



FEBRUARY 21, 2022

**RFP1722131001 – BRACKENWOOD  
CONSULTING RESPONSE**  
TECHNICAL PROPOSAL

MARTIN ATTERBURY & TOM HAGAN  
BRACKENWOOD CONSULTING  
385 528 9088

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## Executive Summary

Brackenwood Consulting is a US-based software development and consulting firm started and operated by experienced IT Directors. We have read and agree with the terms of this RFP and our RFP response outlines the belief that our cloud-based Athena software meets the objectives of IDB as outlined in RFP1722131001.

For the last 3 years we have worked closely with a similar organization, the Utah State Instructional Material Access Center (USIMAC), custom designing Athena to streamline their material production processes and offer teachers an efficient means of ordering material online. Athena is a cloud-based platform designed to simplify the process of placing and handling orders, managing inventory, and tracking the production of books to meet student demands. A snapshot of Athena functionality and benefits is offered below and explored in greater detail throughout the RFP response.

- Order materials online with streamlined workflows to save teacher time
- Efficiently manage approvals, amendments, renewals and cancellations with intuitive order management workflows
- Automatically update inventory positions based on orders, cancellations and book returns
- Track purchases, assign technicians and closely manage production activities and costs
- Intelligent Automation throughout the system to reduce staff overhead and keep teachers informed
- Clean, simple, and accessible user interface designed with visually impaired users in mind
- Web-based, enabling access to Athena from anywhere with an Internet connection
- Scalable infrastructure providing secure and reliable performance with no local data-center requirements and its resulting costs

The Technical Proposal document provides detail on existing Athena workflows in response to the questions posed, as well as customizations and integrations required to fit specific IDB requirements. Having developed Athena from the ground up, we are confident that we have the product and mix of skills necessary to turn the IDB vision into a sustainable reality. Our consulting experience will prove valuable in collaboratively determining optimum solutions, combined with our development expertise to deliver cost-effective, resilient technical solutions. At Brackenwood Consulting we combine decades of large-scale IT project management expertise with in-depth experience of setting up and running IT support models. Ensuring not only a well governed implementation but an ongoing commitment to quality and responsiveness. We believe this is reflected in the feedback and client satisfaction received from USIMAC.

## Firm Proposal Terms

Brackenwood Consulting guarantees that the goods and services offered in this proposal are available and that all Proposal terms, including price, will remain firm for 120 days following the submission deadline (Feb 23<sup>rd</sup>, 2022).

## Background Information

Brackenwood Consulting are the developers and owners of the Athena software included within this RFP response. Answers to the specific background questions posed in the RFP are detailed below:

DOES YOUR STATE HAVE A PREFERENCE FOR INSTATE CONTRACTORS? YES OR NO. IF YES, PLEASE INCLUDE THE DETAILS OF THE PREFERENCE.

Yes, details below:

**Title 63G: General Government**

**Chapter 6a: Utah Procurement Code**

**Part 10: Preferences**

**Section 1002: Reciprocal preference for providers of state products.**

***(1) (a) An issuing procurement unit shall, for all procurements, give a reciprocal preference to those bidders offering procurement items that are produced, manufactured, mined, grown, or performed in Utah over those bidders offering procurement items that are produced, manufactured, mined, grown, or performed in any state that gives or requires a preference to procurement items that are produced, manufactured, mined, grown, or performed in that state.***

***(b) The amount of reciprocal preference shall be equal to the amount of the preference applied by the other state for that particular procurement item.***

***(c) In order to receive a reciprocal preference under this section, the bidder shall certify on the bid that the procurement items offered are produced, manufactured, mined, grown, or performed in Utah.***

***(d) The reciprocal preference is waived if the certification described in Subsection (1)(c) does not appear on the bid.***

NAME, ADDRESS, TELEPHONE NUMBER, FAX NUMBER AND E-MAIL ADDRESS OF THE RESPONDENT INCLUDING ALL D/B/A'S OR ASSUMED NAMES OR OTHER OPERATING NAMES OF THE RESPONDENT AND ANY LOCAL ADDRESSES AND PHONE NUMBERS.

Name: Brackenwood Consulting (no other trading names)

Address:

10808 South River Front Parkway  
Suite 3108  
South Jordan  
Utah 84095

Primary Contact for Brackenwood Consulting is:

Martin Atterbury  
385 528 9088  
martin.atterbury@brackenwoodconsulting.com

FORM OF BUSINESS ENTITY, E.G., CORPORATION, PARTNERSHIP, PROPRIETORSHIP, OR LLC.

Brackenwood Consulting is a registered LLC

**COPY OF W-9.**

A copy of Brackenwood Consulting's W9 is attached as part of this submission.

**STATE OF INCORPORATION, STATE OF FORMATION, OR STATE OF ORGANIZATION.**

Brackenwood Consulting is registered and headquartered in Utah

**THE LOCATION(S) INCLUDING ADDRESS AND TELEPHONE NUMBERS OF THE OFFICES AND OTHER FACILITIES THAT RELATE TO THE RESPONDENT'S PERFORMANCE UNDER THE TERMS OF THIS RFP.**

10808 South River Front Parkway  
Suite 3108  
South Jordan  
Utah 84095

**NUMBER OF EMPLOYEES.**

Brackenwood Consulting has two full time Partners and augments this core expertise with contract resource when timeframes dictate.

**TYPE OF BUSINESS.**

Brackenwood Consulting is an IT Consultancy and Software Development business.

**NAME, ADDRESS AND TELEPHONE NUMBER OF THE RESPONDENT'S REPRESENTATIVE TO CONTACT REGARDING ALL CONTRACTUAL AND TECHNICAL MATTERS CONCERNING THE PROPOSAL.**

Martin Atterbury  
385 528 9088  
martin.atterbury@brackenwoodconsulting.com

**NAME, CONTACT INFORMATION AND QUALIFICATIONS OF ANY SUBCONTRACTORS WHO WILL BE INVOLVED WITH THIS PROJECT THE RESPONDENT PROPOSES TO USE AND THE NATURE OF THE GOODS AND/OR SERVICES THE SUBCONTRACTOR WOULD PERFORM.**

Not expected to be required, however this will be determined during the implementation planning phase.

**RESPONDENT'S ACCOUNTING FIRM.**

Not Applicable

Experience

**NUMBER OF YEARS IN BUSINESS.**

Brackenwood Consulting has been in business since 2019

**NUMBER OF YEARS OF EXPERIENCE WITH PROVIDING THE TYPES OF SERVICES SOUGHT BY THE RFP.**

Brackenwood Consulting has over 50 years of experience between its partners alone with designing, developing and supporting software applications. Athena has been continually developed over the last 3 years and in use for two years in Utah.

#### THE LEVEL OF TECHNICAL EXPERIENCE IN PROVIDING THE TYPES OF SERVICES SOUGHT BY THE RFP.

Brackenwood Consulting has significant experience developing software solutions and associated support models.

#### Partner Bios

Martin Atterbury – Spent 15 years building and running global teams within the Royal Bank of Scotland both on the Investment banking and retail sides of the business. Martin has experience running large IT Software projects and programs with annual spends of \$10m delivering mission critical strategic application implementations. Martin finished his time at RBS by focusing on building out the bank's Application Support strategy, setting up teams around the globe to reduce headcount in higher cost locations such as London. Not only did these teams decrease the cost of running application support for RBS but also significantly increased the stability and control of the applications under his leadership.

Martin left RBS, and the UK, in 2019 to start Brackenwood Consulting with Tom and bring his skills and experience to bear building out a software development and IT Consultancy firm with a US focus. Martin has worked closely with USIMAC to design and build Athena for the last 3 years.

Tom Hagan – A veteran IT Director with deep experience in Financial Services Technology in both hands-on development and leadership roles. Tom has developed Bond Trading and Mortgage Allocation applications from scratch, applications which are still in use today. Tom co-authored two textbooks on communication protocols between Unix and Windows operating systems. Both texts include code demonstrating these protocols. The code is available on GitHub where it is downloaded and used by programmers regularly. Tom most recently left his VP position at Goldman Sachs to join Martin at Brackenwood Consulting.

#### A LIST OF ALL GOODS AND/OR SERVICES SIMILAR TO THOSE SOUGHT BY THIS RFP THAT THE RESPONDENT HAS PROVIDED TO OTHER BUSINESSES OR GOVERNMENTAL ENTITIES.

Athena was developed in partnership with Utah State Instructional Material Access Centre (USIMAC). Development began in 2019 and the system went live in January 2020.

#### LETTERS OF REFERENCE FROM THREE (3) PREVIOUS OR CURRENT CUSTOMERS OR CLIENTS KNOWLEDGEABLE OF THE RESPONDENT'S PERFORMANCE IN PROVIDING GOODS AND/OR SERVICES SIMILAR TO THE GOODS AND/OR SERVICES DESCRIBED IN THIS RFP AND A CONTACT PERSON AND TELEPHONE NUMBER FOR EACH REFERENCE.

Given that Athena is in use in a single state, we have limited the number of references to two. Further references are available covering broader business activities on request.

1. Armando Venegas  
USIMAC Director  
[armandov@usdb.org](mailto:armandov@usdb.org)  
801 629-4731

Athena has been a lifesaver for USIMAC! Their staff work diligently and listen to the unique needs that we have as an AEM provider and Instructional Materials production site. Our previous program vendor promised a website interface for our TVIs statewide, and they never delivered. Athena was the perfect solution. TVIs have long waited for something like this, and we have had very positive feedback on the ease of navigation, placing orders, and seeing the state and progress of each book.

The production piece has been invaluable for us. Previously the state went with a vendor that is international and quite big. They were unable to bring the production piece down to scale for us and it was cumbersome and complicated. Our staff is SO happy with Athena! It is so much easier to navigate and keep track of time and material costs to have a great idea of what the production costs were. The online interface is so easy to navigate for our tech and transcribers. We were lucky to have Athena in place before the COVID shutdown, as it was easy to move to working primarily from home and still have everything at your fingertips.

The Utah Schools for the Deaf and the Blind served over 1000 students statewide, either on campus or in the outreach program (2019 figures). We serve about half of them, as some districts have their own transcribers, and we do not serve the Parent Infant Program students (0-3 years old).

Overall, we are pleased with the product, the fast response time when an issue arises, and how user friendly the interface is for both technicians and patrons.

2. Craig Rogers  
USIMAC Instructional Materials Technician  
[craigr@usdb.org](mailto:craigr@usdb.org)  
801 629-4804



Utah State Instructional Materials Access Center [USIMAC]  
Utah Schools for the Deaf and Blind  
742 Harrison Blvd.  
Ogden, Utah 84404  
801-629-4700

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2/11/2022

Re: Letter of Recommendation

To whom it may concern:

This letter is to recommend Brackenwood Consulting as a very reliable and solution-oriented IT business. They were chosen by our team to build a new database and ordering system to replace our older one. They have been more than stellar in providing this system to us. I couldn't be happier in dealing with them on this new software. They are extremely easy to work with. They listen to all our concerns and offer effective solutions to mitigate our issues. They consider options that provide ease of use to all our users. Their response to our help-desk tickets are very timely and they quickly work to rectify any problems we encounter. Our whole team has been very impressed with their work and dedication to our division.

The "Athena" system that they have built from the ground up has been a very great solution to our needs. The ease of use has been great, the reliability has been excellent, and the customization is very flexible. They have always been able to adjust the program to our needs and to offer valuable solutions when appropriate. A lot of our teachers have remarked on how much they loved this system over our last one. Their ability to change things and add-in new modules has been a great experience. They have built us modules that have been exactly what we needed. I have nothing but great things to say about this system as it has been more than beneficial in replacing our old one.

Overall, they have been an excellent team to work with. They are reliable, efficient and provide the solutions we need.

Sincerely,

Craig Rogers  
Instructional Materials Technician  
[craigr@usdb.org](mailto:craigr@usdb.org)  
801-629-4804

## Acceptance of Terms and Conditions

Brackenwood Consulting accepts the terms and conditions outlined in this RFP.

## Certification Letter

Brackenwood Consulting have attached, as part of this submission, a signed certification letter.

## Authorization to Release Information

Brackenwood Consulting have attached, as part of this submission, a signed Authorization to Release Information Letter.

## Mandatory Specifications

Responses to all mandatory specifications, outlined in section 4 of the RFP, are detailed below:

### System Requirements

| Mandatory Specification                                                             | Response | Explanation                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ability to provide Cloud-Based Hosting                                              | Yes      | Athena is an existing cloud hosted platform, utilizing AWS as its cloud service Provider                                                                                                                                                                                                                                                                                                         |
| Ability to provide security protocols                                               | Yes      | The IT infrastructure that AWS provides for Athena is designed and managed in alignment with best security practices and a variety of IT security standards. The following is a partial list of assurance programs with which AWS, and therefore Athena complies:<br>SOC 1/ISAE 3402, SOC 2, SOC 3<br>FISMA, DIACAP, and FedRAMP<br>PCI DSS Level 1<br>ISO 9001, ISO 27001, ISO 27017, ISO 27018 |
| Ability to provide data mapping from existing system                                | Yes      | Brackenwood Consulting will work with IDB to define and implement mapping rules. These will be used for initial data loading and any persistent mapping requirement for connections to external data sources.                                                                                                                                                                                    |
| Accessibility Requirements are met for all users (administrative and general users) | Yes      | Brackenwood Consulting will ensure accessibility requirements are met for all users. Athena is in use by visually impaired technicians at USIMAC.                                                                                                                                                                                                                                                |

### Respondent Requirements

| Mandatory Specification                     | Response | Explanation                                                                                                                                                        |
|---------------------------------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ability to provide support and maintenance. | Yes      | This RFP response includes ongoing Support and Maintenance for the duration of the contract, details of which is covered in the relevant section of this document. |

|                                                                                                      |     |                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ability to provide onboarding and training for library and IMC staff and educators using the system. | Yes | This RFP response includes training and the delivery of ongoing system reference material to support current and future IDB staff and patrons. This is covered in more detail in the relevant section of the document. |
|------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Implementation

It is understood that, if successful, Brackenwood Consulting and IDB will work collaboratively to determine the implementation schedule for Athena. Key assumptions and dependencies have been outlined in the implementation section of this document which support the costings provided.

## Installation

As a cloud-based software platform, accessed through the web, local installation of hardware or software is not required. However, should this change in the future it is understood that the uninstallation or removal of hardware/software will be at Brackenwood Consulting's cost.

## Maintenance and Support Services

| Mandatory Specification                                                               | Response | Explanation                                                                                                                                                                   |
|---------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Facility will perform operational maintenance to the system.                          | Yes      | Local PC's will be required to access Athena through the web. It is assumed these will be maintained by the local facility. No other equipment is required by Athena on-site. |
| Respondent will provide preventative maintenance and inspection on a bi-annual basis. | Yes      | Brackenwood Consulting will be responsible for performing regular maintenance and proactive inspections on their software and cloud hosted infrastructure.                    |
| Respondent will provide same day response time on system issues and outages.          | Yes      | Brackenwood commits to same day responses for major issues, further details included within the relevant section of this document.                                            |
| Training Respondent will provide general user training and administrator training.    | Yes      | Training will be provided by Brackenwood Consulting as detailed in the Training section of this document.                                                                     |

## Equipment Description

From an end-user perspective no specialist equipment is required to run Athena. It is designed to run on a local PC with an internet connection and accessed through a standard web browser, we recommend Google Chrome. Likewise, as a cloud-based application no IT equipment will need to be installed or maintained locally in your data centers. For reference, we have included details of the Cloud infrastructure, configured and maintained by Brackenwood Consulting, below.

Computer and storage equipment is chosen to closely match Athena services requirements. Efficiency in compute cycles as well as memory footprint was designed into Athena from the ground up enabling Athena to run on smaller cloud computers than might otherwise be necessary. This consideration enables Athena to come up quickly and service its UI clients efficiently at a lower cost to IDB.

The computer building block that AWS (Amazon Web Services) supports is called an EC2 (Elastic Compute Cloud). An EC2 is a single computing virtual machine running in the AWS cloud. The instance type of an EC2 designates the minimum compute power (processing speed and memory) needed to support the application. Many choices of CPU quantities and memory size are available for instance types—from one CPU with 0.5 GiB memory to 448 CPUs and 12 TB memory. Several operating system choices are also available—Linux, Windows Server, MacOS, among others. Choosing the correct instance type for a given application requires consideration of the number of users at a given time and the amount of computing power and network bandwidth each user will require of the application’s services. And as expected, the monthly costs for an instance increases as computer power increases. The operating system choice for our services was straight forward. Since we rely on many Open-Source software components, the choice to use a version of Linux made the most sense. Virtually all service side Open-Source software is first written for the Linux platform and therefore, the most mature versions run on Linux (if they run on other operating systems at all). AWS has its own version of Linux which supports all Open-Source software embedded in Athena. Other considerations are multi-tasking capabilities and memory footprint. The many iterations of Unix leading up to Linux, as well as the maturity of Linux itself, results in a highly efficient operating system with seamless multi-tasking.

For USIMAC, concurrent user numbers and compute power were initially unknown, so we elected to start with a minimal system and upgrade if needed—one CPU, 1 GiB memory and 8 GiB storage. As it worked out, we did not need to upgrade from that configuration. CPU utilization averages slightly over 1% and disk I/O is zero, indicating no memory swapping to disk—the operating system plus application code resides entirely within 1 GiB of memory. (Disk I/O for the relational database server is monitored separately.) These statistics point to good choices made for Athena’s services’ operating system, programming language (Java), web service components, program design, and architecture.

## System Description

This section of the RFP response provides technical and functional details of the proposed solution. It has been structured to directly answer the questions posed in the RFP to ease navigation and review.

### Athena Overview

#### **GENERAL DESCRIPTION OF THE FUNCTIONALITY OF THE PROPOSED SYSTEM.**

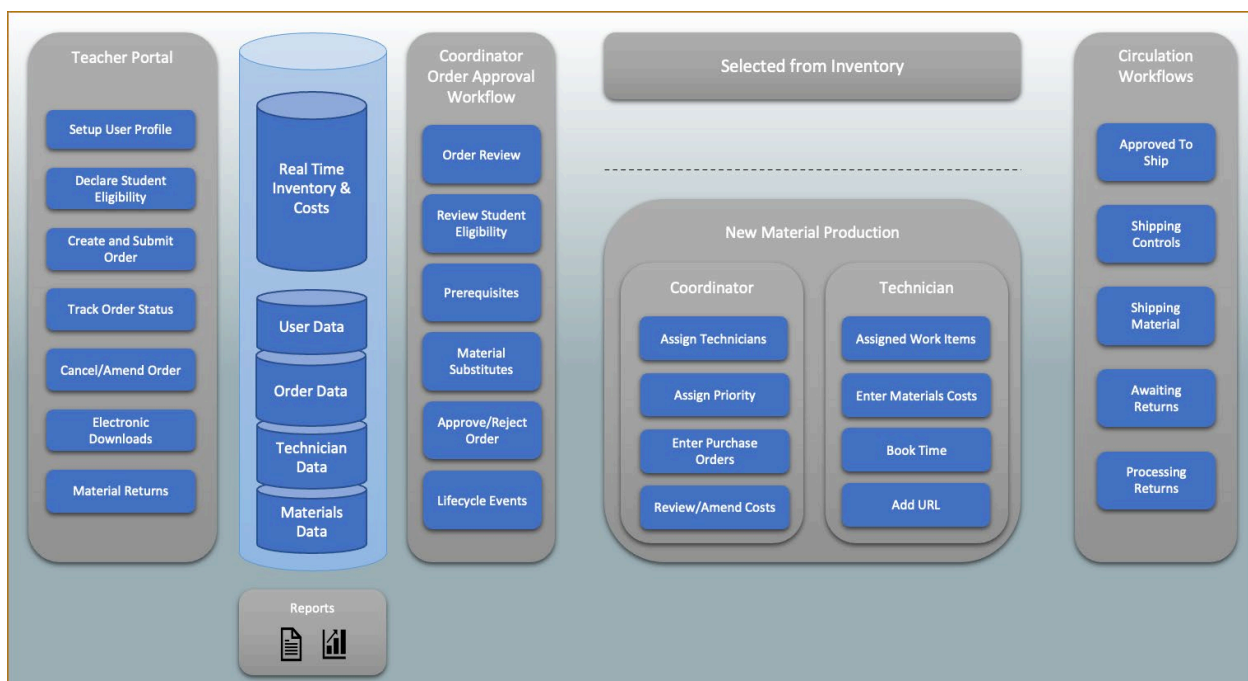
Athena is sophisticated cloud hosted software designed in 2019 specifically for accessible instructional material centers. It allows teachers to place orders online, based on a real time inventory position, and then provides customized workflows to manage the procurement, production, and shipping of the material. All while providing online and email notification status updates back to the teacher. It has been developed from the ground up, in partnership with the Utah State Instructional Material Access Centre (USIMAC), with the objective of reducing the effort and complexity of getting the right material, to the right student at the right time.

Designing a new system provides opportunities to address legacy challenges and leverage modern technology to reduce the overhead required to deliver consistent outcomes. Working with subject matter experts responsible for these processes’ day to day, these legacy challenges were identified and guided Athena design. Resulting in a system singularly focused on the needs of the instructional material centers.

| Challenge                                                                                                  | Athena Design Approach                                                                                                                                                                                                                                                                                                                                                                                        | Benefit/Outcome                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inaccurate Inventory Positions which were burdensome to maintain                                           | <p>Integrate Inventory Management logic into Order Submission and all subsequent workflows. Enabling the automation of inventory positions based on orders, shipping and returns.</p> <p>Athena recently further strengthened Inventory controls by implementing an Inventory Reconciliation module. Allowing targeted reconciliations to ensure system of record matches real world inventory positions.</p> | <ul style="list-style-type: none"> <li>• Significant reduction in the effort to maintain an accurate inventory position.</li> <li>• Sufficient confidence in Inventory position to allow teachers to order directly from a real time position</li> </ul>                                                                                                                                                                            |
| Multiple versions of 'the truth' across loosely connected processes and systems                            | Tightly integrate every step of the process, ensuring well defined workflows which provide traceability at every stage.                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Athena provides a consistent view on progress to in-house staff and teachers at the order item and order level.</li> <li>• Reduced effort to investigate process breaks, preventing order delays due to items falling through the cracks.</li> </ul>                                                                                                                                       |
| Error prone manual submission of orders and the amount of effort required to manage these accurately       | Replace offline forms and emails with online ordering functionality built into Athena. Enabling teachers to select material from a real-time inventory position or request new material to be produced.                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Significantly reduces the effort to reconcile order requests with available inventory.</li> <li>• Order information and status is in one place and can be filtered and searched easily by either in house staff or teachers</li> </ul>                                                                                                                                                     |
| Difficulty tracking lifecycle events on orders such as amendments, cancellations, and renewals.            | Replace spreadsheet tracking with event management lifecycles directly on the order object within Athena.                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Simplified processes for requesting and managing amendments/cancellations/renewals.</li> <li>• Increased transparency and control for order amendments and cancellations.</li> <li>• Intelligent automation to notify teachers of changes through email, automatic order creation to handle renewals and inventory updates driven by cancellations based on circulation status.</li> </ul> |
| Email and spreadsheet tracking of production activities and cost was difficult to track and quickly staled | <p>Remove the requirement for external tracking of production progress by creating dedicated functionality within Athena.</p> <p>Athena has dedicated workflows for material requiring production, external purchases, or in-house technician assignment. Providing</p>                                                                                                                                       | <ul style="list-style-type: none"> <li>• Easier tracking of progress and bottlenecks tied back to order items and orders.</li> <li>• Real time data available based on the latest production costs.</li> <li>• Data easier to aggregate and slice for reporting purposes.</li> </ul>                                                                                                                                                |

|  |                                                                                                                                                                                                                                                                                  |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <p>a clear view on the production queues, technician assignment and total cost of production. All mapped back to teachers, schools, and districts.</p> <p>Where production is required, Athena requests and tracks the status of prerequisite information required to begin.</p> |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

Athena provides end-to-end functionality, mirroring real world processes for order creation, review and approval, material production tracking, circulation, returns and more. A high-level overview of the various components and functionality is displayed in the diagram below.



The component diagram also highlights another key control feature of Athena, Role Based Access Management. Athena utilizes different user roles and privileges to target relevant pages and functionality to each user group providing specific control over what is displayed to each user e.g., a teacher is unable to view orders from anyone but themselves and they cannot submit and then approve their own order. These user roles and system functionality will be explored further later in the document.

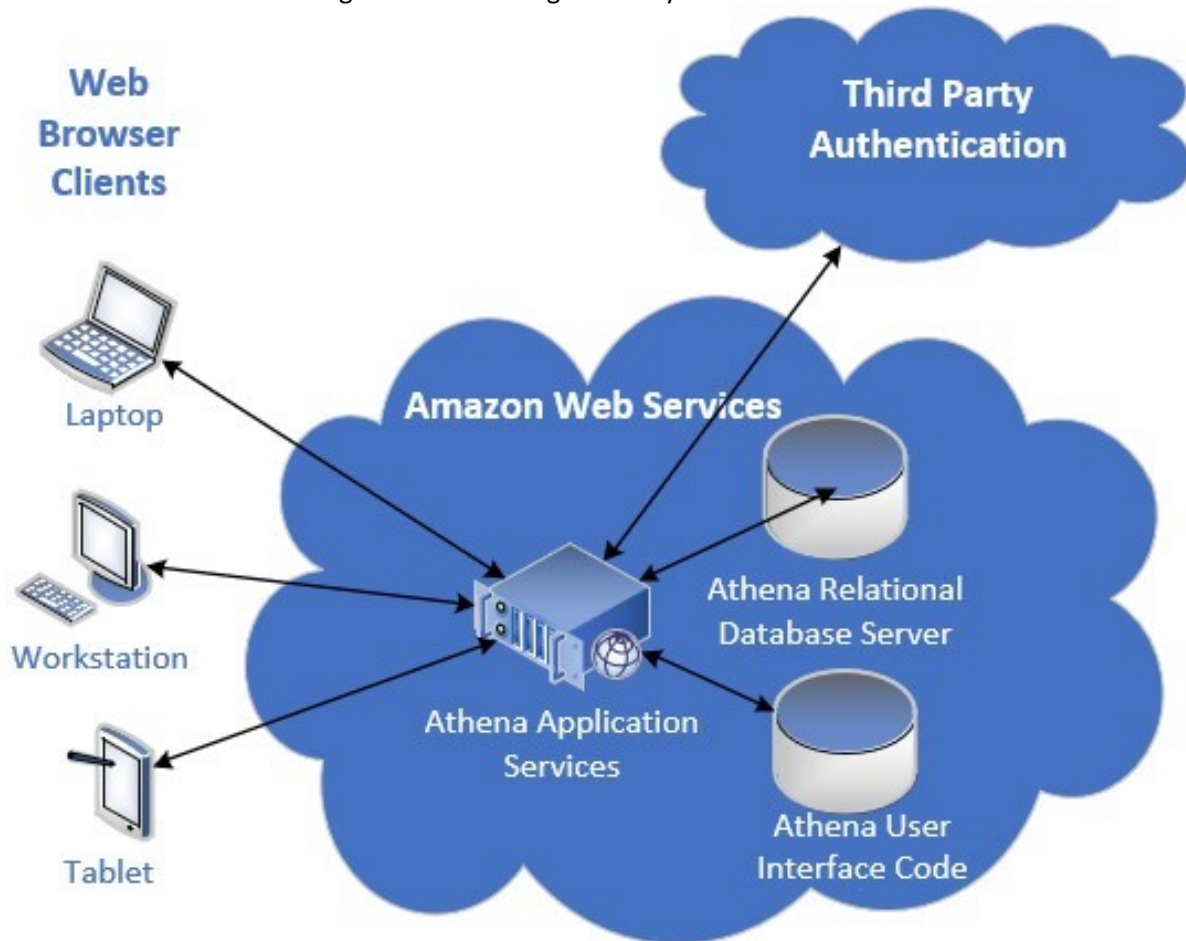
## Architecture

Athena uses a tried and tested 3 tier architecture, logically and physically separating the application into Presentation, Logic and Data tiers. This allows targeted development, easier maintenance, and infrastructure

scaling across distinct tiers within the architecture. Athena hosts all 3 tiers within the cloud and the application is accessed locally on a user's computer via their web browser.

Athena's architecture is designed to meet the requirement for users with web browsers to securely access all system functionality. This architecture is pictured in Figure 1.

Figure 1. Athena High Level System Architecture



Web browser clients (or just clients) access Athena application code and data through a cloud-based architecture supported by Amazon Web Services. The web connection between the client and services is a secure connection using https. This secure connection provides security by encrypting data in transmission and is established when logging-in to the third-party authentication service. AWS and Athena maintain a secure connection for the duration of the client connection. Within the cloud are application services running on AWS hardware that provides user interface code, data, and computational services for Athena clients. These services are tightly coupled to Athena's database servers to provide clients with all program code and data with low latency.

For example, and based on the current configuration at USIMAC, when a user types in Athena's URL, Athena's log-in service returns code to display the log-in page. When the user clicks the log-in button, the log-in service sends a secure request to Google Apps for Education to authenticate the user across a well-defined Application

Programming Interface (API). Once the user is authenticated, Google Apps for Education notifies Athena's log-in service which in turn creates a secure connection for subsequent Athena services to use. The logged-in user is then served with code and data for his or her home page based on his or her Athena user type. As the user navigates through Athena, many data services are called to provide relevant code and data for that specific user's experience.

#### Logic Tier - Event Driven Architecture

Athena utilizes a software engineering model known as event driven architecture. Events are used to track the current state of an object as external actions are performed on the object. For example, a copy that is in inventory is checked out by a teacher. The previous "in inventory" event would be closed, and a new "checkout" event would be attached to that copy. When the copy is moved from the warehouse to the shipping department, the "checkout" event would be closed and a new "handoff event to shipping" event would be attached to that copy. Further, when the copy is shipped, the "handoff to shipping event" would be closed and a new "shipped to client" event would be attached to the copy. The advantage of using an event driven system is that it provides a paper trail of who touched the object and when. For example, if a teacher ordered a copy but has not received it, he or she could look up the order and see where the copy is based on its last event. Another example is needing to know how to amortize the cost of an expensive textbook. By looking up all closed "shipped to client" events for that copy and dividing that number into the cost to produce the copy, you would have an accurate value of the copy's amortized value per user. Athena makes great use of events, applying them to volumes, copies, books, orders and order items, and shipping records.

#### DESCRIBE HOW THE SYSTEM IS HOSTED.

The system will be hosted by Amazon Web Services (AWS). AWS was chosen for several reasons, but first for the maturity of its cloud offerings. Since Amazon invented cloud computing, it offers the most robust services in terms of reliability, security, and scalability. For example, its Elastic Beanstalk Service (EBS) environments (on which Athena is based) will automatically increase both available memory and compute power when service request load is increased, and scale it back when load returns to normal. Prior to the EBS concept, computational hardware would need to be purchased to match maximum load to handle processing peaks. This approach is both inefficient and expensive resulting in over-specified hardware for much of the application's operating life.

Other advantages of AWS are its reliability and security. Not only are all AWS service environments behind a secure firewall, preventing unauthorized access to Athena's data and services, but computational hardware can be monitored for conditions that may adversely affect uptime. In the unlikely event that a computer fails partially or completely, redundant services are available on another computer in the same or different region. See the section on Service Level Agreement for fail-over conditions.

#### STATE WHERE IS THE SYSTEM HOSTED.

The system is hosted in an AWS datacenter in Ohio. Ohio was chosen because of its proximity to Iowa, where most IDB users are located. Proximity to Iowa is important to minimize system latency.

#### DESCRIBE HOW THE SYSTEM RECEIVES REGULAR UPDATES TO ADDRESS SECURITY AND FUNCTIONALITY CONCERNS.

AWS provides regular security and performance updates to the operating systems of computational servers and database systems. Compared to local data center hosting, AWS employs a full-time staff to monitor for and act upon malware intrusions. Even datacenters at large corporations rarely apply the same resource level to security as AWS.

Brackenwood Consulting updates the services and client codes when enhancements and bug fixes are complete. Two separate Athena systems (including both data and services) are available—one for testing and a second for

production. All code changes and bug fixes are first deployed by Brackenwood to the test system and then will be signed off by IDB before Brackenwood deploys those changes to the production system. Please see the Quality Assurance section of this document for more details.

#### DESCRIBE SYSTEM SPACE AND ENVIRONMENTAL REQUIREMENTS.

Athena will be initially configured with the lowest tier of database storage for an AWS based system, which starts at a maximum of 100 terabytes. As an example, USIMAC is currently using 0.02 terabytes. 100 terabytes will store thousands of large files including audio and video files. Additional space can be allocated if required.

All Athena services run in an AWS Service called Elastic Beanstalk. The name EBS refers to the scalability of the EBS Service. When production usage is high, EBS can automatically increase the amount of memory and compute power available to the production services to accommodate demand. See the section on Equipment Description for more information on AWS compute services. Other than a web browser, there are no additional environmental requirements for a user's PC.

#### DESCRIBE HOW THE RESPONDENT WILL CONNECT TO EXISTING LIBRARY SYSTEM TO PROVIDE COLLECTION INFORMATION AND ITEM AVAILABILITY TO USERS.

It is anticipated that Athena will connect to the existing library system through a web-based Application Programming Interface (API). Athena uses existing external APIs to Google for both authentication and book search functionality. APIs provide a secure interface and require detailed specification to ensure they capture the information required on both sides. Therefore, the level of integration possible with the current library system will be defined either by the existing API's they offer or the ability to create new APIs on demand. For an existing library system (LMS), we present three levels of integration that may be possible although detailed analysis and design will be required to finalize the specification of the API in conjunction with the owners of the current library system.

##### Option 1

The closest level of integration, Option 1, assumes Athena would interact with the existing library system (LMS) without the knowledge of the user. From an end user perspective, they are only interacting with Athena and the existing LMS is updated behind the scenes. It preserves the maximum amount of Athena automation benefits and provides a single and consistent user interface for all user types. Athena and the LMS would communicate through a well-defined and fully capable API to update third party inventory positions based on actions taken by all users within Athena. This would include ordering, production, and circulation workflows.

##### *Illustrative Example*

When searching for a book directly within Athena, the Teacher would provide some means to identify the book. Let us assume ISBN13 is provided to identify a specific book, but a wild card search for a book title may be provided a list of books from which the Teacher would select a specific book. To do either, Athena would call an API integrated with the LMS holding the inventory information and provide that search criteria. The API would return a book's (or list of books') title, author, ISBN, publisher, and so on, as well as status information about that book. That status would indicate the book's availability. If the user decides to check out that book, Athena will add it to the order and save the source of the book and its status. Once the user submits the order, it would then call the LMS API to check out the material behind the scenes. The order would be managed from within Athena and progress through production and circulation workflows. Updating the LMS as required for newly created material and shipping/return status.

##### Option 2

The second level, Option 2, assumes a lesser level of integration with LMS. That is, teachers could place orders entirely within Athena, these orders would be managed from within Athena by the coordinators and production tracking is available, but circulation workflows would remain outside of Athena in the existing LMS. Detailed workflow mapping and design is required to understand the hand-offs between the system and design of the API accordingly.

### Option 3

The third level, Option 3, assumes the lowest level of integration with the LMS. On a scheduled basis, Athena would perform an inventory request of the LMS' API and allow Teachers to search that inventory within Athena for books to order. Orders would be created from that database, and orders would be shipped from, and returned to that database. It is anticipated that on a scheduled basis, Athena's book inventory, including all changes, would be uploaded back to the LMS. Again, this would require either an API integration to manage or manual work to maintain book status in the LMS.

### Conclusion

There are various levels of integration that are technically possible between the two systems. The method chosen will be determined by the API capabilities of the LMS. Potential constraints aside, Option 1 is the preferred option of the three from an Athena perspective. It provides all users with a single platform on which to manage the processes end to end, benefitting from existing Athena automation logic. It further reduces Coordinator and Circulation workloads by eliminating dual entry of information, and the errors that dual entry often creates.

## *Technologies*

Athena uses modern technologies across its architecture to maximize efficiencies, customizability and leverage open-source technologies to minimize cost.

### Data Tier

Athena's relational database system is Postgres—a mature open-source system in use by many organizations worldwide and recognized by its stability and breadth of features. The database is connected to the services through a component called Hibernate, also open source. Hibernate provides a seamless connection to the Postgres database, ensuring well optimized SQL code is generated.

### Logic Tier

Application services are written in Java programming language using a web service component called Spring, also open source. Spring provides HTML “hooks” or “endpoints” for the client to call. This simplifies both client and service codes.

### Presentation Tier

The user interface runs in web browsers that support the JavaScript programming language. JavaScript has become the dominant client-side coding language due to the substantial number of UI libraries available. JavaScript code accesses Athena services through Node.js component. All are open source. A widely used, Facebook originated, technology called React (also open source) controls how the user interface is displayed, manipulated, and controlled by the user. As its name implies, it loads quickly and reacts quickly to actions performed by the user. Controls within the user interface—buttons, text boxes, tables, and lists—are written and supported by Material-UI. Originally designed by Google, Material-UI is now maintained by an open-source organization by the same name that regularly releases updates to support advances in usability and accessibility. Accessibility is the primary

reason Brackenwood chose Material-UI, as well as its excellent implementation of data tables, which Athena makes copious use of.

### Infrastructure

Within AWS, database servers and application services run on 64-bit Amazon Linux servers.

**PROVIDE A COMPLETE LIST OF ANY AND ALL HARDWARE AND EQUIPMENT MANUFACTURERS AND MODELS THAT ARE TESTED AND CONFIRMED TO BE COMPATIBLE WITH YOUR SOFTWARE.**

Athena will run in any desktop computer or laptop that can run a Google Chrome browser. Brackenwood Consulting recommends Chrome because it has been tested to run on all major hardware and operating system platforms.

All user interface tables in Athena have a download capability which will download a CSV file of the data within that table. A CSV file can be opened and displayed by Microsoft Excel or similar software and manipulated and printed from there. All printable files created by Athena (e.g., packing slips, spine labels) are downloaded as PDF files. Virtually all commercial printers are capable of printing PDF files. Handheld scanners are used to scan barcodes into Athena. Any commercially available scanner that can connect to a desktop PC via Wi-Fi or a USB port and can scan a barcode as if it were a keyboard.

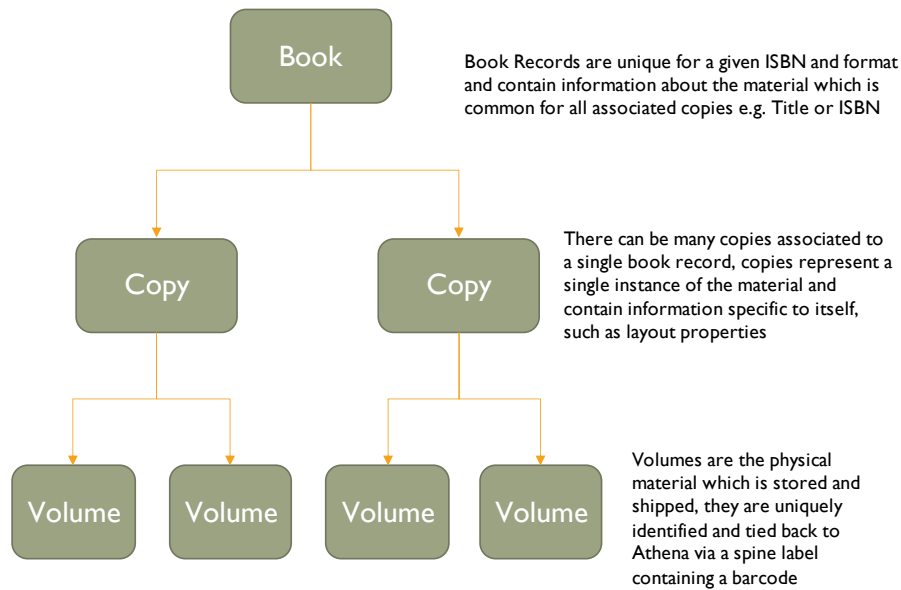
### Data Hierarchy

**DESCRIBE DATA TYPES STORED IN THE SYSTEM SUCH AS CONTACT, STUDENT AND VENDOR INFORMATION.**

Athena contains four primary data types with a well-defined data model to preserve data integrity.

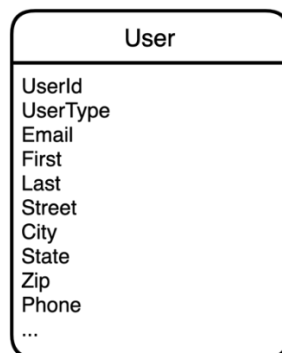
### Inventory Data

Athena uses a strict data hierarchy to manage relationships between the material in inventory and those being created. This data hierarchy allows for an efficient re-use of common data while preserving data integrity across the system. Book Records are unique for a given ISBN and format and contain information about the material which is common for all associated copies e.g., title, sub-title, author, copyright date, publisher. There can be many copies associated with a single book record, copies represent a single instance of the material and contain information specific to itself, such as layout properties. Volumes are the physical material which is stored and shipped, they are uniquely identified and tied back to Athena via a spine label containing a barcode. Many volumes may be associated with a given copy.



### User Data

User data is maintained within Athena for all users who require access to the system. Each user is assigned a unique ID to ensure their profile details map directly. Users, once added by the administrator, will have provisions via their profile page to manage their information. This profile information will be used across Athena to streamline activities such as raising orders. User type is a critical piece of data used within Athena to determine which pages and functionality is available to that user, it is controlled by application administrators.



Athena also maintains data on users not expected to login but whose details are required for specific workflows. These users include student details, which will be maintained directly by their teachers, and external vendor information maintained by admins and coordinators. This external user information is also uniquely identified throughout Athena to preserve data integrity but allow quick reuse of the information stored. For example, USIMAC have a specific user type of PBN (to capture details of a particular transcriber within their preferred braille network), PBN's are assigned work within Athena but are not expected to login to the application. It is possible to assign work to external contacts by setting them up as technicians who will then have full access to the technician pages and functionality.

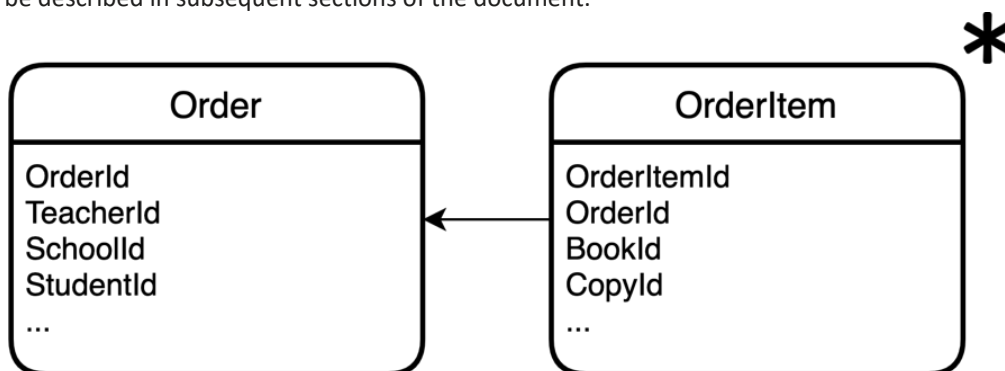
### Order Information

Orders are created per student for a given school year and include their material requirements. Many order items can be requested against a single order. The order is also where contact and preferred shipping details are captured.

An order item is a requested copy, or electronic material, assigned to an order. Order items are unique to a given order and there is a one-to-many relationship between an order and order items (designated by an asterisk, below). Prerequisites are tracked against an order item to ensure all the necessary inputs are available to create new material.

Orders and Order Items are uniquely identified to accurately manage the relationships between all order objects and their corresponding inventory counterparts. This enables dynamic events to be created at all levels of the hierarchy to accurately track the progress of orders, production, and circulation.

For example, when a teacher creates an order, it is assigned a unique order number. As the teacher adds materials to that order, uniquely identified order items are created which are linked directly to the unique order id. These order items are also linked directly to the copy id from inventory. Therefore, at the point of submission, events can be created against the order, individual order items, the underlying copies and even the specific volumes associated to those copies. These relationships are leveraged across Athena to drive the intelligent automation which will be described in subsequent sections of the document.



#### Static Data

Various other data types are grouped together under static data which will be maintained by admins through the Admin profile. Examples of some of the more critical static data types are outlined below:

**School/District Information** – Administrators will define the available schools and address information, linking directly to school districts which will maintain information such as superintendents and further address information. Teachers when creating their profile will select which schools they are associated with ensuring high quality contact and shipping information.

**Materials and Cost Information** – As technicians work on producing material, they will have the option of capturing the materials used to create directly within Athena. The materials available to technicians to select, and associated costs, are maintained through the administrator’s profile.

**Technician Rates** – As with materials, technicians will capture the time they have worked on creating material. Athena maintains hourly rates for all technician user types so that total cost can be calculated automatically.

## User Functionality and Workflows

This section of the document provides a detailed look at the existing workflows within Athena, it is structured to directly answer the specific questions posed in the RFP, expanding where it adds value to do so. It is assumed that all automation and workflow sequencing described will be possible after integrating with an external library system.

### DESCRIBE THE LOGIN PORTAL OR LANDING PAGE FOR USERS TO ACCESS THE PROGRAM.

Athena will be accessed by all users through a dedicated URL with a link embedded within your existing webpages. When the user clicks on the link, they will be directed to Athena Login Page. This will be customized for IDB and an example for USIMAC is shown below:



Given the sensitive nature of the data held within Athena, security is a priority and reflected in the controls which exist to login. Multiple levels of authentication are required before a user can access Athena. As a simple data protection measure, we do not store any passwords in Athena and instead use secure Third-Party Authentication suppliers, such as Google shown above. Once the user is securely authenticated with the third party, Athena then checks the local user tables administered by your teams to ensure they have access permission. Users can be added and removed through the User Administration tables in the Athena Admin Profile. For additional protection, Athena can lock down these administrative permissions to specific users.

### DESCRIBE HOW THE MATERIALS ORDERS WILL BE CREATED, VIEWED, AMENDED AND CANCELED.

Assuming the user can login successfully, Athena will determine their user type and direct them to the correct landing page which is customized for their specific requirements. Below is a screenshot of the Teachers Landing Page.

<

From this page, the teacher will be able to:

- Create an Order
- View and amend existing orders
- Check Order Status
- Download Electronic Material
- View details on books and individual volumes awaiting return to USIMAC
- Setup and amend their Profile details

The landing page is laid out in various summary grids, each with the intention of presenting data simply and allowing that data to be filtered for ease of use. A sidebar is provided on the left-hand side of the page to allow easy navigation via shortcuts to these various summary grids. Within each of the summary grids, the data returned can be filtered, downloaded, and searched.

Assuming this is the first time this teacher has logged in to Athena, they will need to complete a short initial setup before orders can be submitted. This is achieved by navigating to the profile page and entering user details, school affiliation and information on the students who will be receiving IDB material.

User Profile

User ID

2

First \*

Martin

Last \*

Atterbury

User Type \*

Teacher

Title

TVI

Company

Brackenwood Consulting

Select a user type

Work Email

work.email@yourschool.com

Google Email \*

martin.atterbury@gmail.com

Street

10808 River Parkway

City

South Jordan

State

UT

Zip Code

84095

Office Phone

855289077

Summer Phone

123456587

AMEND USER

CANCEL

This section of the profile page is used to capture general information and contact details for the user. By setting this information up once, it removes the need to enter on each order. Combined with other static information held on the profile page, this significantly reduces the efforts to prepare an order. Once all details have been entered the values can be saved by clicking the ‘Amend user’ button. In addition to contact information Athena requires the teacher to enter information for their school affiliations, recognizing that a TVI may be affiliated to more than a single school. Each teacher must be affiliated with at least one school before an order can be placed and these affiliations are displayed on the profile screen.

Schools

Name

East High School

Beaufort Primary School

ADD SCHOOL

REMOVE SCHOOL

By clicking the ‘Add School’ button, the teacher will be able to select from a pre-populated list of schools and add to their profile. This will further streamline the ordering process by auto-filling static address information related to the schools selected. The list of available schools is maintained by IDB via the Admin Profile, with data links back to the School District, Superintendent, and other critical information.

| Name                                              | Street                        | City             | State |
|---------------------------------------------------|-------------------------------|------------------|-------|
| Academy for Math Engineering                      | 000 Main St.                  | Ogden            | Utah  |
| Academy for Math Engineering & Science            | 5715 S 1300 E                 | Salt Lake City   | Utah  |
| American Academy of Innovation                    | 5410 W South Jordan Parkway   | South Jordan     | Utah  |
| American International School of Utah             | 4998 S Galleria Drive         | Murray           | Utah  |
| American Leadership Academy                       | 898 W 1100 S                  | Spanish Fork     | Utah  |
| American Preparatory Academy                      | 12892 S Pony Express Rd       | Draper           | Utah  |
| American Preparatory Academy - Accelerated School | 3636 W 3100 S                 | West Valley City | Utah  |
| American Preparatory Academy - Draper #2          | 11938 South Lone Peak Parkway | Draper           | Utah  |
| American Preparatory Academy - Draper #3          | 431 W 11915 S                 | Draper           | Utah  |

Rows per page: 10 ▾

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<

>

CANCEL

ADD

Finally, the teacher must enter the details of the students in their care. This includes basic identification information, details on their disability and the student eligibility confirmation.

Student

First

Last

Grade

Chafee Eligibility (Required Yearly)

By clicking understand and agree below, I hereby:

Understand the use of USIMAC services is limited to students with a documented print disability in their IEP/504 accommodation. Under IDEA 2004, students who are blind, visually impaired, have a physical limitation or a reading disability may be qualified to access and use specialized formats under provisions of the Chafee Amendment to the Copyright Act.

Eligibility is determined by the IEP/504 team. As a result, school districts should keep on file documentation of students' eligibility to use accessible educational materials produced by USIMAC. Proof of a student's disability needs to be certified by a qualified professional, as explained in the [USIMAC Chafee Eligibility Criteria](#).

I certify that I am a Competent Authority for this student and that he or she meets the requirements outlined in the [USIMAC Chafee Eligibility Criteria](#).

☐ I understand and agree to the conditions outlined above

Disability Type \*

Primary Reading Format \*

Secondary Reading Format

Date of Birth \*

mm/dd/yyyy

CANCEL

SUBMIT

With the information entered on the Profile page, the teacher is now able to start creating their orders. They can return to the Profile page at any time to update this information as required.

### Order Overview

The order is how the demand a teacher has for material is captured and then submitted for review. Athena's online ordering system replaces the need for offline order forms. Each order captures the material requirements for a single student and can have multiple order items attached. A single order can contain requests from inventory, new material to be created, digital material and assistive technology devices. It is expected that orders will be created by a teacher, however functionality does exist for coordinators to also create orders on the behalf of teachers where necessary. Once the order information has been entered and the order items added, the order is submitted to IDB for review. At the point of submission, checks will be run to ensure that all mandatory data is entered and that order items selected are still available. IDB will then be responsible for reviewing the order to ensure all prerequisites have been met and then determining whether to approve. The process for creating an order is outlined below:

### Order Page

Selecting 'Create New Order' shortcut from the Teacher's landing page sidebar will navigate to a blank order page. The order page is broken into two logical sections Order Details and Order Items, the first captures general order information such as student, contact and school details. The second section at the bottom of the order page captures the material added to the order.

Much of the Order Details information required is automatically populated with allowable values in the dropdowns based on the profile information held in the system. This is taken from numerous static sources either maintained by the user or IDB. It is designed to streamline and simplify the order process by minimizing the number of fields to complete and potential for mistyping order critical information. It is also possible to overwrite contact information if required for a specific order.

Student Information

Student \*  
Martin Atterbury +

EDIT STUDENT  
ADD STUDENT

Date of Birth \*  
05/01/2018

Student Grade  
2

Chafee Plan \*  
504

Enter student's date of birth

+ This student's Chafee Plan has expired. Please Click 'Edit Student' above to set this student's Chafee Plan.

Disability Type \*  
Visual Impairment

Primary Reading Format \*  
Braille

Secondary Reading Format  
Audio

Select a reading format

Select a reading format

Contact Information

Name \*  
Martin Atterbury

Title \*  
Admin

Email \*  
martin.atterbury@brackenwoo

Street \*  
10808 South River Front Park

City \*  
South Jordan

State \*  
UT

Zip Code \*  
84095

Office Phone \*  
(385) 528 9868

Summer Phone \*  
(222) 222 \_\_\_\_

Alternate Name

Alternate Phone

Alternate Email

School

School \*  
Channing Hall

Street  
13515 S 150 E

City, State Zip  
Draper, Utah 84020

District  
\*Charter School

☒ MOU Received

Special Ed Dept Name

Special Ed Dept Phone

Special Ed Dept Email

Order Information

Order ID  
18805

School Year \*  
2021-2022

Ship To: \*  
School Address

Select a location to ship to

Required By  
mm/dd/yyyy

Number of Order Items  
6

Order Status  
SubmitOrder

Order Status Date  
6/28/2021

Order Status Set By  
Martin Atterbury

Comments

MAKE NEW ORDER

AMEND ORDER

SUBMIT ORDER

CANCEL ORDER

RETURN HOME

Once the order details have been captured the teacher clicks the 'Make New Order' button to save the order details. At this point the order is saved in an unsubmitted status and can be returned to later as required.

Functionality has been provided to allow student information to be maintained and added directly from the Order Page rather than having to navigate to the Profile page. From here the teacher can manage their existing student's information or add new students as required. Student eligibility statements are included within the form and eligibility attested to electronically.

#### Order Item Table

With the Student and Contact information captured, it is now time to add material to the order. Materials added to an order are referred to as the order items and once added are visible in the Order Item Table on the Order page. From this table new material can be added to the order, status of existing order items is displayed as well as options to renew or cancel items from the order. Order items must be added to an order before it can be submitted. To begin the process of adding an order item the teacher will click the 'Add Book to Order' button



on the table toolbar.

Order Items

<

After clicking on 'Add Book to Order' the user will be directed to the Inventory Search page. Allowing the teacher to search using several different criteria to identify the material required. The most efficient and accurate way of searching for material is by ISBN. However, options exist to search by Title if needed with options to enter partial title names to bring back a wider set of results to choose from. Book records matching the search criteria will be returned for the teacher to view and select, alongside the book record are details of the quantity available.

### Inventory Search

Please note: Searching by ISBN is the quickest and most accurate way to find inventory, however please click the **'Search By Title'** Button below if you do not know the ISBN of the material you require.

ISBN  
**97893**  
 Enter Book ISBN

Book Count  
 1

Barcode Search 

[BOOK SEARCH](#)
[SEARCH BY TITLE](#)
[CLEAR SEARCH](#)
[RETURN TO ORDER](#)

| Books                                                                               |         |                              |                   |                                    |        |       |               |            |       |                |                                                    |  |
|-------------------------------------------------------------------------------------|---------|------------------------------|-------------------|------------------------------------|--------|-------|---------------|------------|-------|----------------|----------------------------------------------------|--|
|                                                                                     | Book Id | Title                        | Subtitle          | Author                             | Format | Level | ISBN13        | ISBN10     | Grade | Total Quantity | Quantity Available                                 |  |
|  | 257     | Kidnapped: The Graphic Novel | Campfire Classics | Mark Jones, Robert Louis Stevenson | UEB    |       | 9789380028521 | 9380028520 | 6-8   | 1              | 1                                                  |  |
|                                                                                     |         |                              |                   |                                    |        |       |               |            |       |                |                                                    |  |
|                                                                                     |         |                              |                   |                                    |        |       |               |            |       |                | Jump to Page: 1 ▾ Rows per page: 10 ▾ 1-1 of 1 < > |  |

### Selecting from Inventory

Assuming an existing book record matches the teacher’s requirements, they will select the row in the search table and then click on the ‘Select Book’ button to navigate to the Book Inventory page to select the order item.

The Book Inventory page is split into 3 sections:

Book Page

ISBN10

9380028520

ISBN13

9789380028521

ISBN LOOK-UP

Related ISBN

Book ID

257

Enter ISBN10 or ISBN13 for look-up:

Title\*

Kidnapped: The Graphic Novel

Subtitle

Campfire Classics

Author\*

Mark Jones, Robert Louis S

Publisher\*

Kalyani Navyug Media Pvt.

Copyright

2010

Grade\*

6-8

Book Format\*

UEB

Series

Select grade for this book

Select Grade before Format

Total Quantity

1

RETURN

Book Copies In Inventory

copy Id

Properties

numVols

+

329

Double Side/Single Space

1

Jump to Page:

1

Rows per page:

10

1-1 of 1

<

>

Book Copy Properties for New Material\*

☒ Single Space

☐ Double Space

☐ Single Side

☒ Double Side

Book Build Materials

☐ Hard Copy Sent to USIMAC

☐ Pacing Guide Sent to USIMAC

Media Type\*

ADD BOOK/COPY TO ORDER

RETURN

The top section displays the details of the book record selected; it is not possible for a teacher to edit these fields. The ‘Book Copies in Inventory’ table allows the teacher to view the specific copies available for that book. This displays the properties of the material allowing specific student requirements to be met. It will only display a row if the material is available to be ordered. Clicking the Add Order Item in the corresponding row of this table will add the material to the order and redirect the user back to the order page.

The third section allows a teacher to request material creation and should only be used if the copies listed above do not meet their requirements, or no copies are available. The system will automatically select the default properties for a given grade and format based on a matrix held within Athena. If the teacher requires a non-default combination of properties, USIMAC have requested they be contacted instead of allowing teachers to request that through Athena. This restriction can be removed if required. USIMAC Coordinators have elevated permissions to add non-default Order Items onto an order. For new material creation, the teacher must submit an original hardcopy and pacing guide to assist the production of the new material. Checkboxes are provided for the teacher to confirm that these actions have been taken at the point of submitting the order. These will be checked by IDB Coordinators prior to order approval. The prerequisite mechanism is described in more detail later in the document.

Additionally, for digital formats, the teacher must specify how they wish to receive the material and a drop down is provided to make their selection. For digital formats this is a mandatory field and must be completed before an order item can be added.

### Make New Book

If the teacher is unable to find an existing book record, they should click on the 'Make New Book' button. Athena has a step-by-step wizard guiding the teacher through the fields necessary to create a new book record and request material creation. This includes an external connection to the Google Books API, to streamline the process of capturing book data.

1 ISBN Check

2 Validate Material ISBN

3 Enter Book Details

4 Review Properties and Prerequisites

1 Mandatory fields are marked with an asterisk

Title\*  
Scholastic's the Magic School Bus in the Arctic

Subtitle  
A Book about Heat

Author\* Joanna Cole Publisher\* Scholastic Inc. Copyright Grade\* Book Format\*

Select grade for this book Select Grade before Format

NEXT BACK

RESET RETURN

N.B. Given the focus on data accuracy, any new Book Record created by a teacher is automatically sent to a queue on the Coordinator's landing page. From here, the Coordinator can review the details of the book and confirm the accuracy, or amend as necessary.

Athena has recently implemented a new inventory type to cater for transcription requests for locally produced material not in wider circulation. Typically, this type of inventory will not have an ISBN and therefore specific non-ISBN workflows have been created. By default, when a non-ISBN book record is created it will not be seen by other teachers browsing the inventory. Coordinators can decide whether there is likely to be broader demand for a non-ISBN book and as such make it searchable in Athena.

### Submitting an Order

Once the teacher has added all the order items to their order, they will review their order and submit the order if satisfied.

| Order Items                                                                       |               |                  |         |         |                                  |                 |               |              |       |        |            |                          |
|-----------------------------------------------------------------------------------|---------------|------------------|---------|---------|----------------------------------|-----------------|---------------|--------------|-------|--------|------------|--------------------------|
|                                                                                   | Order Item Id | Order Item State | Book Id | Copy Id | Title                            | Author          | ISBN13        | H/C Returned | Grade | Format | Media Type | Properties               |
|  | 24161         |                  | 7101    | 17908   | Magic Tree House                 | Armando Venegas | 0             |              | 6-8   | UEB    |            | Double Side/Single Space |
|  |               |                  |         |         |                                  |                 |               |              |       |        |            |                          |
|  | 23030         | ApproveOrderItem | 6751    | 16966   | Cocomelon ABC's                  | Cocomelon       | 2424242424242 |              | 1     | UEB    |            |                          |
|  |               |                  |         |         |                                  |                 |               |              |       |        |            |                          |
|  | 23029         | InCirculation    | 1635    | 16815   | Reach for Reading, Practice Book | N/A             | 9781305499034 |              | 3     | UEB    |            | Double Side/Single Space |
|  |               |                  |         |         |                                  |                 |               |              |       |        |            |                          |
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On pressing the 'Submit Order' button a check will be run to ensure that no order items attached to the order have been submitted on another order. This is likely to be a rare occurrence, given that copies will not return in searches if they are currently checked out. However, if two orders were being worked on simultaneously it is possible that a copy could be attached to both orders and this check prevents a copy being submitted by more than one order at a time.

Assuming the unique copy check is passed, the order will then be submitted and generate an email confirmation of the order. The order will then mark each of the order items as 'checked out' ensuring they cannot be double-booked.

### Order Amendments

Details of the actions available to during the various stages of the order workflow are listed below.

|                                 | Unsubmitted | Submitted | Approved | Rejected |
|---------------------------------|-------------|-----------|----------|----------|
| Teacher                         |             |           |          |          |
| Update Contact Details          | Y           | Y         | Y        | N        |
| Add/Remove Order Items          | Y           | Y         | N        | N        |
| Update Prerequisites            | Y           | Y         | N        | N        |
| Request Order Cancellation      | N           | Y         | Y        | N        |
| Request Order Item Cancellation | N           | N         | Y        | N        |
|                                 |             |           |          |          |

Prior to order approval, the teacher can add or remove order items to their order. Once the order is approved, they may only submit cancellation requests to remove order items and additional material must be raised under a new order or speak directly to USIMAC.

An IDB Coordinator can add or remove material after the order has been submitted. It is through this process that a coordinator can substitute an alternate copy to the order if so required. An email to the teacher will note the amendment to their submitted order.

### Cancellation Requests

Once an order has been submitted the teacher is able to request a cancellation from the order page. This will generate a request to the coordinator, visible through the 'Cancel Order Requests' filter on the coordinator landing page. Navigating to the order page will allow the coordinator to 'Cancel Order' – this will generate email

notifications of the cancellation as well as return the order items to inventory so they can be chosen by other teachers.

In addition to whole-order cancellations, a teacher can choose to cancel a single order item. This request is handled like the whole-order cancellation albeit with dedicated queues on the coordinators landing page to differentiate the request types. Email notifications will be generated, and the order item being cancelled will return to inventory. Cancelling a single order item will not cancel the whole order unless it is the only order item on that order. Athena has complex logic to handle cancellations where material has been shipped, differentiating between partially shipped and fully shipped material. This is designed to prevent further material against a cancelled order being shipped, whilst ensuring material that has been shipped prior to the cancellation is tracked until returned.

### Renewal Request

A teacher may request the renewal of material in their possession, this option is visible once the order item state is InCirculation. The request is made through the order item table on the specific order item row that is required to

be renewed. Clicking the renew button  will send a request to the coordinators to review and approve the renewal request.

|                                                                                   |                                                                                   |       |               |      |       |                                  |     |               |   |     |                          |     |     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|---------------|------|-------|----------------------------------|-----|---------------|---|-----|--------------------------|-----|-----|
|  |  | 23029 | InCirculation | 1635 | 16815 | Reach for Reading, Practice Book | N/A | 9781305499034 | 3 | UEB | Double Side/Single Space | N/A | N/A |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|---------------|------|-------|----------------------------------|-----|---------------|---|-----|--------------------------|-----|-----|

Email confirmation will be sent to the teacher once the Renewal has been approved or rejected. If the Renewal request is approved, Athena will automatically create a new order for the renewed order item for the following school year. Reducing the effort required to manage order renewals.

### **DESCRIBE HOW ORDERS CAN BE FILTERED AND VIEWED IN ORDER TO ASSIGN AND REVIEW THE PROJECTS TO THE VENDORS/CONTRACTORS.**

Following on from the scenario above, once the order has been submitted by the teacher it becomes visible to the Coordinator on their landing page. The Coordinator landing page contains a large amount of information and functionality, from their landing page the coordinator can:

1. View, search, filter and navigate to Teacher Orders
2. Review Incoming requests for Cancellations and Renewals
3. Navigate to the Order Page to review and take the necessary approval actions
4. Review Unassigned Production Orders to begin material creation workflows
5. Review and manage assigned Production Orders for those projects in flight
6. Navigate to the Copy Screen to create or amend production orders
7. Search for Production Orders with missing invoice details
8. Scan receipt of Hard Copy Tags and view status
9. Review, Amend and Approve Teacher Made Book Records

To aid quick navigation, available functions and queues can be accessed via sidebar shortcuts on the left of the screen. A badge indicates the count of items requiring attention, quickly highlighting the queues which need action to be taken.

The screenshot displays the USIMAC Production Portal (DEV) interface. The top navigation bar includes a home icon, the text "USIMAC Production Portal (DEV)", and the user name "Martin Atterbury". On the left, a sidebar contains icons for various functions, with some having notification counts (41, 30, 156, 105, 852, 40). The main content area is divided into two sections: "Order Management" and "Order Items".

**Order Management Table:**

| Order Id | Status       | Submitted Date | Approved Date | Required Date | Contact   | School Year | School                                | Student      |
|----------|--------------|----------------|---------------|---------------|-----------|-------------|---------------------------------------|--------------|
| 9852     | ApproveOrder | 8/12/2020      | 8/12/2020     |               | Tom Hagan | 2021-2022   | American International School of Utah | Emma Example |
| 9951     | ApproveOrder | 8/13/2020      | 8/13/2020     |               | Tom Hagan | 2021-2022   | Bear River High                       | Emma Example |
| 10602    | ApproveOrder | 11/16/2020     | 11/16/2020    |               | Tom Hagan | 2021-2022   | Channing, Hall                        | Emma Example |
| 11256    | ApproveOrder | 11/20/2020     | 11/20/2020    |               | Tom Hagan | 2021-2022   | Beaver High                           | Emma Example |
| 11260    | ApproveOrder | 11/30/2020     | 11/30/2020    |               | Tom Hagan | 2021-2022   | Channing, Hall                        | Emma Example |

Below the table, pagination controls show "Jump to Page: 1", "Rows per page: 5", and "1-5 of 15".

**Order Items Table:**

| Order Item Id | Order Item State | Book Id | Copy Id | Title                                   | Subtitle                      | Author        | ISBN13        | H/C Returned | Grade | Format | Media Type | Properties               | Pacing Guide Sent | Hard Copy Sent |
|---------------|------------------|---------|---------|-----------------------------------------|-------------------------------|---------------|---------------|--------------|-------|--------|------------|--------------------------|-------------------|----------------|
| 14356         | ApproveOrderItem | 193     | 11906   | Harry Potter and the Chamber of Secrets | Reading-Language Arts Program | J. K. Rowling | 9780439420105 |              | 6-8   | UEB    |            | Double Side/Single Space | No                | Yes            |

Below the table, pagination controls show "Jump to Page: 1", "Rows per page: 10", and "1-1 of 1".

Table functionality was completely revamped in 2021 to provide more flexibility to users. All user types can search, download, remove or change the order of columns displayed and use filters to narrow in on the subset of data required.

Before production or circulation workflows can be started, the order must be reviewed and approved. This is the responsibility of the coordinator role. The first step is to assign the order to a coordinator, this indicates a coordinator is actively working on the order prior to approval. Assigning an order is achieved by pressing a button on the order row. Once the order is assigned the button to assign it will disappear and the order status will change to AssignedToCoordinator, from the coordinators order table this status will also have initials suffixed to indicate which coordinator is working on it. This assignment system has been developed to work in an environment where multiple coordinators are monitoring incoming submission queues and is designed to avoid coordinators wasting effort by researching the same order simultaneously.

With the order in an assigned state, the coordinator can now make any necessary amendments to the order before approving or rejecting. This includes the ability to substitute order items if a more viable material alternative is available. To ensure there is a 'single version of the truth' the coordinator is looking at the same order object created by the teacher, albeit with different actions available to them given their role. In addition to approving the whole order, coordinators can also approve individual order items. This is especially useful when certain items on an order are holding up approval, but it is necessary to expedite the circulation or production of other items.

Once the order or individual order items are approved, they will move to the next stage in the workflow depending on whether they require production or shipping direct from existing inventory. Inventory Circulation flows are detailed in the Other Functionality of Interest section of this document and Production workflows will be covered in detail below.

#### DESCRIBE HOW PROJECT ASSIGNING AND TRACING WILL BE HANDLED INCLUDING COSTS AND STATUSES.

Athena uses production orders assigned to copies to capture production or procurement methods. This section will pick up from the scenario above and walk through the process of creating production orders, assigning

technicians and capturing costs. To do so comprehensively, it will also outline key tangential pages and functionality such as the copy page.

In parallel with the Circulation flows detailed in the section below, approved new material requests will be moved to the Unassigned Production Orders queue on the landing page. At the point of submission for new material, an incomplete copy will be created in the system automatically. The copy is a system record to house all the underlying volumes, acting as a parent record for the associated volumes. It will be linked to a single book record but potentially have many volumes associated to it. A copy record can never be associated with more than one book record to maintain data integrity. Copy records capture the unique properties, costs, and production methods. Copy records are used in production of material to aggregate effort and costs, volume records are added as they are created.

From the coordinator's landing page, a row on the unassigned production orders table indicates that production has been approved for that copy, but no production orders have yet been assigned. The production order is how Athena captures the production type i.e., will this be purchased by a vendor, APH or assigned to a technician for production. Production orders also capture the cost associated with procuring or producing the material to meet student demand. The Unassigned Production Orders queue can be accessed via the sidebar shortcuts on the coordinators landing page.

| USIMAC Production Portal (DEV)             |         |          |               |             |                                    |               |            |           |       |            |          |               |                  |                |           |             | Martin Atterbury |
|--------------------------------------------|---------|----------|---------------|-------------|------------------------------------|---------------|------------|-----------|-------|------------|----------|---------------|------------------|----------------|-----------|-------------|------------------|
| Unassigned Copies                          |         |          |               |             |                                    |               |            |           |       |            |          |               |                  |                |           |             | 2022-2023        |
|                                            | Copy Id | Order Id | Order Item Id | Format      | Title                              | ISBN13        | ISBN10     | Copyright | Grade | Media Type | Status   | Elec Media/HC | Teacher          | Student        | District  | Submit Date | Approve Date     |
|                                            | 19408   | 21651    | 26306         | Daisy       | The Science of Science             | 9781108492669 | 1108492665 |           | 6     | SD Card    | Approved | Elec Media    | Martin Atterbury | Barry Barrison | Box Elder | 2021-09-10  | 2021-09-10       |
|                                            | 18757   | 20959    | 25463         | Large Print | Pre-Algebra                        | 9780785435556 | 0785435557 | 2004      | 6-8   |            | Approved | Hard Copy     | Martin Atterbury | Joe Cole       | Box Elder | 2021-08-12  | 2021-08-12       |
|                                            | 19401   | 21651    | 26301         | Large Print | Test Book                          |               |            |           | 10    |            | Approved | Hard Copy     | Martin Atterbury | Barry Barrison | Box Elder | 2021-09-10  | 2021-09-10       |
|                                            | 19603   | 21751    | 26453         | Large Print | Studland Bay                       |               |            |           | 11    |            | Approved | Hard Copy     | Martin Atterbury | Joe Cole       | Box Elder | 2021-09-14  | 2021-09-14       |
|                                            | 19605   | 21751    | 26455         | Large Print | Writing Better Books the Agile Way | 9783945586815 | 394558681X |           | 3     |            | Approved | Hard Copy     | Martin Atterbury | Joe Cole       | Box Elder | 2021-09-14  | 2021-09-14       |
| Jump to Page: 1 Rows per page: 5 1-5 of 17 |         |          |               |             |                                    |               |            |           |       |            |          |               |                  |                |           |             |                  |

Coordinators can filter unassigned copies by format, school, teacher, and order status and then navigate into the copy record to begin the production process from within Athena. The Copy Page displays details of the copy, the book, and volumes to which it is associated. From this page the Coordinator will be able to:

1. Navigate directly to live order
2. View Book, Copy and Volume Details
3. Edit the book record
4. Update Copy Details and mark as complete
5. Add Volumes
6. View Shipping Status of linked Volumes
7. View a summary of all costs booked against this copy
8. View a summary and create production orders

The page is laid out in logical sections for ease of presentation and use. The first of these sections displays the order to which this copy is associated, this provides the coordinator with an efficient means of traversing between the copy and order page for specific material. The next two sections provide details on the book and copy record, including title, ISBN, copy properties and unique identifiers.

USIMAC Production Portal (DEV)
Martin Atterbury

### Live Order for Copy

|                   |                             |                           |                          |                            |                            |
|-------------------|-----------------------------|---------------------------|--------------------------|----------------------------|----------------------------|
| Order ID<br>21651 | Teacher<br>Martin Atterbury | School<br>Bear River High | School Year<br>2022-2023 | Copy Status<br>ShipApprove | <a href="#">VIEW ORDER</a> |
|-------------------|-----------------------------|---------------------------|--------------------------|----------------------------|----------------------------|

### Book

|                                 |                                         |                       |            |
|---------------------------------|-----------------------------------------|-----------------------|------------|
| Title<br>The Science of Science |                                         | Subtitle              |            |
| ISBN10<br>1108492665            | ISBN13<br>9781108492669                 |                       |            |
| Copyright                       | Publisher<br>Cambridge University Press | Author<br>Dashun Wang |            |
| Level<br>0                      | Call ID<br>0                            | Format<br>Daisy       | Grade<br>6 |

[EDIT BOOK](#)

### Copy

|                 |                  |         |      |                   |                        |
|-----------------|------------------|---------|------|-------------------|------------------------|
| Book ID<br>7417 | Copy ID<br>19408 | Source* | Cost | Number of Volumes | Est. Number of Volumes |
|-----------------|------------------|---------|------|-------------------|------------------------|

Select a book source

☐ Copy Complete
☐ Admin Hold
☐ Partial Production
☐ Archive Copy

Properties

☐ Single Space
☐ Double Space
☐ Single Side
☐ Double Side
☐ NIMAS
☐ Reprint

Comments

[ADD COPY](#)
[AMEND COPY](#)
[DELETE COPY](#)
[O/H & PROD COSTS](#)
[RETURN HOME](#)

The coordinator has permission to update fields on the copy record, this will be necessary when the copy has been created by Athena as a result of new material being requested by a teacher as part of an order. An 'Edit Book' button enables the coordinator to amend details on the book record to which the copy is associated. Please note, if existing copies with volumes are already attached to the book record, the coordinator will be unable to edit the format of the book. Fields which appear greyed out are system populated fields which are either unique identifiers assigned in the database or calculations to determine the number of volumes assigned. As with other pages, those fields marked with a star are mandatory and cannot be left blank if you wish to save the record.

| Copy Field                  | Description                                                                                                                                                                                                         |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Book ID                     | Unique ID of the parent book record                                                                                                                                                                                 |
| Copy ID                     | Unique ID for this copy record                                                                                                                                                                                      |
| Source                      | Indicates where the material was created, used for cost categorization and replacement purposes. Values can be customized for IDB.                                                                                  |
| Cost                        | Legacy USIMAC Cost field, will be removed for IDB                                                                                                                                                                   |
| Number of Volumes           | System count of associated volumes                                                                                                                                                                                  |
| Estimated Number of Volumes | [Optional]Used by the coordinator to estimate number volumes once production is complete                                                                                                                            |
| Copy Complete               | Indicates whether the copy is considered complete. Critical field for order, production and inventory logic.                                                                                                        |
| Admin Hold                  | Also set by a Coordinator and if set to true, the circulation user will be notified when checking the material in. Associated comments can be entered to capture the action required e.g., remove from circulation. |
| Partial Production          | Used to indicate this copy is only partially produced i.e., a student may have only required certain chapters from a book to be produced.                                                                           |

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Archive Copy | Used to remove a copy from circulation without deleting the copy record and its associated costs.       |
| Properties   | Material Transcription properties used by the teacher to select material appropriate for their student. |
| Comments     | Free text comments field                                                                                |

When the updates have been made, the coordinator will save these by clicking on the ‘Amend Copy’ button. New material will not have the complete checkbox ticked; this indicates that production is still ongoing. Incomplete material can still be shipped as volumes are added, however incomplete material will not show up in available inventory or trigger the order close logic. Given the criticality of accurately marking a copy as complete, only the coordinator role will have the necessary permissions to take this action.

### Overhead and Production Costs

A dedicated page to view an overview of all costs associated with a copy has been provided. This eliminates the need to navigate to individual production orders to review costs and time booked to a copy. From this page the coordinator will be able to:

1. Review all costs booked
2. Navigate directly to a production cost record
3. Delete a Production Cost Record
4. Create and add charges

| Overhead & Production Costs for CopyID: 4051 |            |             |                    |                                                 |              |           |        |
|----------------------------------------------|------------|-------------|--------------------|-------------------------------------------------|--------------|-----------|--------|
| Prod Cost ID                                 | Date       | Prod Rec ID | Prod Cost Type     | Description                                     | Number Units | Unit Cost | Cost   |
| 3203                                         | 2019-12-04 | 3658        | Book Materials     | 11 x 17 Antique Ivory Paper - sheet             | 1.00         | 0.05      | 0.05   |
| 3204                                         | 2019-12-04 | 3658        | Book Materials     | 12.5 x 12.5 White Envelope - each               | 1.00         | 15.00     | 15.00  |
| 3209                                         | 2019-12-05 | 3674        | Time Entry         | Technician Hours                                | 0.01         | 20.00     | 0.20   |
| 3221                                         | 2019-12-05 | 3656        | Time Entry         | Technician Hours                                | 2.01         | 20.00     | 40.20  |
| 3801                                         | 2019-12-21 | 4251        | Book Materials     | 1" Comb Binding - each                          | 1.00         | 0.29      | 0.29   |
| 3802                                         | 2019-12-21 | 4251        | Book Materials     | 8.5 x 11, 3-Hole White Title Page Paper - sheet | 100.00       | 0.05      | 5.00   |
| 3803                                         | 2019-12-21 | 4251        | Vendor/PBN Payment | Vendor/PBN Payment                              | 1.00         | 100.00    | 100.00 |
|                                              |            |             |                    |                                                 |              | Total     | 160.74 |

Items per page: 10 1 of 7 < >

[NEW OVERHEAD COST](#)
[VIEW COST RECORD](#)
[DELETE COST RECORD](#)
[RETURN](#)

Selecting the relevant row and then selecting either ‘View Cost Record’ or ‘Delete Cost Record’ will perform the relevant action. To amend a cost, the coordinator should first navigate to the appropriate cost record.

### Adding a Volume

From the copy page the coordinator will be able to view the volumes associated with that copy and its status. Each volume is listed with its barcode, comments and marked whether it is consumable or not. Critically, the volume grid also includes the status of each volume. These statuses include:

ShipApprove – Indicates that the volume is part of an approved order and approved to be shipped

PreShipVolume – Indicates that the volume has been added to a shipping record but not yet shipped

InCirculation – Indicates that the volume has been shipped and is awaiting return

[No Status] – If the status column is blank this means the volume has been returned and is now sitting in inventory.

| Volumes                                                                               |             |          |          |            |
|---------------------------------------------------------------------------------------|-------------|----------|----------|------------|
| Volume ID                                                                             | Status      | Barcode  | Comments | Consumable |
| 5464                                                                                  | ShipApprove | 10004530 | V1       | False      |
| 5465                                                                                  | ShipApprove | 10004540 | V2       | False      |
| Rows per page: 10▼ 1-2 of 2 < >                                                       |             |          |          |            |
| <a href="#">ADD VOLUME</a> <a href="#">AMEND VOLUME</a> <a href="#">DELETE VOLUME</a> |             |          |          |            |

Clicking the 'Add Volume' button will take the user to the dedicated add volume page, from here the user will be able to capture the details of the volume, generate barcodes, print spine labels, and add the volume to the copy.

Volume Page

Book ID

3051

Copy ID

4051

Volume ID

0

Barcode \*

[GENERATE BARCODE](#)
[GENERATE SPINE LABEL](#)

Description

☐ Consumable

[ADD VOLUME](#)
[AMEND VOLUME](#)
[DELETE VOLUME](#)
[RETURN TO COPY](#)

When all details have been captured clicking the Add Volume button will save the record, this will now be linked to the copy record. The system will perform a duplicate check on the barcode when attempting to add the volume, barcodes must be unique and if it has already been used, the record cannot be added. By clicking Generate Barcode, the system will generate a unique barcode. The coordinator can then print the spine label which links the physical material back to the system record through its barcode.

## Production Orders

Production Orders are created by Coordinators to assign technicians and track in-house and vendor costs. A summary of the Production Orders is shown on the Copy Page. From here the coordinator will be able to create, amend, or delete production orders.

| Production Orders                                                                                            |            |                   |                          |             |             |           |             |          |         |
|--------------------------------------------------------------------------------------------------------------|------------|-------------------|--------------------------|-------------|-------------|-----------|-------------|----------|---------|
| Prod ID                                                                                                      | Prod Type  | Name              | Title                    | Format      | School Year | Contact   | Costs Total | Order ID | Copy ID |
| 3666                                                                                                         | Technician | Mandy Kay         | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 40.20       | 11101    | 4051    |
| 3668                                                                                                         | PSN        | Rubin Johnson     | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 15.05       | 11101    | 4051    |
| 3674                                                                                                         | Technician | Boucher Catherine | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 0.20        | 11101    | 4051    |
| 4251                                                                                                         | Vendor     | Vendor 1          | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 105.29      | 11101    | 4051    |
| 3651                                                                                                         | Technician | Brittany Wright   | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 0.00        | 11101    | 4051    |
| 3667                                                                                                         | PSN        | Lindsay Becker    | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 0.00        | 11101    | 4051    |
| 3669                                                                                                         | PSN        | Lindsay Becker    | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 0.00        | 11101    | 4051    |
| 3701                                                                                                         | Technician | Rhett Jones       | The Hare with Amber Eyes | Large Print | 2019-2020   | Tom Hagan | 0.00        | 11101    | 4051    |
|                                                                                                              |            |                   |                          |             |             |           | Total       | 216.74   |         |
| Rows per page: 10▼ 1-8 of 8 < >                                                                              |            |                   |                          |             |             |           |             |          |         |
| <div><div>NEW PRODUCTION ORDER</div><div>VIEW PRODUCTION ORDER</div><div>DELETE PRODUCTION ORDER</div></div> |            |                   |                          |             |             |           |             |          |         |

Finally, on the copy page the coordinator will be able to track the shipping status of the associated volumes. Shipping Records are created by Circulation personnel to capture the details of a shipment. From the Copy page, the user will be able to view and amend existing shipping records as well as creating new shipping records. These functions are accessed by highlighting a row in the Shipping Record Summary grid at the bottom of the copy page and then selecting the required button. No row needs to be selected when creating a new shipping record.

| Shipping Forms                                                                                 |        |           |                |              |                   |             |
|------------------------------------------------------------------------------------------------|--------|-----------|----------------|--------------|-------------------|-------------|
| Shipment ID                                                                                    | Status | Ship Date | Number Volumes | Contact      | School            | Student     |
| 5268                                                                                           |        |           | 0              | Amber Jensen | Excelsior Academy | Kody Rogers |
| Rows per page: 10▼ 1-1 of 1 < >                                                                |        |           |                |              |                   |             |
| <a href="#">NEW SHIP FORM</a> <a href="#">AMEND SHIP FORM</a> <a href="#">DELETE SHIP FORM</a> |        |           |                |              |                   |             |

The shipping summary grid displays the status of the shipping form, indicating whether it has shipped, its shipped date as well as the number of volumes included in the shipment.

The Production Orders page displays to the Coordinator a summary of the Production Cost Records they have created and is accessed through the copy page with a dedicated summary grid as outlined above. A Production Cost Record covers specific effort or material cost booked to the copy and is used by the coordinators to assign technicians or track external costs through PBN's and vendors.

From this page the Coordinator will be able to:

1. Create Production Orders
2. Assign Technicians to a Copy
3. View a Summary of previously saved Production Cost Records
4. Navigate to a saved Production Cost Record to amend, if necessary

The screenshot shows a web interface for 'Production Order'. At the top, there is a blue banner with tabs for 'APH', 'VENDOR', 'TECHNICIAN' (which is selected and underlined), and 'PBN'. Below the banner, there is a form for 'Production Record ID' (3405) and a 'Technician' dropdown menu (currently showing 'Martin Atterbury'). There are 'SAVE PRODUCTION ORDER' and 'RETURN' buttons. Below this is a section titled 'Production Cost Records' containing a table with columns: Prod Cost ID, Date, Prod Rec ID, Prod Cost Type, Description, Number Units, Unit Cost, and Cost. The table has one data row for Prod Cost ID 3008, Date 2019-11-23, Prod Rec ID 3405, Prod Cost Type Time Entry, Description Technician Hours, Number Units 2.00, Unit Cost 20.00, and Cost 40.00. A 'Total' row shows a cost of 40.00. At the bottom, there are pagination controls (Rows per page: 10, 1-1 of 1) and three buttons: 'NEW PROD COST', 'VIEW PROD COST', and 'DELETE PROD COST'.

| Prod Cost ID | Date       | Prod Rec ID | Prod Cost Type | Description      | Number Units | Unit Cost | Cost  |
|--------------|------------|-------------|----------------|------------------|--------------|-----------|-------|
| 3008         | 2019-11-23 | 3405        | Time Entry     | Technician Hours | 2.00         | 20.00     | 40.00 |
|              |            |             |                |                  |              | Total     | 40.00 |

### Create Production Orders

By clicking the 'New Production Order' button on the copy page, the coordinator will be taken to a blank Production Order Page. From here, they should select the appropriate Production Order type from the banner to mirror the production method. These can be customized for IDB as required.

If the material is being created in-house, the coordinator should select the Technician Production Order from the banner and then use the available dropdown to select the technician. Multiple technicians can be added to a single copy, and each will capture their effort and costs against a dedicated production record. Technicians are created as users within the system and will be setup with an hourly rate so that cost calculations can be completed based on their time worked on this copy. When a technician is added to the copy, the copy will become visible to the technician from their landing page where he or she may add material costs and book their time. This process is covered in more detail in the section below.

The APH/Vendor/PBN Production Orders are all tailored to allow the coordinator to enter invoice and purchase order details. The costs associated with these are then added through individual cost records. Selecting 'New Prod Cost' on the Productions Orders page will bring the Coordinator to the Production Cost Records form. From here the Coordinator will be able to:

1. Enter specific costs and comments for the APH/Vendor/PBN
2. Amend Technician's time

Production Cost Form

BOOK MATERIALS   TIME ENTRY   **VENDOR/PBN PAYMENT**

Production Cost Record ID

3604

Payment Date

12/17/2019

Payment Amount

\$ 1.00

Comments

SAVE PRODUCTION COST RECORD

RETURN

These costs are then aggregated against the copy and viewable on the Overhead Production Costs page in summary or can be viewed in detail through the specific production cost record.

Once Production Orders have been assigned to the copy, it will be removed from the Unassigned Copies table on the Coordinators landing page and be visible in the appropriate Assigned Production Orders table. From here Coordinators can use sidebar shortcuts to narrow down searches to specific production types or even a single technician.

USIMAC Production Portal (DEV)

Martin Atterbury

Copy Search

School Year

Order Management

New Book Requests

Unassigned

Assigned

APH

Vendor

PBN

Technician

Technician Search

Missing Data

Hard Copy Tags

Assigned Copies

| Copy Id | Order Id | Order Item Id | Format      | Title                        | ISBN13        | ISBN10     | Copyright | Grade | Media Type | Status   | Elec Media/HC | Teacher          | Student  | D   |
|---------|----------|---------------|-------------|------------------------------|---------------|------------|-----------|-------|------------|----------|---------------|------------------|----------|-----|
| 18708   | 20761    | 25267         | Large Print | ALgebra                      | 9781565771345 | NA         | 2014      | 3     |            | Approved | Hard Copy     | Martin Atterbury | Jim Beam | B   |
| 19608   | 21752    | 26458         | UEB         | Site Reliability Engineering | 9781491951187 | 1491951184 |           | 8     |            | Approved | Hard Copy     | Martin Atterbury | Jim Beam | B E |

Jump to Page: 1

Rows per page: 10

1-2 of 2

## Technicians

As per other user types, technicians will have dedicated functionality and a landing page that focuses them on the information they need to complete their tasks. Technicians therefore will only see copies on their landing page once they have been assigned to them. Likewise, at the point the copy is marked complete, the corresponding row will be removed from the technician's landing page.

USIMAC Production Portal (DEV)

Martin Atterbury

Assigned Orders

Physical Orders

Completed by Technician

Incomplete

Select an Order Type

Assigned Copies

|                         | Copy Id | Tech Priority | Order Id | Order Item Id | Format      | Title                            | ISBN13        | ISBN10     | Copyright | Grade | Media Type          | Status   | Elec Media/HC | Teacher   | Student      | District        | Submit Date | Approve Date |
|-------------------------|---------|---------------|----------|---------------|-------------|----------------------------------|---------------|------------|-----------|-------|---------------------|----------|---------------|-----------|--------------|-----------------|-------------|--------------|
| <div></div> <div></div> | 10752   | Y             | 9802     | 12702         | UEB         | Wisden Cricketers' Almanack 2019 | 9781472964052 | 1472964055 | 2009      | 6     | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Sophie X     | Box Elder       | 2020-08-12  | 2020-08-12   |
|                         | 10806   | Y             | 9853     | 12757         | Large Print | Are You Scared, Darth Vader?     | 9781484704974 | 1484704975 | 2018      | K     |                     | Approved | Hard Copy     | Tom Hagan | Emma Example | *Charter School | 2020-08-13  | 2020-08-13   |
| <div></div> <div></div> | 10902   | Y             | 9951     | 12852         | UEB         | Catch-22                         | 9780684865133 | 0684865130 |           | 5     |                     | Approved | Hard Copy     | Tom Hagan | Emma Example | Box Elder       | 2020-08-13  | 2020-08-13   |
|                         | 16742   | Y             | 18034    | 21963         | UEB         | Explore Math                     | 9781578616954 | 1578616956 | 2010      | 8     |                     | Approved | Hard Copy     | Tom Hagan | Test Test1   | *Charter School | 2021-06-19  | 2021-06-19   |
| <div></div> <div></div> | 643     | N             | 1155     | 1305          | Large Print | World History                    | 9780785464051 | 0785464050 | 2008      | 9-12  |                     | Approved | Hard Copy     | Tom Hagan | Adam X       | Canyons         |             | 2020-03-13   |

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From the assigned copies table, technicians can filter their results across many different criteria and whether they have marked their production activities as complete. At the point of creating a production order the coordinator can indicate whether the production required is considered a priority, which is then subsequently displayed on the technicians list. Prioritized production is displayed at the top of the table by default. The technician will then navigate to the copy page once they have identified a record to work on.

From the copy page the technician will then navigate to the appropriate production record to begin capturing their time and materials used for production. From here the technician can toggle the production as complete or not, please note this does not mark the whole copy as complete but simply flag to the coordinator that portion of production is deemed complete by the technician assigned. This status is visible to coordinators either from their landing page or on the production order itself. Selecting 'New Prod Cost' on the Productions Orders page will bring the technician to the Production Cost Records form, from here the technician will be able to:

1. Enter their time working on the copy
2. Add Materials Cost

### Materials Cost

By default, a new Production Cost Record will open the Materials Cost Form. If needed, this can also be selected through the banner by clicking on 'Book Materials'.

Materials are selected by the dropdown list. Please note that the material available for selection and price per unit will be maintained by IDB staff via the Admin profile. Once the technician has selected the material they require, the quantity used needs to be entered. The system will then calculate the cost based on the quantity entered and price per unit.

If necessary, comments can be entered before saving the production cost record. Saving the record will add the cost to the copy and will be visible to coordinators and on the technician's production order page.

**Production Cost Form**

BOOK MATERIALS   TIME ENTRY   VENDOR/PEN PAYMENT

Production Cost Record ID

Book Material \* 12 mm Coil Binding - each   Number of Units 1

Select a Book Material

Unit Cost \$ 0.18   Comments

Total Cost \$ 0.18

SAVE PRODUCTION COST RECORD   CLEAR PRODUCTION COST RECORD   RETURN

## Booking Time

Before starting work on a copy, the Technician should navigate to the Time Entry Form, accessible on the Production Cost Record Page by selecting 'Time Entry' on the banner.

Functionality has been implemented to remove the requirement to manually enter start or end time. By selecting the 'Start Production Work' button, Athena will auto-populate the current date and time. Once the technician has selected the 'Start Production Work' button they are free to navigate away from the page and continue using Athena.

When work has concluded on the copy, the technician should select 'End Production Work'. This will auto-populate the end time based on current system time and date. Athena will then calculate the total time booked and multiply by the technician's rate to calculate the cost to add to the copy. This effort and cost will be visible to coordinators and the technician on their Production Orders page.

It is possible to overwrite the values in the start and end times, allowing amendments to accurately capture the time worked if time entry was incorrectly stopped or not started.

**Production Cost Form**

BOOK MATERIALS   TIME ENTRY   VENDOR/PEN PAYMENT

Production Cost Record ID

Start Date mm/dd/yyyy   Start Time --:--

START PRODUCTION WORK

End Date mm/dd/yyyy   End Time --:--   Duration

END PRODUCTION WORK

Comments

RETURN

As production completes, the coordinator will add the volume to the copy page, which will then be eligible for shipping even though the copy is not yet marked as complete. This enables material to be shipped when ready to meet the requirements of the pacing guide rather than waiting for the whole copy to be completed and shipped at one time. Once all volumes are added the coordinator will then mark the copy as completed, removing from the technician's profile, and ensuring the copy and associated order item is eligible for order closure and available inventory logic.

Recognizing that not all Production Order information may be known at the point it is created, Athena has a dedicated shortcut which displays all production orders with incomplete information. As the final invoice numbers

and amounts are added, for external purchases for example, then these rows will drop off this table. Providing a simpler and efficient means of managing production order information at scale.

#### DESCRIBE HOW THE DOCUMENTS ARE UPLOADED AND ACCESSED AS PART OF THE ORDER PROCESS.

Either as part of the order creation process or later in the lifecycle, the teacher may attach documents to a specific order item. These documents can then be downloaded from within Athena by the coordinators responsible for managing that order.

As Order Items are added to the Order, they become rows in the Order Items Table on the Order Page. Against each row is an action button that takes the user to a dedicated page to manage prerequisites.

Order Items

| Order Item Id                                              | Order Item State | Book Id          | Copy Id | Title | Author                           | ISBN13          | Grade         | Format | Properties | Pacing Guide Sent        | Hard Copy Sent |     |
|------------------------------------------------------------|------------------|------------------|---------|-------|----------------------------------|-----------------|---------------|--------|------------|--------------------------|----------------|-----|
| <div><div></div><div>Update Book Prerequisites</div></div> | 24161            | ApproveOrderItem | 7101    | 17908 | Magic Tree House                 | Armando Venegas | 0             | 6-8    | UEB        | Double Side/Single Space | Yes            | Yes |
| <div><div></div><div></div></div>                          | 23030            | ApproveOrderItem | 6751    | 16966 | Cocomelon ABC's                  | Cocomelon       |               | 1      | UEB        |                          | Yes            | Yes |
| <div><div></div><div></div></div>                          | 23029            | RenewOrderItem   | 1635    | 16815 | Reach for Reading, Practice Book | N/A             | 9781305499034 | 3      | UEB        | Double Side/Single Space | Yes            | N/A |

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From the Order Item Prerequisite page, the teacher may upload multiple files that are relevant to the material being requested. Clicking the Upload button will open a dialog allowing the teacher to select files of all types which are available on their local machine. This is typically used, although not limited, for new material production and the sharing of pacing guides and other materials to assist the transcription schedule.

USIMAC Production Portal (DEV)

Martin Atterbury

Order Item Files

Upload

| File ID | File Name     | Upload Date |
|---------|---------------|-------------|
| 2451    | hcTag_113.pdf | 2022-02-01  |

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Hard Copy Tag

Comments

Test Tag 123

PRINT HARDCOPY TAG

Book/Copy Prerequisites

☒ Hard Copy Sent to USIMAC
 ☒ Hard Copy Received by USIMAC

☒ Pacing Guide Sent to USIMAC
 ☐ Pacing Guide Received by USIMAC

UPDATE PREREQUISITES

RETURN

The uploaded file is now attached to this order item and can be viewed by in-house staff once the order has been submitted. Coordinators will navigate to the order, select the prerequisite page for the relevant order item and then download any attached files.

In 2021 a new workflow was added to Athena to track Hard Copies which had been sent to USIMAC to be transcribed. Given the cost of textbooks, USIMAC staff endeavors to return them once the transcription is completed and therefore, a process was implemented which allows the status of the submitted Hard Copy to be tracked. When the teacher is ready to mail the hard copy, they will download a Hard Copy Tag from this page and include it in the material. Athena will prepopulate all the necessary information for the Hard Copy tag including a unique barcode which will be scanned by in-house staff.

USIMAC

## Attach this tag to book sent to be produced

Please include this tag when sending your book to USIMAC



10043780

Copy Id: 17908  
 Order Id: 19121  
 Order Item Id: 24161  
 Teacher: Martin Atterbury  
 Student: Joe Cole  
 District: Beaver  
 Book Title: Magic Tree House  
 ISBN: 0  
 Format: UEB  
 Teacher Comment: Test Tag 123  
 USIMAC Comment:

Coordinators can track and manage the status of Hard Copies from the Coordinators Landing Page.

| USIMAC Production Portal (DEV) |          |               |         |                  |                  |                 |                              |               |             |                 |             |
|--------------------------------|----------|---------------|---------|------------------|------------------|-----------------|------------------------------|---------------|-------------|-----------------|-------------|
| HC Tag Table                   |          |               |         |                  |                  |                 |                              |               |             |                 |             |
|                                | Order ID | Order Item ID | Copy ID | Teacher          | Student          | District        | Title                        | ISBN          | Format      | HC Status       | Status Date |
|                                | 21252    | 25802         | 11109   | Tom Hagan        | David X          | *Charter School | The Brothers Karamazov       | 9780374528379 | UEB         | HCTagDownloaded | 2021-08-20  |
|                                | 7951     | 10751         | 558     | Tom Hagan        | Sam X            | *Charter School | World Geography and Cultures | 9780078745294 | Large Print | HCTagReceived   | 2021-08-19  |
|                                | 19121    | 24161         | 17908   | Martin Atterbury | Joe Cole         | Beaver          | Magic Tree House             | 0             | UEB         | HCTagReturned   | 2021-08-18  |
|                                | 18805    | 25151         | 18675   | Martin Atterbury | Martin Atterbury | *Charter School | United States History        | 9780547484303 | ePub        | HCTagReceived   | 2021-08-18  |
|                                | 20769    | 25273         | 18711   | Craig Rogers     | Craig Rogers     | *Charter School | Are You Scared, Darth Vader? | 9781484704974 | Large Print | HCTagReturned   | 2021-08-18  |

HC Status, as visible as a column in the table above, indicates at which stage of the process the Hard Copy currently is.

1. HCTagDownloaded indicates that the teacher has downloaded the tag and therefore it is reasonable to assume that Hard Copy has been posted and will be received soon.
2. Once the Hard Copy is received it is scanned to indicate it is in possession and the status of that HC Tag is moved to HCTagReceived.
3. A dedicated HC Shipping form can be generated by simply scanning the HCTag barcode from the Circulation Profile. This will then move the HCTag to the final status of HCTagReturned, indicating that the Hard Copy has been mailed and is no longer in your possession.

This process provides USIMAC with an efficient and dynamic method, leveraging existing data within Athena, to keep track of the Hard Copies in their possession.

**DESCRIBE HOW THE STATUS OF ORDERS ARE TO BE VIEWED BY STAFF, VENDORS AND THE INDIVIDUALS PLACING THE ORDERS.**

Status is maintained against both Orders and Order Items within Athena and can be viewed by Teachers, technicians, circulation users and coordinators.

For example, as a teacher order status is available on their landing page when they login to Athena.

<

Teachers can search and filter the table by Order Status, as well as various other criteria such as student name to find relevant results. The status of the Order is also available on the Order page itself. To find the status of Individual Order Items, the teacher would simply click on a specific order and the status of the Order Item is displayed on the Order Item table.

| Order Items                                |                       |         |         |                                 |             |               |               |              |       |        |            |                          |                   |                |
|--------------------------------------------|-----------------------|---------|---------|---------------------------------|-------------|---------------|---------------|--------------|-------|--------|------------|--------------------------|-------------------|----------------|
| Order Item Id                              | Order Item State      | Book Id | Copy Id | Title                           | Subtitle    | Author        | ISBN13        | H/C Returned | Grade | Format | Media Type | Properties               | Pacing Guide Sent | Hard Copy Sent |
| 22725                                      | RenewOrderItemRequest | 110     | 16813   | Step Up to Writing, Handy Pages | 4th Edition | Maureen Auman | 9781491690482 |              | 3     | UEB    |            | Double Side/Single Space | Yes               | Yes            |
| 22724                                      | Closed                | 118     | 16811   | Explore Math                    | Test        | Judi Kinney   | 9781578616954 |              | 8     | UEB    |            | Double Side/Single Space | N/A               | N/A            |
| Jump to Page: 1 Rows per page: 10 1-2 of 2 |                       |         |         |                                 |             |               |               |              |       |        |            |                          |                   |                |

Order, Order Item and Volume Status is automatically determined by Athena and does not need to be manually maintained. This intelligent automation and customized event lifecycles save a significant amount of effort for the coordinators and provides reliable status to all users in real-time.

Order Status descriptions are listed below:

| Status      | Trigger                                               | Workflow/Automation                                                                                                                                                                                                 |
|-------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unsubmitted | Teacher creates and saves an order without submitting | - None, Unsubmitted Orders are only visible to the teacher who created the order. They are essentially a saved draft which can be filtered, searched reopened and submitted once ready.                             |
| SubmitOrder | Teacher submits an order for review                   | - Checkout Events are created against the copies, meaning other teachers are unable to select this material and adjusting available inventory counts<br>- Prerequisite Events are created for Order and Order Items |

|                       |                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       |                                                                                          | <ul style="list-style-type: none"> <li>- Order is now visible on the Coordinators Orders Table</li> <li>- Count of Submitted Orders awaiting assignment increases, displayed on Coordinator's sidebar</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AssignedToCoordinator | Coordinator user assigns an order to themselves to begin the pre-approval review process | <ul style="list-style-type: none"> <li>- Approve/Reject Order Actions are now available to the coordinator</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| RejectOrder           | Coordinator Rejects the entire Order from the Order Page                                 | <ul style="list-style-type: none"> <li>- Email notification sent to the teacher</li> <li>- Checkout events are closed on the attached copies and returned to inventory for other teachers to now select</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ApproveOrder          | Coordinator Approves the Order                                                           | <ul style="list-style-type: none"> <li>- Prerequisite Check run against the order to ensure all prerequisites have been met for approval. If the coordinator decides to override missing prerequisites then the order can still be approved and outstanding prerequisites can be tracked on the 'Outstanding Prerequisite' Table on the Coordinators Landing Page.</li> <li>- ApproveOrderItemEvents created against each attached Order Item</li> <li>- ShipApprove Events created against the copy and volumes which have been selected from inventory. Meaning that these copies are now eligible to be shipped and become visible on the Circulation Users 'Approved To Ship' table for the first time.</li> <li>- InProduction Events created against the order items which either require purchasing or producing. These items will now become visible in the 'Unassigned Production Orders' queue for the first time.</li> </ul> |
| InCirculation         | All order items have been fully shipped                                                  | <ul style="list-style-type: none"> <li>- None, individual notifications are sent to the teacher as material is shipped.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CancelOrderRequest    | The teacher has requested to cancel the entire order                                     | <ul style="list-style-type: none"> <li>- Email notification to the Coordinator's mailbox</li> <li>- Cancel Order Request will be visible in the Cancel Order Request Queue, allowing them to navigate directly to the order to review and action the cancellation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CancelOrder           | Coordinator confirms Order cancellation                                                  | <ul style="list-style-type: none"> <li>- Email notification sent to the teacher confirming the cancellation</li> <li>- Order Items from Inventory which have not been shipped are automatically returned to Inventory and are available for selection by another teacher</li> <li>- Order Items from Inventory which have been fully shipped, remain on the Awaiting Returns list for the teacher and Circulation users. These will need to be fully returned and checked in before they will appear as available inventory.</li> <li>- Order Items from Inventory which have been partially shipped, volumes which have been shipped will continue to be displayed on 'Awaiting Returns' list. However, volumes which have not yet been shipped will have their ShipApprove event closed and no longer be eligible for</li> </ul>                                                                                                      |

|        |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                                                     | shipping and thus be removed from the Circulation 'Approved To Ship' table.<br>- Order Items requiring Production are handled along similar lines to Inventory items with regards to returns and shipping. However, to account for the potential decision to proceed with production even after an order has been cancelled (for example, if the book is likely to be frequently circulated or is simply nearing completion), entries are not automatically removed from the production work queues however they are flagged as cancelled and can be filtered/removed as necessary. |
| Closed | All Order Items are in an appropriate closure state | - None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Customized status and event lifecycles exist for Order Items and other objects within Athena which can be covered in more detail as requested. However, the general principle remains the same, drive event status by user action and then use automation to reduce the manual effort required by staff. For example, when production orders are assigned to a copy the associated order item visible to the teacher will move to InProduction.

A further example of how theses statuses can add value back to the user is at the volume level. Teachers can track the material in their possession down to the individual volume, which can help reduce the number of incomplete returns and reduce costs.

Copy to be Returned

Title

Heart of Darkness

Subtitle

Student

Jim Beam

School Year

2022-2023

Volumes

Search

Download

Print

Filter

| Volume Id | Status         | Status Date | Barcode  | Comments | Consumable |
|-----------|----------------|-------------|----------|----------|------------|
| 17202     | InCirculation  | 8/13/2021   | 10036290 |          | N          |
| 17203     | VolumeReturned | 2/2/2022    | 10036300 |          | N          |

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### DESCRIBE HOW PREREQUISITE INFORMATION IS GATHERED AT THE TIME OF THE ORDER (I.E. IEP OR PACING GUIDES).

Prerequisites are used in Athena to track information or deliverables which *should* be in place before an order is approved. Information which *must* be in place to review and process an Order, such as contact and student information, is checked at the point of submission and Order submission will be prevented if missing or incomplete.

Prerequisites exist for both Order and Order Items. Order level prerequisites cover administrative items which should be in place before an order is approved and apply to all orders. Order Item prerequisites are only applicable to material requiring production and track items which will be essential to manufacture the requested material. Descriptions of the prerequisites are detailed below:

### Order Prerequisites

Student Eligibility – Teachers must electronically attest to the eligibility (504/IEP) of their students in Athena annually.

Signed Memorandum of Understanding – USIMAC requires all school districts to sign an MOU to agree to their terms and conditions for supplying material. Compliance with this is managed via the admin profile and a check on the school district is completed at the point of order submission. This can be customized or removed for IDB as required.

### Order Item Prerequisites

Hard Copy Sent/Received – Hard Copies of materials required for transcription

Pacing Guide – Uploaded as a file to aid transcription priorities to ensure the students have the material they require when needed.

Order prerequisite status is gathered based on the information already held within Athena. However, Order Item prerequisites need to be set by the teacher and subsequently the coordinator. For Order Item prerequisites Athena has a two-step process to ensure the necessary prerequisites are truly in place.

#### Step 1

When a teacher is selecting the material to be produced, before being added to the order they can select the status of the prerequisites, confirming they have submitted the hard copy and pacing guide as seen in the screenshot below:

USIMAC Production Portal (DEV)

Martin Atterbury

### Book Page

Book ID

7803

Title \*

Secret Seven

Subtitle

Author \*

Enid Blyton

Publisher \*

Scholastic Inc.

Copyright

Grade \*

5

Select grade for this book

Book Format \*

UEB

Select Grade before Format

Series

Total Quantity

0

RETURN

### Book Copies In Inventory

| copy Id | Properties | numVols |
|---------|------------|---------|
|         |            |         |

Jump to Page: 1

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### Book Copy Properties for New Material\*

☒ Single Space
 ☐ Double Space
 ☐ Single Side
 ☒ Double Side

#### Book Build Materials

☒ Hard Copy Sent to USIMAC
 ☐ Pacing Guide Sent to USIMAC

Media Type \*

ADD BOOK/COPY TO ORDER

RETURN

If the teacher is unable to confirm the prerequisite status at this stage, they can return to the order at a later stage and update these on the dedicated order item prerequisite page seen earlier in this document. Additionally, if the teacher uploads a pacing guide file or downloads a hardcopy tag the corresponding prerequisite fields will be automatically set.

## Step 2

Just because a teacher has ticked a box confirming they have sent the prerequisites does not always mean they have been received. This was a particular area of challenge for USIMAC which led to the design of the two-step process. As such and as part of the order review it is expected that a coordinator will positively affirm the status of order item prerequisites on the prerequisite page. It is these confirmation values, displayed below, which are used by the automated prerequisite check to determine whether prerequisites are outstanding.

Book/Copy Prerequisites

☒ Hard Copy Sent to USIMAC
 ☐ Hard Copy Received by USIMAC

☒ Pacing Guide Sent to USIMAC
 ☐ Pacing Guide Received by USIMAC

Comments

UPDATE PREREQUISITES

RETURN

When an Order is approved by the coordinator it will automatically run a prerequisite check against the order and all order items requiring production. Prior to processing the approval, Athena will prompt the user with details of the outstanding prerequisites (if any) providing the coordinator the opportunity to override these prerequisites and approve the order with these outstanding. Typically, this is used when the coordinator does not wish to delay progressing on the order when they are confident outstanding prerequisites will be resolved shortly.

Prerequisite check failed

PacingGuide not received for orderItem: 12952

HardCopy not received for orderItem: 12952

PacingGuide not received for orderItem: 12953

HardCopy not received for orderItem: 12953

PacingGuide not received for orderItem: 12954

HardCopy not received for orderItem: 12954

Would you like to override these prerequisites?

OK

CANCEL

Given the importance of these prerequisites being met later, Athena provides tables on the coordinator’s landing page to track all orders with Overridden and therefore Outstanding prerequisites.

| USIMAC Production Portal (DEV)            |                 |                |               |               |           |             |                |  |
|-------------------------------------------|-----------------|----------------|---------------|---------------|-----------|-------------|----------------|--|
| Martin Atterbury                          |                 |                |               |               |           |             |                |  |
| Order Management - Override Prerequisites |                 |                |               |               |           |             |                |  |
| Order Id                                  | Status          | Submitted Date | Approved Date | Required Date | Contact   | School Year | School         |  |
| 9251                                      | OverridePrereqs | 7/22/2020      | 5/31/2021     |               | Tom Hagan | 2021-2022   | Channing, Hall |  |
| 9501                                      | OverridePrereqs | 7/22/2020      | 7/22/2020     |               | Tom Hagan | 2021-2022   | Channing, Hall |  |
| 9552                                      | OverridePrereqs | 7/24/2020      | 5/26/2021     |               | Tom Hagan | 2021-2022   | East High      |  |
| 9552                                      | OverridePrereqs | 7/24/2020      | 5/26/2021     |               | Tom Hagan | 2021-2022   | East High      |  |
| 9552                                      | OverridePrereqs | 7/24/2020      | 5/26/2021     |               | Tom Hagan | 2021-2022   | East High      |  |

From this table, the coordinator can navigate directly to the order, update the outstanding prerequisites, and then re-run the Prerequisite Check. If all prerequisites have been met, then the row on the Override Prerequisite table will be removed providing the coordinators with a dynamic list of orders which require attention.

**DESCRIBE HOW COMPLETED ORDERS ARE TO BE SENT ELECTRONICALLY TO USERS.**

Digital material is available to search and add to an order following similar steps to physical material. Athena is designed to handle devices, digital material, and physical material in a single order. When selecting digital material, an extra step is required for the teacher to select how they wish to receive their files. This is selected when adding the digital material to the order:

Book Copy Properties for New Material\*

☐ Single Space
 ☐ Double Space
 ☐ Single Side
 ☐ Double Side

Book Build Materials

☐ Hard Copy Sent to USIMAC
 ☐ Pacing Guide Sent to USIMAC

ADD BOOK/COPY TO ORDER

RETURN

CD

SD Card

Electronic Delivery

If CD or SD card is selected, then this order item will flow through the standard shipping workflows as consumable material. Alternatively, the teacher can select electronic delivery which means they will be able to download and access their digital files through Athena.

Digital material is submitted as a new material request each time, this has been designed because USIMAC deemed it not cost effective to retain and recirculate electronic media. As such, when the teacher submits the

order with digital material requiring electronic delivery it will initially follow standard material production workflows and be assigned to a technician in the standard way.

Athena splits the technician 'Assigned Copies' table between physical and electronic material to allow easier delineation of assigned work.

| USIMAC Production Portal (DEV)             |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
|--------------------------------------------|---------|---------------|----------|---------------|---------|----------------------------------------------|---------------|------------|-----------|-------|---------------------|----------|---------------|-----------|--------------------|-------------------------------------|-------------|--------------|
| Martin Atterbury                           |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Assigned Orders                            |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Electronic Orders                          |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Completed by Technician                    |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Incomplete                                 |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Select an Order Type                       |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
| Assigned Copies                            |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |
|                                            | Copy Id | Tech Priority | Order Id | Order Item Id | Format  | Title                                        | ISBN13        | ISBN10     | Copyright | Grade | Media Type          | Status   | Elec Media/HC | Teacher   | Student            | District                            | Submit Date | Approve Date |
|                                            | 7911    | Y             | 3855     | 6102          | MP3     | Wisden Cricketers' Almanack 2019             | 9781472964052 | 1472964055 |           | 6     | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Emma X             | *Charter School                     | 2020-04-17  | 2020-04-27   |
|                                            | 7467    | Y             | 5162     | 8217          | brl UEB | Davis School District Math Program, Notebook |               |            | 2019      | 8     | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Donald X           | *Charter School                     | 2020-05-15  | 2020-06-03   |
|                                            | 7904    | Y             | 5554     | 7516          | MP3     | Brave New World                              | 9780795311253 | 0795311257 |           | 10    | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Hayley X           | *Charter School                     | 2020-05-19  | 2020-05-19   |
|                                            | 7484    | Y             | 6009     | 8246          | ePub    | Hate That Cat                                | 9780061430947 | 0061430943 |           | 6     | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Mark X             | *Charter School                     | 2020-06-03  | 2020-06-03   |
|                                            | 10503   | Y             | 9601     | 12455         | MP3     | Wisden Cricketers' Almanack 2019             | 9781472964052 | 1472964055 |           | 6     | Electronic Delivery | Approved | Hard Copy     | Tom Hagan | Jennifer Yellowhat | Utah Schools for the Deaf and Blind | 2020-07-26  | 2020-07-26   |
| Jump to Page: 1 Rows per page: 5 1-5 of 14 |         |               |          |               |         |                                              |               |            |           |       |                     |          |               |           |                    |                                     |             |              |

As the technician progresses with the production of the digital material, they will add costs to the production order in the standard way. A key difference however, is they will no longer be adding volumes, but a URL which links directly to the digital material files. Recognizing that digital materials may still require to be delivered in chapters to meet an aggressive pacing guide, the technicians can slice up their work and add links to multiple uniquely identified files.

| Electronic Delivery URLs                   |           |          |          |                        |
|--------------------------------------------|-----------|----------|----------|------------------------|
|                                            | Volume Id | Barcode  | Comments | URL                    |
| HTTP                                       | 22702     | 10039820 | BBC      | http://www.bbc.com     |
| HTTP                                       | 17902     | 10036890 | KSL TEST | http://www.KSL.com     |
| HTTP                                       | 16111     | 10035730 | V1       | http://www.testmp3.com |
| Jump to Page: 1 Rows per page: 10 1-3 of 3 |           |          |          |                        |

USIMAC store these digital files on a Google Drive and then provide the link to them through Athena. If required, these files could be stored directly in Athena. When a URL is added by the technician, it automatically sends a notification to the teacher that their file is available for download. A dedicated electronic material grid is available on the teachers landing page in Athena to access and download the digital material files.

Copy to Download

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USIMAC produces and procures accessible electronic format through other Accessible Media Producers, including American Printing House for the Blind (APH), Bookshare, and Learning Ally.

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1. You may download to a computer to use with a screen reader, a magnification device, or to emboss/transcribe into Braille.
2. You may import to an assistive technology device, such as a digital talking book player, a tablet, or a handheld refreshable Braille display.

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Title

Wisdén Cricketers' Almanack 2019

Subtitle

Student

Joe Cole

School Year

2021-2022

Electronic Delivery URLs

Volume Id

Barcode

Comments

Download

|       |          |  |          |
|-------|----------|--|----------|
| 24151 | 10042450 |  | Download |
|-------|----------|--|----------|

Jump to Page: 1

Rows per page: 10

1-1 of 1

DESCRIBE THE SEARCH CAPABILITIES TO OTHER COLLECTIONS SUCH AS BOOKSHARE AND APH’S LOUIS DATABASE DURING THE ORDERING PROCESS.

Athena does not currently have connections to either APH Louis or Bookshare databases. Teachers can request new material they require, even if the book is not currently in Inventory, and the coordinators will use several external tools at the point of reviewing the order to determine the best way to meet the requirement. This includes external searches to Bookshare and APH Louis. Where orders are placed externally, these deliverables and costs are tracked in Athena through the standard production workflows.

Athena has an existing external connection, via a well-defined API, with Google Books. This is used by the teacher during the process of requesting a new book not yet held in inventory. The advantage of using Google Books in this scenario is to reduce the effort required by the teacher to enter information and increase the quality of the information entered on the book record. The teacher simply enters the ISBN of the material they require, and Google Books returns the rest of the mandatory information.

1

ISBN Check

2

Validate Material ISBN

3

Enter Book Details

4

Review Properties and Prerequisites

1

UPP utilizes a connection with Google Books to retrieve book information based on ISBN, please enter ISBN below

Enter ISBN for Look-Up

ISBN LOOK-UP

BACK

RESET

RETURN

Searching external databases from within Athena is considered an important long term strategic goal for Athena. Initial discussions with USIMAC concluded that APH Louis did not have the necessary technical integration ability when this was explored 3 years ago. However, we would welcome the opportunity to reexamine what is possible.

OTHER FUNCTIONALITY OF INTEREST

Inventory Reconciliation

The high-level objective of the Inventory Reconciliation module is to use data in Athena to simplify and accelerate the process of reconciling physical inventory against the Athena system of records. It also allows more targeted reconciliations broken down by format to spread the effort of maintaining a reconciled inventory position. Dedicated pages and functionality have been added within the Admin profile to manage the inventory reconciliation process. The module is only recently implemented but has already delivered exceptional efficiencies for USIMAC. Reconciliations that used to take 3 or 4 FTE most of the week can now be completed in a single morning by a single person.

The steps below outline the process which delivers a quicker and accurate reconciliation leveraging the data already held within Athena.

### Step 1 – Initiating the Inventory Reconciliation and generating an expected result set

An Admin user will navigate to the new Inventory Management Page, select the scope of the reconciliation by selecting a format, and then click to start the inventory reconciliation. Athena will then determine which volumes are expected to be in the warehouse. This is based on the format selected and then discounting all volumes with a status of 'InCirculation' or 'ConsumableVolumeShipped'.

### Step 2 – Scanning Inventory

To complete the inventory reconciliation and determine discrepancies, actual results are required to compare to the expected result set created in Step 1. These actual results are collected by scanning barcodes of volumes' spine labels within the warehouse.

When a volume is scanned, all in scope volumes associated with that copy are displayed on the screen. Those which have been scanned have a checkmark next to them to provide a visual cue on to minimize the risk of incomplete warehouse scans.

When scanning a volume belonging to a different copy, and the current copy has not been completely scanned, the user will be prompted whether they wish to navigate to the new page or remain to complete scanning the current copy.

Options to archive a copy exist directly from the scanning page. This could be used if the copy being scanned is no longer in a suitable condition to be sent out. Checking this box will remove the copy from teacher searches but comment history, production details and costs will still be available on the copy page. A new Admin Search is available to view all copies which have been archived. These copies may be reinstated at any time.

If the scanned volume is not expected to be in the warehouse, the user will be presented with a pop-up presenting the option to close the current 'InCirculation' event on the volume.

### **Step 3 - Reconciliation and Discrepancy Management**

Once the scanning is complete, the user ends the reconciliation which will then generate a list of discrepancies, this is calculated by comparing the differences between the expected vs. the scanned population. This discrepancy list might include volumes which were expected but never scanned i.e., missing volumes or material which was expected to be in circulation but is actually in the warehouse.

These discrepancies are displayed on the Discrepancy Management page in a dedicated table. Action buttons exist on this table to retrospectively review and close the discrepancies. For example, a volume which is found later can be scanned from the discrepancy table to close the Missing Volume Discrepancy.

Also, from the Discrepancy Management page Athena displays a real time dashboard providing an overview of the current health of reconciliation status with the ability to change the reporting period. Metrics are customizable but include:

- Date of last Inventory Reconciliation Activity
- Count of successfully reconciled copies
- Number of Copies removed from Circulation
- Cost of Copies removed from circulation
- Count of inventory items not reconciled in the last 12 months

As with all modules in Athena, logic and process is customizable to IDB needs.

### **Devices**

Whilst still in its infancy, Athena is expanding logic and workflows to cater for a new inventory type—Devices. The addition of Assistive Technology Device loans increases the coverage for certain libraries which handle both inventory types.

Athena has added new data types, specific workflows, and logic to allow teachers to request devices from inventory and include within their standard orders.

### **Shipping and Returns Workflows**

Shipping and Return functions and responsibilities sit with the circulation user in Athena. As per all user types, circulation users have a dedicated landing page focused for their tasks.

<

Once an order item is approved, and not before, copies eligible to be shipped will appear in the 'Approved to Ship' table on the circulation landing page. Copies do not need to be complete to appear on this list, this allows volumes added to a copy throughout a production cycle to be shipped as they are ready.

From here, the circulation user can navigate directly to the copy page and begin the shipping process by creating a shipping form. Shipping forms are designed to capture details of a specific shipment. Recognizing that not all volumes of a copy will be shipped at the same time, a shipping form allows the user to capture what was sent, where and when.

The Shipping Forms page allows the Circulation user to enter or amend the details required to make a shipment and associated shipping form. From this page the Circulation User will be able to:

1. View Book Details for the volumes to be shipped
2. Enter and Amend Shipping Details, including costs and shipping method
3. Add the volumes to be shipped
4. Create New Shipping Form
5. Print Delivery Sheet

The page itself is split into three logical sections, the first section contains details of the book being shipped to assist in material identification.

| Book          |                             |               |
|---------------|-----------------------------|---------------|
| Book Title    | Reading Mastery Storybook 2 |               |
| ISBN13        | 97800076124596              |               |
| Call ID       | Format                      | Student Grade |
| LP TXT 808 MH | Large Print                 | 1             |

The next section allows the shipping details to be entered, reviewed, and finalized before creating the shipping record. Key details of the shipment are captured in this section, such as ship to addresses and contact details. Shipping method and cost are also entered here.

When navigating to a new shipping form, many of these details will be auto populated with the contact details and preferences set by the teacher when they placed the order. By default, the 'Ship Via' selection is set to 'Free Matter' and the 'Ship Date' is automatically set to today's date. All contact and shipping values can be overwritten, if necessary, to cater for changes to delivery preferences. Please note, the 'Media Type' dropdown is available for electronic material only and will not be selectable for physical copies.

Once the user is satisfied with the values, they should select 'Make Shipping Record' to create and save the shipping record. If changes are required, then the user should update the required fields and save those amendments by selecting 'Amend Shipping Record'.

Once the Shipping Record has been created, the circulation user is now able to add volumes to this shipment. Volumes are added to the shipping record, indicating to Athena you plan to ship these volumes out to the teacher, by simply scanning the barcode on the spine label of the volume. Leveraging data held within Athena, there are protections in place when adding a volume to a shipping record to ensure what was scanned belongs to the appropriate copy and is eligible to be shipped. Once all volumes have been added that are required, the Circulation User can either navigate away from the page or mark the shipping record as shipped by selecting the 'Ship this Record' button.

| Volume ID | Status        | Ship Date | Barcode  | Comments | Consumable |
|-----------|---------------|-----------|----------|----------|------------|
| 7082      | PreShipVolume |           | 90199610 | Y1       | False      |

**Pre- Ship Status** – If the user navigates away after adding their volumes, the values and associated volumes will be saved. This shipping form, and the associated volumes, are now in a pre-ship status. The user can return to the shipping form and mark as shipped once the delivery has been picked up. Copies with shipping records in a pre-ship status can be located using the filters on the Circulation Management landing page.

**Ship this Record** – By selecting the 'Ship this Record', Athena will now mark the volumes as shipped and determine expected return status based on the consumable flag set on the volume. Details of the copies with volumes shipped can be accessed through the relevant filters on the Circulation Management landing page.

Teachers and Circulation users can track dynamic lists of material which has been shipped and categorized on whether the material is expected back. This is an efficient means for both parties to track expected returns and minimize incurred expenses due to lost or unreturned material. Screenshot of the Teachers list is below:

| USIMAC Production Portal (DEV) |          |         |                 |         |                                         |            |           |                     |              |             |  |
|--------------------------------|----------|---------|-----------------|---------|-----------------------------------------|------------|-----------|---------------------|--------------|-------------|--|
| Copies to Return               |          |         |                 |         |                                         |            |           |                     |              |             |  |
| Order Item Id                  | Order Id | Copy Id | Production Cost | Book Id | Title                                   | Format     | Media     | School              | Student      | School Year |  |
| 24305                          | 20102    | 17872   | \$50.00         | 193     | Harry Potter and the Chamber of Secrets | UEB        | Hard Copy | Bear River High     | Joe Cole     | 2022-2023   |  |
| 25572                          | 21064    | 9952    | \$100.00        | 5252    | Heart of Darkness                       | UEB/Nemeth | Hard Copy | Channing, Hall      | Jim Beam     | 2022-2023   |  |
| 25573                          | 21064    | 18863   | \$50.00         | 336     | My Math, Volume 1                       | UnBR UEB   | Hard Copy | Channing, Hall      | Jim Beam     | 2022-2023   |  |
| 25851                          | 21301    | 19002   | \$50.00         | 118     | Explore Math                            | UEB        | Hard Copy | Bear River High     | Test Test    | 2022-2023   |  |
| 25901                          | 21351    | 18557   | \$50.00         | 1675    | Civil Rights Worksheets                 | UEB        | Hard Copy | USDB-Salt Lake City | Emma Example | 2022-2023   |  |

Recognizing that the returns period is an extremely busy time for IDB as well as the circulation user in particular, the process for returning material to inventory has been streamlined. For example, when the circulation user is checking-in a volume which has been returned by a teacher they will simply scan the barcode on the spine label without needing to locate and navigate to the appropriate order. However, behind the scenes Athena uses that barcode to leverage the data relationships and hierarchy to initiate a chain of events to reduce the manual effort required:

- 1) Create a VolumeReturned event against the volume which has been scanned
- 2) Checks to see if all other volumes for that copy have been returned
- 3) If they have, it will:
  - a. Create the OrderItemReturned event against the Order Item
  - b. Remove the copy from the 'Awaiting Returns' on the Circulation and Teachers Landing Pages
  - c. Automatically generate and send an email to the Teacher confirming the copy has been fully returned
- 4) Athena will then check the status of all other Order Items against that Order
- 5) If all other Order Items are in a closure state i.e. OrderItemReturned, Cancelled, Renewed etc. then the order will automatically be closed

## Application Customizations

DESCRIBE HOW THE RESPONDENT WILL PROVIDE SYSTEM/SOFTWARE CUSTOMIZATIONS (IF NEEDED) TO FIT THE NEEDS OF THE LIBRARY.

Given that Athena has been built from scratch by our teams, we are confident that Brackenwood Consulting has the necessary skills to further customize the platform to meet your requirements. We recognize that processes will differ between institutions and states and as requirements evolve it is possible that additional features become desired or essential.

We have considerable experience managing this process with USIMAC. Athena has seen tremendous investment and changes over the last two years since its initial implementation. IDB will engage Brackenwood Consulting with the customization idea, which will then be collaboratively fleshed out into detailed requirements and design for the changes. Potential changes to the system are tracked within our Support module and then moved into development once the funding has been agreed.

These extensions will be considered fixed price, with estimation conducted by Brackenwood Consulting to determine the additional cost of the work before being presented and agreed by IDB. No work will be started on scope additions until the project change request has been costed, submitted and approved. This ensures that IDB has total control over the cost of the project and does not risk unexpected budget over run.

It is anticipated that Athena will be used in several states and libraries across the US. As such an opportunity exists to crowdsource different ideas on how to improve Athena. Enhancements identified by other users of the platform will be discussed with IDB to see if there is a benefit and sufficient interest to implement.

## Application Support Processes

### **DESCRIBE HOW RESPONDENT ENSURES THE SYSTEM/SOFTWARE CONTINUES TO BE A STABLE PLATFORM.**

This section of the RFP proposal will outline the methodology, process and objectives of the support and escalation process for Athena.

It is proposed that a scaled down version of ITIL (a set of software industry best practices) will be used to best meet the ongoing application support needs of the application and supporting business. ITIL is designed to provide a repeatable, comprehensive, and scalable methodology to ensure the Athena support objectives are consistently met. We have extensive experience of creating and running global support teams and are confident that our offering will provide the necessary responsiveness and cost effectiveness for the solution.

## Application Support Objectives

We believe there are 4 primary objectives for the support we will provide:

|                       |                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application Stability | <ul style="list-style-type: none"> <li>•High Application Availability</li> <li>•Early incident detection</li> <li>•Expedited Incident Recovery</li> </ul> |
| Resilience            | <ul style="list-style-type: none"> <li>•Proven Disaster Recovery Capability</li> <li>•Secure and compliant systems</li> </ul>                             |
| Control               | <ul style="list-style-type: none"> <li>•Operating within defined risk appetite</li> <li>•Compliant with your IT Policies</li> </ul>                       |
| Cost                  | <ul style="list-style-type: none"> <li>•Cost effective</li> <li>•Automation to reduce inefficient manual tasks</li> </ul>                                 |

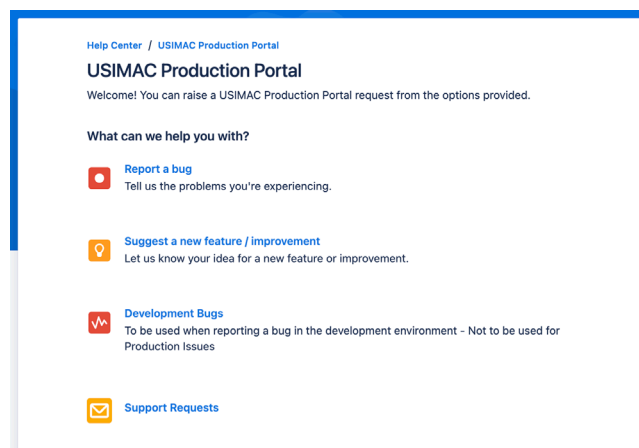
The support processes that we intend to offer as a response to this RFP, detailed below, outline how these objectives will be met.

## Support Requests

First point of call for interaction between users of the application and the support team will be the raising of a support ticket. By raising a support ticket, we can track the request through the lifecycle and ensure that each request has been dealt with in a timely and satisfactory manner.

Three methods of contacting the support team and raising a support ticket will be offered:

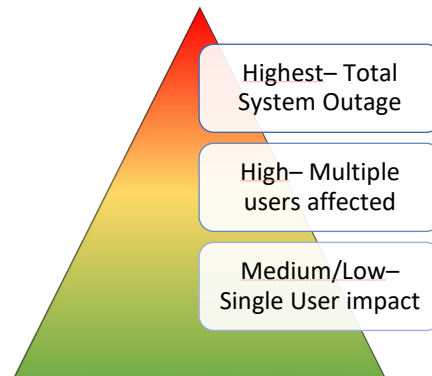
- 1) Phone – our support staff will be available to take your call, office numbers, cell phones and escalation contacts will be provided to ensure your needs can be serviced as quickly as possible.
- 2) Raise or track Incident or Support Requests through our dedicated support portal. The screenshot below is from the dedicated USIMAC Support portal:



- 3) Email – A dedicated support mailbox will be provided for less urgent requests or queries to be submitted to the support team.

## Incident Management

An incident is defined as a disruption to service, this could either be total outage to the system or an issue affecting a single user or function. Support should be contacted immediately if detected by a user and an incident will be raised. Support staff will also be monitoring Athena to catch issues as early as possible to minimize service disruption. Incidents will be classified by impact severity to ensure that the most critical issues are prioritized appropriately, and application availability maximized.



Support priority during an incident is to restore the service as quickly as possible while ensuring that key stakeholders are informed of the issue, updated on progress with a clear articulation of the recovery steps and time.

## Problem Management

In our experience, with the intense focus on incident recovery a common shortfall of many support models is a failure to identify and address the root cause of outages and instability. This results in multiple outages, support requests and user frustration for identical issues. We will ensure that any High/Highest Severity outage across the infrastructure or application is investigated until the root cause of the issue can be ascertained. Corrective measures will then be put in place to address the issue at root to minimize the risk of the outage occurring again. Ongoing updates will be provided to ensure all problems are managed through to closure and users are aware of progress.

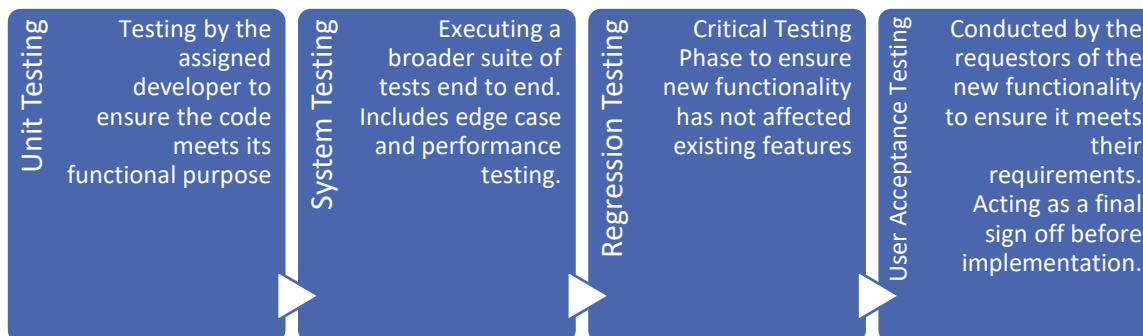
## Event Management

In the event of a major activity affecting the system, the support team will co-ordinate the event. Ensuring that a mutually agreeable time is chosen, should the system require downtime, and communicating status updates throughout the event until service is restored. Examples of this could include Disaster Recovery tests to prove the redundancy capability as well as scheduled maintenance activity.

## Quality Assurance

**DESCRIBE HOW RESPONDENT ENSURES WORKS AS INTENDED WITH MINIMAL BUGS, ANOMALIES, OR SYSTEM CRASHES.**

Given our experience within the Financial Services industry, the importance of performant code that consistently works as intended is understood and prioritized. As such, that release discipline is built into our processes and a rigorous testing framework, outlined below, is followed for each release to minimize the risk of bugs.



Prior to releasing code for an enhancement or bug fix, a regression test is performed on all major components of Athena to ensure additional bugs are not introduced by the enhancement/bugfix. Brackenwood Consulting has made a significant investment in regression testing its Athena system. As the amount of functionality grows on a system the cost and time to perform regression testing grows with it. This leads to a greater risk of new bugs being introduced unintentionally. To tackle this problem Brackenwood Consulting has created an automated regression testing suite, allowing comprehensive regression testing to be run efficiently, ensuring that critical functions are safeguarded.

Following any major release Brackenwood staff closely monitor the system to ensure if a post release incident does occur, it is identified and addressed quickly minimizing service impact. AWS provides a dashboard for viewing Athena's services and database systems allowing detailed monitoring of the application infrastructure. In addition to log files, incoming and outgoing data transfer rates, CPU utilization, service latency, database latency are all provided as metrics over periods of time.

## Implementation Plan

As demonstrated through this document, Athena is existing software in use by other states and Material Access Centers. It provides end to end functionality out of the box which significantly reduces the implementation time required. However, IDB will require customizations to the workflows to best match their process and technical integration into an existing Library Management System. In addition, IDB will require a dedicated infrastructure environment to be built in the cloud to securely host its application and code. Brackenwood Consulting can draw down on many years of large-scale implementations across industries to plan and execute these tasks efficiently. This section will outline the high-level tasks and sequencing of these tasks, to pull together a first iteration of the project plan. This plan is subject to change as we work through detailed analysis about the customizations required and firm up external dependencies with IDB and any third party, as required. This section will also outline the overall approach to communication and project governance, ensuring that IDB stakeholders feel confident in the direction and progress of the project and are collaboratively engaged throughout.

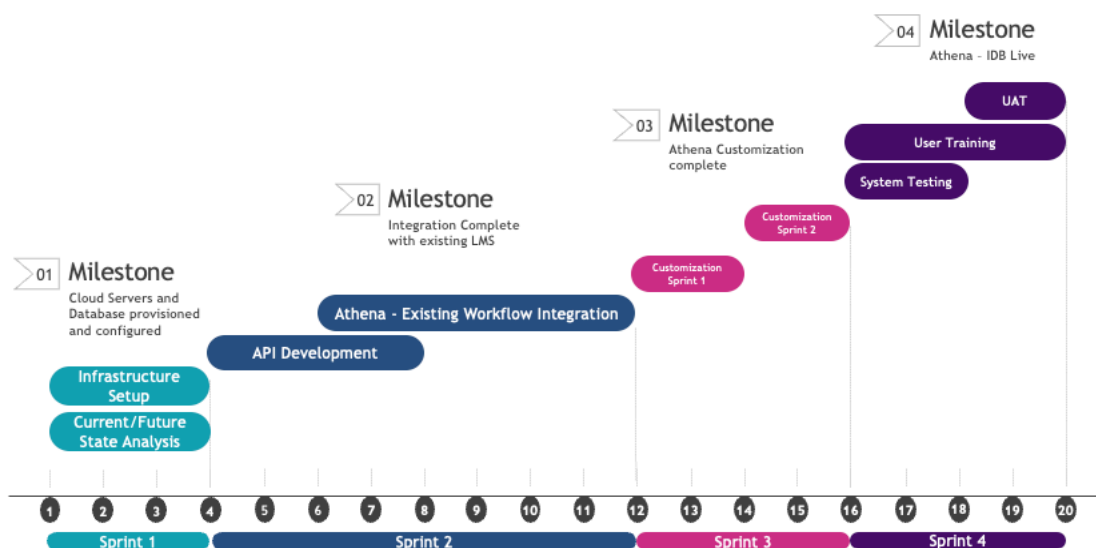
## Project Approach

In our experience, projects are successful when the technical teams and requirement owners work together closely. We adopted this process with USIMAC to pronounced effect, capturing detailed requirements, mapping out their current state workflows and then building a shared vision of a future state which becomes the critical input into development cycles. Our consulting background is particularly useful for these exercises, where we will

host either in-person or remote workshops with clearly defined objectives and playback after the session is complete. It is expected that most of the time required of IDB staff will be during the initial requirement definition workshops, and then during the final training and testing. IDB staff will not need technical IT knowledge but a clear idea of current ordering and production workflows. Additionally, USIMAC nominated a project coordinator from their staff to interface with Brackenwood Consulting. This operating model streamlined communications and decision making.

During the software development cycles, we propose that an Agile methodology is used—splitting high-level requirements into fixed duration development iterations, called sprints. Before each development sprint, scope will be determined in conjunction with IDB staff, and then tested and reviewed at the end to ensure required functionality has been delivered. Our approach emphasizes regular showcases of functionality and real time feedback at the end of each sprint, building confidence that the product is headed in the right direction. This approach ensures close collaboration between the requirement owners and developers throughout the lifecycle of the project. This Agile approach enables critical features to be prioritized, errors to be identified early, and feedback to be incorporated without the significant rework of a traditional Waterfall approach.

## Project Plan



The project plan estimates it will take approximately 20 weeks from when the work starts to the point users are able to login to Athena and begin placing orders. If successful, we will work closely with IDB and LMS third parties to drill down on the requirements to deliver a baselined plan with greater confidence on timelines. This includes identifying hard dependencies that exist outside of the control of Brackenwood Consulting. Where these are identified we will work collaboratively to identify the right solution, realistic timeframes and then track through to completion. The table below intends to provide additional details on the delivery, including material assumptions which underpin both the deliveries and the timelines.

| Sprint   | Definition of Done                                                                                                                                                                                                                   | Key Deliverables                                                                                                         | Material Assumptions                                                                                                                   |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Sprint 1 | <ol style="list-style-type: none"> <li>1) Dedicated Athena Cloud environment provisioned and available</li> <li>2) Current and Future Workflow Mapping completed including integration touchpoints between Athena and LMS</li> </ol> | <ul style="list-style-type: none"> <li>• Dedicated and Secure IT Infrastructure for IDB configured within AWS</li> </ul> | <ul style="list-style-type: none"> <li>• Brackenwood Consulting will have access to IDB staff to map future state workflows</li> </ul> |

|          |                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                     |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                                                                                                         | <ul style="list-style-type: none"> <li>• Athena IDB database tables and services</li> <li>• Detailed workflow mapping documents capturing future state requirements</li> <li>• Documented Requirements for LMS Integration</li> </ul>                                                                                                                      | <ul style="list-style-type: none"> <li>• Brackenwood Consulting will have access, directly or indirectly, to third party LMS vendor to initiate API discussions.</li> </ul>                                                                                                                                         |
| Sprint 2 | 1) LMS API Development Completed<br>2) Existing Workflows fully integrated with existing LMS system, in line with design from Sprint 1. | <ul style="list-style-type: none"> <li>• Athena IDB Integrations with LMS complete</li> <li>• Software development completed to integrate Athena Workflows with LMS</li> <li>• LMS Software Development completed (if required) to process Inventory events from Athena</li> <li>• Initial Data Migration Scope identified, and approach agreed</li> </ul> | <ul style="list-style-type: none"> <li>• LMS Third Party has development capacity and can meet project timelines (if required)</li> <li>• No significant rewrite of Athena functionality as a result of integration</li> </ul>                                                                                      |
| Sprint 3 | 1) Athena Customizations completed                                                                                                      | <ul style="list-style-type: none"> <li>• Scope to be determined based on future state workflows identified in Sprint 1</li> </ul>                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>• It is assumed that some level of customization will be required</li> </ul>                                                                                                                                                                                                 |
| Sprint 4 | 1) Sign off from IDB that Athena functions as expected<br>2) Training Completed<br>3) Reference Material Available for all users        | <ul style="list-style-type: none"> <li>• Completed System and Regression Testing by Brackenwood Consulting</li> <li>• Test environment running production ready code for User Acceptance Testing</li> <li>• User Training, approach to be determined</li> <li>• User Guides for all User Types</li> </ul>                                                  | <ul style="list-style-type: none"> <li>• IDB staff will have capacity to complete end to end user acceptance testing</li> <li>• Test bugs will be prioritized and all showstopping bugs will be addressed prior to implementation</li> <li>• Brackenwood Consulting will play some part in User Training</li> </ul> |

## Project Governance

The following project governance plan is intended to create regular touchpoints between the project and key sponsors, stakeholders, and contributors during the lifecycle of the project. Correct project governance ensures that all necessary stakeholders are kept updated of progress and issues on a project with the opportunity to intervene and course correct where necessary. The table below is based on our experience of large projects within an enterprise setting, it is possible to scale in either direction to ensure stakeholder needs are being met.

| Governance Item                   | Purpose                                                                                                                                                                  | Audience                                | Frequency    |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------|
| Sprint Planning and Retrospective | 1) Define scope for next sprint<br>2) Review progress from completed sprint<br>3) Track tasks assigned across the team<br>4) Collaboratively troubleshoot issues         | Active project participants             | To be agreed |
| Steering Committee                | 1) Primarily a decision making forum<br>2) Review critical risks and issues<br>3) Track performance to plan and review overall high level project status                 | Project Sponsor and Senior Stakeholders | Monthly      |
| Project Status Report             | 1) Email report of project status, including progress made that week and focus areas for the next<br>2) Overall status of the project<br>3) Key successes and challenges | All stakeholders                        | Weekly       |

## Project Roles and Responsibilities

### Project Manager/Business Analyst

- Overall PM responsibility for Project
- Stakeholder Identification and Management
- Responsible for timely and accurate Project Reporting and Governance
- Maintain RAID log and ensure Risks and Issues are proactively dealt with
- Create and maintain detailed project plan to track progress
- Ensure invoices are accurate and timely with project costs accurately tracked
- Responsible for Change Request Process
- Accurate capture of system requirements
- Define and execute system testing approach
- Co-ordinate User Acceptance Test

### Technical Architect/Developers

- Architecture
- Technical Design
- Product and Licensing Decisions
- Product Development
- Unit Testing
- Assist with execution of System Testing
- Assist with User Acceptance Testing

## IDB Responsibilities

- Requirement definition and input into design workshops
- Attendance at Working Groups and Monthly Steering Committees
- Overall Product Acceptance (UAT)

## LMS Responsibilities

- Work with IDB and Brackenwood Consulting to determine the best integration approach
- Develop and test LMS API
- Provide LMS test environment for Athena development and end to end testing

## Accessibility

### DEMONSTRATE THE EASE OF USE - SYSTEM SHOWS TO BE EASILY ACCESSIBLE FOR ALL USERS REGARDLESS OF IT EXPERIENCE AND PROFICIENCY.

Athena is designed to handle the complexities of operating an Instructional Materials Centre without being complicated to use. Complicated rules, logic and hierarchies sit behind the scenes, aiding the user by reducing manual effort end-to-end without requiring them to have an intimate knowledge of their workings. Having been designed for a singular use, Athena is focused on its purpose, minimizing the distraction away from critical use cases and workflows from superfluous functionality.

For example, a teacher can create a new order in minutes with minimal IT experience. They will setup their student and school information once and then populate critical information required to process the order reusing information they have already stored within the system, accessible via dropdowns on the order page. We have received positive feedback from TVI's in Utah regarding the ease of use of the system:

*"So far, the new ordering system has been great... I love the fact that it's easier to add books quickly and we can see how our orders are progressing when we log in"*

- ***Experienced TVI (Utah)***

In 2021 we implemented a brand-new user interface to drive further ease-of-use improvements. Athena uses a sidebar for easy navigation, allowing users to quickly navigate to the data they require without having to scroll through pages of information to locate. Action can then be taken directly on the row of interest using embedded and clearly labelled action buttons.

### DESCRIBE HOW THE SYSTEM/SOFTWARE IS WEB ACCESSIBLE, COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT (ADA) SECTION 508 REQUIREMENTS

Athena has been designed with Accessibility in mind and is in use by visually impaired users in Utah. Athena complies with the following WCAG 2.0 A & AA requirements:

- Colors do not denote state without accompanying text
- No video played anywhere on Athena
- Where sounds are played, they are accompanied by text (Athena uses a short beep to confirm barcode scans when managing material shipping and returns)
- Aria labels aid screen reader user
- Athena is keyboard accessible throughout
- Meaning is not conveyed through Shape, Size alone
- Headings are in logical order
- Color contrast is compliant with WCAG AA standards

- Navigation elements are consistent throughout the site
- Where forms are used, fields are labelled accurately

We continuously drive accessibility improvements in-house using testing tools built into the browser, checking new and existing functionality compliance to WCAG standards. This is further tested and proven through day-to-day use at USIMAC. For example, in 2021 an issue with keyboard navigation in certain tables was identified and improvements were made to data tables throughout Athena to resolve. We're happy to work with your accessibility experts to identify further improvements and address, at no cost, should remediation be required.

## Security

### DESCRIBE METHODS OF ENSURING A SECURE SYSTEM.

One of the primary reasons for choosing AWS as Athena's web servicing host is AWS' commitment to application and data security. Every AWS customer benefits from a data center and network architecture built to meet the requirements of the most security-sensitive organizations. AWS environments are continuously audited, with certifications from accreditation bodies across geographies and vertical applications.

The IT infrastructure that AWS provides for Athena is designed and managed in alignment with best security practices and a variety of IT security standards. The following is a partial list of assurance programs with which AWS complies:

SOC 1/ISAE 3402, SOC 2, SOC 3

FISMA, DIACAP, and FedRAMP

PCI DSS Level 1

ISO 9001, ISO 27001, ISO 27017, ISO 27018

Within Athena, the first service that is accessed in a user's session is the log-in service. The web browser passes the user's credentials over a secure connection to the login service which in turn passes the credentials to Google Apps for Education for authentication. If the credentials are authentic, Google Apps will return success to the login service. The login service then establishes a secure connection to its client for all Athena services' use for the remainder of the client's session. A secure connection is enabled by the https protocol where data transmission is encrypted bidirectionally. As an additional layer, database servers are isolated from the internet and all data transmissions from a database server is through an Athena service and to the https connection to the client.

The Open Web Application Security Project (OWASP) specifies best practices for security issues including SQL Injection. Its primary recommendation is "Defense Option 1: Prepared Statements (with Parameterized Queries)". Parameterized Queries are used exclusively in Athena through Hibernate's `createQuery` and `criteriaBuilder` functions. Hibernate is a software framework that connects Athena's cloud services' source code (written in Java) to its database server.

### DESCRIBE HOW DATA IS KEPT SECURE AND SEPARATE FROM OTHER CLIENTS' DATA.

The Athena installation for IDB will have its own computational systems for web services and database servers, and it will also have its own unique URL. Keeping with the current Athena naming conventions, the base URL for IDB will be [www.athena-ia.com](http://www.athena-ia.com). Isolating states' systems and URLs will prevent client requests from being misrouted to the wrong service. Additionally, users with a login for one state's system will not be allowed access to another state's system, unless that user is specifically enabled access to both systems by those systems' administrators. Last, the https connection from clients to their services will not allow an https request from a different state.

### DESCRIBE RELIABILITY/AVAILABILITY OF YOUR SYSTEM.

Athena is available 24/7. Generally, we plan system updates, which happen as frequently as monthly and usually less, to be done on weekends. A UI deploy can be done with no system downtime. A service deploy will take the system down and may take as long as 15 minutes. The system is available during database back-ups. With the redundancy and scalability that is built into AWS, system outages are, so far, a non-event. For the 2+ years that USIMAC has been using Athena in both production and test environments, there have been no unplanned outages.

## DESCRIBE SYSTEM/DATA BACKUP PLAN.

AWS provides for automatic database backups. Time-of-day, frequency and retention schedules are configurable. For example, USIMAC has a schedule of a daily backup at 3:00 AM PST, with a retention period of one week. If a database needs to be restored to a given date, the database instance for that date can be installed in a matter of minutes. IDB can specify time-of-day, frequency and retention schedules that best meet their specific needs.

## Reporting

## Reporting

## DESCRIBE THE STANDARD REPORTS PROVIDED IN THE SYSTEM (PROVIDE EXAMPLES).

Athena maintains a wealth of Inventory, Ordering, Purchasing, Production and User data which can be extracted into meaningful reports delivering operational insights. Currently, Athena has reports available to generate and download at the press of a button:

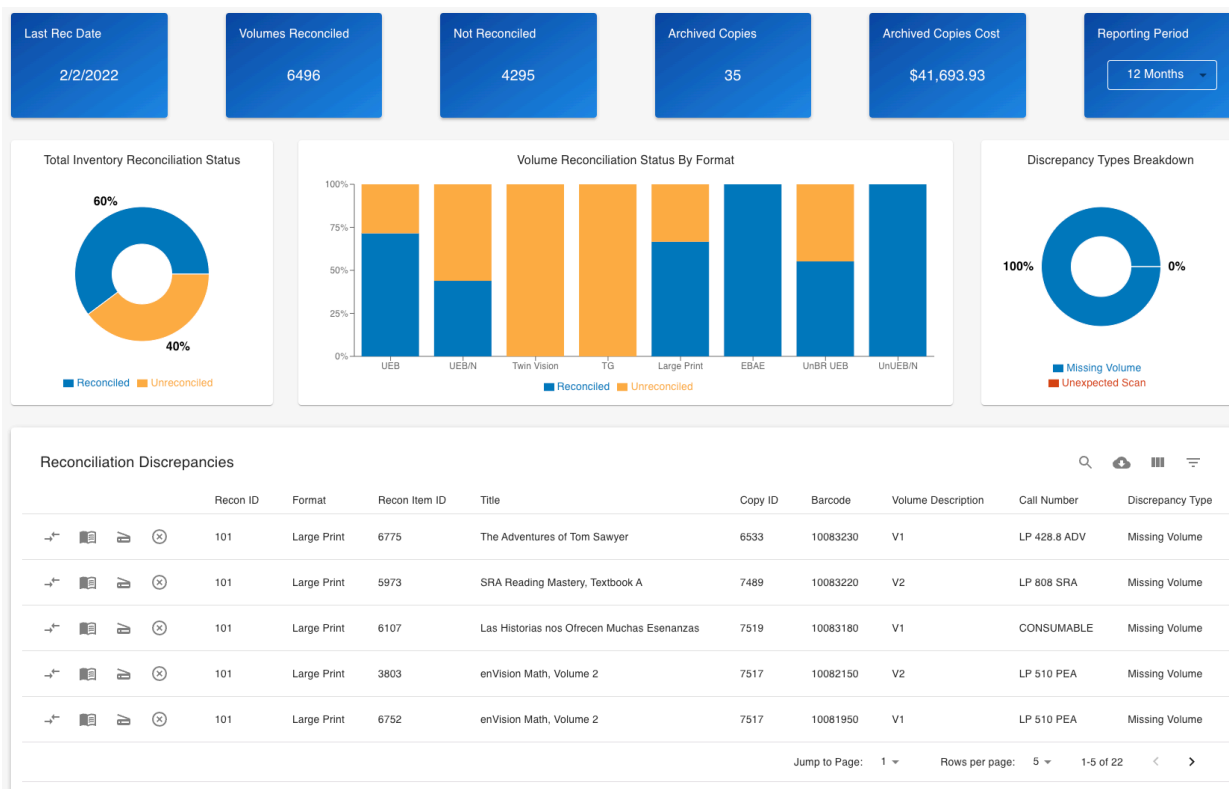
### 1) Inventory Report – Downloadable report showing all inventory in Athena

| bookid | isbn10     | isbn13        | title                                 | author                | copyright | source          | format | grade | publisher               | callid          | copyid | barcode  | volume | Descript | total | Quantity |
|--------|------------|---------------|---------------------------------------|-----------------------|-----------|-----------------|--------|-------|-------------------------|-----------------|--------|----------|--------|----------|-------|----------|
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | UnBR            | UEB    |       | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 8254   | 10035820 | V1     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90445636 | V1     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90445764 | V2     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446799 | V3     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446800 | V4     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446801 | V5     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446802 | V6     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446803 | V7     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446804 | V8     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446805 | V9     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446806 | V10    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446807 | V11    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446808 | V12    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446809 | V13    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446810 | V14    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446811 | V15    |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446822 | S1     |          |       | 1        |
| 101    | 22437339   | 9780022437336 | Language Arts Today                   | James Anthony Wickham | 1991      | External Vendor | UnBR   | UEB   | 3 Macmillan McGraw Hill | UEB TXT 400 MMH | 151    | 90446823 | S2     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90441824 | V1     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444711 | V2     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444712 | V3     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444713 | V4     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444714 | V5     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444888 | V6     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444889 | V7     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444890 | V8     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444891 | V9     |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90444892 | V10    |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90445349 | V11    |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90445350 | V12    |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90445351 | V13    |          |       | 1        |
| 102    | 013333872X | 9780133338720 | My Perspectives English Language Arts | Prentice-Hall Staff   | 2017      | USIMAC          | UEB    | 6     | Pearson Education       | UEB TXT 400 PEA | 152    | 90445444 | V14    |          |       | 1        |
| 104    | 1418859370 | 9781418859374 | HTML                                  | Gary B. Shelly        | 2007      | APH             | UEB    | 9     | Course Technology Ptr   | BR TXT 004 CTG  | 17339  | 10043110 |        |          |       | 5        |
| 104    | 1418859370 | 9781418859374 | HTML                                  | Gary B. Shelly        | 2007      | APH             | UEB    | 9     | Course Technology Ptr   | BR TXT 004 CTG  | 17340  | 10043130 |        |          |       | 5        |
| 104    | 1418859370 | 9781418859374 | HTML                                  | Gary B. Shelly        | 2007      | External Vendor | UEB    | 9     | Course Technology Ptr   | BR TXT 004 CTG  | 155    | 90437872 | V1     |          |       | 5        |
| 104    | 1418859370 | 9781418859374 | HTML                                  | Gary B. Shelly        | 2007      | External Vendor | UEB    | 9     | Course Technology Ptr   | BR TXT 004 CTG  | 155    | 90437873 | V2     |          |       | 5        |

### 2) Production Cost Report – The user specifies the school year they require, and the report generates all associated costs (shipping, time, materials, invoices etc.) broken down by order/copy/production source

| orderid | orderiditemid | copyid | source        | schoolYear | approvalDate | district      | contact   | student    | bookTitle                | format | volumeCount | shippingCost | materialsCost | overheadCost | personnelCost | vendorPBN | sumOfProd | copyCost | totalCosts |
|---------|---------------|--------|---------------|------------|--------------|---------------|-----------|------------|--------------------------|--------|-------------|--------------|---------------|--------------|---------------|-----------|-----------|----------|------------|
| 903     | 907           | 2382   | USIMAC        | 2020-2021  | 2/3/20       | Washington    | Tom Hagan | Emery X    | My Math, Vc Large Print  |        | 2           | 0            | 0             | 50           | 0             | 0         | 50        | 1148.06  | 1198.06    |
| 903     | 906           | 2385   | USIMAC        | 2020-2021  | 2/3/20       | Washington    | Tom Hagan | Emery X    | My Math, Vc Large Print  |        | 1           | 0            | 0             | 50           | 0             | 0         | 50        | 821.87   | 871.87     |
| 965     | 1079          | 3657   |               | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach, Level Large Print |        | 3           | 0            | 0             | 150          | 0             | 0         | 150       | 0        | 150        |
| 965     | 1081          | 3659   | USIMAC        | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach for Re Large Print |        | 0           | 0            | 2.4           | 0            | 500           | 1366      | 1868.4    | 25       | 1893.4     |
| 965     | 1076          | 3655   |               | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach, Level Large Print |        | 4           | 0            | 1.7           | 5622         | 127.5         | 5         | 5756.2    | 0        | 5756.2     |
| 965     | 1077          | 3656   |               | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach, Level Large Print |        | 2           | 0            | 26.2          | 100          | 50            | 0         | 176.2     | 0        | 176.2      |
| 965     | 1085          | 3663   |               | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach for Re Large Print |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 965     | 1086          | 3664   |               | 2020-2021  | 4/23/20      | Washington    | Tom Hagan | Kaia X     | Reach for Re Large Print |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1053    | 1246          | 3729   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Unleashed Large Print    |        | 2           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1053    | 1249          | 3732   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Hideout Large Print      |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1053    | 1248          | 3731   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Jingle Large Print       |        | 1           | 0            | 4498.5        | 0            | 0             | 1023      | 5521.5    | 0        | 5521.5     |
| 1053    | 1244          | 3727   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Zoobreak Large Print     |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1053    | 1247          | 3730   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Framed Large Print       |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1053    | 1250          | 3733   | USIMAC        | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Jackpot Large Print      |        | 2           | 0            | 61.68         | 0            | 0             | 625       | 686.68    | 0        | 686.68     |
| 1053    | 1245          | 3728   | External Ven  | 2020-2021  | 3/12/20      | *Private Schi | Tom Hagan | Aiden X    | Swindle Large Print      |        | 3           | 0            | 0             | 150          | 13.25         | 250       | 413.25    | 0        | 413.25     |
| 1055    | 1106          | 0      | Electronic Dc | 2020-2021  | 3/27/20      | Washington    | Tom Hagan | Quinlynn X | Big Ideas Mz ePub        |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1057    | 1108          | 0      | Electronic Dc | 2020-2021  | 3/27/20      | Washington    | Tom Hagan | Quinlynn X | The Utah Jox ePub        |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1129    | 1242          | 3725   | USIMAC        | 2020-2021  | 4/23/20      | Cache         | Tom Hagan | Ayana X    | The Nystrom Large Print  |        | 1           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |
| 1129    | 1243          | 3726   |               | 2020-2021  | 4/23/20      | Cache         | Tom Hagan | Ayana X    | Big Ideas Mz Large Print |        | 1           | 0            | 0             | 95           | 0             | 0         | 95        | 0        | 95         |
| 1132    | 1253          | 0      | SD Card       | 2020-2021  | 4/23/20      | Box Elder     | Tom Hagan | Reese X    | Social Studie.brf UEB    |        | 0           | 0            | 0             | 0            | 0             | 0         | 0         | 0        | 0          |

Athena now also includes real time reporting dashboard developed specifically for the Inventory Reconciliation module.



We believe that dashboards of this type provide a flexible and powerful data visualization tool, enabling trends and patterns to be identified and acted upon. The strategic Athena roadmap anticipates further dashboard implementations to cover order and production data.

#### DESCRIBE THE ABILITY TO CREATE AD HOC REPORTS AND RUN CUSTOM QUERIES ON SYSTEM DATA.

Ad hoc reporting is also available by contacting the Support Team who work to understand the requirement and then create custom database queries to create the report. This effort is included within the Support and Maintenance agreement. A recent example of this was working on a set of custom reports to analyze the growth of demand for accessible materials year on year with a breakdown of demand for newly produced material by format vs. existing inventory circulation. Insights and conclusions from these reports were presented as part of a compelling business case to the State Legislature for additional funding. If an ad hoc report is likely to be reused, then it can be added to Athena so that a user can generate the report at the click of a button.

## System Training and Tutorials

### DESCRIBE THE INITIAL AND ONGOING TRAINING AND TECHNICAL SUPPORT PROVIDED FOR USERS AT ALL LEVELS.

Initial focus will be on training IDB staff on all aspects of Athena functionality across all user types. Training sessions can be run either in person or remotely and will be supported by detailed training materials and user guides. In our experience, building a strong knowledge foundation within the team creates a robust first line to face-off to teacher and vendor queries without having to act as an inefficient intermediary. As such, we worked with USIMAC using a train-the-trainer approach. Equipping them to run subsequent training sessions external to USIMAC as required. To support those training sessions, USIMAC have also created training videos used in conjunction with user guides provided by Brackenwood Consulting to train a disparate user base.

Whilst this is our preferred method given our experience, we are happy to take direction from IDB on an approach most tailored to their patrons and support a successful training program in any way we can.

### DESCRIBE HOW SYSTEM DOCUMENTATION AND SELF-SERVICE RESOURCES ARE WELL ESTABLISHED AND READILY AVAILABLE.

User guides are available for all user types within Athena, which provide end to end steps for all aspects of functionality. These will be distributed to IDB to use as they see fit ahead of the implementation and in conjunction with the training. To further increase the level of self-sufficiency and convenience, Brackenwood Consulting could embed help buttons throughout Athena linking to directly relevant help articles for the given page and functionality. This has been suggested in the Optional Features section in the document below.

## Optional Features

| Optional Feature                              | Description                                                                                                                                                                                                                                                                                  | Benefit                                                                                                                           |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Host Athena across multiple AWS Regions.      | Increase resilience and minimize downtime, in the event of an outage, by configuring a dedicated Athena-IDB setup outside of the primary region. With data replication between the two sites, this allows for a quicker return to business should infrastructure fail in the primary center. | Reduce dependency on a single AWS region and provide timely recovery options in the event of infrastructure failure.              |
| Provide Help Buttons built into Athena        | For critical workflows and pages, help buttons would be added allowing the user to quickly access contextual help articles to guide them through common workflows.                                                                                                                           | Increased ease of use and accessibility, reducing the reliance on IDB and Brackenwood Support staff to answer 'how-to' questions. |
| Online Order Information Reporting Dashboards | Build on the reporting dashboards available for Inventory Reconciliation to define applicable metrics for orders and then implement interactive charts and counts.                                                                                                                           | Provide real time business intelligence at-a-glance to coordinators and administrators.                                           |

## Service and Maintenance

A Service Level Agreement (SLA) matches the up-time and through-put requirements of an application to the cost constraints of the client organization. An SLA for a cloud-based application is dependent on many layers of both software and hardware for the application to be available. These layers break down into three main groups: application software, services hardware, and database hardware.

Brackenwood Consulting guarantees the availability of Athena application software to 99% up-time. In this case, up-time failure is most likely to occur after a major software update. In the worst case, such as major functionality is unavailable, systems can be reverted to a previous version in a matter of minutes. This is rare due to our comprehensive regression and UAT testing. Most problems are bugs that affect specific functionalities and are fixed in a matter of hours or days, depending on severity.

Below, we outline three SLAs of varying levels of system availability. See the cost section of this RFP response for the corresponding costs of each SLA.

For clarity, an EC2 is an AWS Elastic Compute virtual machine. An RDS is an AWS Relational Database virtual machine.

#### Option 1: One EC2 and One RDS

This is the system USIMAC uses—one machine as web server and a second as a database server, both residing in one datacenter. AWS guarantees 95% up-time or this configuration, but in our experience, up-time is much better than 95%. In the over two years that Athena has been serving Utah, we have experienced zero EC2 downtime. We did experience an RDS slowdown once in that period, which required a full stop of the database server and restart. This took about 30 minutes.

#### Option 2: Two EC2s and One RDS

This option includes a load balancer between the two EC2s. Both EC2s are active and can accept client requests at any time. The load balancer will detect when the primary EC2 is busy or not responding, and direct further requests to the second EC2. Both will access a common RDS to obtain and store data. AWS guarantees this configuration at 99% up-time. The EC2s can be in different regional datacenters.

#### Option 3: Two EC2s and two RDSs

This option is the same as Option 2 but will include a second RDS as back-up. One RDS is primary as reads and writes will be to that RDS. Database writes are replicated to the secondary RDS, which will be elevated to primary if the primary RDS fails. Both the EC2s and RDSs can be in different regional datacenters. AWS guarantees this configuration to 99.9% up-time.

In the unlikely event of a complete outage of a primary datacenter, i.e., a disaster recovery situation, Option 3 will give the best response time—recovery in a matter of seconds. Option 2 follows since a second RDS will need to be spun up in the secondary datacenter. Once operational, the most recent back-up of the primary RDS will be restored to the new RDS. Recovery time for Option 1 will take no more than Option 2 since the RDS restore is the time-consuming step. Overall, if minimizing system downtime is a priority, Option 3 should be considered. Otherwise, we have found Option 1 SLA to be adequate.

## Warranty

### PROVIDE WARRANTY DOCUMENTATION FOR YOUR PROPOSED SOLUTION.

Below is a warranty proposal for our Athena software. We do not have pre-existing documentation given that we expect to resolve all bugs/defects/issues in a reasonable time given the support and maintenance processes described within this document.

*During the Subscription Term, Brackenwood Consulting warrants that Athena will perform in all material respects in accordance with the Contract Agreement. As IDB's sole and exclusive remedy for any breach of this warranty, Brackenwood Consulting shall correct the nonconformity within a reasonable period, not to exceed ninety (90) days from Brackenwood Consulting's receipt of written notification of such defect from IDB (the "Cure Period"). If Brackenwood Consulting is unable to correct the nonconformity, then IDB shall be entitled to terminate its subscription to Athena and the Contract Agreement by giving written notice thereof to Brackenwood Consulting within ten (10) days following the end of the Cure Period and Brackenwood Consulting will refund any prepaid Subscription Fees for the unused remainder of the Subscription Term following the termination date.*

We are happy to work with the procurement and contracts department to determine something more suitable if the wording above does not cover the requirement.

**DESCRIBE YOUR REPLACEMENT PARTS PROGRAM, COSTS, AND TURNAROUND TIME.**

Please see Service and Maintenance Section above.

## Addendums

No addendums have been published

## Request for Confidentiality

A signed confidentiality form is included with the submission.