# Business Rules for FERS: Release 1

Overview

This deliverable documents the business rules which apply to the FERS (Festival Event Registration System). These rules will be referenced throughout the use case model where they apply.

Business Rules

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| **Rule ID** | **Rule Description** |
| BR\_001 | Admin is someone who is registered to FERS and has the authority to create another Admin, and to Add /Update/Cancel an Event/Event Session. |
| BR\_002 | Each Admin is only allowed to have one account for themselves, however they can create more than one New Admin. |
| BR\_003 | In order to access the Admin portal, Admin has to log into their account using a valid Admin ID and Password. |
| BR\_004 | A valid Admin ID consists of a string with alphanumeric characters. The minimum length of the string is 5 characters long. The maximum length of the string is 20 characters long. It should only contain alphabets, numbers and underscores (‘\_’). |
| BR\_005 | A valid password consists of a string with alphanumeric characters. The minimum length of the string is 5 characters long. The maximum length of the string is 20 characters long.  The password should contain at least 1 of each:   * Upper Case Alphabets * Numeric value ( 0 – 9 ) * Special characters (!,@,#,$,%,^,&,\*,(,)) |
| BR\_006 | An Admin must log into their account in order to create a new Admin. |
| BR\_007 | Admin should be logged into their account in order to make changes to the Events/Event Sessions. |
| BR\_008 | Email Address for both Admin and Visitor is an alphanumeric string that has one or more characters before ‘@’, one or more chars between '@' and '.' and one or more chars after '.'. See Appendix A for the RFC 2822 email account definition. |
| BR\_009 | Phone Numbers for both Admin and Visitor is a numeric string. The minimum length is 10 characters and a maximum length is 13 characters (allowing international phone numbers). Phone number formats are:   * 2068889999 (local numbers) * 912068889999 (for international numbers) |
| BR\_010 | Date is an alphanumeric string. It follows the MM/DD/YYYY format. String length is fixed at 10 characters. |
| BR\_011 | Session Status is an alphanumeric string. The fixed length is 1 char. ‘I’ indicates ‘Inactive’ and ‘A’ indicates ‘Active’. |
| BR\_012 | Order Details status indicates the status of an order. ‘It is a drop down list, where :  C = completed  R = refunded  X = Event cancelled by Admin, Visitor refund pending |
| BR\_013 | A Visitor is a user who is registered to FERS, allowing them to request or cancel a registration to an Event Session. |
| BR\_014 | When a Visitor Login attempt fails, an error message should be displayed informing Visitor of the unsuccessful login allowing them to retry an unlimited number of times. |
| **Rule ID** | **Rule Description** |
| BR\_015 | A valid Visitor ID consists of a string with alphanumeric characters. The minimum length of the string is 5 characters long. The maximum length of the string is 20 characters long. It should only contain alphabets, numbers and underscores (‘\_’). |
| BR\_016 | Visitor must be 13 years old to register. All visitors are eligible for birthday discounts.  If the Visitor is above 50 years of age, they are classified as Seniors. |
| BR\_017 | A visitor must be 18 years or older to be eligible for Anniversary Discounts. |
| BR\_018 | Discounts for Birthdays and Anniversaries are only considered valid if date is 3 days greater than or 3 days lesser than current System date. |
| BR\_019 | A visitor is allowed to change their password numerous times. |
| BR\_020 | A visitor can only update their account. Update can be done numerous times. |
| BR\_021 | A visitor is allowed to request 1-20 tickets for an Event Session using FERS portal. If requested ticket is >20, then Visitor should be advised to call the ticketing office. |
| BR\_022 | Visitors are only allowed to view future, active events and events sessions in the system. |
| BR\_023 | If there are no future events, notify the visitor with a message to return to the site later to see the updated list of upcoming events. |
| BR\_024 | Shopping cart should only display tickets requested by Visitor. |
| BR\_025 | If there are no discounted rates available, then the Discounted rate = Regular rate |
| BR\_026 | When a ticket request is added in to the shopping cart, the Available ticket count for the Event Session should reduce by the number of tickets requested by the Visitor. |
| BR\_027 | When a ticket request is removed from shopping cart, the Available ticket count for the Event Session should increase by the number of tickets requested by the Visitor. |
| BR\_028 | A Visitor can search for an event by entering a text phrase that can appear in the Event Name, Event Description, Event Type, or Event Location. |
| BR\_029 | The checkout link should be enabled as soon as the first ‘Request’ link is clicked for an Event Session. |
| BR\_030 | During checkout, if Visitor has saved credit card information, it should be displayed along with the Visitor’s profile summary. |
| BR\_031 | User is allowed to remove tickets from shopping cart. |
| BR\_032 | Credit Card type should fall among one of these categories:   * Regal Royale * World Express * Supercard |
| BR\_033 | If a Visitor is eligible for a Birthday Discount, these steps should be followed:   1. The Message “Happy Birthday, <Visitor first name>!  Welcome back to the Event Portal” 2. Is offered a 10% discount from Total Cost (rounded to 2 decimal places) |
| BR\_034 | If a Visitor is eligible for an Anniversary Discount, these steps should be followed:   1. The Message “Happy Anniversary, <Visitor first name>!  Welcome back to the Event Portal” 2. Is offered a 5% discount from Total Cost (rounded to 2 decimal places) |
| **Rule ID** | **Rule Description** |
| BR\_035 | If a Visitor is eligible for a Senior Discount, these steps should be followed.   1. The Message “<Visitor first name>!  Welcome back to the Event Portal” 2. Is offered a 15% discount from Total Cost (rounded to 2 decimal places) |
| BR\_036 | In the event of a Visitor being eligible for more than one discount, the highest discount value will be offered. |
| BR\_037 | Admins are allowed to see all events and event sessions regardless of status, date and time. |
| BR\_038 | Admins cannot update active event sessions that are in the past. All other events can be changed |
| BR\_039 | The end time of an event should be at least 2 hours prior to the start of the next event (as required by law for clean-up crews to prepare facility for next event, and for visitors to leave the event site and new visitors to enter the event site. |
| BR\_040 | Each event is at least 1 hour long, hence, a valid start time for an event should be at minimum 1 hour before end time. |
| BR\_041 | An Order Confirmation Number should be unique each time generated by FERS. It should be 5 digits long and can proceed to being a maximum length of 10 digits in future. |
| BR\_042 | Ticket cost is the price of a ticket as set by Admin in FERS portal. |
| BR\_043 | A service fee of 2.5% is charged on Ticket cost (BR\_042) with $5.00 max per event session. |
| BR\_044 | Tax would be 10% on the Ticket cost (BR\_042). |
| BR\_045 | The total cost of a ticket is = Ticket Cost (BR\_042) + Service Fee (BR\_043) + Tax (BR\_044) |
| BR\_046 | A Refund Confirmation Number should be unique each time generated by FERS. It should be 5 digits long and can proceed to being a maximum length of 10 digits in future. |
| BR\_047 | When an event is cancelled, the visitors who registered for the event are entitled for a refund at any time totalling the cost of the tickets and associated taxes only.  Fees are non-refundable. |
| BR\_048 | When an event is cancelled, the visitor must request the refund within the system. The refund is not provided automatically. |
| BR\_049 | When a visitor requests a refund, for an event session that is NOT cancelled, it must be requested within 48 hours of the start time. |
| BR\_050 | Admin Login ID and Visitor Login ID should be distinct from each other. |
| BR\_051 | Shopping Cart is emptied for a visitor after a confirmed purchase is completed. |
| BR\_055 | Total Cost of one purchase item is = (Total cost of a ticket (BR\_045) \* number of tickets requested) – discount |
| BR\_056 | Grand total is calculated as sum of total cost of all purchase items (BR\_055). |

Appendix

#### Appendix A – RFC 2822 Email Standard

The format of email addresses is local-part@domain where the local-part may be up to 64 characters long and the [domain name](http://en.wikipedia.org/wiki/Domain_name) may have a maximum of 253 characters – but the maximum 256 characters length of a forward or reverse path restricts the entire email address to be no more than 254 characters. The formal definitions are in [RFC 5322](http://tools.ietf.org/html/rfc5322) (sections 3.2.3 and 3.4.1) and [RFC 5321](http://tools.ietf.org/html/rfc5321) – with a more readable form given in the informational RFC 3696 and the [associated errata](http://www.rfc-editor.org/errata_search.php?rfc=3696).

#### Local part

The local-part of the email address may use any of these [ASCII](http://en.wikipedia.org/wiki/ASCII) characters [RFC 5322](http://tools.ietf.org/html/rfc5322) Section 3.2.3, [RFC 6531](http://tools.ietf.org/html/rfc6531) permits Unicode beyond the ASCII range:

* Uppercase and lowercase English letters (a–z, A–Z) (ASCII: 65–90, 97–122)
* Digits 0 to 9 (ASCII: 48–57)
* Characters !#$%&'\*+-/=?^\_`{|}~ (ASCII: 33, 35–39, 42, 43, 45, 47, 61, 63, 94–96, 123–126)
* Character . (dot, period, full stop) (ASCII: 46) provided that it is not the first or last character, and provided also that it does not appear two or more times consecutively (e.g. John..Doe@example.com is not allowed.)
* Special characters are allowed with restrictions. They are:
  + Space and "(),:;<>@[\] (ASCII: 32, 34, 40, 41, 44, 58, 59, 60, 62, 64, 91–93)
  + The restrictions for special characters are that they must only be used when contained between quotation marks, and that 2 of them (the *backslash* \ and *quotation mark* " (ASCII: 32, 92, 34)) must also be preceded by a backslash \ (e.g. "\\\"")
* Comments are allowed with parentheses at either end of the local part:
  + e.g. "john.smith(comment)@example.com" and "(comment)john.smith@example.com" are both equivalent to "john.smith@example.com"
* International characters above U+007F are permitted by [RFC 6531](http://tools.ietf.org/html/rfc6531), though mail systems may restrict which characters to use when assigning local parts

A quoted string may exist as a dot separated entity within the local-part, or it may exist when the outermost quotes are the outermost characters of the local-part (e.g. abc."defghi".xyz@example.com or "abcdefghixyz"@example.com are allowed. Conversely, abc"defghi"xyz@example.com is not; neither is abc\"def\"ghi@example.com). Quoted strings and characters however, are not commonly used. [RFC 5321](http://tools.ietf.org/html/rfc5321) also warns that "*a host that expects to receive mail SHOULD avoid defining mailboxes where the Local-part requires (or uses) the Quoted-string form.*"

The local-part "postmaster" is treated specially – it is case-insensitive, and should be forwarded to the server's administrator. Technically all other local-parts are case sensitive, therefore *jsmith@example.com* and *JSmith@example.com* specify different mailboxes. However most organizations treat uppercase and lowercase letters as equivalent, and also do not allow use of the technically valid characters (space, *?* and *^*). Organizations are free to restrict the forms of their own email addresses as desired, e.g., [Windows Live Hotmail](http://en.wikipedia.org/wiki/Windows_Live_Hotmail), for example, only allows creation of email addresses using alphanumerics, dot (.), underscore (\_), and hyphen (-).

Systems that send mail must be capable of handling outgoing mail for all valid addresses. Contrary to the relevant standards, some defective systems treat certain legitimate addresses as invalid and fail to handle mail to these addresses. Hotmail, for example, refuses to send mail to any address containing any of the following standards-permissible characters: !#$%\*/?^`{|}~

#### Domain part

The domain name part of an email address has to conform to strict guidelines: it must match the requirements for a [hostname](http://en.wikipedia.org/wiki/Hostname), consisting of letters, digits, hyphens and dots. In addition, the domain part may be an [IP address](http://en.wikipedia.org/wiki/IP_address) literal, surrounded by square braces, such as jsmith@[192.168.2.1], although this is rarely seen except in [email spam](http://en.wikipedia.org/wiki/Email_spam). [Internationalized domain names](http://en.wikipedia.org/wiki/Internationalized_domain_name) (which are encoded to comply with the requirements for a [hostname](http://en.wikipedia.org/wiki/Hostname)) allow for presentation of non-ASCII domain parts.

Comments are allowed in the domain part as well as in the local part. E.g. "john.smith@(comment)example.com" and "john.smith@example.com(comment)" are equivalent to "john.smith@example.com”.