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Risk, Issue, and Opportunity (RIO) Registry  
Software User Manual

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# (U) Scope

## (U) Identification

(U) The information presented in this document applies to the Risk, Issue, and Opportunity (RIO) Registry. The RIO Registry is nothing more than a database file containing the data structures, reports, and Visual Basic for Applications modules needed to automate and/or accelerate manual RIO management activities. The Registry is comprised of the configuration items listed in the table below.

Table 1 (U) Configuration Items

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Configuration Item |  | Description | File Name |
| 1. | RIO Registry for Access 2016 | V0.25 | RIO Registry for Microsoft Access 2016 or earlier versions | RIO\_Registry\_for\_Access2002-2003\_v0\_25.mdb |
| 2. | RIO Registry for Access 2019 | V0.25 | RIO Registry for Microsoft Access 2019 | RIO\_Registry\_for\_Access2019\_v0\_25.accdb |
| 4. | RIO Registry Software User Manual (SUM) | V0.25, Rev 0 | This document. | RIO\_Registry\_SUM\_v0.25\_r0.docx |
| 5. | Program Risk, Issue, and Opportunity Process (PRP) Template | V0.25, Rev 0 | A tailorable template to aid the practitioner with documenting their program’s PRP. | PRP\_Template\_v0.25\_r0.docx |
| 6. | Program Risk, Issue, and Opportunity Process Figures | V0.25, Rev 0 | Editable figures from the PRP template. | PRP\_Figures\_v0.25\_r0.pptx |
| 7.. | RIO Identification and Analysis Form | V0.25, Rev 0 | An Excel spreadsheet to facilitate the collection of RIO from practitioners. | RIO\_Identification\_And\_Analysis\_v0.25\_r0.xlsx |
| Table is UNCLASSIFIED | | | | |

## (U) System Overview

(U) In January 2017, the Department of Defense (DoD) Deputy Assistant Secretary of Defense, Systems Engineering (DASD(SE)), released the *DoD Risk, Issue, and Opportunity (RIO) Management Guide for Defense Acquisition Programs* (Reference a). It is intended to support *Better Buying Power (BBP) 3.0* actions to “improve our leaders’ ability to understand and mitigate technical risk” which is “fundamental to effective program planning and management” (Reference b). It does so by providing a process framework for the management of RIO. This framework enhances the potential for a sound and rigorous program for managing risk and thereby meet cost, schedule, and performance goals and identify where to apply limited program resources to the most critical program risks.

(U) The RIO Registry facilitates implementation of processes for the management of program risks, issues, and opportunities. In particular, the RIO Registry aids program managers who aspire to adopt best practices described in the DoD RIO management guide, in part or in whole.

(U) RIO Registry issues and suggestions for improvement can be submitted at the project Github site: https://github.com/Don-Di-Eggo/RIO\_Registry.

## (U) Document Overview

(U) This Software User Manual (SUM) provides the program management team with instructions for the installation, configuration, and use of the RIO Registry. The SUM is organized in accordance with SUM (DI-IPSC-81443A) Data Item Description (DID) available at the DLA ASSIST web site.

### (U) Conventions

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| 💻 | (U) Tip: Tips like this are sometimes used to emphasize a particular aspect of the user interface. |

# (U) Referenced Documents

Table 2 (U) References

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| --- | --- | --- |
|  | Reference | Date |
|  | DoD Risk, Issue, and Opportunity (RIO) Management Guide for Defense Acquisition Programs | Jan 2017 |
|  | Better Buying Power 3.0  https://www.acq.osd.mil/fo/docs/betterBuyingPower3.0(9Apr15).pdf | Apr 2015 |
| Table is UNCLASSIFIED | | |

# (U) Software Summary

## (U) Software Application

(U) The RIO Registry is intended for use by the entire program management team. For program managers, the RIO Registry provides a RIO dashboard and reports that assist with analysis and management of uncertainty. For the risk manager, the RIO Registry provides a scalable, configurable, and portable tool to facilitate the management of RIO data and execution of RIO management processes (e.g. risk working group). For the functional area Subject Matter Experts (SME), the RIO Registry provides a means to collaboratively provide inputs to the Program RIO Process (PRP).

(U) Figure 1 is a system context diagram that provides a graphical summary of RIO Registry capabilities. The RIO Registry system boundary is shown as a blue outlined rectangle. The use cases implemented by the RIO Registry are shown as the gray ovals within the RIO Registry rectangle. These use cases broadly outline system capabilities. Each of the three stick figures are representative of the user types supported, with lines connecting those users to the capabilities they are anticipated to use. The users are “people with knowledge and experience in the disciplines relevant to the product, and with the resolve to identify and address the risks that could influence program objectives.”

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| Figure 1. (U) RIO Registry Context Diagram |
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(U) **Set Up RIO Registry** – This use case is an aggregation of all the steps necessary to configure the RIO Registry for the specific projects, personnel, likelihood criteria, consequence criteria, Work Breakdown Structure, etc. used by the program.

(U) **Import RIO Data** – This use case comprises the steps followed by a RIO manager to import RIO from one registry to another. This use case is relevant when a RIO manager needs to import RIO entries from support contractors, lower level acquisition organizations, etc. Additionally, this use case covers the steps taken to import data from a RIO Registry data collection instrument.

(U) **Show Exposure Dashboard** – This use case, and those related to it, cover the steps for maintaining situational awareness of program risks, issues, and opportunities in order to effectively manage them.

(U) **Generate RIO Reports** – This use case covers the generation of reports needed to report risk status and execute RIO processes.

(U) **Manage RIO** – This use case, and those included in it, cover the steps that are core to RIO Management (i.e. RIO identification, RIO analysis, Risk mitigation, Issue Correction, Opportunity Management, and RIO monitoring).

## (U) Software Inventory

(U) See Table 1.

## (U) Software Environment

(U) RIO Registry requires Microsoft Windows and some version of Microsoft Access[[1]](#footnote-1). The RIO Registry should be placed in an appropriate location (e.g. limited access share folder), as determined by the organization.

## (U) Software Organization and Overview of Operation

(U) The RIO Registry is a Microsoft Access database file. It is comprised of several objects (i.e. tables, forms, queries, and reports) needed to facilitate execution of RIO management in accordance with the guidance in Reference a.

### (U) Conceptual Data Model

(U) Per Figure 2, the set of RIOs are the preeminent entities in the database. The bulk of data relevant to RIO management are contained within this entity. Program practitioner’s time will be spent identifying, analyzing, mitigating/correcting/managing, and monitoring risks, issues, and opportunities using the attributes associated with this entity.

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| Figure 2. (U) RIO Registry Conceptual Data Model |
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(U) A RIO may have one or more plans associated with it. As shown above, the mitigation plan step is linked to the RIO via RIO ID and includes narrative describing the step of the plan, the actual and projected start and end dates, the status, and the residual likelihood and consequence.

(U) The blue entities are all used to validate data contained in the RIO entity. The default data of some of these entities can be edited to better tailor the RIO Registry to fit each individual program’s needs. Other validation data is not intended to be changed and doing so will have unpredictable impacts on the RIO Registry’s enforcement of business rules and other guidance from Reference a.

### (U) Graphical User Interface

(U) The RIO Registry uses a standard Microsoft Access tabbed control to organize the user interface. Each tab is summarized in the paragraphs below. Section 14 Will provide more detailed instructions on their use.

#### (U) Exposure Dashboard

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| Figure 3. (U) Aggregate RIO Exposure Dashboard |
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(U) The Exposure Dashboard shows the program exposure to risks, issues, and opportunities. On the left, the dashboard depicts the standard risk exposure matrix from the DoD RIO guide (Reference a). The likelihood of the risk’s precipitating event is shown on the vertical axis and the consequence of that event shown on the horizontal axis. Risk exposure increases as likelihood and consequence increase. Issues have either already occurred or are certain to do so in the future, so there is no vertical access, only level of consequence. Again, this is consistent with the DoD RIO Management guide. Unlike the other two event types, the increased “exposure” to opportunities is desirable. While the DoD RIO guide does not define a specific format for the opportunity matrix, the RIO Registry uses a different color scheme to reflect the desirability of higher exposure to opportunities.

(U) All fifty-five cells are populated with a filtered count of the number of risks, issues, or opportunities with the level of likelihood and consequence corresponding to the cell’s position in one of the three matrices. The filters can be seen at the bottom of the dashboard (project, status, and visibility).

(U) The practitioner can drill down on any cell via a mouse click to see a summary description of the RIOs corresponding to the count in that cell (Figure 4).

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| Figure 4. (U) RIO Summary via Drill Down |
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#### (U) Step 1. Identify RIO

(U) The next few tabs are can be found under the “Registry” tab. They are organized in accordance with risks and issue management process steps from the DoD RIO guide (Reference a) and the DAU Community of Practice. The first “post planning” step in the process is to identify individual RIO (Figure 5). Per the DoD guide, this step for risk management “involves examining the program to determine risk events and associated cause(s) that may have negative cost, schedule, and/or performance impacts.” This tab is unique from the ones that follow in that it contains the minimum set of mandatory data that is required for each entry in the RIO Registry. These mandatory data are identified in bold blue text (i.e. Event Type, Cause or Event, Consequence, and Identification Date).

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| Figure 5. (U) Identify RIO User Interface |
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| 💻 | (U) The labels for data required for each RIO Registry entry are highlighted in bold blue text. These are the minimum data required to save an entry in the Registry. |

#### (U) Step 2. Analyze RIO

Per the DoD guide, “risk analysis provides an estimate of each risk’s likelihood and consequence, and the resulting risk level in order to more effectively manage risks and prioritize mitigation efforts.” The Analyze RIO tab (Figure 6) is intended to support this step in the risk management process as well as the corresponding steps in the issue and opportunity management processes.

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| Figure 6. (U) Analyze RIO User Interface |
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| 💻 | (U) Grayed out data fields are not editable. In most cases, the values are automatically calculated from other values. |

#### (U) Step 3. Mitigate RIO

Per the DoD guide, a mitigation strategy is selected for each risk (or issue or opportunity) and a corresponding mitigation plan (or correction plan or management plan) that “includes the specifics of what should be done; when it should be accomplished; who is responsible; the resulting cost, schedule, and performance impact; and the resources required to implement the individual risk mitigation plan.” Figure 7 shows the use interface support for this development of mitigation plans.

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| Figure 7. (U) Mitigate RIO User Interface |
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| 💻 | (U) All RIO Registry entry interfaces include a standard set of buttons at the bottom of the interface. The functionality of these buttons is: Go to First Record, Go to Previous Record, Undo, Save, Go to Next Record, and Go to Last Record. |

#### (U) Step 4. Monitor RIO

Per the DoD Guide, the final step of the cycle is the “continuous process to systematically track and evaluate the performance of risk mitigation plans [or corrective action plans, or management plans] against established metrics throughout the acquisition process.” Figure 8 shows the user interface that supports the monitor step of the various RIO processes.

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| Figure 8. (U) Monitor RIO User Interface |
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#### (U) Reports

(U) The RIO Registry provides a set of RIO specific reports. Some of these reports are drawn right from the DoD guide. Other reports tie RIO data to time, program work breakdown structure, or intended support Risk Management Group (RMG) or Risk Working Group activities.

##### (U) Top Five Risk Report

* To do: top five risk report

##### (U) RIO Report (Detail)

(U) Many times, it is useful to have a one-page handout for RIO working groups. This report addresses that need (see Figure 9). The user can filter by product, event type (i.e. risk, issue, or opportunity), and status.

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| Figure 9. (U) RIO Report (Detail) |
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##### (U) Risk Exposure – One Year Time Period Report

(U) The timeline exposure report shows risk exposure over a one year time period with a start date specified by the user (Figure 9). The risks are limited to the top thirty in the registry. The risk title and a colored bar representing the period of exposure are included in the report. The color indicates the risk exposure. Issues and opportunities are not included in this report.

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| Figure 9. (U) Risk Exposure Over Time (One Year) |
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#### (U) Import

(U) Data can be imported from the RIO Registry data collection spreadsheet or another instance of the RIO registry.

* To do: database import macro
* To do: import template macro

#### (U) Set Up

(U) The practitioner (e.g. Risk Manager) should use this tab to appropriately populate the RIO Registry validation tables with values that are valid for their organization.

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| --- | --- |
| Table 3. (U) Validation Table Set Up | |
| Validation Table | Purpose |
| Acquisition Phases | The risk manager edits the list of valid acquisition phases by clicking the Modify Acquisition Phases button. It is populated by the standard five DoD 5000 phases (e.g. Material Solution Analysis, Production and Deployment). This list can be modified, as needed, to reflect tailoring of these phases across the acquisition strategy of programs whose RIO are being managed in the registry. |
| Action Officers | The risk manager edits the list of action officer (i.e. those responsible for managing each individual RIO) by clicking the Modify Action Officers. This table controls the list of valid action officers and their contact information. |
| Consequence Criteria | This table controls the consequence levels and their definitions. The Per the DoD RIO Guide, the levels of consequence ([1..5]) and titles (e.g. Minimal Impact) are not editable. The risk manager can edit the standard cost, schedule, and performance threshold values to tailor them to fit the project’s processes. |
| Event Status | This risk manager edits the list of statuses, again to fit project processes.  NOTE: The “Approved” status must remain in the table and be used as defined. |
| Likelihood Criteria | This table controls the likelihood levels and their definitions. The Per the DoD RIO Guide, the levels of likelihood ([1..5]) and titles (e.g. Minimal Impact) are not editable. A sixth level was added for issues which are Certain to occur. For the other likelihoods, the risk manager can edit the lower limit and upper bound values to tailor them to fit the project’s processes.  NOTE: The Certainty (6) likelihood must remain 100%. |
| Mitigation Step Status | This table controls the various statuses used to describe the condition of a step in the mitigation plan.  NOTE: The “Completed” status must remain and be used as defined for the burn down report to function properly. |
| Projects | The risk manager edits the list of valid project names (or program name, functional area name, initiative name, QRC name, JCTM name, PEO name, etc.) by clicking the Modify Projects button. For many programs, there will only be a single value in this table. There will be multiple entries when programs comprised of a portfolio of products OR whose process requires the consolidation of individual functions areas (e.g. SE, test, logistics, manufacturing) OR who has multiple contractors from which to consolidate risks. |
| Work Breakdown Structure | The risk manager tailors the WBS to reflect those used by the projects whose RIO will be managed in the registry. |
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## (U) Contingencies and Alternate States and Modes of Operation

(U) The RIO Registry has only a single mode of operation as defined by the standard MS Access environment in which it runs. The RIO Registry allows access to the alternate states of both the tables (i.e. Data Sheet View, Design View) and forms (i.e. Form View, Design View, Layout View) of which it is comprised. Contingency of operations is not natively supported. Instead, it is the responsibility of the organization to perform and securely store RIO Registry backups.

## (U) Security and Privacy

(U) The RIO Registry is a Microsoft Access data file. As such, it relies upon the security of the environment in which it is accessed. The Windows operating system, Microsoft Office office automation software, and local standard operating procedures (i.e. the execution environment) are assumed to comply with DoD cybersecurity guidance.

(U) The RIO Registry has no organic identification, authentication, or role-based access control mechanisms in place. Instead, it a) relies on file system based permissions to control who has what access, and b) provides the means to import and validate externally generated data.

* To do: Address hash in Gitlab and the secure signature of VBA modules.

(U) The RIO Registry can store Personally Identifiable Information (PII) in the Action Officer table to include name, organization, office e-mail, and office phone number. However, this PII falls under the “rolodex exemption” which means they are generally releasable. The practitioner can choose to omit Action Officer data if privacy concerns arise.

(U) The RIO Registry is released into the Public Domain by licensing it under The Unlicense.

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| Table 4. (U) RIO Registry License |
| This is free and unencumbered software released into the public domain.  Anyone is free to copy, modify, publish, use, compile, sell, or distribute this software, either in source code form or as a compiled binary, for any purpose, commercial or non-commercial, and by any means.  In jurisdictions that recognize copyright laws, the author or authors of this software dedicate any and all copyright interest in the software to the public domain. We make this dedication for the benefit of the public at large and to the detriment of our heirs and successors. We intend this dedication to be an overt act of relinquishment in perpetuity of all present and future rights to this software under copyright law.  THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.  For more information, please refer to <http://unlicense.org/> |

## (U) Assistance and Problem Reporting

(U) Practitioners are encouraged to identify problems with using the RIO Registry, suggestions for improving it, or questions about its use. Please submit an issue ticket at https://github.com/Don-Di-Eggo/RIO\_Registry/.

# (U) Access to Software

## (U) Getting Started

### (U) Equipment Familiarization

### (U) Access Control

### (U) Installation and Setup

## (U) Initiating a Session

## (U) Stopping and Suspending Work

(U) The RIO Registry processing is driving by user action. Work is “suspended” simply by not interacting with the user interface. The RIO Registry relies upon Microsoft Access to maintain the integrity of the underlying data. The RIO Registry can be stopped simply by closing the Microsoft Access application.

# (U) Using the RIO Registry

(U) The user interface is organized by five tab controls highlighted in Figure 10. The Dashboard tab provides the user with a filterable view of risks, issues, and opportunities (see section 5.1). The Registry tab provides the user with the means to create, edit, and delete registry entries and is organized according to the last four steps of the risk, issue, and opportunity processes defined in the RIO Management guide and/or on the Defense Acquisition University Risk Management Community of Practice (CoP) (see section 5.1.1). The Report tab provides the user with various canned reports defined in the RIO Management Guide and elsewhere (see section 5.2.1). The Import tab provides the user with the ability to import data from other registries and also RIO collection forms (see section 5.4). Finally, the Set Up tab provides the user with access to validation data that can be modified to tailor the RIO Registry to better fit the given program’s Program RIO Process (PRP).

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| Figure 10. (U) RIO Registry Interface |
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## (U) Dashboard Tab

(U) The Dashboard tab displays the Risk, Issue, and Opportunity matrices. The Risk and Issue format conforms with the DoD RIO Guide. The Opportunity matrix is inspired by the format from the DAU Risk Management CoP. Each of the matrix cells contains a number equal to the number of registry risks, issues, or opportunities with the corresponding likelihood and consequence (a ‘-‘ indicates no RIO present).

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| Figure 11. (U) Dashboard Tab |
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### (U) Drilldown

(U) By clicking on any cell, the pop-up windows is populated with the corresponding set of risks, issues, or opportunities. Only a subset of data is shown. It is editable.

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| Figure 12. (U) Drilldown Pop-Up Window |
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### (U) Filtering

(U) In some cases, the user may want to filter out some registry contents. The dashboard provides the ability to do so.

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| Table 5. Using Dashboard Filters | |
| Filter | Instructions |
| Project | By default, RIOs from all projects are shown when the Project filter combo box is empty. Select a specific project[[2]](#footnote-2) from the combo box to filter the matrix contents to only show a single project’s RIO. |
| Status | By default, all statuses are shown when the Status filter combo box contains no value. Select a specific status[[3]](#footnote-3) from the combo box to filter the matrix contents to only show RIO that is in the status specified in the combo box. |
| Visibility | By default, both internal and external[[4]](#footnote-4) RIO are shown in the matrix. Select whether to show internal, external, or both types of RIO using the Visibility combo box. |
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## (U) Registry Tab

(U) The Registry Tab contains its own set of tabs. These tabs correspond to the final four steps of the risk and issue processes described in the RIO management guide and DAU Risk Management CoP. As shown in Figure 13, these steps are similar enough that the registry tab is used to support all three processes. Each tab only shows the data deemed relevant to the process step.

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| Figure 13. (U) Risk, Issue, and Opportunity Management Processes |
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### (U) Identify

(U) The Identify tab accepts input relevant to the RIO Identification steps (➋) shown in Figure 13. The purpose of this step is to identify potential future events that could/will have a positive/negative effect on program cost, schedule, performance, or any combination of the three. All members of the project/program team (i.e. all roles/disciplines, government/contractor) should be encouraged to identify candidate risks, either via the RIO Registry or the RIO Identification Template. The Government has a special need and responsibility to thoroughly understand and independently assess risks as doing so is necessary for correct program management. Risk identification is not a one-time or infrequent activity, but rather it is an activity performed by the product team continuously throughout the System Development Lifecycle (SDLC). It is fundamental to effective project management (much like managing the iron triangle, understanding of project constraints and their implications, and formulation and tracking of planning assumptions). Figure 14 shows the layout of the Identify tab.

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| Figure 14. (U) Identify Tab |
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(U) The Identify tab includes the mandatory data items. These are identified in bold blue text. Mandatory data must be provided in order to save to the RIO Registry.

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| Table 6. (U) Identify Tab Data Input | |
| Data Field | Instructions |
| **Title** | The user should enter a succinct description of the RIO in the text box. Try to use no more than a few words for the title. There will be opportunity to expand upon the title later.   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| **Event Type** | Select Risk, Issue, or Opportunity via the combo box. Here are definitions to guide your decision on the appropriate event type:  Risk – “potential future events or conditions that may have a negative effect on achieving program objectives for cost, schedule, and performance. Risks are defined by (1) the probability of an undesired event or condition and (2) the consequences, impact, or severity of the undesired event, were it to occur”  Issue – “events or conditions with negative effect that have occurred or are certain to occur that should be addressed”  Opportunity – “…potential future benefits to the program’s cost, schedule, and/or performance baseline."   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| **Cause or Event (the “IF”)** | Enter a description of the event that, if it occurs, causes the negative/positive consequence to program cost, schedule, or performance. For risks and opportunities, the data entry should be formulated as a potential event and start with the word “IF.” For issues, the even has already occurred or is inevitable, so “N/A” should be entered here in that case.   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| **Consequence (the “THEN”)** | Enter a description of the negative/positive impact or effect of the event in terms of cost, schedule, and/or performance  The data entered here should be formulated as a consequence and, for risks and opportunities, start with the word “THEN.” This is unnecessary for issues, as the consequence is not conditional, it has occurred or is inevitable.   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| **Identification Date** | Enter the date that the risk identification was completed by the submitter (e.g. entered into the RIO Registry, documented in a RIO Identification Template, etc.) in the text box. A date picker appears to the right of the text box when the Identification Date has focus.   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| **Project Name** | Select the project (or program, initiative, etc.) to which the RIO entry applies from the combo box[[5]](#footnote-5).   |  |  | | --- | --- | | 💻 | This data is mandatory. It must be provided to save a RIO record. | |
| Category Type | Select Business, Programmatic, or Technical via the combo box. Here are definitions to guide your decision on the appropriate event category:  Business – Non-technical [RIO] that generally originate outside the project team, or are not within the control or influence of the project team. As appropriate, business risks should be escalated up the chain to the appropriate level. Business risks can come from areas such as program dependencies; resources (funding, schedule delivery requirements, people, facilities, suppliers, tools, etc.); priorities; regulations; stakeholders (user community, acquisition officials, etc.); market factors; and weather.  Programmatic – Non-technical [RIO] that are generally within the control or influence of the PdM [ or APM WRT the RWG] or Program Executive Office (PEO). Programmatic risks can be associated with program estimating (including cost estimates, schedule estimates, staffing estimates, facility estimates, etc.), program planning, program execution, communications, and contract structure.  Technical – [RIO] that may prevent the end item from performing as intended or from meeting performance expectations. Technical [RIO] can be internally or externally generated and may have cost, schedule, and/or performance consequences. They typically emanate from areas such as requirements, technology, engineering, integration, test, manufacturing, quality, logistics, system security, and training. Programs sometimes confuse technology, engineering, and integration risks. |
| Label | The label is auto-generated and is used as a handle for each RIO entry. |
| WBS | Enter the WBS element that this candidate RIO could impact. In cases where multiple WBS elements are impacted, choose a higher-level element that is a parent to both[[6]](#footnote-6). |
| Table is UNCLASSIFIED | |
|  | |

### (U) Analyze

(U) Once a candidate risk is identified (or as updates are needed on existing open risks), further analysis needs to be performed to inform the decision to approve the risk and also support follow-on management of the risk. Specifically, the following three questions must be answered by the analyst:

* 1. What are the estimated consequences to product cost, schedule, and performance if the risk is realized?
  2. What is the estimated likelihood that the risk event will occur?
  3. When is the project exposed to the risk?

(U) Like with risk identification, the project should periodically (at least monthly) and also on an event driven basis, revisit risk analysis with the product team and other product stakeholders using the methods described in the previous section.

|  |  |
| --- | --- |
| Table 6. (U) Analyze Tab Data Input | |
| Data Field | Instructions |
| Title | This text box is automatically pulled from the Identify tab. |
| Exposure Level | This text box is automatically calculated based on data entered for likelihood and the value calculated for consequence. |
| Likelihood | Determine the probability of the precipitating event (the “IF”) occurring and select the likelihood level that corresponds to that determination from the combo box. |
| Consequence | This value is populated automatically based on the highest value input for performance, cost, or schedule consequence levels (see below). |
| Performance Consequence Level and Justification | Determine the consequence to performance of the product being produced by the project and select the corresponding consequence level from the combo box. Document the justification for the level selected in the text box to the right of the combo box. |
| Cost Consequence Level and Justification | Determine the consequence to project cost and select the corresponding consequence level from the combo box. Document the justification for the level selected in the text box to the right of the combo box. |
| Schedule Consequence Level and Justification | Determine the consequence to project schedule and select the corresponding consequence level from the combo box. Document the justification for the level selected in the text box to the right of the combo box. |
| Acquisition Phase | Select the acquisition phase under which the project is “exposed” to the RIO record. |
| Start/End Date of Exposure | Enter the start (left text box) and end date (right text box) of the period that the project is exposed to the RIO. |
| Table is UNCLASSIFIED | |
|  | |

### (U) Mitigate

### (U) Monitor

## (U) Report Tab

## (U) Import Tab

## (U) Set Up Tab

(U) The Set Up tab gives the user the ability to access interfaces for tailoring various lists that are used to constrain options in the user interface. The user should review each option and make necessary changes to the data. The table below provides basic guidance on each tailoring option.

|  |  |
| --- | --- |
| Table 6. (U) Tailoring Options | |
| Button | Function |
| Modify Acquisition Phases | DoD 5000 allows for tailoring the acquisition lifecycle to best fit the needs of a given program as does the RIO Registry. When this button is pressed, a table of acquisition phases are presented for creation, update, or deletion. |
| Modify Action Officers | When this button is pressed, a table of names and contact information is presented for update, creation of new contacts, or deletion of existing ones. |
| Modify Consequence Criteria | The DoD RIO guide defines five (5) standard consequence levels in terms of impact to cost, schedule, and performance. Users may edit one or more of the threshold definitions to tailor them to meet the program’s specific need.   |  |  | | --- | --- | | 💻 | (U) Users are not permitted to add or delete Consequence Criteria records or modify the “Level” or “Title”, only edit the various cost, schedule, and performance thresholds. | |
| Modify Event Statuses | The RIO Registry provides the ability to create, edit, and delete RIO event statuses and descriptions to tailor for the program’s PRP.   |  |  | | --- | --- | | 💻 | (U) Various reporting and processing depend on “Approved” and “Closed” statuses to remain unchanged. | |
| Modify Likelihood Criteria | The DoD RIO guide defines five (5) standard likelihood levels to quantify the probability of a precipitating event occurring. In addition, a sixth likelihood (“Certainty”) is included for issues. Users may update one or more of the lower limits and upper bounds to tailor them to meet the program’s specific need. The bounds text should be updated to accurately describe a change to any of the ranges.   |  |  | | --- | --- | | 💻 | (U) Users are not permitted to add or delete Likelihood Criteria records or modify the “Level” or “Likelihood Title”, only edit the “Lower Limit” percentage, “Upper Bound” percentage, and “Bounds Text.” For the RIO Registry to function correctly, there should a abutting set of ranges with level 1 having a lower limit of 1% and level 5 having an upper bound of 99%. Level “6”, “Certainty” should always be 100. | |
| Modify Mitigation Step Status | The RIO Registry provides the ability to create, edit, and delete mitigation step statuses and descriptions to tailor for the program’s PRP.   |  |  | | --- | --- | | 💻 | (U) To accurately report mitigation plan status, the mitigation burn down report depends upon “Completed”, “In Progress”, and “Not Started” statuses to remain unchanged. | |
| Modify Projects | The RIO Registry can support multiple projects. At a minimum, at least one project name must be defined in this table. Users may update, create, or delete projects. |
| Modify WBS | The RIO Registry is populated with the Automated Information System Work Breakdown Structure (WBS) defined in MIL-HDK-881. Undoubtedly, this list will need to be tailored to match the WBS (WBS’s) for each individual project. The user can create, modify, or delete WBS entries. This function supports definition of both the Government and contractor WBS. |
| Table is UNCLASSIFIED | |
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(U) Regardless of which button is clicked in the Set Up tab, the user will be presented with a data table for editing and (where permitted) adding and deleting records. The look and feel is very similar across these data tables with “Modify Event Status” shown below as an example.

|  |
| --- |
| Figure 15. (U) Example Set Up Data Table |
|  |
| Figure is UNCLASSIFIED |
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## (U) Data Backup

(U) Backups are performed simply by periodically saving copies of the RIO Registry. Per the Microsoft site, for Microsoft Access 2019,

* Click File, and then click Save As.
* Under File Types, click Save Database As.
* Under Advanced, click Back Up Database, and then click Save As.
* In the Save As dialog box, in the File name box, review the name and location for your database backup. The default name captures both the name of the original database file and the date that you make the backup

(U) An alternative for Access 2019 and older versions is simply to right click and drag a copy of the database to another file location. Ensure that one one else is in the RIO Registry at the time of the backup.

## (U) Recovery from Errors, Malfunctions, and Emergencies

(U) Recovery from database corruption is handled by Microsoft Access. In Microsoft Access 2019, the “Compact and Repair Database” utility is available under File > Info > Compact & Repair Database. This same function is available in older versions of Microsoft Access, although the specific location may vary.

(U) For Microsoft Access Runtime 2019, the user can type “Compact and Repair Database” into the “Tell me what you want to do” text box.

|  |  |
| --- | --- |
| 💻 | (U) Save a backup copy of the RIO Registry before using the Microsoft Access “Compact and Repair Database” tool. |

## (U) Messages

|  |  |  |  |
| --- | --- | --- | --- |
| Table 7. User Interface Messages | | | |
| # | Message | Cause | Resolution |
|  |  |  |  |

## (U) Quick Reference Guide

1. RIO Registry is developed and tested using an execution environment comprised of Windows 10 and Microsoft Access 2019. [↑](#footnote-ref-1)
2. The list of project names can be tailored to project needs in the Set Up tab. [↑](#footnote-ref-2)
3. Specific statuses can be tailored to project needs in the Set Up tab. [↑](#footnote-ref-3)
4. The Project/Program Manager may optionally use the Internal tag to identify RIO that will only be visible within the project, program, etc. [↑](#footnote-ref-4)
5. The list of projects need to be created during set up. See section 5.5. [↑](#footnote-ref-5)
6. The WBS needs to be tailored to the project during set up. See section 5.5. [↑](#footnote-ref-6)