



CyberTaipan

Australian Youth Cyber Defence Competition

Competition rulebook
2021



Presented by



In partnership with



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The mission of CyberTaipan is to inspire students toward careers and further education in cyber security and other science, technology, engineering, and mathematics (STEM) disciplines critical to Australia's future.

The competition can only operate if all competitors, coaches, mentors, and team assistants adhere to the highest ethical standards. Since the competition is distributed, all are expected to behave according to these guiding principles to ensure its success:

- **Integrity** The foundations of the competition are the honesty and ethics of all those involved in the program.
- **Service** All adults must put the well-being and education of the competitors ahead of their own concerns in preparation for and during the CyberTaipan competition.
- **Excellence** The competition pushes participants to achieve their best, during the competition and beyond.

Towards these guiding principles, competitors, coaches, mentors, and team assistants should use the following operating principles during all aspects of the competition:

- **Competitor safety and protection**
Since most competitors are minors, this **must be the top priority** for all involved. It is the coach's responsibility to ensure the safety and protection of their team while involved in all CyberTaipan activities. Coaches must create a safe environment that protects from unauthorised individuals, ensures appropriate online activity, and uses suitably secure facilities. In the event that an incident occurs involving the protection or safety of a competitor, the coach has an obligation to follow correct procedures to report the incident to local authorities and to stop or mitigate the incident immediately.
- **Fairness**
No participant should attempt to gain or give an unfair competitive advantage to any individual or team. Any questions or concerns regarding fairness should be directed to the CyberTaipan Program Office immediately via cybertaipan@csiro.au.
- **Adherence to the rules**
Everyone should obey the rules and regulations outlined in this document. Coaches are charged with ensuring that teams do not behave otherwise.
- **Privacy**
Participants' personal information must be protected by those who have access to it. The CyberTaipan Program Office staff may publish participant names and photographs when appropriate written permission is obtained.
- **Transparency**
To ensure openness and honesty, Program Office staff and coaches shall only engage in two-way communication on competition matters that do not infringe upon fairness.
- **Cyber citizenship**
The CyberTaipan competition teaches internet ethics, safety, and defensive activity only. It is not a hacking competition, nor does it teach or tolerate hacking, or any activity related to the unauthorised entry, use, or modification of a computer, system, or network by a person, persons, or tools.

Information and notifications

The primary mode of communication will be via official email correspondence from the CyberTaipan Program Office (cybertaipan@csiro.au) to registered Coaches.

Other information may be posted in some or all of the following areas during competition rounds.

- a. **Social media:**
 - #CyberTaipan
 - Twitter @CSIROdigital
 - Facebook @CSIROdigitalcareers
 - Instagram @csiroidigitalcareers
- b. **CyberTaipan website:** cybertaipan.csiro.au
- c. **Verbal instruction from CSIRO Digital Careers**

Awards and recognition

The top 10 scoring teams will compete in the CyberTaipan National Final. Prize details for **1st, 2nd and 3rd place winners** will be made available closer to the competition deadline.

All finalists will receive a CyberTaipan medal.

No outside assistance

Competitors are responsible for their own team's performance during the competition and may not receive or request assistance outside of their team's competitors. Once a competition period begins coaches, mentors, team assistants, competitors on other teams, and other non-team members shall not coach, assist, collaborate, or advise competitors until the completion of the competition period.

Competitors on a team who are not competing (i.e. sixth member of a team, substitute, reserve) may observe the competition. They shall not advise or assist the team or be advised on the competition by coaches, mentors, or non-team members until the competition period has ended.

Outside assistance includes direct and indirect advice, suggestions, hands-on assistance, and electronic communication such as email, blogs, forums, and other social media platforms. That is, questions may not be posted to any website. However, pre-existing answers to questions may be queried to address issues encountered during the competition. Coaches, mentors, and team assistants may only assist teams with:

1. Administrative issues before the image is opened.
2. Entering the Unique Identifier and other login credentials.
3. Timekeeping.
4. Local area network outages and other connectivity issues that occur outside the competition image.
5. Issues with the host system unrelated to the competition image itself.
6. Dangerous or threatening situations that require adult intervention.
7. Maintaining teams' saved scoring data at the end of the competition period.
8. Ensuring no sharing of competition information between competing teams.
9. Maintaining internet access.

Competing in affiliated competitions

Coaches are advised that students are prohibited from participating in CyberTaipan if they have participated in CyberPatriot or in CyberPatriot-affiliated competitions around the world.

Organisation and participation

Coaches

CyberTaipan coaches are the backbone of the competition. CyberTaipan requires an adult to register as a team coach before any students are permitted to register or compete. Coaches are adults (e.g. teachers, parents, staff members) approved by a participating school or educational organisation to act as the administrative lead of a CyberTaipan team. Having one, and only one, adult coach on record for each team is a non-negotiable requirement.

All coaches are required to register on the CyberTaipan website and successfully complete a Working with Vulnerable People Check (or relevant state equivalent) and an Australian Federal Police Check before being added to the list of approved coaches.

Coaches **do not** need to be technically savvy, as teams are welcome to work with technical mentors as described below, but all coaches are responsible for the following:

- **Ensuring competitor safety** by controlling access to minors, following legal and school requirements, and adequately supervising students during practice rounds and all rounds of competition.
- **Protecting the competitions integrity** by ensuring students receive no assistance from mentors, team assistants, or anyone else during competition rounds. Coaches are also responsible for upholding the competition rules as outlined in this rulebook.
- **Acting as the main point of contact for the team** receiving preparation emails for each round of competition, as well as the links to access the competition images. The role of official point of contact may not be delegated to a mentor. Additionally, should we need to contact a team about score discrepancies, registration issues, or any other competition matters, we will use the information on file for the team's coach. All CyberTaipan coaches should therefore ensure that they are capable of receiving messages from cybertaipan@csiro.au, which may be blocked by school firewalls.

Competitor(s)

All competitors must be high school-aged students within Australia. Each CyberTaipan team must consist of between two and six competitors enrolled in the participating school, organisation, or community group.

Coaches must notify the CyberTaipan Program Office (cybertaipan@csiro.au) as soon as possible if any prospective team member is aged 18 years or older, or will be turning 18 years old during the course of the competition. In these instances, the student must successfully complete a Working with Vulnerable People Check (or relevant state equivalent) and an Australian Federal Police Check before being added to the list of approved team members.

While up to six students are permitted on each team's roster, a maximum of five students are permitted to compete at any one time during a competition round. The competitor not competing may act as a substitute and cannot assist the active competitors.

A team's registered reserve competitor may be substituted for any of the participating competitors at the coach's discretion. A reserve competitor may only be substituted into their registered team; they cannot join any of the other teams from their school or organisation.

A competitor shall compete on only one team during a CyberTaipan season. If a Coach has multiple teams registered for the competition competitors may not be shuffled between teams during and/or between rounds.

Technical Mentor(s)

Technical mentors are professionals with IT and/or cyber security experience, who volunteer their time to teach cyber defence skills and cyber ethics to CyberTaipan teams. All mentors are required to register on the CyberTaipan website and successfully complete a Working with Vulnerable People Check (or relevant state equivalent) and an Australian Federal Police Check before being added to the list of approved mentors. All mentors must be over the age of 18 years.

Mentors must not teach hacking skills or offensive cyber tactics to competitors and will meet with a team only with the coach's approval. One or more registered mentors may be chosen by a coach to assist in training their CyberTaipan team(s). Teams are not required to have a mentor. CyberTaipan mentors are welcome to assist multiple teams. There is no minimum time commitment for mentors. For example, a mentor can volunteer on a guest lecture basis or commit to training a team throughout the competition season. Suggested responsibilities include the following:

- Advising the team's coach on technical skills.
- Developing, with the coach's guidance, a plan to teach cyber defence skills.
- Teaching and assisting competitors with cyber defence skills.

Team Assistant(s)

Team assistants are adult volunteers who provide non-technical support and encouragement to the team, such as assisting with scheduling, set-up, snacks, and transportation. Team assistants are required to register on the CyberTaipan website and successfully complete a Working with Vulnerable People Check (or relevant state equivalent) and Australian Federal Police Check before being added to the list of approved assistants.

Registrations

Coaches, mentors, and team assistants register online at cybertaipan.csiro.au.

To compete in the scored rounds of the competition, and potentially the National Final, a coach must register all competitors. Only approved coaches will be able to register their student competitor team(s).

Due to COVID-19 disruptions, the competition fee has been waived for the 2020 and 2021 competitions.

Safety

Safety and competitor protection are the top priorities of the CyberTaipan program. A coach should always consider the health and well-being of their team in choosing a competition environment.

Safety and competitor protection requirements

School, organisation, and local directives govern the safety and protection requirements of minors and facility standards. Some safety considerations in choosing a competition area are listed below:

- Facility security.
- Trip hazards.
- Adequate lighting.
- Electrical safety.
- First aid kit.
- Emergency services' ease of access.
- Vehicle safety.
- Slip areas (e.g. caused by ice, snow, water, petroleum products).
- Unsupervised access to competitors by other adults in public facilities.

Coaches should mitigate any safety issues through remedial action or warnings to competitors, mentors, and team assistants.

Reporting

In the event of an accident or other incident involving competitors in a CyberTaipan event; school, organisation, and local reporting procedures shall be followed. After notification of proper local authorities, coaches should notify the CyberTaipan Program Office following a significant incident at a CyberTaipan event.

Incidents of interest to the CyberTaipan Program Office are:

- Competitor who is a missing person last seen at a CyberTaipan event.
- Injured competitor requiring hospitalisation.
- Criminal act against a competitor, coach, team assistant, mentor, competition staff, or spectator.
- Severe weather or natural disaster that could negatively affect the competitors or competition.

Competition dates

Each team competes in a series of online competition rounds by fixing vulnerabilities, hardening systems, and performing other tasks.

Teams compete for a six consecutive-hour period within competition rounds on the Friday to Sunday dates designated for each round, as below:

Round 1

Friday, 20 August – Sunday, 22 August 2021

Round 2

Friday, 10 September – Sunday, 12 September 2021

National Final

Friday, 15 October 2021

Awards Ceremony

Wednesday, 20 October 2021

If dates change due to unforeseen circumstances (e.g. COVID-19 restrictions), there will be special correspondence sent to the nominated coach email. Please check cybertaipan.csiro.au for updates.

This six consecutive-hour period begins when the team's first virtual machine image is opened. Teams should not compete outside of competition windows, as the scoring server is unavailable to receive team scores.

Competition procedures

Emails from cybertaipan@csiro.au are the official and primary means of competition communication. Official competition information will be posted at cybertaipan.csiro.au if there are technical issues with official email.

Team coaches receive official competition emails before each competition round. Coaches should contact the CyberTaipan Program Office if emails are not received in the time frames listed below. Failure to receive emails is not grounds for an appeal.

Within the week prior to the competition round, coaches receive an email with the following information:

- Competition login information.
- Technical information.
- Round commencement time.
- Unique Identifier.
- Password.
- Video conferencing link (if requested).

Results confirmation emails will be released within one week of the completion of the competition round, containing the following information:

- Scores from the completed competition round.
- A general list of vulnerability categories in the images (specific vulnerabilities will not be published).

CyberPatriot Competition System (CCS)

CCS is an internet-dependent competition system used for the online competition rounds. CCS uses a client-based scoring system based on scored security vulnerabilities that are fixed, remediated, or identified in an image. It is possible to reduce a score if a fix to one vulnerability undoes a previous fix, or if a team action makes a system less secure, or conflicts with the scenario for that round. Points lost to penalties can be recovered by way of corrective action.

Not all vulnerabilities in an image are scored.

Virtual machine image (image)

CCS scores teams on their discovery and remediation of vulnerabilities in an image. A CyberTaipan image is a simulated operating system played on virtual machine player that contains scoring software. Specific operating system image types will be released before the competition rounds.

CyberTaipan will also provide access to the competition images through a third-party hosting service so that the competition images can be accessed and completed through a web browser.

Coach responsibilities

Coaches shall ensure that passwords, competition round images, and competition software are strictly controlled. **When each round is complete, coaches are required to delete the competition images according to guidance in competition emails.** Coaches should maintain the team's saved scoring data until the result of an appeal or inquiry is published and then delete the data.

Accurate host computer time

Host computer clocks must be set to the correct local time zone, time, and date. Teams should check these factors before competing and **not** change the host computer time or date once a round has begun.

Competition structure and advancement

The ten highest scoring teams, totalled across the two scored online rounds, will be invited to compete in the live National Final.

When advancing to the National Final, the following tiebreakers (in order) will be used to resolve a tie between two or more teams:

1. Fastest time to the team's Round 2 score. CCS scoring server time is the official time.
2. Highest total Round 2 score.

Results publication

Results will be published on the live CyberTaipan scoreboard during the competition rounds. Within three business days, coaches will receive a confirmation of their team's scores after each round, considering any penalties that were incurred.

National Final

The Final is a virtual event held at the beginning of Term 4, 2021.

Competition round rules

CyberTaipan operates under the premise that all coaches, mentors, team assistants, and competitors conduct themselves to the standard expected by the competition, and by the schools and organisations that they represent. The following rules have been instituted to prevent the perception of misconduct that would jeopardise the integrity of the competition and ensure a fair and equitable competition between all teams. Coaches are encouraged to work with the CyberTaipan Program Office to resolve questions regarding these rules before the competition. The rules in this document apply throughout the CyberTaipan competition season, and includes training and events outside of competition rounds that involve CyberTaipan images or tasks. Violation of any of the rules may lead to penalties.

Competition window

Teams shall not compete outside of the specified Friday to Sunday dates designated for each round.

Competition period

The competition period begins when a team successfully opens their first image within a round's competition window and lasts for six consecutive hours, regardless of the image or team running time indicated on the image scoring report page. The following rules govern the competition period.

- A team shall have only one competition period to complete **all** tasks for an online competition round.
- The six consecutive-hour competition period begins when a team's first image is **opened**. It does not begin when the Unique Identifier is entered.
- Teams are not allowed to open an image for any reason before the designated competition period.
- The times on the scoring report page are for reference purposes only. It is the responsibility of the team to ensure that **all** work is completed at the end of the six consecutive-hour period that begins when the **first** image is opened.
- Technical issues affecting a team's performance will not result in extra time unless the issue is competition-wide.
- The coach is responsible for obtaining the team's Unique Identifier.
- Entering the team's Unique Identifier shall be the team's first action when opening an image after clicking the Competitor's Agreement. The Unique Identifier is a 12-digit alphanumeric hash and is different to the team number.

Registered competitors

- Only the competitors **registered** with a team shall compete with that team.
- No fewer than two and no more than five competitors may compete at a time.
- A team's registered reserve competitor may be substituted for any of the two to five competing competitors at the coach's discretion.
- A reserve competitor may only be substituted into their registered team; they cannot join any of the other teams from their school or organisation.

Sharing and accessing of competition images and information

Coaches are entrusted with competition round images and software and should treat them as examination material. Competitors shall share images and other information only within their team to avoid giving a competitive advantage to other teams. When each round is complete, coaches are required to delete the competition images according to guidance in competition emails.

Control of the competition area

Regardless of whether the team is competing face-to-face or virtually, the coach of a team must be either physically present or actively on the call to supervise and administer all competition rounds.

The competition area is the location where one or more teams compete (e.g. school multipurpose room; computer lab; or a student's home, if they are competing virtually).

During their competition periods, team members of different teams competing in the same competition area shall not communicate with members of the other teams. Spectators observing the competition must not communicate with or interrupt the competitors, or otherwise threaten the integrity of the competition or safety of the competitors.

In cases where a competition area contains more than one team, coaches and mentors shall take appropriate action to ensure that no purposeful or inadvertent communication or collaboration occurs between teams.

Examples of appropriate action include keeping teams as far away from each other as possible or in separate rooms, keeping the volume of discussions to a minimum, and ensuring that any written notes are only visible to individual teams.

One instance per competition image and software

A team may open only one instance of each image or competition software at a time during the competition rounds.

Example: If a round has a Windows 8 and a Windows Server 2012 image, one instance of both the Windows 8 and Windows Server 2012 image may be open at the same time. The team may not have more than one instance of either image up at the same time.

Shadowing

Shadowing, following, parallel operations, training, or any other use of a second or more instance of an image or scoring client, online or offline, is **not** permitted.

Re-launching images

Images can be relaunched through the third-party hosting service if there is a critical error (such as internet connection issues; or other issues caused by competitors' actions), however this will reset the team's score but not the allocated time remaining.

Image snapshots prohibited

Using image snapshots or similar capabilities is strictly prohibited. Snapshots include the use of host system file copy mechanisms to create a backup copy of an image. Snapshots or backups cannot be used to roll back to a previously known good state.

Internet connectivity to competition servers and websites required

Teams are responsible for their own internet connectivity throughout the duration of the competition to ensure that their score is accurately captured by the CCS. An image or competition challenge may not be worked offline without connecting to the competition server.

Unique Identifiers and image validation

Unique Identifiers must be entered as soon as a competition image is opened. Failure to do so will result in potential scoring errors; the potential to corrupt competition images; and possible grounds for disqualification.

Backup plan

Teams should have a backup plan so that they can still compete in the event of a network failure. This consists of having an alternative internet connection and/or computer system. Please keep the CyberTaipan Program Office aware of any technical difficulties you experience.

Resources

1. Internet resources

During competition rounds, internet resources (e.g. FAQs, how-to guides, existing discussion forums, company websites, documentation, software, shell scripts, batch files, registry exports) are valid for competition use under the following conditions:

- The resource is free, and access has not been granted based on a previous fee, membership, employment, purchase, credit card, or other monetary instrument.
- No token, smart card, common access card, or equivalent, is required to access it.
- The resource is publicly and reasonably available to all teams.

2. Printed material

Printed or handwritten reference materials (e.g. books, magazines, checklists) are permitted in the competition area.

Competitors are not required to reprint existing material.

3. Electronic media and communication devices

Coaches shall ensure that their teams compete without outside assistance through electronic media or communication devices. Permitted electronic media is defined as memory sticks, flash drives, removable drives, or other similar online storage services

Mobile phones, smartphones, and other wireless or wired devices are allowed in the competition area, however:

- You can communicate among your own team members.
- You can freely communicate or monitor social media.
- You cannot communicate with any source which may give you an advantage in the competition.
- If competing face-to-face, answering and making personal calls, texting, and using instant messaging shall be done outside of the competition area.

4. Software tools

Competitors shall set up and use software tools without outside assistance. Internet resource conditions also apply to software tools.

- The tool must be searchable on the public internet with search engines. All internet users have access to the tool(s).
- Teams using other software tools that do not meet competition technical specifications compete at their own risk.
- Furthermore, they should ensure that any antivirus or antimalware software that is installed on competition images does not interfere with this folder or service.

5. Posting or publicising resources

Publicly posting, distributing, or otherwise publicising scripts, software, or other resources that were created for the CyberTaipan competition or events involving CyberTaipan software is prohibited.

Offensive activity and tampering prohibited

Participants shall not conduct offensive activity against other teams; competitors; the competition systems and servers; documents; tasks; or non-participants to gain a competitive advantage for themselves or others. Additionally, participants should not seek to exploit vulnerabilities in images, competition systems, competition software, or tasks at any time.

Offensive activities include, but are not limited to:

1. Malicious acts, internal or external to a competitor's team.
2. Interference with another team's ability to compete.
3. Posting of false information regarding the CyberTaipan competition to platforms via any carrier service.
4. Tampering with components of competition images, the competition scoring system, other competition software, or hardware.
5. Copying an image in its entirety to be used as a backup is not permitted.
6. Tampering with host systems, clients, or host timekeeping devices.
7. Tampering with or modifying documents belonging to other participants or the CyberTaipan Program Office.
8. Any other activity aimed at manipulating or deceiving other competitors, the CyberTaipan Program Office, or competition staff.
9. Broadcasting vulnerabilities in an image or task, except to the CyberTaipan Program Office.
10. Penetration testing competition images, competition systems or tasks.
11. Attempted or successful unauthorised entry into competition systems.
12. Torrenting; dark web surfing; using Tor; setting up a VPN; DDOS against any target.

Where unsure, participants should defer to their coaches for guidance. Coaches may consult the CyberTaipan Program Office for further advice.

Penalties

A team or participant that does not cooperate may incur a penalty to include the disqualification, suspension, or ban of an individual or team as determined by the CyberTaipan Program Office. Any of the penalties below may be applied for any violations of the rules in this document to include misconduct.

1. Minor penalties

In the event of minor rules violations, the CyberTaipan Program Office may impose competition penalties on a team including:

- Score reduction.
- Time disadvantage in future competition rounds.
- Invalidation of a team's competition score.

2. Disqualification

If the CyberTaipan Program Office rules that a participant or team committed a major rules violation, they may be disqualified. Disqualified participants and teams are ineligible for awards and recognition.

3. Other penalties

Other penalties invoked by the CyberTaipan Program Office may affect a team's final score or advancement, and/or affect a competitor's involvement in the program.

Inquiries

In cases of apparent violations of the rules or scoring irregularities, the CyberTaipan Program Office may appoint a CyberTaipan staff member to conduct an inquiry. The below items may be part of an inquiry.

Interviews

Interviews conducted during the inquiry may be held in-person, by telephone, or by other means.

Questionnaires

The investigator may request that participants involved in an inquiry respond to a questionnaire concerning the inquiry.

Appeals process

The appeals process is a formal procedure that ensures competition fairness by considering unforeseen conditions that impact a team's ability to compete. The process is not a vehicle for a team to pursue advancement in the competition by other means. The CyberTaipan Program Office is the final decision authority on all appeals. The following rules apply to appeals.

Deadline

Unless otherwise published by the CyberTaipan Program Office, appeals must be received by the CyberTaipan Program Office before 4:00 pm AEST on the second day after the completion of the round. All appeals must be emailed to cybertaipan@csiro.au.

Originator

Only the team's coach may originate a team's appeal.

Grounds not considered for appeals

- a. Failure to receive competition email.
- b. Ignorance of the competition round dates.
- c. Failure to access the competition area.
- d. Scheduling conflicts.
- e. Internet connectivity issues that are due to controllable circumstances.
- f. Failure to properly work out connectivity issues with IT department (e.g. firewall exceptions, using the Connection Test software).
- g. Coach or team-caused use of incorrect Unique Identifiers or other login credentials.

Scored vulnerability fixes or remediation

Any appeal concerning an alternative to a scored vulnerability fix (or an alternative remediation method), which resulted in no advancement in scoring, must be certified by the registered coach and include a statement:

- a. Certifying that the team members did not read, discuss, overhear, post, or otherwise receive, share, or publicise the vulnerability fix or remediation with any other team to include those in the same organisation or school or those teams coached by the same coach.
- b. Certifying that the team tried the fix or remediation that is the subject of the appeal.
- c. Certifying that the coach witnessed the implementation of the fix or remediation.
- d. Describing how the team found out about the scored vulnerability.
- e. Detailing the commands and actions taken to fix or remediate the vulnerability.

CyberTaipan media guidelines

CyberTaipan is a great opportunity for your high school, community group or other organisation to draw media coverage.

We encourage you to work with your school administration and coach when handling any media enquiries.

We also ask that you adhere to the following guidelines:

- CyberTaipan should be written as one word, with a capital 'C' and a capital 'T'.
- At its first mention, the complete title of the program should be used: CyberTaipan – Australian Youth Cyber Defence Competition.

In every release or interview please ensure the following is communicated:

- CyberTaipan is administered in Australia by Northrop Grumman in partnership with CSIRO Digital Careers based on the US Air Force Association's CyberPatriot program.
- The competition is a cyber defence competition.
- Any use of the CyberTaipan logo or other collateral must be approved by the CyberTaipan Program Office.
- National media enquiries should be directed to the CyberTaipan Program Office at cybertaipan@csiro.au.

Please refer to the CyberTaipan School Media Toolkit for more information, accessible at digitalcareers.csiro.au/CTrulebook.

As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

CSIRO. Unlocking a better future for everyone.

Contact us

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