Synthetic Training Environment - Information System (STE-IS) Platform Development Kit (PDK)

PM Synthetic Environment
TSIS
16 June 2022

The STE Ecosystem

STE-IS PDK Enables the Foundational, Cross-Cutting Architecture Across the Ecosystem

Squad Immersive Virtual Trainer (SiVT-IVAS)
(Squad Immersive Interface)

Soldier Virtual Trainer (SVT)
(Soldier Immersive Interface)

Weapons Skills Development, Use of Force, and Joint Fires Training

Reconfigurable Virtual Collective Trainer Air and Ground (RVCT-G /RVCT-A)
(Air and Ground Vehicle Interfaces)

(Dismounted Semi-Immersive Interface)

STE Increment 1 Interfaces
STE-IS Core System
Training Management Tool
PLAN
Training Simulation Software
ASSESS
ASSESS
ASSESS
ASSESS
One World Terrain
EXECUTE
PREPARE
Inc. 2 and 3 Interfaces

Inc 1
Inc 1
Inc 1
Inc 2
Inc 3 Scalability

STE Increment 2:
Live Training System

STE Increment 3:
Next Generation Constructive

Growing multi-dimensional industry opportunities leveraging PDK to instantiate & evolve the STE Ecosystem

STE-IS PDK Background & Purpose

> **Released in FY22, the STE-IS PDK was made available in initial, <u>layered technical data package to Tiers</u> of industry, government, and academia partners to convey:**
>
> ✅ **Architecture**   ✅ **Software Technology Stack**   ✅ **Integration Patterns**   ✅ **Agile DevOps Processes**
>
> **With goal of fostering extensibility, integration & re-use across STE Family of Programs procurement activities**

GUIDING PRINCIPLES

- Align to **MOSA** & Digital Engineering
- Establish transparency on **emergent technical architecture** & capabilities
- Provide a evolving **Technical Data Package (TDP)** to steer industry investments for future opportunities
- Enable common **STE fabric** across various training modalities from squad to echelons above corps
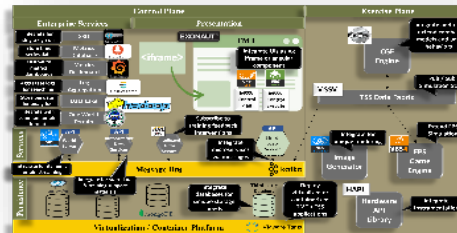
ACTIONS TO DATE

- ✓ **Nov 2021:** Released "alpha" PDK" as part of SVT Industry Day & RFS (after 4 sprints)
- ✓ **Apr 2022:** PEO STRI Press Release on PDK availability industry partners
- ✓ **May 2022:** Initial prototype release of STE fabric software to STE-LTS (gov't-to-gov't exchange) & STTC

  <u>Released to 25+ vendors to date</u>

OUTCOMES

- Enabled **informed industry-gov't discussion** on tech insertion into STE
- Greater **innovation & competition** evolving STE at tiered access
- Drive **industry investments** to advance state-of-the-STE
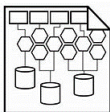- Codify initial PDK state and evolve to remain at **speed of technology** with industry and operational feedback

1 Who the PDK is for?

- Technical Leadership
- Systems Engineers/Architects
- Any vendor interested in technically contributing to STE ecosystem

2 What is the Level of Access?

All vendors sign DAs (OPSEC)
PDK is at CUI level

Tier	Purpose	Example	Access
0	General Stakeholder* (no contract)	Facebook, Google, etc	Technical SE artifacts + open standards
1	Working STE Feeder Contract	S&T, SBIRs, IRAD	Tier 0 + limited SW infrastructure
2	Working core STE FoP contract	LTS, NGC, SVT, etc	Tier 1 + Full SW stack

Government is prioritizing release @ Tier 0 while   **Establishing future Tier 1-2 access**

3 What the PDK includes?

STE-IS Reference Arch & Agile Integration Processes

- Layered blueprint view of STE-IS software stack across TSS, TMT, OWT
- Common components (data fabric, IG, CGF, TMT services, core infra)
- Agile Scrum-of-Scrum Processes

Standards, Interfaces, APIs

- Well Formed Format, OWT API, glTF, 3D Model Spec
- Simulation data fabric clients/APIs
- CGF and Game Engine APIs
- TMT UI frameworks

4 What the PDK Enables?

- Black-box to white box transparency
- Knowledge to **formulate strategies/ approaches compete in STE procurements** that will all leverage STE-IS as screening criteria
- **Evaluate** your products, technologies, innovations to **adopt or strangle** within STE-IS modular framework
- Understand/acknowledge Gov't investments & gaps in **evolving** this product
- **Engage PM** on 1-on-1s, industry days, demos to evaluate PEO technology gaps

5 What the PDK is NOT

❌ **Full open source access to all STE SW & source code**

- ✅ Limited to **technical data package artifact** to support understanding of STE architecture, tools, interfaces
- ✅ Piloting & **maturing underlying software** for Tier 1-2 distribution with STE-LTS, SVT, and STTC
- ✅ Seeking opportunities to **graduate select STE components** to Tier 0 (e.g. data fabric, OWT stds, etc)

❌ **I will be able to immediately build STE compliant capabilities.**

- ✅ Initial Tier 0 **emphasis to explain** the STE-IS technical architecture & approach
- ✅ Future Roadmap across **FY22-24 to mature software stack**, extensibility for broader distribution (test utilities, sample clients, automated deployment, style guides, etc)
- ✅ Obtain industry feedback & STE use to **evolve**

STE-IS PDK Access & Feedback

PDK Release Process

PRIOR TO REQUEST

- Identify purpose & need
- Intended audience is Technical
- Expectation Mgmt – initial "alpha release" as a TDP
- Not an freely, open stack software development platform for public

STAGE 1: Request Access

usarmy.orlando.peo-stri.list.ste-is-sw-distribution-requests@army.mil

STAGE 2: Sign Distro Agreement

Gov't receives request, supplies STE-IS Distribution Agreement for Vendor submission

STAGE 3: Vet & Release PDK

Gov't conducts vendor vetting/OPSEC review and release PDK package to vendor

AFTER REQUEST

- Use insights into PDK standards, APIs, interfaces IOT approach Gov't
- Assess ability to adapt your COTS/proprietary products into PDK framework
- Provide informed feedback to evolve PDK & future releases (MVP based)

Expectations & Feedback

PM SE Expectations of Industry

- Use PDK to enable STE-IS integration across future STE procurements
- Present relevant technical exchange for Gov't engagements
- Drive innovation & competition to insert modern capabilities& technologies
- Acknowledge PDK capabilities & limitations to achieve the STE ecosystem

STE — Informed Industry – Gov't Collaboration & Transparency

Industry Feedback to PM SE

- Apply PDK to evolve & drive future investments
- Ensure means by which to address future STE Increment 2/3 (LTS, NGC)
- Present more meaningful approaches to PM SE to adapt COTS/proprietary capabilities
- Nominate or provide feedback on relevant standards, interfaces for future STE needs (AI/ML, AR, embedded training)

Next Steps & Future Plans

- **STE-IS PDK is a continuously evolving product that will capture agile development progress, artifacts and interfaces as it gets tailored integration across the STE Ecosystem**
  - Future plans include augmenting with including test clients, harnesses, sample interfaces, and updated standards/APIs
  - Graduating certain capabilities to a more openly deliverable model to Tier 0 vendors
  - Continuing lessons learned and feedback from STE-LTS and SVT to then scale-up for Next Generation Constructive (NGC)

- **Future Plans/Opportunities:**
  - FY23 STE-LTS OTA solicitation opportunities for Direct Fire Vehicles and AR for Forward Observer/Grenadier
  - FY23 STTC BAA topics areas leveraged for STE S&T investments
  - Early formulation of plans, strategies, approaches for NGC and use of STE-IS to scale up to support BDE to ASCC
  - Dec 2022 @ I/ITSEC: Conducting a STRI-Industry Technical Panel providing insights into overall STE progress and PDK usage to date

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