

ACFP EPTR / CFS Tools Project Scope

Key Project Goals:

- Centralize the administration and management of every member of the Air Cadet Flying Program's pilot training records
- Empower ACFP personnel to manage their own records and interact with ACFP digital tools
- Integrate seamlessly with the Electronic Timesheets application
- Provide a platform for future digital tools designed for use by the ACFP
- Meet the needs of the target users by being available on the public internet, available in both official languages, and taking an active approach to soliciting and acting upon feedback from the end users.
- Overall, the goal is to streamline the ACFP by reducing the administrative overhead while simultaneously increasing the oversight and adherence to published policies.

End Users:

- ACFP Personnel (Cadets, Volunteers, CIs, COATS members, Reg F / Res F Volunteers)
- CFS Admin Team (OIC, Stds O, Adm O, Trg O, Ops O, FSO)
- RCA Ops (RCA Ops O, RCA DCO, RCA Stds O, RCA FSO)
- Formation Air Ops (Ops O, Deputy Ops O, FSO)

Major Components:

User Authentication & Authorization System:

- Different users have different needs of the system, thus there should be a robust system of permissions and user roles that prevent abuse and simplify the experience to be only what each user needs it to be
- User authentication needs to be robust enough to support the wide variety of users that will be utilizing the system; from 16 year old staff cadets to CF staff operating out of national headquarters.
- There should be user "roles" that control level of access to data & functionality (ex. Regular Member vs. CFS OIC vs RCA Ops O) as well as a concept of "Organizations" that limit the scope of the data being interacted with (ex. Separate CFS / regions / etc cannot view each others data)
 - Organizational units would be broken down into the Formation at the top, followed by the Regions, followed by the Cadet Flying Sites within each region. A privileged member of a given organizational unit would only have access to the data of the organizational unit they were assigned to and below (ex. Northwest Stds can view & edit MJ CFS data and Northwest data, but can't interact with Atlantic data)
 - Roles would include:

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- Formation Commanders (National Air Ops O, Deputy Air Ops O)
 - Read only access to the entire system
- Flight Safety Officer (National, Regional, & CFS FSO)
 - Read only access to their organizational unit
 - Ability to trigger “Flight Safety Quarantine System”
- Regional Commanders (RCA Ops, RCA Ops Deputy, RCA Ops Stds)
 - Read and write access to their organizational unit and the organizational units contained within their unit
- Cadet Flying Site Administrators (CFS OIC, DCO, Stds O, Admin O, Trg O)
 - Read & write access to their organizational unit
- Designated Flight Authorization Officer (Members assigned to a CFS with a valid DFAO qualification)
 - Read access to their organizational unit
- Users of the system may not always have a “PTR” entry within the system, at some point the system could be expanded to have non-flying staff administering some aspects (ex. J5 Planning for Spring/Summer famil planning, RCA Eng O for managing members’ CEW qualifications, etc), so the system should not be tightly coupled between “users” and “PTR entries”
- The system should support Single Sign On with CCO Net, although that must not be the only means of authentication due to the need for it to be available on the public internet
- It would be ideal if the system also supported Two Factor Authentication (2FA) through industry standards like TOTP or SMS

Audit System:

- As a lot of the information managed by this application can be considered sensitive, it is important that a comprehensive auditing system exists to track who is accessing what information when and with what means (IP address, browser user agent, etc).
- Additionally, the Flight Safety Officers must have a mechanism to view a “snapshot” of the systems state after a flight safety incident has occurred in order to ensure that the investigation does not become muddled by updates to member data after an incident has occurred.

Localization System:

- Given that the end users of this system will be located across Canada, it is important that users are able to configure their own personal localization preferences, including the timezone that they reside in and the official language they would like to use the system in (English or French).
- All time / date information in the system shall be stored in UTC, but displayed in the user’s local time based on the preference they have provided.

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Flight Safety Quarantine System:

- When investigating a flight safety incident, Flight Safety needs to be able to view the entire system's state from a specific moment in time in order to conduct their investigation. This is in order to comply with requirements to quarantine PTR information without causing unnecessary friction for other users of the system as would occur if the entire system prevented any changes from being made in a quarantine
- In order to keep the initial implementation as simple as possible and minimize server requirements this feature should be provided via a manually triggered process that takes a "snapshot" of the entire system's state at the point the process is triggered by a Flight Safety Officer.
- Flight Safety Incident Response Checklists should include a mention to local FSOs that they need to trigger this process ASAP after an incident occurs and they should discourage their staff from making any changes in the system before they trigger that process.

Data Import System:

- As there are a large number of member records that need to be entered into the system at once by a limited number of staff to start with, the system should be able to accept a spreadsheet of member data to kickstart the data management process. Additionally this system should remain in place for other bulk import tasks (cadets selected for CFTC annually) until replaced by more automated solutions

Notification System:

- The PTR application should be able to send out notifications to ACFP members when certain conditions are met (ex. Documents expiring soon, documents submitted for review, currencies expiring soon, regular reports on staffing health within the various organizational units)
- Ideally these notifications would be able to be sent to members via email / text messages

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Document Review & Approval System:

- Given that members will be responsible for providing their own digital versions of the backing documents required by the overall PTR system, it is important that a review / approval system is in place to process the uploaded documents
- When a member uploads a given document that supports a claim being made on their PTR, a notification will be sent to their organizational unit's admin team (i.e. CFS Stds O), and the document will enter a queue of documents to be reviewed that can be accessed by the admin team for the given organizational unit and the admin teams for the units above the current unit.
- Until the document is reviewed by an authorized person, the claim that it supports is considered to be unverified and will present as such. Once an authorized person has reviewed the document, they will be able to either mark it as approved (which will record when it was approved as well as who it was approved by) or reject it requesting corrections by the submitting member. After either of those actions take place, the submitting member is notified of the result.

User Help System:

- Given that the end users of the system come from a wide variety of backgrounds with a wide range of technical abilities there should be several tools designed to make it easier for users & developers to effectively work within the system
- The tools are as follows:
 - **Terms / Glossary / Acronyms library:**
 - Giant linkable & searchable list of the terms and acronyms a member might encounter throughout their interaction with the ACFP. This system should include applicable terms from the ACFP, CCO, CAF, DND, Transport Canada, Nav Canada, Industry Canada, and aviation in general. Where possible the organization associated with the term should also be displayed in order to provide contextual information when attempting to identify a term / acronym used for different purposes within different organizations (ex. CFS = Cadet Flying Site in the ACFP, but CFS = Canada Flight Supplement with Nav / Transport Canada)
 - **User Feedback system:**
 - Users should be able to provide feedback to the developers through a simple form within the application itself that takes into account where they are in the application and what they're trying to do along with some basic diagnostic information about their device as well as the user provided feedback message
 - **Contextual Help system:**
 - Wherever possible users should be able to click a button to view more in-depth information about the given tools / fields / features present on a page

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Pilot Training Record Management:

- Every member of the ACGP has a PTR (Pilot Training Record). This file contains information on their training, qualifications, currency status, contact information, & personal information.
- Members should be able to manage all of this information attached to their own records and some users (depending on assigned permissions / roles) will need access to view / update other member's records. There should be one record per member across the entire nation and members should be able to freely move between locations & have that information available at the new locations.
- Members should be able to easily see what records are missing from their PTR and able to easily fill out / update the missing / outdated information in order to ensure that their files are always kept up to date so that they are always fit to fly from an administrative standpoint.
- Data that should be managed by the PTR includes the following:
 - Personal
 - Given names & Surname
 - Member type (Cadet, COATS, CV, CI, Reg F, Res F)
 - Unit
 - Service number (for CI, COATS, Reg F, Res F)
 - Date of birth
 - Sex
 - Rank
 - Contact information (phone, email, address)
 - General notes about the member (such as future plans within the organization, when they completed GPS, etc)
 - Assigned organizational unit (CFS, CFTC, Region, Formation, etc), this would determine what other users within the system have access to the members PTR and will most likely change several times throughout the members involvement with the overall program as they attend CFTC, move between CFS locations (and/or visit other CFS locations), and even move between regions within Canada). A process should exist for a member to request a move to a different organizational unit that would then have to be approved by the admin team of the receiving organizational unit.
 - Pilot Information
 - At a minimum all data within the PTR must be held for 2 years, certain items require retention of up to 5-7 years however.
 - Annual Validation of Orders
 - Each member must be able to read and acknowledge a number of different orders in order to participate in the program (RFOs, LFOs, AIFs, PIFs, etc). These orders have to be revalidated annually and whenever they are first issued

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- Members should be able to see a list of documents to review, view the contents of each document through the system, and validate that they have read and will comply with the contents of the document
- Flying Experience Information
 - The PTR shall contain as up to date information as possible on each member's PIC, Instructor, & Total time on each ACPG A/C Type
 - Ideally the PTR system will directly integrate with the ETS application allowing for a list of all flights tracked by the ETS application that are associated with the given member to be displayed within the context of the member's PTR
- Training Records
 - Results from applicable proficiency exams (LCO exam, TC Licensing exams, etc) - Must include date of exam, exam results, and the name of the instructor conducting the debriefing
 - All Flight Progress Cards (prog cards) from pilot upgrades
- Currency / Proficiency Records
 - All Flight Progress Cards (prog cards) from APCs
 - Results of annual open & closed book exams
 - Proof of fulfilling TC biannual recurrent training program requirements (flight with instructor, self paced study exam, certified workshop, etc)
- Aviation Document Booklet (Scans, issue dates, and expiry dates)
 - Cover page
 - Signature page
 - Medical (including date & class)
 - Licenses (GPL, PPL, Instructor, CPL, ATPL)
 - Ratings & Endorsements (if not present in the licensing information, ex. Night rating)
 - NOTE: The contents of the ADB are only valid in the specific ADB they were issued in. It is a not infrequent occurrence that some members must carry multiple ADBs at once in order to remain legally allowed to fly, the system must support this.
- Radio Operators Certificate (Scan, number, date of issue)
- ACFP Qualifications
 - There are a number of different qualifications that ACFP personnel can obtain that enable them to perform different tasks within the program. The qualifications stored in the PTR system need to provide the following information
 - Type (used for automated processing of currency & staffing requirements)
 - Date achieved

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- Date expiring (if applicable)
- Approved scan of the supporting documentation
- Qualifications should be able to be “muted” in some way in order for members to acknowledge that they will not be exercising the rights / responsibilities provided by the qualification so that the qualification expiring does not create an unending user alert when the member in question no longer plans to operate under that qualification (this most typically comes up for personnel that used to be Glider Instructors but for various reasons have let their instructor rating lapse and do not participate in ACFP operations under that qualification)
- Types of Qualifications to be covered:
 - Power Familiarization Pilot
 - Launch Method - Air Tow
 - Launch Method - Auto Tow
 - Launch Method - Winch
 - Basic Glider Pilot
 - Glider Fam Pilot - Front Seat
 - Glider Fam Pilot - Rear Seat
 - Glider Pilot - Maintenance
 - Glider Pilot - Cross Country
 - Glider Instructor - Basic
 - Glider Instructor - Check
 - Glider Instructor - Standards
 - Tow Pilot - Basic
 - Tow Pilot - Check
 - Tow Pilot - Standards
 - Tow Pilot - Famil Qualified
 - Tow A/C Certification - Scout
 - Tow A/C Certification - L19 Bird dog
 - Tow A/C Certification - C182
 - Winch Rope Retrieve Driver
 - Winch Launch Operator
 - Winch Launch Operator - Instructor
 - Auto Launch Driver
 - Auto Launch Driver - Instructor
 - Auto Launch Observer
 - Auto Launch Observer - Instructor
 - Launch Control Officer
 - Flight Safety Course
 - Designated Flight Authorization Officer
 - Common Elementary Maintenance
 - Fabric Patches

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- Removal / installation: tires / wheels / skids / etc
- Removal / installation: seats, safety belts, harness
- Repair of non-structural fairings / cover plates
- Repair of upholstery / cabin trim
- Removal / installation of glider wings / tail surfaces
- Removal / installation of co-pilot flight controls
- Cleaning / installation of spark plugs
- Checking cylinder compression
- Cleaning or changing of fuel, oil, air filters
- Draining and replenishing engine oil
- Adjustment of generator / alternator belt tension
- Removal / installation of a/c batteries (glider)
- Checking electrolyte level of lead acid batteries
- Removal / installation of fuses / light bulbs
- Removal / installation of comm equipment
- Checking / adjusting tire air pressure
- Administrative Information
 - First aid,
 - Authorization to participate (various forms, some have expiry dates, some don't). Every member should have at a minimum a statement as to how they are authorized to participate in the program and when that authorization expires
- Flying records (timesheets) pulled directly from the ETS

Fit to Fly Checklist (Currency and recurring Qualification Management)

- There are a number of requirements in order for members to participate in the ACGP under various roles. For instance, in order to even attend a CFS the member must have authority to be there (if not a member of the CFS slate, an Authority to Participate form that expires regularly is required to be signed and valid), and in order to fly and operate the ACGP equipment there are a detailed list of other requirements (from both Transport Canada and the ACGP) that must be met and retained on a regular basis.
- As each individual member can have a different list of requirements to meet depending on their existing qualifications and roles within the program, it is quite complex to keep track of all these requirements and ensure they're being met at all times. The system should be simplified as much as possible so that members are presented with a checklist of items that they must verify / update in the system in order to be considered fit to participate in various roles (tow pilot, LCO, fam pilot, driver, instructor, elementary maintenance etc).
- This system should also provide an "at a glance" summary of personnel status across the current organizational unit for admin staff to keep a better handle on the overall readiness of their organizational unit

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Future tools for CFS & CFTC:

- There are a number of other useful tools that could be integrated as a part of this application. They're not a part of the initial project proposal however they could be reviewed for integration at a later date. Examples:
 - ***Additional Member Administrative Records:***
 - Licensing
 - Provincial driver's license
 - DND 404, Ramp DDC, AVOP, ATV & Trailer endorsement on 404
 - Training
 - Course Reports
 - Results of IRs
 - Results of PRBs
 - CF Requirements:
 - WHMIS & COVID courses
 - CI Employment Contract Expiry Date
 - Personal Emergency Notification data
 - Next of Kin data
 - Cadet Requirements
 - Criminal Record Check, VSS
 - PYDPO GAP Package
 - Code of Conduct
 - ***CFS Attendance Management & Tracking:***

Scheduling calendar to manage what members will attend what CFS and when, self sign up for smaller CFS & assigned scheduling for larger CFS
 - ***Online editing of the ETS:***

The ETS is currently managed entirely on the mobile application, a system could be built to enable the ETS records across the entire country to be managed online allowing for an easier process of manually making changes to those records as required.