found in Appendix C). Those sites marked in bold are currently blocked in Australia:

#	Host	Alexa estimated usage (AU) October 2016	In March 2017 top 250 list?
1	**thepiratebay.org**	**670,693**	**Yes**
2	putlockers.ch	568,885	Yes
3	extratorrent.cc	373,544	Yes
4	yts.ag	198,771	Yes
5	123movies.is	195,765	Yes
6	eztv.ag	188,226	Yes
7	onwatchseries.to	133,747	Yes
8	vodlocker.com	122,860	No
9	**torrentz.eu**	**94,059**	**Yes**
10	watchseriesgo.to	93,074	Yes
11	kisscartoon.se	84,475	Yes
12	couch-tuner.ag	68,846	Yes
13	thevideo.me	61,411	Yes
14	watchfree.to	60,302	Yes
15	openload.co	60,267	Yes
16	kissasian.com	59,893	Yes
17	1337x.to	59,145	Yes
18	gorillavid.in	54,289	Yes
19	fmovies.se	51,988	Yes
20	zippyshare.com	49,659	Yes
21	primewire.ag	48,967	Yes
22	vidzi.tv	45,849	Yes
23	myasiantv.se	44,350	Yes
24	uploaded.net	44,018	Yes
25	torrentday.com	41,910	Yes
26	iptorrents.com	40,544	Yes
27	torrentdownloads.me	39,804	Yes
28	rainierland.com	39,658	Yes

#	Host	Alexa estimated usage (AU) March 2017	In October 2016 top 250 list?
1	123movies.is	509,356	Yes
2	putlockers.ch	381,183	Yes
3	extratorrent.cc	278,639	Yes
4	**thepiratebay.org**	**222,536**	**Yes**
5	yts.ag	205,682	Yes
6	rarbg.to	201,885	Yes
7	eztv.ag	191,710	Yes
8	onwatchseries.to	150,252	Yes
9	thevideo.me	128,121	Yes
10	gorillavid.in	101,179	Yes
11	fmovies.se	97,102	Yes
12	kisscartoon.se	85,270	Yes
13	openload.co	76,389	Yes
14	**pirateproxy.vip**	**66,788**	**Yes**
15	couch-tuner.ag	66,155	Yes
16	watchfree.to	60,333	Yes
17	vidzi.tv	59,395	Yes
18	kissasian.com	59,314	Yes
19	mega.nz	58,121	No
20	zippyshare.com	47,139	Yes
21	primewire.ag	45,981	Yes
22	torrentday.com	45,692	Yes
23	vidup.me	43,351	Yes
24	watchseries.cr	41,645	Yes
25	vidto.me	40,510	Yes
26	limetorrents.cc	40,317	Yes
27	watchseriesgo.to	38,992	Yes
28	torrentdownloads.me	36,446	Yes

#	Host	Alexa estimated usage (AU) October 2016	In March 2017 list?
29	rapidgator.net	39,487	Yes
30	yify-torrent.org	39,142	Yes
31	vidbull.com	34,091	No
32	watchtvseries.unblckd.me	34,017	No
33	icdrama.se	33,839	Yes
34	limetorrents.cc	33,822	Yes
35	watchcartoononline.io	32,978	Yes
36	dnoid.me	32,606	Yes
37	watchseries.cr	30,528	Yes
38	allmyvideos.net	28,850	Yes
39	xmovies8.tv	28,654	Yes
40	kat.cr	27,110	No
41	videomega.tv	26,964	No
42	project-free-tv.ch	26,555	Yes
43	keep2s.cc	26,040	Yes
44	putlocker.ac	24,275	Yes
45	torrentproject.se	24,223	Yes
46	streamin.to	23,924	Yes
47	nitroflare.com	23,697	Yes
48	putlocker9.is	23,436	Yes
49	unblocked.onl	23,265	No
50	cyro.se	22,517	Yes

#	Host	Alexa estimated usage (AU) March 2017	In October 2016 list?
29	cyro.se	31,415	Yes
30	vid.me	31,107	No
31	putlocker.ac	30,392	Yes
32	myasiantv.se	29,572	Yes
33	yify-torrent.org	29,539	Yes
34	torrentproject.se	27,426	Yes
35	rapidgator.net	27,163	Yes
36	uploaded.net	27,136	Yes
37	streamin.to	26,167	Yes
38	kickasstorrents.to	25,674	Yes
39	icdrama.se	24,899	Yes
40	daclips.in	24,270	Yes
41	seventorrents.win	22,744	Yes
42	watchcartoononline.io	22,704	Yes
43	**pirateproxy.yt**	**20,490**	**Yes**
44	www1.dramanice.to	20,168	Yes
45	movie4k.tv	18,892	Yes
46	1337x.to	18,484	Yes
47	project-free-tv.ch	17,933	Yes
48	putlocker9.is	17,335	Yes
49	dnoid.me	17,094	Yes
50	movpod.in	16,895	Yes