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**TRUSTiD**

University of Cyprus Multiplier Event

**Intellectual Output 4** - Knowledge Repository containing Training Webinars, Guides of Best Practices, Integration Guidelines, Training Materials and Forum Discussions on how to Adopt and Deploy Continuous Student Identity Management Solutions in HEIs

Dr. Argyris Constantinides, University of Cyprus



University  
of Cyprus



**cognitiveux**

# Intellectual Output 4 (IO4)

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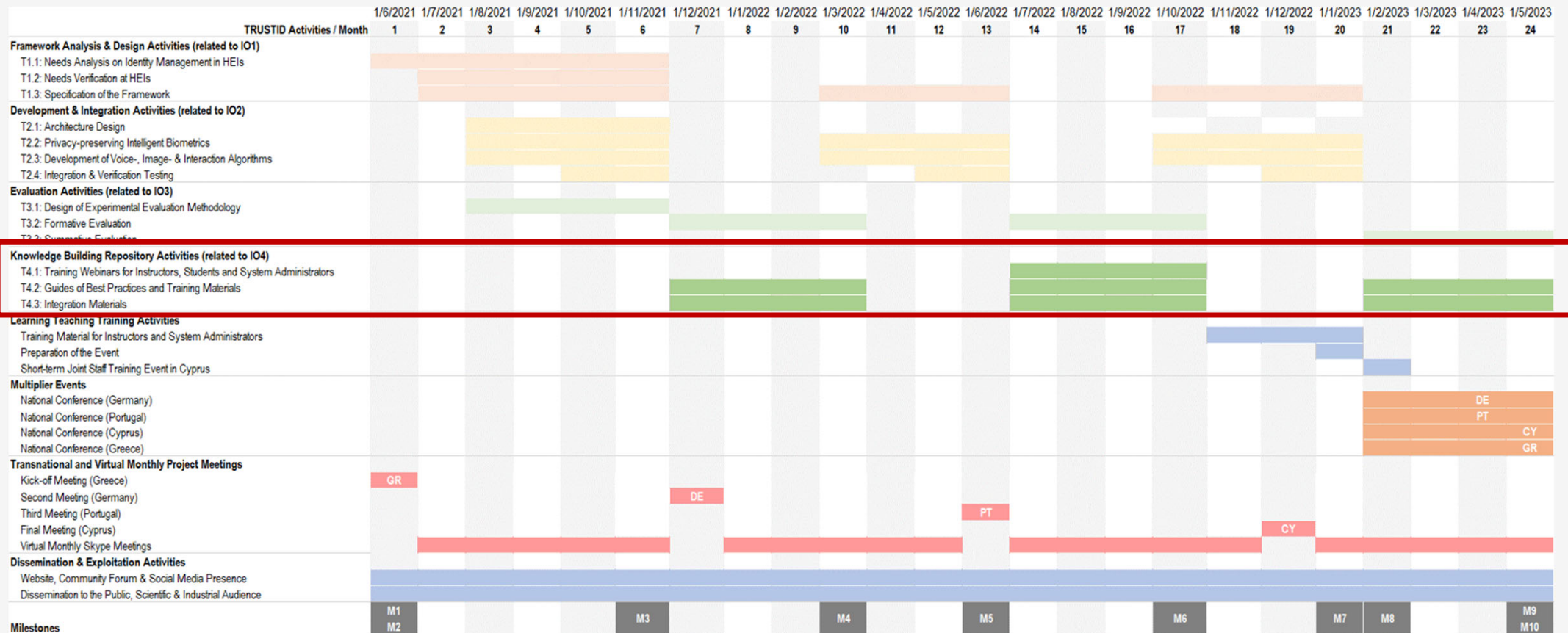


## Knowledge Repository

- Contains: Training Webinars, Guides of Best Practices, Integration Guidelines, Training Materials and Forum Discussions on how to Adopt and Deploy Continuous Student Identity Management Solutions in HEIs.
- *Lead:* University of Patras
- *Participating Partners:*
  - *Institute of Systems and Robotics (ISR-UC)*
  - Cognitive UX GmbH
  - University of Cyprus

# Intellectual Output 4 (IO4)

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# IO4 – Objectives and Activities

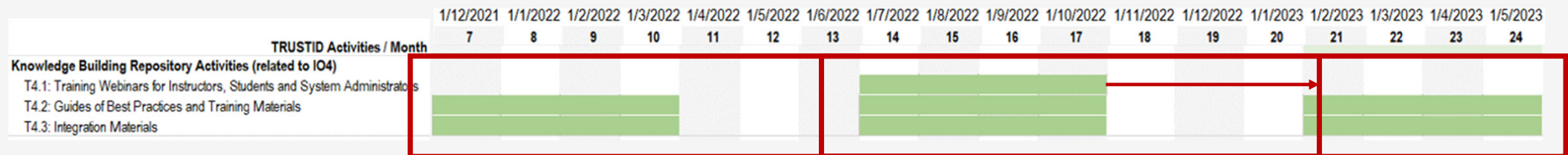
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- Series of tasks for producing a thorough **knowledge repository** to serve as **training and learning material** based on the outcomes of the project, and as a dissemination tool.
- **Conduct webinars** for the training of system administrators and instructors, which will serve as a training, evaluation and dissemination tool of the project
- **Design of guides describing best practices** on how HEIs may adopt continuous student identification methods and techniques in online learning environments.
- **Design of system integration guidelines** on how system administrators of HEIs may utilize the developed API of TRUSTID to integrate the solution into their existing learning management environments and systems.

# IO4 - Tasks

- T4.1: Training Webinars ← July 2022 – Feb 2023
  - *Lead: Institute of Systems and Robotics (ISR-UC)*
  - *Participating: University of Patras, University of Cyprus, Cognitive UX GmbH*
- T4.2: Best Practice Guides ← Until EoP (May 2023)
  - *Lead: Institute of Systems and Robotics (ISR-UC)*
  - *Participating: University of Patras, University of Cyprus, Cognitive UX GmbH*
- T4.3: System Integration Guidelines (through an Application Programming Interface)
  - *Lead: Cognitive UX GmbH*
  - *Participating: University of Patras, University of Cyprus, Institute of Systems and Robotics (ISR-UC)*



## T4.1: Training Webinars

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- The **Training Webinars** consisted of focused sessions to demonstrate the TRUSTID technology from a **user** perspective (instructors) and from a **technical/integration** perspective (system administrators).
- Designed to inform HEIs stakeholders on **why, when** and **how** to adopt continuous student identification.
- **Four webinars** were conducted: one by **each partner organization**.

# T4.1: Training Webinars -- Activities

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**LIVE WEBINAR**  
**BEYOND PASSWORDS:  
BIOMETRIC IDENTIFICATION & AUTHENTICATION  
BEST PRACTICES**

Join our hybrid webinar to learn about  
biometric identification and authentication  
best practices

**Monday,  
5 December, 2022**  
14:00 - 15:00 pm (EET)

**Online &**  
University of Cyprus,  
ΘΕΕ01 - 202

Speaker  
**Taoufik Sousak**

**FREE REGISTRATION**

Webinar 1  
Webinar 2  
Webinar 3  
Webinar 4

TrustID  
UNIVERSITY OF PATRAS | University of Cyprus | INSTITUTE OF SYSTEMS AND ROBOTICS UNIVERSITY OF COIMBRA | cognitiveux

**CUX:** Mon, Dec-5 2022, *Beyond Passwords: Biometric Identification & Authentication Best Practices* [Taoufik Sousak]

# T4.1: Training Webinars -- Activities

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**WEBINAR**

Live Webinar

## ONLINE STUDENT IDENTIFICATION WITH FACE RECOGNITION

Are you interested in learning more about the latest developments in facial recognition technology and its applications in authentication? Then you won't want to miss our upcoming webinar on face-based identification.

We will dive deep into the technical aspects of facial recognition, its accuracy and reliability. We'll also explore real-world examples of how it's being used by Higher Education Institutions and the potential benefits it can bring.

Don't miss this chance to stay ahead of the curve in the field of authentication!

**Speaker**  
José Faria  
Institute of Systems and Robotics, University of Coimbra (ISR-UC)

Thursday, 19th of January 2023, 14:30-15:30 (Western European Time)

Online Event



**ISR-UC:** Tue, Jan-19 2023, *Online Student Authentication with Face Recognition* [José Faria and Pedro Martins]



# T4.1: Training Webinars -- Activities

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**WEBINAR**

Live Webinar

## STRONG AUTHENTICATION – BEST PRACTICES AND BIOMETRICS

We are happy to invite you to join us for a webinar on Strong Authentication Best Practices and Biometrics.

In this webinar, we will define the term of authentication and strong authentication. We will present the major biometric authentication methods and explore the latest advancements in biometric identification and authentication technologies.

Speaker  
George Thomopoulos  
IT at Dept. of Electrical and Computer Engineering, University of Patras

Thursday, 19th of January 2023, 15.00-16.00 (EET)

Online &  
In-person at the University of Patras,  
Dept. of Electrical and Computer Engineering Conference Room



**UPAT:** Thu, Jan-19 2022, *Strong Authentication – Best Practices and Biometrics* [George Thomopoulos]

# T4.1: Training Webinars -- Activities

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**WEBINAR**

Live Webinar

## TOWARDS INTELLIGENT AND PRIVACY-PRESERVING BIOMETRICS FOR STUDENT IDENTITY MANAGEMENT IN HIGHER EDUCATION

Make sure you don't miss another interesting webinar of the TRUSTID project!


Argyris Constantinides will be discussing various topics on intelligent biometrics, state-of-the-art approaches, challenges and open issues on using biometric technologies for continuous student identity management in Higher Education Institutions

Feel free to join us live online

Speaker  
Argyris Constantinides  
Research Scientist, University of Cyprus

Friday, 3rd of February 2023, 14.30-15.30 (EET)

Online &  
In-person at the University of Cyprus



**UCY:** Fri, Feb-3 2023, *Towards Intelligent and Privacy-Preserving Biometrics for Student Identity Management in Higher Education* [Argyris Constantinides]



**TRUSTID** :: <https://trustid-project.eu>

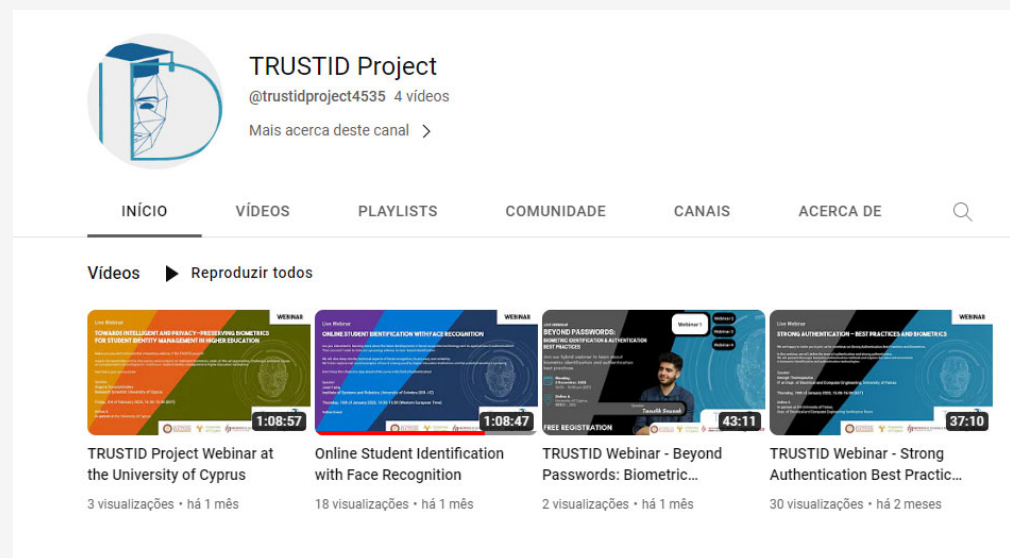


# T4.1: Training Webinars

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- **Evaluation and piloting tool** to improve the system design based on **feedback** received after the webinars.
- **Dissemination tool** through **live video** recorded sessions, which are **publicly available**.



## T4.2: Best Practice Guides

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- **Innovative and practical design guidelines**, recommendations/policies to provide useful indications on how current practices in identity management and online learning systems can be improved.
- Guidelines will be made **publicly available** (e.g., through publications and open repositories) to be used by interested researchers and practitioners as a stepping-stone for further exploitation.
- What are we producing?
  - *Format: Documents and presentations (e.g., pdfs, pptx)*
  - Practical design guidelines
  - Recommendations
  - Policies
  - Experimental results

## T4.2: Best Practice Guides – Stage 1

## T4.2: Best Practice Guides – Actions Done in Stage 1

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### Deployment of Knowledge Repository v1

- *TRUSTID Webpage with links for Wiki pages hosted on Slite.  
Available at: <https://trustid-project.eu/kr.php>  
including Educational, Training and Course Material.*

### Deployment of the TRUSTID Community Forum v1

- Based on WordPress. It was available at: <http://forum.trustid-project.eu/>  
Barebones version with “Developers” and “General” Discussion Topics.*

### TRUSTID GitHub Open Source Code Repository

- Available at: <https://github.com/cognitiveux/trustid>*

## T4.2: Best Practice Guides – Stage 2

# T4.2: Best Practice Guides – Actions Done in Stage 2

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## Deployment of Knowledge Repository v2

TRUSTID Webpage with new [Wiki pages](#) hosted on Slite

- *Integration guides and reports*
- *Study Design, Evaluation Methodologies and POC 1 Evaluation Results*
- *Voice-based speaker recognition*
- *Update of previous wiki pages (e.g. Image-based face recognition)*
- *INFOGRAPHIC: User acceptance of online examination monitoring*

The screenshot shows the TRUSTID Knowledge Repository interface. The navigation menu includes: WELCOME, ABOUT TRUSTID, CONSORTIUM, VIDEOS, INTELLECTUAL OUTPUTS, NEWS, PUBLICATIONS. The main content area is titled 'TRUSTID Knowledge Repository' and features a search bar and a list of categories. The selected category is 'INFOGRAPHIC: User acceptance of online examination m...'. The infographic itself is titled 'GETTING FEEDBACK ON User Acceptance' and includes a bar chart showing 'PRE EXISTING EXPERIENCE' with a scale from 1 (NOT AT ALL) to 5 (VERY COMFORTABLE).



# T4.2: Best Practice Guides – Actions Done in Stage 2

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## TRUSTID Project Brochures



**What is TrustID?**

In TRUSTID, we envision to design, develop and evaluate a multi-tier continuous user identification framework, bootstrapped to HEIs' contexts that will consist of state-of-the-art intelligent image, voice and interaction data processing.

**FUNDING**

The project is funded by the European Commission (Erasmus+ 2020) and IKY with a budget of €291,310.

**Learn More**

Visit our website:

<https://www.trustid-project.eu>

Also On:

**Expected Results**

- Validate a Framework for HEIs' Continuous Student Identity Management**  
The TRUSTID framework will be both theoretical and practical and will scaffold different HEI stakeholders to sustain credibility of online education learning activities.
- Implementation of an open-source software toolkit**  
The aforementioned framework will be supported by an open-source toolkit that will be designed and developed during the project.
- Evaluation and Validation Reports in the context of three case-studies at different HEIs**  
Evaluation reports assessing the project results in general, aiming at the provision of recommendations for the long-term implementation of continuous identity management of online learning and teaching activities at the partner organizations, based on the evaluation outcomes.
- Knowledge Building Online Community and Repository**  
An online repository that will support knowledge building through guides with best practices for different methods and tools to apply continuous user identification for online activities of HEIs.

Logos: UNIVERSITY OF PATRAS, INSTITUTO DE SISTEMAS E ROBÓTICA, University of Cyprus, cognitiveux

### What is TRUSTID

**How can I help?**

To evaluate the second Proof of Concept, we will run user studies where participants can download the software and take it for a test drive! At the end you will be asked about your experience. We want to hear from you so we can improve our solution.

**Sign up:**

**Learn More**

Visit our website:

<https://www.trustid-project.eu>

**What is TrustID?**

In TRUSTID, we envision to design, develop and evaluate a multi-tier continuous user identification framework, bootstrapped to HEIs' contexts that will consist of state-of-the-art intelligent image, voice and interaction data processing.

Logos: UNIVERSITY OF PATRAS, INSTITUTO DE SISTEMAS E ROBÓTICA, University of Cyprus, cognitiveux

### User Recruitment

# T4.2: Best Practice Guides – Actions Done in Stage 2

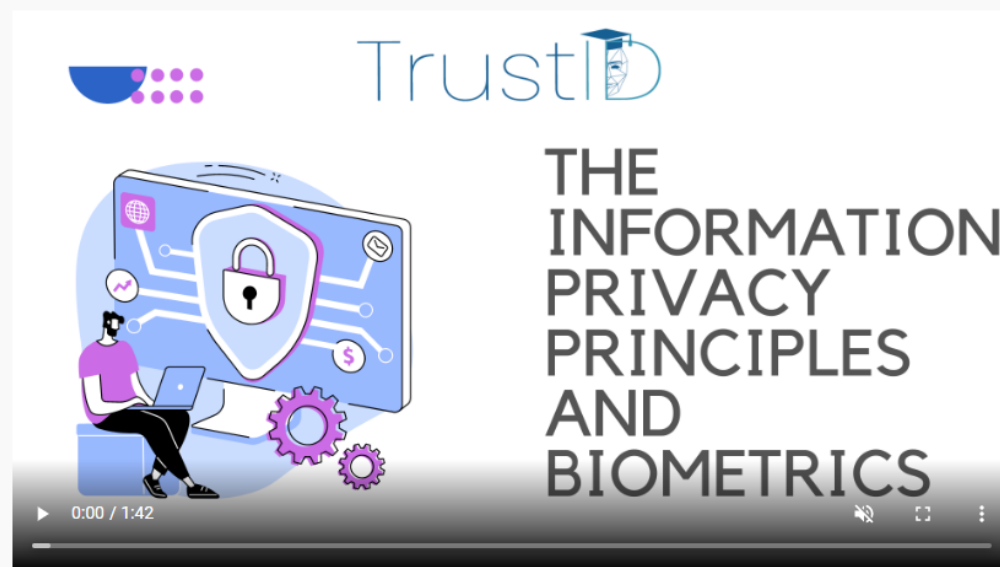
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## Best Practice Videos

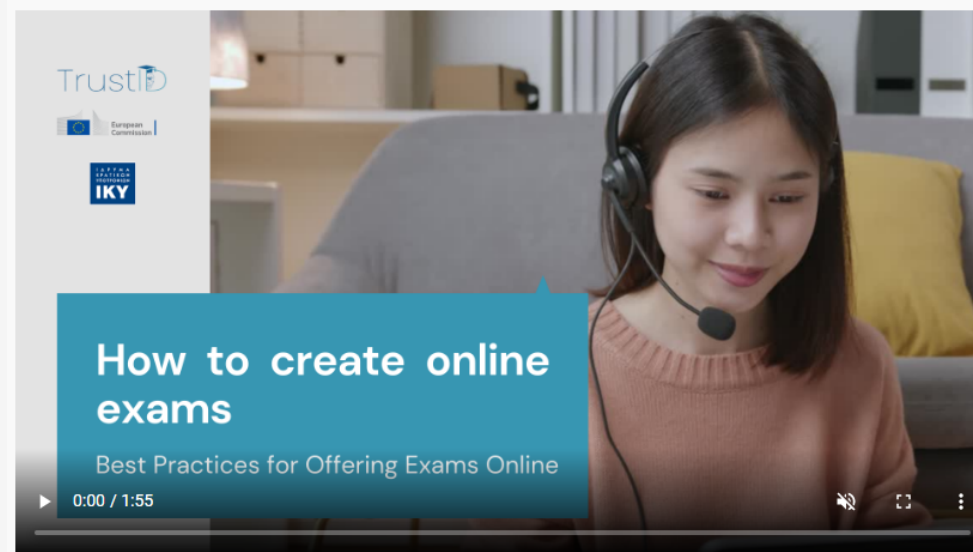
### The Information Privacy Principles and Biometrics

Watch this best practices videos about privacy preservation when it comes to biometrics



### Online Examination Best Practices

Best practices and extra tips when it comes to online evaluation activities.



# T4.2: Best Practice Guides – Actions Done in Stage 2

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## TRUSTID Community Forum v2

*Embedded in the TRUSTID  
website*

*Based on **tribe**, a customizable  
community platform for  
businesses*

TrustiD

Search...

Log in Sign up

Home Members Spaces

Spaces

General

Technical Discussions

© Copyright 2022, TrustiD Project

Powered by Tribe Platform

General

Join

Feed Members

Sort by latest

SS Stylianos Sofokleous  
2 months ago

**Excellent idea but...**

Although this idea seems great for academia, do you believe students from appropriate fields (i.e., computer science) will accept this or will they see it as a challenge and try to trick the software to prove themselves capable pen testers?

1

Like Follow Share

G What are your thoughts?

LP Loukas Papalazarou

About

9 members

5 posts

Created 2 months ago

## T4.2: Best Practice Guides – Stage 3

# T4.2: Best Practice Guides – Actions Done in Stage 3

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## Webinars Webpage

*Embedded in the TRUSTID  
website*

# T4.2: Best Practice Guides – Ongoing Actions

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## TRUSTID Community Forum v3

Embedded in the TRUSTID  
website: [https://trustid-  
project.eu/community.php](https://trustid-project.eu/community.php)

Based on *Wix*, a cloud-based  
website development platform

Categories All Posts My Posts

## TrustID Forum

Welcome! Join a conversation!

[Create New Post](#)

- General Discussion**  
Share stories, ideas, pictures and more! 👁️ 4 💬 4 [Follow](#)
- Questions & Answers**  
Get answers and share knowledge. 👁️ 0 💬 0 [Follow](#)

New Posts

- Demetra Hadjicosti   
4d  
**new**  
General Discussion
- Demetra Hadjicosti   
Mar 18  
**Welcome to the Forum**  
General Discussion
- Demetra Hadjicosti   
Mar 18  
**Introduce yourself**  
General Discussion

## T4.2: Best Practice Guides – Ongoing + Planned Actions

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- Update **wiki pages** alongside project developments/new results (e.g., PoC 2 outcomes, validation reports, evaluation of results and scientific papers)
- **Dedicated pages** to the LTTA and Multiplier Events with recording links
- Additional **Best Practice Videos** and eventually Infographics
- Reinvigorate the Discussion **Forum** (news, discussion points, etc.)
- **PoC 3** Final System information (update GitHub – PoC3 documentation, integration guidelines, experimental results, etc.)
- **TRUSTID Closure** Documentation, Reports, Project Evaluation

## T4.3: System Integration Guidelines (through an API)

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- Design **system integration guidelines** based on the developed **Application Programming Interfaces** developed as part of IO2 for exposing the intelligent continuous student identification mechanisms and user models to third-party software
- The API will allow developers to subscribe and get an API key that will be used to authorize HTTP(S) requests for using the developed algorithms and user models in their applications



## T4.3: System Integration Guidelines

- **Target group:** System administrators
- What needs to be produced
  - Integration guidelines allow admins to integrate and customize TRUSTID
    - *Format: Documents (e.g., pdfs)*
    - Guide on **how to install TRUSTID** Windows and MacOS (*on final system release*)
    - Guide on **how to train the models** for the face recognition mechanisms (*on final system release*)
    - Guide on to **integrate TRUSTID** in existing LMS systems (*on final system release*)
  - Document of Web API (continuously being updated along the development implemented)
    - *Format: Online documentation and demonstrator*
    - Interactive demonstrator on how to call and use the Web API of TRUSTID
    - Online documentation with information about the end points of the TRUSTID system

## T4.3: System Integration Guidelines

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- Create system integration guidelines enabling system administrators to easily integrate and customize TRUSTID to their needs and requirements
- Infrastructure for Web-based Application Programming Interfaces (API) has been implemented
  - Interactive demonstrator on how to call and use the Web API of TRUSTID
  - Online documentation with information about the end points of the TRUSTID system

# Web API – Interactive Demo

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### TRUSTID API

[ Base URL: localhost:11000/healthz ]  
[ http://localhost:11000/swagger/index.html ]

The endpoints for interacting with the TRUSTID server

Terms of service  
Contact the developer  
BSD License

Scheme: HTTP

Django Login | Authorize

Filter by tag

- instructor**
  - POST /instructor/add\_exam (instructor\_add\_exam\_create)
  - POST /instructor/enroll\_students (instructor\_enroll\_students\_create)
  - GET /instructor/list\_exam (instructor\_list\_exam\_list)
  - POST /instructor/update\_exam\_details (instructor\_update\_exam\_details\_create)
- login**
  - POST /login (login\_create)
- monitoring**
  - POST /monitoring (monitoring\_create)
- refresh\_token**
  - POST /refresh\_token (refresh\_token\_create)
- register\_user**
  - POST /register\_user (register\_user\_create)
- student**
  - POST /student/identification (student\_identification\_create)
  - GET /student/list\_exam (student\_list\_exam\_list)
- trustid\_version**
  - GET /trustid\_version (trustid\_version\_list)
- update\_exam\_condition**
  - POST /update\_exam\_condition (update\_exam\_condition\_create)

### login

POST /login (login\_create)

Creates a JSON Web Token if the provided credentials are correct

Parameters

Name	Description
<b>data</b> <small>required</small> (body)	<p>Edit Value   Model</p> <pre>{   "email": "string",   "password": "string" }</pre> <p>Cancel</p> <p>Parameter content type: application/json</p>

Execute

Responses

Response content type: application/json

Code	Description
201	<p>JSON Web Token has been created successfully. The value is returned in <code>resource_obj</code>.</p> <p>Example Value   Model</p> <pre>{   "message": "string",   "resource_name": "string",   "resource_obj": {} }</pre>

# Web API – Documentation

Search...

- Authentication
- instructor >
- login >
- monitoring >
- refresh\_token >
- register\_user >
- student >
- trustid\_version >
- update\_exam\_condition >

Documentation Powered by ReDoc

## instructor

### instructor\_add\_exam\_create

The view that allows instructors to add examinations

AUTHORIZATIONS: **Bearer**

REQUEST BODY SCHEMA: application/json

additional_material	boolean (Additional material)
duration <i>required</i>	integer (Duration in minutes) [0..9223372036854776000]
exam_type <i>required</i>	string (Exam type) Enum: "Oral" "Written"
privacy_policy <i>required</i>	string (Privacy policy) non-empty
scheduled_date <i>required</i>	string <date-time> (Scheduled date)

### Responses

200 Success

RESPONSE SCHEMA: application/json

message	string A general message description
resource_name	string The name of the resource

POST /instructor/add\_exam

### Request samples

Payload

application/json

```
{
  "additional_material": true,
  "duration": 0,
  "exam_type": "Oral",
  "privacy_policy": "string",
  "scheduled_date": "2021-12-13T13:28:55Z"
}
```

### Response samples

200 400 401 403 404 405 415 500

application/json

```
{
  "message": "string",
  "resource_name": "string"
}
```

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TrustID 

# Thank you!

Dr. Argyris Constantinides, University of Cyprus



University  
of Cyprus



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