





What is the Tin Can API?

Tin Can is interesting on so many levels and to so many audiences that it is hard to provide a succinct answer.

I find it helpful to describe Tin Can using layers. On the surface, Tin Can is quite interesting with many capabilities to explore and understand. Just as you start to take it all in though, you realize there is more goodness hiding just beneath the surface.

This article will answer the question "What is the Tin Can API?" layer by layer.

To whet your appetite, here is a short preview of the layers:

Layer 1: The Tin Can API is a modernized version of SCORM that frees us from the obsolete constructs of old.

Layer 2: The Tin Can API allows us to record any learning experience, including informal learning, giving us a much richer picture of an individual's learning path.

Layer 3: The Tin Can API frees your data from the confines of your siloed LMS.

Layer 4: The Tin Can API is capable of achieving the holy grail sought by training departments everywhere by correlating job performance data with training data to assess training effectiveness and much more.



Layer 1: A Modernized Version of SCORM

<u>SCORM</u> has been around for over a decade now and it has served the e-learning industry well. It was a visionary technology for its time, but ten years is an eternity in the world of technology. SCORM is long overdue for an update.

At its simplest, the Tin Can API is the next generation of SCORM that allows e-learning to use modern technologies in an interoperable way.

For Geeks:

For fellow geeks, the Tin Can API is a set of RESTful web services. The services carry a JSON payload that allows a "Learning Activity Provider" to make a series of "Statements" to a "Learning Record Store (LRS)". Each "Statement" describes a learning experience and consists of three parts, an "Actor," a "Verb" and an "Object". A "Statement" conveys something like "Mike passed Introduction to REST". For a deep geek dive into how the Tin Can API works, start with the <u>developer section of</u> tincanapi.com.

For the rest of you, the Tin Can API lets you do all the fun stuff you want to incorporate into your learning programs but just can't because SCORM gets in the way.

The Tin Can API is great for tracking:

- Mobile Learning
- Serious Games
- Simulations
- Informal Learning
- Real World Performance

The Tin Can API lets you do things that weren't easy or even possible in SCORM:

- Launch content outside the LMS
- Maintain complete control over content delivery and user experience
- Freely navigate a learner across disparate content
- Add security to prevent users from cheating
- Much more (we're just talking SCORM improvement at this point)

The Tin Can API allows you to operate anywhere:

- Disconnected or occasionally connected environments
- On any device (ex: smartphone, submarine sonar system)
- From any server (host your own content, no more cross-domain scripting issue)
- Outside the web browser (ex: native iPhone app, F-16 flight simulator)

With the Tin Can API, you can deliver a richer instructional experience:

- Interactive and adaptive learning experiences
- Multi-modal learning experiences (ex: reinforce your CBT with text message refreshers)
- Blended learning
- Learning experiences that span long time periods

Tin Can lets you report data that just didn't quite fit well in SCORM:

- Team-based training
- Multiple scores for a course (pre-test and post-test)
- Many attempts (and you control when new attempts begin)
- Detailed test results



Good stuff, right? This is all real, and forward-looking vendors are making it happen right now.

The first layer alone represents a significant leap for our industry. The Tin Can API will unlock a world of potential training innovation. But, of course, there's more...

Layer 2: Record Any Learning Experience (Informal Learning)

What percentage of your learning experiences are delivered through formal instruction? Of that, what percentage come from e-learning courses? It's not much.

When you want to learn something, where do you go? Is it to your LMS in search of that perfect CBT? No, of course not. You go to Google, or to YouTube, or to Twitter, or to a peer. Sometimes you might even sign up for a class.

Why then have we limited the educational experiences we can track to just formal e-learning courses?

Tin Can changes all of that. Learning happens everywhere. Now we can track it in a way that many systems can understand..

The fact that you are reading this article is a very relevant learning experience. With Tin Can, we can record it.

Watching a Khan Academy video is a learning experience, with Tin Can, we can track it.

Attending a conference session is a learning experience, with Tin Can, we can track it.

Being mentored by an expert...

Mentoring somebody else...

Asking your social network for advice...

Going to class...

Reading a book...

Writing a blog post...

Turning in your homework...

Tons of things we do every day....are learning experiences. With Tin Can, we can track them.

Tin Can allows us to start forming a complete picture of an individual's learning experiences.

What will this look like in the real world? How do you efficiently track what people are doing outside an LMS?

We don't have all of the answers yet, Tin Can is too young, but we do have some interesting ideas and early applications.



ANY EXPERIENCE



Look at <u>Tappestry</u>, a mobile app that allows "users [to] enter Threads of information that they have learned" and record them into a Tin Can LRS.

There's also <u>a bookmarklet</u>. It puts an "I Learned This" button in your browser toolbar for recording the relevant learning events while you're browsing the web.

There is a <u>book scanner app</u> (Android). It allows you to scan the barcode on a book you just read and record it as a learning experience.

There are a myriad of other ways we can passively capture learning experience data. Imagine:

- A conference session registration system that makes Tin Can statements about attendees
- A "record learning event" button in Google Calendar that makes statements for everybody invited to the event
- A corporate intranet's discussion board that asserts knowledge gain or experience sharing based upon activity on a relevant thread

These are just the start. We live in a world where electronic systems pervade our lives. These systems can all capture our learning experiences. (If we want them to, that is. There are plenty of security and privacy issues that need to be weighed against the value of tracking learning experiences, but that's another article.)

There are a few key innovations built into the Tin Can API that make it possible to track informal learning experiences:

L • The LRS doesn't need to know about activities ahead of time. In SCORM, content must be imported and registered with the LMS before it can be delivered and tracked. This limits what can be tracked to e-learning content that the LMS administrator has preselected, in other words, a very small subset of our learning experiences. With Tin Can, the latest Khan Academy video can become a trackable learning event as soon as it is released.

2. The learning experience to be tracked doesn't need to be originated in the LMS. In SCORM, the only way to track a learning experience was to login to an LMS, register for a preselected e-learning course and then launch it from within the LMS. In Tin Can, it doesn't matter where or when you discover and begin a learning experience, it can all be tracked. When you're finished watching an insightful TED Talk, click on your "I Learned This" bookmarklet and your learning experience is instantly recorded.

5 • The content and the asserter of a learning experience are now decoupled. In SCORM, the "thing reporting a result about a learning experience" always had to be the experience itself. You had a SCO that was both a piece of educational content and a communicator of data about the learning experience. Content had to be smart. Content had to be intentionally converted to enable SCORM functionality. Tin Can removes the requirement that the communicator of data be the educational experience itself. Now we have our "I Learned This" bookmarklet as the data communicator and all of the web can be harnessed as educational content. Now we have the Tappestry mobile app and any real-world experience can be an educational event.



Good stuff, right? Tracking informal learning fills in a big piece of the puzzle. A detailed record of an individual's learning experiences can be a huge predictor of success and key component to assessing readiness.

In and of itself, this second layer represents a significant leap for our industry. But, of course, there's more...

Layer 3: Free the Data

Ever wonder what blackhole all of your SCORM data disappeared into? SCORM was all about allowing content to send data to a LMS. There were no requirements about how the LMS should use that data, how it should display it or how it should report on it. Tin Can doesn't include any of those system design requirements either, but there is one key difference. **Tin Can requires that the LRS make the data accessible.**

The Tin Can API allows for both writing data to and reading data from an LRS. **What goes in, also now comes out.** LRSs can share data with reporting tools, analytics tools and even other LRSs. This capability has profound implications for the types of systems we can build and the data we can share.

Very few people love the reporting tools in their LMS. Generic reports sometimes suffice, but people want to slice and dice their data in different ways. Different verticals have different needs, different terminology and different compliance requirements. With the Tin Can API, it will be possible to develop **sophisticated reporting tools that can pull data from any LRS.** These tools could be customized for integration with specific business intelligence tools, different types of learning experiences, different industries, etc. The data is accessible to be analyzed however you see fit.

Content authors are always looking for ways to assess the effectiveness of their instruction, address deficiencies and make improvements. The only way to find areas for improvement is to understand how learners are engaging with the content itself. Without understanding what is really happening, authors are blind to deficiencies. Tin Can will allow for content analytics tools to extract real usage data from an LRS and provide the information authors need to make informed decisions to improve instructional effectiveness.

In addition to allowing for system-to-system communication, the Tin Can API also allows statements to be reported to more than one LRS. Since there is no longer a tight coupling between the LMS and the learning experience, the asserter of the learning experience is free to send a statement to as many LRSs as it would like to.

The most interesting use of the multi-LRS reporting capability is the "personal data locker". When a learner takes a piece of training, why is that experience only recorded in the employer's LRS? Isn't that learning experience relevant to the learner in other contexts and in subsequent jobs? Why doesn't that learning experience belong to the learner? With Tin Can, the learner can report his experience to his employer, but then also record the event in his "personal data locker".

Taken to the next logical step, why isn't every learning experience recorded to the learner's "personal data locker" first? Let's **let the learner own his data** and then decide whom to share that data with.



Could a record of your learning experiences be a more informative version of your experience than your resume?

Could publishing your learning experiences help identify you as an expert in a particular field to be sought out for advice, questions or even jobs?

Would your organization benefit from knowing everything you've learned as a wholistic person, not just on the job?

There are many challenges to overcome before we can fulfill this vision (both technical and political), but Tin Can lays the foundation to enable all of this and more.

A little bit mind-blowing? Potentially transformative? Tin Can is going to reshape our industry. But, of course, there's more...

Layer 4: Correlate Job Performance with Training

The Tin Can API is based on another specification called <u>Activity Streams</u>. Activity Streams is a format for capturing activity on social networks, created by companies like Google, Facebook, Microsoft, IBM etc.

Activity Streams can record anything somebody does. The Tin Can API is an extension of the Activity Streams specification that makes it more applicable for capturing learning experiences. The core objects of a Tin Can statement, Actor, Verb and Object ("I Did This") derive from the core Activity Streams specification.

If you look at your Facebook wall, what you are looking at is a series of activity stream statements (Person Did Thing), for example:

- "Mike posted a picture"
- "Tim commented on Mike's Picture"
- "Beth liked Mike's Picture"



Activity Streams are gaining traction as the way to capture a person's activity, both on our social networks and in the enterprise. In other words, our actual job performance data and our training data are converging. We are using the same format to capture learning experience data as the rest of the enterprise will be using to capture other experiences. That is powerful stuff.

Take this activity stream for example:

- Nurse Judy completed "Principles of CPR" e-learning module
- Nurse Judy simulated CPR on a training dummy
- Nurse Judy successfully performed CPR 9 out of 12 times

As we start to aggregate these streams across an enterprise, or even across an industry, we can start to identify the training paths that lead to the most successful outcomes. Or, conversely, we can identify the training paths that are leading to problematic outcomes. **Now we can determine the effectiveness of our training programs and measure ROI.**

Nurse Judy: 75% Success



Some other implications to consider:

• What happens when we combine a Tin Can activity stream with the activity stream from an internal social network like Yammer? Can we start to identify experts within our organization based on both their learning experiences and the conversations they are having with peers?

• Can we look at the activity streams of the most successful performers in our organization and use those as a model for junior staff to follow? Conversely, can we look at the paths of those who have failed as red flags?

There is a long way to go before this vision can be fully realized. Tin Can is laying the foundation and removing the constraints to making it a reality.

But, of course, there's more...we just don't know what it's going to be yet! The Tin Can API is opening up a world of new possibilities. There is no doubt that it will change the e-learning world in a major way. Where we will end up in five years is anybody's guess, but it's going to be a fun ride, so come along.

www.TinCanAPI.com

