|  |  |  |
| --- | --- | --- |
| WHStore:watsonhall:groups:owasp:OWASP_Image_Toolbox:owasp_logo_122106.eps  **Cornucopia**  **Ecommerce Website Edition v1.20-PT-BR**  OWASP Cornucopia is a mechanism to assist software development teams identify security requirements in Agile, conventional and formal development processes  Author  Colin Watson  Project Leaders  Colin Watson and Darío De Filippis  Reviewers  Tom Brennan, Johanna Curiel and Timo Goosen  Acknowledgments  Microsoft SDL Team for the Elevation of Privilege Threat Modelling Game, published under a Creative Commons Attribution license, as the inspiration for Cornucopia and from which many ideas, especially the game theory, were copied.  Keith Turpin and contributors to the “OWASP Secure Coding Practices - Quick Reference Guide”, originally donated to OWASP by Boeing, which is used as the primary source of security requirements information to formulate the content of the cards.  Contributors, supporters, sponsors and volunteers to the OWASP ASVS, AppSensor and Web Framework Security Matrix projects, Mitre’s Common Attack Pattern Enumeration and Classification (CAPEC), and SAFECode’s “Practical Security Stories and Security Tasks for Agile Development Environments” which are all used in the cross-references provided.  Playgen for providing an illuminating afternoon seminar on task gamification, and tartanmaker.com for the online tool to help create the card back pattern.  Blackfoot UK Limited for creating and donating print-ready design files, Tom Brennan and the OWASP Foundation for instigating the creation of an OWASP-branded box and leaflet, and OWASP employees, especially Kate Hartmann, for managing the ordering, stocking and despatch of printed card decks. Oana Cornea and other participants at the AppSec EU 2015 project summit for their help in creating the demonstration video. Colin Watson as author and co-project leader with Darío De Filippis, along with other OWASP volunteers who have helped in many ways.  OWASP does not endorse or recommend commercial products or services  © 2012-2016 OWASP Foundation  This document is licensed under the Creative Commons Attribution-ShareAlike 3.0 license | |  |
| Introduction  The idea behind Cornucopia is to help development teams, especially those using Agile methodologies, to identify application security requirements and develop security-based user stories. Although the idea had been waiting for enough time to progress it, the final motivation came when [SAFECode](http://www.safecode.org/) published its [Practical Security Stories and Security Tasks for Agile Development Environments](http://www.safecode.org/publications/SAFECode_Agile_Dev_Security0712.pdf) in July 2012.  The Microsoft SDL team had already published its super [Elevation of Privilege: The Threat Modeling Game](http://www.microsoft.com/security/sdl/adopt/eop.aspx) (EoP) but that did not seem to address the most appropriate kind of issues that web application development teams mostly have to address. EoP is a great concept and game strategy, and was [published under a](http://blogs.msdn.com/b/sdl/archive/2010/03/02/announcing-elevation-of-privilege-the-threat-modeling-game.aspx) [Creative Commons Attribution License](http://creativecommons.org/licenses/by/3.0/).  Cornucopia Ecommerce Website Edition is based the concepts and game ideas in EoP, but those have been modified to be more relevant to the types of issues ecommerce website developers encounter. It attempts to introduce threat-modelling ideas into development teams that use Agile methodologies, or are more focused on web application weaknesses than other types of software vulnerabilities or are not familiar with STRIDE and DREAD.  Cornucopia Ecommerce Website Edition is referenced as an information resource in the PCI Security Standard Council’s Information Supplement [PCI DSS E-commerce Guidelines](https://www.pcisecuritystandards.org/pdfs/PCI_DSS_v2_eCommerce_Guidelines.pdf), v2, January 2013.  The card deck (pack)  Instead of EoP’s STRIDE suits (sets of cards with matching designs), Cornucopia suits are based on the structure of the [OWASP Secure Coding Practices - Quick Reference Guide](https://www.owasp.org/index.php/OWASP_Secure_Coding_Practices_-_Quick_Reference_Guide) (SCP), but with additional consideration of sections in the [OWASP Application Security Verification Standard](https://www.owasp.org/index.php/Category:OWASP_Application_Security_Verification_Standard_Project), the [OWASP Testing Guide](https://www.owasp.org/index.php/OWASP_Testing_Project) and David Rook’s [Principles of Secure Development](http://www.securityninja.co.uk/secure-development/the-principles-place/). These provided five suits, and a sixth called “Cornucopia” was created for everything else:   * Data validation and encoding (VE) * Authentication (AT) * Session management (SM) * Authorization (AZ) * Cryptography (CR) * Cornucopia (C)   Similar to poker-playing cards, each suit contains 13 cards (Ace, 2-10, Jack, Queen and King) but, unlike EoP, there are also two Joker cards. The content was mainly drawn from the SCP.  Mappings  The other driver for Cornucopia is to link the attacks with requirements and verification techniques. An initial aim had been to reference [CWE](http://cwe.mitre.org/) weakness IDs, but these proved too numerous, and instead it was decided to map each card to [CAPEC](http://capec.mitre.org/) software attack pattern IDs which themselves are mapped to CWEs, so the desired result is achieved.  Each card is also mapped to the 36 primary security stories in the SAFECode document, as well as to the OWASP SCP v2, ASVS v3.0.1 and [AppSensor](https://www.owasp.org/index.php/OWASP_AppSensor_Project) (application attack detection and response) to help teams create their own security-related stories for use in Agile processes. |  | Game strategy  Apart from the content differences, the game rules are virtually identical to [those for EoP](http://social.technet.microsoft.com/wiki/contents/articles/285.elevation-of-privilege-the-game.aspx).  Printing the cards  Check the Cornucopia project page for how to obtain pre-printed decks on glossy card.  The cards can be printed from this document in black & white but are more effective in color. The cards in the later pages of this document have been laid out to fit on one type of pre-scored business A4 card sheets. This appeared to be the quickest way to initially provide to create playing cards quickly. Avery product codes C32015 and C32030 have been tested successfully, but any 10 up 85mm x 54 mm cards on A4 paper should work with a little adjustment. Other stationery suppliers like Ryman and Sigel produce similar sheets. These card sheets are not inexpensive, so care should be taken in deciding what to print and using what media and printer type.  The cards can of course just be printed on any size of paper or card and then cut-up manually, or a commercial printer would be able to print larger volumes and cut the cards to size. The cut lines are shown on the penultimate page of this document, but Avery also produce a landscape A4 template ([A-0017-01\_L.doc](http://www.avery.co.uk/avery/secure/gb_softwaredownload?downloadPath=%2Fuk%2FA-0017-01_L.doc)) that can be used as a guide.  Printing and cutting up can take an hour or so, and using a faster printer helps. Try to print add higher quality to increase legibility. An optional card back design (in OWASP tartan) has been provided as the last page of this document. There is no special alignment needed. Dual-sided printing needs special care taken. You could customize the card faces or the backs for your own organization’s preferences.  Customization  After you have used Cornucopia a few times, you may feel that some cards are less relevant to your applications, or the threats are different for your organization. Edit this document yourself to make the cards more suitable for your teams, or create new decks completely.  Provide feedback  If you have ideas or feedback on the use of OWASP Cornucopia, please share them. Even better if you create alternative versions of the cards, or produce professional print-ready versions, please share that with the volunteers who created this edition and with the wider application development and application security community.  The best place to use to discuss or contribute is the mailing list for the OWASP project:   * Mailing list <https://lists.owasp.org/mailman/listinfo/owasp_cornucopia> * Project home page <https://www.owasp.org/index.php/OWASP_Cornucopia>   All OWASP documents and tools are free to download and use. OWASP Cornucopia is licensed under the Creative Commons Attribution-ShareAlike 3.0 license. |

|  |  |  |
| --- | --- | --- |
| Instructions  The text on each card describes an attack, but the attacker is given a name, which are unique across all the cards. The name can represent a computer system (e.g. the database, the file system, another application, a related service, a botnet), an individual person (e.g. a citizen, a customer, a client, an employee, a criminal, a spy), or even a group of people (e.g. a competitive organization, activists with a common cause). The attacker might be remote in some other device/location, or local/internal with access to the same device, host or network as the application is running on. The attacker is always named at the start of each description. An example is:  *William has control over the generation of session identifiers*  This means the attacker (William) can create new session identifiers that the application accepts. The attacks were primarily drawn from the security requirements listed in the SCP, v2 but then supplemented with verification objectives from the OWASP “Application Security Verification Standard for Web Applications”, the security focused stories in SAFECode’s “Practical Security Stories and Security Tasks for Agile Development Environments”, and finally a review of the cards in EOP.  Further guidance about each card is available in the online Wiki Deck at <https://www.owasp.org/index.php/Cornucopia_-_Ecommerce_Website_Edition_-_Wiki_Deck>  Lookups between the attacks and five resources are provided on most cards:   * Requirements in “Secure Coding Practices (SCP) - Quick Reference Guide”, v2, OWASP, November 2010 <https://www.owasp.org/index.php/File:OWASP_SCP_Quick_Reference_Guide_v2.pdf> * Verification IDs in “Application Security Verification Standard (ASVS) for Web Applications”, OWASP, v3.0.1, 2016 (excluding sections 18 and 19) <https://www.owasp.org/images/3/33/OWASP_Application_Security_Verification_Standard_3.0.1.pdf> * Attack detection points IDs in “AppSensor”, OWASP, August 2010-2015 <https://www.owasp.org/index.php/AppSensor_DetectionPoints> * IDs in “Common Attack Pattern Enumeration and Classification (CAPEC)”, v2.8, Mitre Corporation, November 2015 <http://capec.mitre.org/data/archive/capec_v2.8.zip> * Security-focused stories in "Practical Security Stories and Security Tasks for Agile Development Environments", SAFECode, July 2012 <http://www.safecode.org/publications/SAFECode_Agile_Dev_Security0712.pdf>   A look-up means the attack is included within the referenced item, but does not necessarily encompass the whole of its intent. For structured data like CAPEC, the most specific reference is provided but sometimes a cross-reference is provided that also has more specific (child) examples. There are no lookups on the six Aces and two Jokers. Instead these cards have some general tips in italicized text.  It is possible to play Cornucopia in many different ways. Here is one way, demonstrated online in a video at <https://youtu.be/i5Y0akWj31k>, which uses the new (May 2015) score/record sheet at <https://www.owasp.org/index.php/File:Cornucopia-scoresheet.pdf> |  | A - Preparations   1. Obtain a deck, or print your own deck of Cornucopia cards (see page 2 of this document) and separate/cut out the cards 2. Identify an application or application process to review; this might be a concept, design or an actual implementation 3. Create a data flow diagram, user stories, or other artefacts to help the review 4. Identify and invite a group of 3-6 architects, developers, testers and other business stakeholders together and sit around a table (try to include someone fairly familiar with application security) 5. Have some prizes to hand (gold stars, chocolate, pizza, beer or flowers depending upon your office culture)   B - Play  One suit - *Cornucopia* - acts as trumps. Aces are high (i.e. they beat Kings). It helps if there is a non-player to document the issues and scores..   1. Remove the Jokers and a few low-score (2, 3, 4) cards from *Cornucopia* suit to ensure each player will have the same number of cards 2. Shuffle the deck and deal all the cards 3. To begin, choose a player randomly who will play the first card - they can play any card from their hand except from the trump suit - *Cornucopia* 4. To play a card, each player must read it out aloud, and explain (see the online Wiki Deck for tips) how the threat could apply (the player gets a point for attacks that might work which the group thinks is an actionable bug) - do not try to think of mitigations at this stage, and do not exclude a threat just because of a belief that it is already mitigated - someone note the card and record the issues raised 5. Play clockwise, each person must play a card in the same way; if you have any card of the matching lead suit you must play one of those, otherwise they can play a card from any other suit. Only a higher card of the same suit, or the highest card in the trump suit *Cornucopia*, wins the hand 6. The person who wins the round, leads the next round (i.e. they play first), and thus defines the next lead suit 7. Repeat until all the cards are played   C - Scoring  The objective is to identify applicable threats, and win hands (rounds):   1. Score +1 for each card you can identify as a valid threat to the application under consideration 2. Score +1 if you win a round 3. Once all cards have been played, whoever has the most points wins   D - Closure   1. Review all the applicable threats and the matching security requirements 2. Create user stories, specifications and test cases as required for your development methodology. |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Alternative game rules  If you are new to the game, remove the Aces and two Joker cards to begin with. Add the Joker cards back in once people become more familiar with the process. Apart from the “trumps card game” rules described above which are very similar to the EoP, the deck can also be played as the “twenty-one card game” (also known as “pontoon” or “blackjack”) which normally reduces the number of cards played in each round.  Practice on an imaginary application, or even a future planned application, rather than trying to find fault with existing applications until the participants are happy with the usefulness of the game.  Consider just playing with one suit to make a shorter session – but try to cover all the suits for every project. Or even better just play one hand with some pre-selected cards, and score only on the ability to identify security requirements. Perhaps have one game of each suit each day for a week or so, if the participants cannot spare long enough for a full deck.  Some teams have preferred to play a full hand of cards, and then discuss what is on the cards after each round (instead of after each person plays a card).  Another suggestion is that if a player fails to identify the card is relevant, allow other players to suggest ideas, and potentially let them gain the point for the card. Consider allowing extra points for especially good contributions.  You can even play by yourself. Just use the cards to act as thought-provokers. Involving more people will be beneficial though.  In Microsoft's EoP guidance, they recommend cheating as a good game strategy.  Development framework-specific modified card decks  At the end of 2012, the [OWASP Framework Security Matrix](https://www.owasp.org/index.php/Category:Framework_Security_Matrix) was published which documents built in security controls in some commonly used languages and frameworks for web and mobile application development. With [certain provisos](http://blogs.computerworld.com/application-security/21545/security-why-choosing-frameworks-platforms-and-language-matter) it is useful to consider how using these controls can simplify the identification of additional requirements – provided of course the controls are included, enabled and configured correctly.  Consider removing the following cards from the decks if you are confidence they are addressed by the way you are using the language/framework. Items in parentheses are “maybes”. |  | Internal coding standards and libraries  Add your own list of excluded cards based on your organisation’s coding standards (provided they are confirmed by appropriate verification steps in the development lifecycle).   |  |  |  | | --- | --- | --- | | Your coding standards and libraries | | | | Data validation and encoding  *[your list]*  Authentication  *[your list]* | Session management  *[your list]*  Authorization  *[your list]* | Cryptography  *[your list]*  Cornucopia  *[your list]* |   Compliance requirement decks  Create a smaller deck by only including cards for a particular compliance requirement.   |  |  |  | | --- | --- | --- | | Compliance requirement | | | | Data validation and encoding  *[compliance list]*  Authentication  *[compliance list]* | Session management  *[compliance list]*  Authorization  *[compliance list]* | Cryptography  *[compliance list]*  Cornucopia  *[compliance list]* | |

|  |  |  |
| --- | --- | --- |
| Frequently asked questions  *1. Can I copy or edit the game?* Yes of course. All OWASP materials are free to do with as you like provided you comply with the Creative Commons Attribution-ShareAlike 3.0 license. Perhaps if you create a new version, you might donate it to the OWASP Cornucopia Project?  *2. How can I get involved?* Please send ideas or offers of help to the project’s mailing list.  *3. How were the attackers’ names chosen?* EoP begins every description with words like "An attacker can...". These have to be phrased as an attack but I was not keen on the anonymous terminology, wanting something more engaging, and therefore used personal names. These can be thought of as external or internal people or aliases for computer systems. But instead of just random names, I thought how they might reflect the OWASP community aspect. Therefore, apart from "Alice and Bob", I use the given (first) names of current and recent OWASP employees and Board members (assigned in no order), and then randomly selected the remaining 50 or so names from the current list of paying individual OWASP members. No name was used more than once, and where people had provided two personal names, I dropped one part to try to ensure no-one can be easily identified. Names were not deliberately allocated to any particular attack, defence or requirement. The cultural and gender mix simply reflects theses sources of names, and is not meant to be world-representative. In v1.20, the name on VE-10 changed to reflect the project’s new co-leader - this card is also the only one with two names in the attack.  *4. Why aren’t there any images on the card faces?* There is quite a lot of text on the cards, and the cross-referencing takes up space too. But it would be great to have additional design elements included. Any volunteer  *5. Are the attacks ranked by the number on the card?* Only approximately. The risk will be application and organisation dependent, due to varying security and compliance requirements, so your own severity rating may place the cards in some other order than the numbers on the cards.  *6. How long does it take to play a round of cards using the full deck?* This depends upon the amount of discussion and how familiar the players are with application security concepts. But perhaps allow 1.5 to 2.0 hours for 4-6 people.  *7. What sort of people should play the game?* Always try to have a mix of roles who can contribute alternative perspectives. But include someone who has a reasonable knowledge of application vulnerability terminology. Otherwise try to include a mix of architects, developers, testers and a relevant project manager or business owner.  *8. Who should take notes and record scores?* It is better if that someone else, not playing the game, takes notes about the requirements identified and issues discussed. This could be used as training for a more junior developer, or performed by the project manager. Some organisations have made a recording to review afterwards when the requirements are written up more formally. |  | *9. Should we always use the full deck of cards?* No. A smaller deck is quicker to play. Start your first game with only enough cards for two or three rounds. Always consider removing cards that are not appropriate at all of the target application or function being reviewed. For the first few times people play the game it is also usually better to remove the Aces and the two Jokers. It is also usual to play the game without any trumps suit until people are more familiar with the idea.  *10. What should players do when they have an Ace card that says “invented a new X attack”?* The player can make up any attack they think is valid, but must match the suit of the card e.g. data validation and encoding). With players new to the game, it can be better to remove these to begin with (see also FAQ 9).  *11. I don’t understand what the attack means on each card - is there more detailed information?* Yes, the online Wiki Deck at was created to help players understand the attacks. See <https://www.owasp.org/index.php/Cornucopia_-_Ecommerce_Website_Edition_-_Wiki_Deck>  *12. My company wants to print its own version of OWASP Cornucopia - what license do we need to refer to?* Please refer to the full answer to this question on the project’s web pages at [https://www.owasp.org/index.php/OWASP\_Cornucopia - tab=FAQs](https://www.owasp.org/index.php/OWASP_Cornucopia#tab=FAQs) |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Validação de Dados de Entrada e Codificação de Dados de Saída** | **A** | **Validação de Dados de Entrada e Codificação de Dados de Saída** |  | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **2** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **3** |
| Você inventou um novo ataque contra a Validação de Dados de Entrada e Codificação de Dados de Saída | (vazio) | Brian consegue reunir o básico de informações sobre a utilização e configuração de base de dados, lógica, codificação, além da utilização de softwares, serviços e infraestrutura nas mensagens de erro ou em mensagens de configuração, ou na presença de arquivos de instalação (padrões ou antigos), ou em evidências de testes, ou em backups ou em exposição de código fonte. | Robert consegue inserir dados maliciosos pois o formato de protocolo não foi checado, ou duplicações são aceitas, ou a estrutura não está sendo verificada, ou os dados individuais não foram validados por formato, tipo, intervalo, tamanho e por uma lista de caracteres ou formatos possíveis |
| *Leia mais sobre este tópico em OWASP Cheat Sheets. Pesquise sobre validação dos dados de entrada, Prevenção de XSS(Cross-site Scripting), Prevenção do DOM baseado em XSS, Prevenção de SQL Injection e Parametrização de Consultas* |  | |  | | --- | | OWASP SCP  69, 107-109, 136, 137, 153, 156, 158, 162 | | OWASP ASVS  1.10, 4.5, 8.1, 11.5, 19.1, 19.5 | | OWASP AppSensor  HT1-3 | | CAPEC  54, 541 | | SAFECode  4, 23 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  8, 9, 11-14, 16, 159, 190, 191 | | OWASP ASVS  5.1, 5.16, 5.17, 5.18, 5.19, 5.20, 11.1, 11.2 | | OWASP AppSensor  RE7-8, AE4-7, IE2-3,CIE1,CIE3-4,HT1-3 | | CAPEC  28,48,126,165,213,220,221,261,262,271,272 | | SAFECode  3, 16, 24, 35 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Validação de Dados de Entrada e Codificação de Dados de Saída** | **4** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **5** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **6** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **7** |
| Dave consegue inserir nomes ou dados de campos mal intencionados porque isto não está sendo verificado no contexto de cada usuário e processo. | Jee consegue ignorar as rotinas centralizadas de codificação de saída pois elas não estão sendo usadas em todos os lugares, ou a codificação errada está sendo usada | Jason consegue ignorar as rotinas centralizadas de validação de dados de entrada pois elas não estão sendo usadas em todos os campos de entrada de dados | Jan consegue carregar/enviar informações especiais visando evitar validações de campos porque o conjunto de caracteres não é especificado e aplicado, ou o dado de entrada é codificado diversas vezes, ou o dado não é totalmente convertido no mesmo formado que a aplicação usa (ex: *canonicalização*) antes da validação, ou as variáveis não são fortemente tipadas. |
| |  | | --- | | OWASP SCP  8, 10, 183 | | OWASP ASVS  4.16, 5.16, 5.17, 15.1 | | OWASP AppSensor  RE3-6,AE8-11,SE1,3-6,IE2-4,HT1-3 | | CAPEC  28, 31, 48, 126, 162, 165, 213, 220, 221,261 | | SAFECode  24, 35 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  3, 15, 18-22 168 | | OWASP ASVS  1.7, 5.15, 5.21, 5.22, 5.23 | | OWASP AppSensor  - | | CAPEC  28, 31, 152, 160, 468 | | SAFECode  2, 17 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  3, 168 | | OWASP ASVS  1.7, 5.6, 5.19 | | OWASP AppSensor  IE2-3 | | CAPEC  28 | | SAFECode  3, 16, 24 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  4, 5, 7, 150 | | OWASP ASVS  5.6, 11.8 | | OWASP AppSensor  IE2-3, EE1-2 | | CAPEC  28, 153, 165 | | SAFECode  3, 16, 24 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Validação de Dados de Entrada e Codificação de Dados de Saída** | **8** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **9** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **10** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **J** |
| Sarah consegue ignorar as rotinas centralizadas de tratamento (sanitização) pois elas não estão sendo usadas de forma abrangente | Shamun consegue ignorar as verificações de validação de entrada ou de saída porque as falhas de validação não são rejeitadas e/ou tratadas (sanitização) | Dario consegue explorar a confiabilidade da aplicação em fonte de dados (ex: dados definidos pelo usuário, manipulação de dados armazenados localmente, mudança do estado dos dados em dispositivos clientes, falta de verificação da identidade durante uma validação de dados, como Dario pode fingir ser Colin) | Dennis tem o controle sobre validações de entrada de dados, validações de saída de dados ou codificação de saída ou rotinas que ele consegue ignorar/burlar |
| |  | | --- | | OWASP SCP  15, 169 | | OWASP ASVS  1.7, 5.21, 5.23 | | OWASP AppSensor  - | | CAPEC  28, 31, 152, 160, 468 | | SAFECode  2, 17 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  6, 21, 22, 168 | | OWASP ASVS  5.3 | | OWASP AppSensor  IE2-3 | | CAPEC  28 | | SAFECode  3, 16, 24 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  2, 19, 92, 95, 180 | | OWASP ASVS  5.19, 10.6, 16.2, 16.3, 16.4, 16.5, 16.8 | | OWASP AppSensor  IE4, IE5 | | CAPEC  12, 51, 57, 90,111,145,194,195,202,218,463 | | SAFECode  14 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  1, 17 | | OWASP ASVS  5.5, 5.18 | | OWASP AppSensor  RE3, RE4 | | CAPEC  87, 207, 554 | | SAFECode  2, 17 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Validação de Dados de Entrada e Codificação de Dados de Saída** | **Q** | **Validação de Dados de Entrada e Codificação de Dados de Saída** | **K** |  |  |  |  |
| Geoff consegue injetar dados num dispositivo ou num interpretador no lado do cliente porque uma interface parametrizada não foi usada, ou não foi implementada corretamente, ou os dados não foram codificados corretamente para o contexto proposto, ou não há uma política restritiva para a codificação ou a inclusão de dados. | Gabe consegue injetar dados num interpretador no lado do servidor (ex: SQL, comandos para o sistema operacional, Xpath, Server JavaScript, SMTP) porque uma interface parametrizada não foi usada ou não foi implementada corretamente | (vazio) | (vazio) |
| |  | | --- | | OWASP SCP  10, 15, 16, 19, 20 | | OWASP ASVS  5.15, 5.22, 5.23, 5.24, 5.25 | | OWASP AppSensor  IE1, RP3 | | CAPEC  28, 31, 152, 160, 468 | | SAFECode  2, 17 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  15, 19-22, 167, 180, 204, 211, 212 | | OWASP ASVS  5.10, 5.11, 5.12, 5.13, 5.14, 5.16, 5.21 | | OWASP AppSensor  CIE1-2 | | CAPEC  23, 28, 76, 152, 160, 261 | | SAFECode  2, 19, 20 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Autenticação e Gerenciamento de Credenciais** | **A** | **Autenticação e Gerenciamento de Credenciais** |  | **Autenticação e Gerenciamento de Credenciais** | **2** | **Autenticação e Gerenciamento de Credenciais** | **3** |
| Você inventou um novo ataque contra a Autenticação e Gerenciamento de Credenciais | (vazio) | James pode assumir as funções de autenticação sem que o usuário real esteja ciente do uso destas funções (ex: tente fazer login, logar com credenciais, redefinir a senha) | Muhammad consegue obter a senha de um usuário ou outros dados, pela observação durante a autenticação, ou cache local, ou pela memória, ou pelo tráfego de dados, ou pela leitura de algum local desprotegido, ou porque isto é amplamente conhecido, ou porque não há expiração de dados, ou por que o usuário não consegue trocar sua própria senha. |
| *Leia mais sobre este tópico em OWASP Authentication Cheat Sheet* |  | |  | | --- | | OWASP SCP  47, 52 | | OWASP ASVS  2.12, 8.4, 8.10 | | OWASP AppSensor  UT1 | | CAPEC  - | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  36-7, 40, 43, 48, 51, 119, 139-40, 146 | | OWASP ASVS  2.2, 2.17, 2.24, 8.7, 9.1, 9.4, 9.5, 9.9, 9.11 | | OWASP AppSensor  - | | CAPEC  37, 546 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Autenticação e Gerenciamento de Credenciais** | **4** | **Autenticação e Gerenciamento de Credenciais** | **5** | **Autenticação e Gerenciamento de Credenciais** | **6** | **Autenticação e Gerenciamento de Credenciais** | **7** |
| Sebastien pode identificar facilmente nomes de usuários ou consegue elencar quem eles são | Javier pode usar credenciais padrões (default), de teste ou facilmente adivinhadas para autenticação, ou consegue autenticar através de contas inativas ou autentica-se por contas não necessariamente da aplicação | Sven consegue reutilizar uma senha temporária porque o usuário não precisa troca-la no primeiro acesso, ou o tempo de expiração é muito longo, ou o tempo de expiração não existe, ou não é usado um método de entrega *out-of-band* (ex: aplicação mobile, SMS) | Cecilia consegue usar força bruta e ataques de dicionário (*dictionary attacks*) contra uma ou muitas contas sem limitação, ou estes ataques são simplificados pois as senhas tem baixa complexidade, tamanho reduzido, inexistência de expiração e regras para reuso. |
| |  | | --- | | OWASP SCP  33, 53 | | OWASP ASVS  2.18, 2.28 | | OWASP AppSensor  AE1 | | CAPEC  383 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  54, 175, 178 | | OWASP ASVS  2.19 | | OWASP AppSensor  AE12, HT3 | | CAPEC  70 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  37, 45, 46, 178 | | OWASP ASVS  2.22 | | OWASP AppSensor  - | | CAPEC  50 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  33, 38, 39, 41, 50, 53 | | OWASP ASVS  2.7, 2.20, 2.23, 2.25, 2.27 | | OWASP AppSensor  AE2, AE3 | | CAPEC  2, 16 | | SAFECode  27 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Autenticação e Gerenciamento de Credenciais** | **8** | **Autenticação e Gerenciamento de Credenciais** | **9** | **Autenticação e Gerenciamento de Credenciais** | **10** | **Autenticação e Gerenciamento de Credenciais** | **J** |
| Kate consegue ignorar a autenticação porque isto não é uma falha de segurança (ex: o acesso sem autenticação está assinalado como padrão) | Claudia consegue assumir funções críticas porque os requisitos de autenticação são muito fracos (ex: não é usado autenticação com força de senha), ou não é um requisito revalidar a autenticação com frequência | Pravin consegue ignorar controle de autenticação porque não está sendo usado um módulo/framework/serviço de autenticação que seja centralizado, testado, comprovado e aprovado para gerir requisições | Mark consegue acessar recursos ou serviços porque não há requisitos de autenticação, ou, por engano,  um outro sistema ou outra ação realizou autenticação. |
| |  | | --- | | OWASP SCP  28 | | OWASP ASVS  2.6 | | OWASP AppSensor  - | | CAPEC  115 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  55, 56 | | OWASP ASVS  2.1, 2.9, 2.26, 2.31, 4.15 | | OWASP AppSensor  - | | CAPEC  21 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  25, 26, 27 | | OWASP ASVS  1.7, 2.30 | | OWASP AppSensor  - | | CAPEC  90, 115 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  23, 32, 34 | | OWASP ASVS  2.1 | | OWASP AppSensor  - | | CAPEC  115 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Autenticação e Gerenciamento de Credenciais** | **Q** | **Autenticação e Gerenciamento de Credenciais** | **K** |  |  |  |  |
| Jaime consegue ignorar a autenticação porque não é aplicado o mesmo rigor para todas as funções de autenticação (ex: logar, troca de senha, recuperação de senha, *logout*, acesso administrador) ou não é aplicado o mesmo rigor nos diversos locais de acesso e versões do sistema(ex:*mobile website, mobile app, full website, API, call center*) | Olga consegue influenciar ou alterar o código ou a rotina de autenticação e com isto ignorar a autenticação | (vazio) | (vazio) |
| |  | | --- | | OWASP SCP  23, 29, 42, 49 | | OWASP ASVS  2.1, 2.8 | | OWASP AppSensor  - | | CAPEC  36, 50, 115, 121, 179 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  24 | | OWASP ASVS  2.4, 13.2 | | OWASP AppSensor  - | | CAPEC  115, 207, 554 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Gerenciamento de Sessões** | **A** | **Gerenciamento de Sessões** |  | **Gerenciamento de Sessões** | **2** | **Gerenciamento de Sessões** | **3** |
| Você inventou um novo ataque contra o Gerenciamento de Sessões | (vazio) | William tem o controle sobre a geração de identificadores de sessão | Ryan consegue usar uma única conta em paralelo, pois as sessões simultâneas são permitidas |
| *Leia mais sobre este tópico em OWASP Session Management Cheat Sheet e prevenção de ataques do tipo Cross Site Request Forgery (CSRF)* |  | |  | | --- | | OWASP SCP  58, 59 | | OWASP ASVS  3.10 | | OWASP AppSensor  SE2 | | CAPEC  31, 60, 61 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  68 | | OWASP ASVS  3.16, 3.17, 3.18 | | OWASP AppSensor  - | | CAPEC  - | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Gerenciamento de Sessões** | **4** | **Gerenciamento de Sessões** | **5** | **Gerenciamento de Sessões** | **6** | **Gerenciamento de Sessões** | **7** |
| Alison consegue configurar identificadores de *cookies* em outras aplicações web porque o domínio ou o caminho não são suficientemente limitados | John consegue prever ou adivinhar identificadores de sessão porque estes não são alterados quando uma regra de usuário é alterada (ex: antes e depois da autenticação) e quando uma troca entre meios de comunicação criptografados e não criptografados acontece, ou os identificadores são curtos e não randômicos, ou não são modificados periodicamente | Gary consegue ter o controle da sessão de um usuário porque o tempo de encerramento(*timeout*) da sessão é longo ou inexiste, ou o tempo limite da sessão é longo ou inexiste, ou a mesma sessão pode ser usada para mais de um dispositivo/local | Casey consegue utilizar a sessão de Adam depois dele ter finalizado o uso da aplicação, porque a função de logout inexiste, ou Adam não fez logout, ou a função de logout não termina a sessão de forma adequada |
| |  | | --- | | OWASP SCP  59, 61 | | OWASP ASVS  3.12 | | OWASP AppSensor  SE2 | | CAPEC  31, 61 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  60, 62, 66, 67, 71, 72 | | OWASP ASVS  3.2, 3.7, 3.11 | | OWASP AppSensor  SE4-6 | | CAPEC  31 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  64, 65 | | OWASP ASVS  3.3, 3.4, 3.16, 3.17, 3.18 | | OWASP AppSensor  SE5, SE6 | | CAPEC  21 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  62, 63 | | OWASP ASVS  3.2, 3.5 | | OWASP AppSensor  - | | CAPEC  21 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Gerenciamento de Sessões** | **8** | **Gerenciamento de Sessões** | **9** | **Gerenciamento de Sessões** | **10** | **Gerenciamento de Sessões** | **J** |
| Matt consegue utilizar longas sessões porque a aplicação não solicita uma nova autenticação de forma periódica para validar se os privilégios do usuário foram alterados | Ivan consegue roubar identificadores de sessão porque estes são transmitidos em canais inseguros, ou estão logados, ou são exibidos em mensagens de erros, ou estão em URLs, ou são acessíveis pelo código que o atacante consegue alterar ou influenciar | Marce consegue inventar requisições porque *tokens* randômicos e fortes (ou seja, *tokens* anti-CSRF) ou similares não estão sendo usados ​​para ações que mudam estado. Estas requisições podem ser por sessão ou por requisição (*request*) em ações mais críticas | Jeff consegue reenviar uma interação de repetição idêntica (ex: requisição HTTP, sinal, botão pressionado) e ela é aceita, sem rejeição |
| |  | | --- | | OWASP SCP  96 | | OWASP ASVS  - | | OWASP AppSensor  - | | CAPEC  21 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  69, 75, 76, 119, 138 | | OWASP ASVS  3.6, 8.7, 10.3 | | OWASP AppSensor  SE4-6 | | CAPEC  31, 60 | | SAFECode  28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  73, 74 | | OWASP ASVS  4.13 | | OWASP AppSensor  IE4 | | CAPEC  62, 111 | | SAFECode  18 | |  | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  - | | OWASP ASVS  15.1, 15.2 | | OWASP AppSensor  IE5 | | CAPEC  60 | | SAFECode  12, 14 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Gerenciamento de Sessões** | **Q** | **Gerenciamento de Sessões** | **K** |  |  |  |  |
| Salim consegue ignorar o gerenciamento de sessão porque este não é aplicado de forma abrangente e consistente por toda a aplicação | Peter consegue ignorar o controle de gerenciamento de sessão porque este foi autoconstruído e/ou é fraco, ao invés de ter sido usado a estrutura padrão de um framework ou um modulo testado e aprovado | (vazio) | (vazio) |
| |  | | --- | | OWASP SCP  58 | | OWASP ASVS  3.1 | | OWASP AppSensor  - | | CAPEC  21 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  58, 60 | | OWASP ASVS  1.7 | | OWASP AppSensor  - | | CAPEC  21 | | SAFECode  14, 28 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Controle de Acessos** | **A** | **Controle de Acessos** |  | **Controle de Acessos** | **2** | **Controle de Acessos** | **3** |
| Você inventou um novo ataque contra Controle de Acessos | (vazio) | Tim consegue alterar nomes/endereços (*paths*) onde os dados são enviados ou encaminhados para alguém | Christian consegue acessar informações, que ele não deveria ter permissão, por meio de outro mecanismo que tenha permissão (ex: indexador de pesquisa, log, relatórios) ou porque a informação está armazenada em cache, ou mantida por mais tempo do que o necessário, ou outra vazamento de informação |
| *Leia mais sobre este tópico em OWASP Development Guide e OWAPS Testing Guide* |  | |  | | --- | | OWASP SCP  44 | | OWASP ASVS  4.1, 4.16, 16.1 | | OWASP AppSensor  - | | CAPEC  153 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  51, 100, 135, 139, 140, 141, 150 | | OWASP ASVS  4.1, 8.2, 9.1-9.6, 9.11, 16.6, 16.7 | | OWASP AppSensor  - | | CAPEC  69, 213 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Controle de Acessos** | **4** | **Controle de Acessos** | **5** | **Controle de Acessos** | **6** | **Controle de Acessos** | **7** |
| Kelly consegue ignorar controles de acesso porque estes não falham seguramente (ex: a permissão de acesso está assinalada como padrão) | Chad consegue acessar recursos que não deveria ter acesso devido a inexistência de uma autorização ou por concessão de privilégios excessivos (ex: não usar o princípio de menor privilégio possível). Os recursos podem ser serviços, processos, AJAX, Flash, vídeo, imagens, documentos, arquivos temporários, dados de sessão, propriedades do sistema, dados de configuração, logs | Eduardo consegue acessar dados que ele não tem permissão embora ele tem permissão em formulários, páginas, URL ou pontos de entrada | Yuanjing consegue acessar funções, telas e propriedades do aplicativo, a qual ele não está autorizado a ter acesso |
| |  | | --- | | OWASP SCP  79, 80 | | OWASP ASVS  4.8 | | OWASP AppSensor  - | | CAPEC  122 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP 70,81,83-4,87-9, 99,117,131-2,142,154,170,179 | | OWASP ASVS  4.1, 4.4, 4.9,, 19.3 | | OWASP AppSensor  ACE1-4, HT2 | | CAPEC  75, 87, 95, 126, 149, 155, 203, 213, 264-5 | | SAFECode  8, 10, 11, 13 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  81, 88, 131 | | OWASP ASVS  4.1, 4.4 | | OWASP AppSensor  ACE1-4 | | CAPEC  122 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  81, 85, 86, 131 | | OWASP ASVS  4.1, 4.4 | | OWASP AppSensor  ACE1-4 | | CAPEC  122 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Controle de Acessos** | **8** | **Controle de Acessos** | **9** | **Controle de Acessos** | **10** | **Controle de Acessos** | **J** |
| Tom consegue ignorar regras de negócios alterando o fluxo/sequência usual do processo, ou realizando o processo na forma incorreta, ou manipulando valores de data e hora usados pela aplicação, ou usando recursos válidos para fins não intencionais, ou pela manipulação incorreta do controle de dados | Mike consegue usar indevidamente uma aplicação quando uma funcionalidade é usada de forma muito rápida, ou com muita frequência, ou de outra maneira a qual a funcionalidade não se destina, ou pelo consumo de recursos da aplicação ou pela condição de corrida (*race conditions*) ou utilização excessiva da funcionalidade | Richard consegue ignorar os controles de acesso centralizados pois estes não estão sendo utilizados de forma abrangente em todas as interações | Dinis consegue acessar informações referente a configurações de segurança ou consegue acessar a lista de controle de acesso |
| |  | | --- | | OWASP SCP  10, 32, 93, 94, 189 | | OWASP ASVS  4.10, 4.15, 4.16, 8.13, 15.1 | | OWASP AppSensor  ACE3 | | CAPEC  25, 39, 74, 162, 166, 207 | | SAFECode  8, 10, 11, 12 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  94 | | OWASP ASVS  4.14, 15.2 | | OWASP AppSensor  AE3, FIO1-2, UT2-4, STE1-3 | | CAPEC  26, 29, 119, 261 | | SAFECode  1, 35 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  78, 91 | | OWASP ASVS  1.7, 4.11 | | OWASP AppSensor  ACE1-4 | | CAPEC  36, 95, 121, 179 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  89, 90 | | OWASP ASVS  4.10, 13.2 | | OWASP AppSensor  - | | CAPEC  75, 133, 203 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Controle de Acessos** | **Q** | **Controle de Acessos** | **K** |  |  |  |  |
| Christopher consegue injetar um comando que a aplicação vai executar no mais alto nível de privilégio | Ryan consegue influenciar ou alterar controles de acesso e permissões e consegue ignora-los | (vazio) | (vazio) |
| |  | | --- | | OWASP SCP  209 | | OWASP ASVS  5.12 | | OWASP AppSensor  - | | CAPEC  17, 30, 69, 234 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  77, 89, 91 | | OWASP ASVS  4.9, 4.10, 13.2 | | OWASP AppSensor  - | | CAPEC  207, 554 | | SAFECode  8, 10, 11 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Práticas de Criptografia** | **A** | **Práticas de Criptografia** |  | **Práticas de Criptografia** | **2** | **Práticas de Criptografia** | **3** |
| Você inventou um novo ataque contra Práticas de Criptografia | (vazio) | Kyun consegue acesso a dados porque isto foi ocultado/ofuscado/escondido ao invés de ser usada uma função de criptografia aprovada. | Axel consegue modificar dados que estão armazenados ou que são temporários ou transitórios, ou consegue modificar código fonte, ou consegue modificar patches/atualizações, ou alterar dados de configuração, pois a integridade não foi checada. |
| *Leia mais sobre este tópico em OWASP Cryptographic Storage Cheat Sheet e OWASP Transport Layer Protection Cheat Sheet* |  | |  | | --- | | OWASP SCP  105, 133, 135 | | OWASP ASVS  - | | OWASP AppSensor  - | | CAPEC  - | | SAFECode  21, 29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  92, 205, 212 | | OWASP ASVS  8.11, 11.7, 13.2, 19.5, 19.6, 19.7, 19.8 | | OWASP AppSensor  SE1, IE4 | | CAPEC  31, 39, 68, 75, 133, 145, 162, 203,438-9,442 | | SAFECode  12, 14 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Práticas de Criptografia** | **4** | **Práticas de Criptografia** | **5** | **Práticas de Criptografia** | **6** | **Práticas de Criptografia** | **7** |
| Paulo consegue acesso a dados transitórios não criptografados, embora o canal de comunicação esteja criptografado | Kyle consegue ignorar controles criptográficos porque eles não falham de forma segura (ex: eles são desprotegidos por padrão) | Romain consegue ler e modificar dados descriptografados que estão na memória ou são transitórios (ex: credenciais, identificadores de sessão, dados pessoais e comercialmente relevantes), em uso ou em comunicação dentro da aplicação, ou entre aplicação e usuário, ou entre a aplicação e sistemas externos | Gunter consegue interceptar ou modificar dados criptografados em trânsito porque o protocolo está mal implantado, ou configurado de forma fraca, ou os certificados estão inválidos, ou os certificados não são confiáveis, ou a conexão pode ser deteriorada para uma comunicação mais fraca ou descriptografado |
| |  | | --- | | OWASP SCP  37, 88, 143, 214 | | OWASP ASVS  7.12, 9.2 | | OWASP AppSensor  - | | CAPEC  185, 186, 187 | | SAFECode  14, 29, 30 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  103, 145 | | OWASP ASVS  7.2, 10.3 | | OWASP AppSensor  - | | CAPEC  - | | SAFECode  21, 29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  36, 37, 143, 146, 147 | | OWASP ASVS  2.16, 9.2, 9.11, 10.3, 19.2 | | OWASP AppSensor  - | | CAPEC  31, 57, 102, 157, 158, 384, 466, 546 | | SAFECode  29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  75, 144, 145, 148 | | OWASP ASVS  10.1, 10.5, 10.10, 10.11, 10.12, 10.13, 10.14 | | OWASP AppSensor  IE4 | | CAPEC  31, 216 | | SAFECode  14, 29, 30 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Práticas de Criptografia** | **8** | **Práticas de Criptografia** | **9** | **Práticas de Criptografia** | **10** | **Práticas de Criptografia** | **J** |
| Eoin consegue acesso a dados de negócios armazenados (ex: senhas, identificadores de sessão, informações de identificação pessoal - PII, dados de titular de cartão) pois estes dados não estão criptografados de forma segura ou com segurança | Andy consegue ignorar a geração de números aleatórios/randômicos, ou ignorar a geração aleatória de GUID, ou ignorar as funções de criptografia e *hashing* porque eles são fracos ou foram autoconstruídos | Susanna consegue quebrar a criptografia em uso pois a criptografia não é forte o suficiente para oferecer a proteção exigida, ou esta não é forte o suficiente para tratar a quantidade de esforço que o atacante está disposto a fazer | Justin consegue ler credenciais para acessar recursos internos e externos, serviços e outros sistemas porque estas credenciais estão armazenadas num formato descriptografado ou salvos no código fonte |
| |  | | --- | | OWASP SCP  30, 31, 70, 133, 135 | | OWASP ASVS  2.13, 7.7, 7.8, 9.2 | | OWASP AppSensor  - | | CAPEC  31, 37, 55 | | SAFECode  21, 29, 31 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  60, 104, 105 | | OWASP ASVS  7.6, 7.7, 7.8, 7.15 | | OWASP AppSensor  - | | CAPEC  97 | | SAFECode  14, 21, 29, 32, 33 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  104, 105 | | OWASP ASVS  - | | OWASP AppSensor  - | | CAPEC  97, 463 | | SAFECode  14, 21, 29, 31, 32, 33 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  35, 90, 171, 172 | | OWASP ASVS  2.29 | | OWASP AppSensor  - | | CAPEC  116 | | SAFECode  21, 29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Práticas de Criptografia** | **Q** | **Práticas de Criptografia** | **K** |  |  |  |  |
| Randolph consegue acessar ou prever os dados mestres de criptografia | Dan consegue influenciar ou alternar as rotinas/codificações de criptografia (encriptação, *hashing*, assinaturas digitais, números aleatórios e geração de GUID) e consegue ignorá-los também | (vazio) | (vazio) |
| |  | | --- | | OWASP SCP  35, 102 | | OWASP ASVS  7.8, 7.9, 7.11, 7.13, 7.14 | | OWASP AppSensor  - | | CAPEC  116, 117 | | SAFECode  21, 29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  31, 101 | | OWASP ASVS  7.11 | | OWASP AppSensor  - | | CAPEC  207, 554 | | SAFECode  14, 21, 29 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Cornucopia** | **A** | **Cornucopia** |  | **Cornucopia** | **2** | **Cornucopia** | **3** |
| Você inventou um novo ataque contra de qualquer tipo. | (vazio) | Lee can bypass application controls because dangerous/risky programming language functions have been used instead of safer alternatives, or there are type conversion errors, or because the application is unreliable when an external resource is unavailable, or there are race conditions, or there are resource initialization or allocation issues, or overflows can occur | Andrew can access source code, or decompile, or otherwise access business logic to understand how the application works and any secrets contained |
| *Leia mais sobre segurança da aplicação nos guias da OWASP (Requirements, Development, Code Review and Testing) e na série OWASP Cheat Sheet, e no modelo de maturidade Open SAMM (Software Assurance Maturity Model)* |  | |  | | --- | | OWASP SCP  194-202, 205-209 | | OWASP ASVS  5.1 | | OWASP AppSensor  - | | CAPEC  25, 26, 29, 96, 123-4, 128-9, 264-5 | | SAFECode  3, 5-7, 9, 22, 25-26, 34 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  134 | | OWASP ASVS  19.5 | | OWASP AppSensor  - | | CAPEC  189, 207 | | SAFECode  - | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Cornucopia** | **4** | **Cornucopia** | **5** | **Cornucopia** | **6** | **Cornucopia** | **7** |
| Keith can perform an action and it is not possible to attribute it to him | Larry can influence the trust other parties including users have in the application, or abuse that trust elsewhere (e.g. in another application) | Aaron can bypass controls because error/exception handling is missing, or is implemented inconsistently or partially, or does not deny access by default (i.e. errors should terminate access/execution), or relies on handling by some other service or system | Mwengu's actions cannot be investigated because there is not an adequate accurately time-stamped record of security events, or there is not a full audit trail, or these can be altered or deleted by Mwengu, or there is no centralized logging service |
| |  | | --- | | OWASP SCP  23, 32, 34, 42, 51, 181 | | OWASP ASVS  8.10 | | OWASP AppSensor  - | | CAPEC  - | | SAFECode  - | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  - | | OWASP ASVS  - | | OWASP AppSensor  - | | CAPEC  89, 103, 181, 459 | | SAFECode  - | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  109, 110, 111, 112, 155 | | OWASP ASVS  8.2, 8.4 | | OWASP AppSensor  - | | CAPEC  54, 98, 164 | | SAFECode  4, 11, 23 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  113-115, 117, 118, 121-130 | | OWASP ASVS  2.12, 8.3-8.12, 9.10, 10.4 | | OWASP AppSensor  - | | CAPEC  93 | | SAFECode  4 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |
| **Cornucopia** | **8** | **Cornucopia** | **9** | **Cornucopia** | **10** | **Cornucopia** | **J** |
| David can bypass the application to gain access to data because the network and host infrastructure, and supporting services/applications, have not been securely configured, the configuration rechecked periodically and security patches applied, or the data is stored locally, or the data is not physically protected | Michael can bypass the application to gain access to data because administrative tools or administrative interfaces are not secured adequately | Xavier can circumvent the application's controls because code frameworks, libraries and components contain malicious code or vulnerabilities (e.g. in-house, commercial off the shelf, outsourced, open source, externally-located) | Roman can exploit the application because it was compiled using out-of-date tools, or its configuration is not secure by default, or security information was not documented and passed on to operational teams |
| |  | | --- | | OWASP SCP  151, 152, 156, 160, 161, 173-177 | | OWASP ASVS  19.1, 19.4, 19.6, 19.7, 19.8 | | OWASP AppSensor  RE1, RE2 | | CAPEC  37, 220, 310, 436, 536 | | SAFECode  - | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  23, 29, 56, 81, 82, 84-90 | | OWASP ASVS  2.1, 2.32 | | OWASP AppSensor  - | | CAPEC  122, 233 | | SAFECode  - | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  57, 151, 152, 204, 205, 213, 214 | | OWASP ASVS  1.11- | | OWASP AppSensor  - | | CAPEC  68, 438, 439, 442, 524, 538 | | SAFECode  15 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  90, 137, 148, 151-154, 175-179, 186, 192 | | OWASP ASVS  19.5, 19.9 | | OWASP AppSensor  - | | CAPEC  - | | SAFECode  4 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | |
| **Cornucopia** | **Q** | **Cornucopia** | **K** | **Curinga** | **Curinga** | **Curinga** | **Curinga** |
| Jim can undertake malicious, non-normal, actions without real-time detection and response by the application | Gareth can utilize the application to deny service to some or all of its users | Alice consegue utilizar a aplicação para realizar ataques a dados e usuários do sistema | Bob pode influenciar, alterar ou mudar a aplicação para que ela não cumpra os propósitos legais, regulamentadores, contratuais ou outras diretrizes organizacionais |
| |  | | --- | | OWASP SCP  - | | OWASP ASVS  4.14, 9.8, 15.1, 15.2 | | OWASP AppSensor  (All) | | CAPEC  - | | SAFECode  1, 27 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | |  | | --- | | OWASP SCP  41, 55 | | OWASP ASVS  - | | OWASP AppSensor  UT1-4, STE3 | | CAPEC  2, 25, 119, 125 | | SAFECode  1 | | OWASP Cornucopia Ecommerce Website Edition v1.20-PT-BR | | *Você pensou em se tornar membro individual da OWASP? Todas as ferramentas, guias e reuniões locais são gratuitas para todos, mas ser um membro individual apoia o trabalho da OWASP* | *Examine as vulnerabilidades e descubra como elas podem ser solucionadas através do aplicativo de treinamento OWASP Broken Web Applications VM, ou usando o desafio online Hacking Lab. Ambos são gratuitos.* |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cut here |  |  |  |  |  |  |  |  |
|  | **Cornucopia** | **Cornucopia** |  | **Cornucopia** |  | **Cornucopia** | **J** |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |



Change Log

| Version / Date | | Comments |
| --- | --- | --- |
| 0.10 | 30 Jul 2012 | Original draft. |
| 0.20 | 10 Aug 2012 | Draft reviewed and updated. |
| 0.30 | 15 Aug 2012 | Draft announced OWASP SCP mailing list for comment. |
| 0.40 | 25 Feb 2013 | Play rules updated based on feedback during workshops. Added reference to PCI SSC Information Supplement: PCI DSS E-commerce Guidelines. Descriptive text extended and updated. Added contributors section, page numbering, FAQs and change log. |
| 1.00 | 25 Feb 2013 | Release. |
| 1.01 | 03 Jun 2013 | Framework-specific card deck discussion added. Additional FAQs created. Descriptive text updated. New cover image, and previous cover image moved to back. Cut lines added. Alternative rules and deck subset descriptions added. Project website and mailing list added. Cornucopia King cross-reference to AppSensor updated. |
| 1.02 | 14 Aug 2013 | Warning about time to print added. Additional alternative game rules added (twenty-one, play a deck over a week, play full hand and then discuss). Compliance deck concept added. FAQs 5 and 6 added. Attack descriptions on cards with tinted backgrounds changed to black (from dark grey). Project contributors added. |
| 1.03 | 18 Sep 2013 | Minor attack wording changes on two cards. OWASP SCP and ASVS cross-references checked and updated. Code letters added for suits. All remaining attack descriptions on cards changed to black (from dark grey) and background colours amended to provide more contrast and increase readability. |
| 1.04 | 01 Feb 2014 | Text “password change, password change,” corrected to “password change, password recovery,” on Queen of Authentication card. |
| 1.05 | 21 Mar 2014 | Updates to alternative game rules. Additional FAQs created. Contributors updated. Podcast and video links added. |
| 1.10 | 04 Mar 2015 | Change log date corrected for v1.05. Cross-references updated for 2014 version of ASVS. Contributors updated. Minor text changes to cards to improve readability. |
| 1.20 | 29 Jun 2016 | Video mentioned/linked. Separate score sheet mentioned/linked. Previous embedded score sheet pages deleted. Correction (identified by Tom Brennan) and addition to text on card 8 Authentication. Oana Cornea and other participants at the AppSec EU 2015 project summit added to list of contributors. Darío De Filippis added as project co-leader. Wiki Deck link added. Cross-references updated for ASVS v3.0.1 and CAPEC v2.8. Minor text changes to a small number of cards. Added “-EN” to version number in preparation for “-ES” version. Susana Romaniz added as a contributor to the Spanish translation. Minor text changes to instructions and FAQs. |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project contributors  All OWASP projects rely on the voluntary efforts of people in the software development and information security sectors. They have contributed their time and energy to make suggestions, provide feedback, write, review and edit documentation, give encouragement, trial the game, and promote the concept. Without all their efforts, the project would not have progressed to this point. Please contact the mailing list or project leaders directly, if anyone is missing from the below lists.   |  |  |  | | --- | --- | --- | | * Simon Bennetts * Tom Brennan * Fabio Cerullo * Oana Cornea * Johanna Curiel * Todd Dahl * Luis Enriquez * Ken Ferris * Darío De Filippis | * Sebastien Gioria * Tobias Gondrom * Timo Goosen * Anthony Harrison * John Herrlin * Jerry Hoff * Marios Kourtesis * Antonis Manaras * Jim Manico | * Mark Miller * Cam Morris * Susana Romaniz * Ravishankar Sahadevan * Tao Sauvage * Stephen de Vries * Colin Watson |  * OWASP’s hard-working employees, especially Kate Hartmann * Attendees at OWASP London, OWASP Manchester, OWASP Netherlands and OWASP Scotland chapter meetings, and the London Gamification meetup, who made helpful suggestions and asked challenging questions * Blackfoot UK Limited for gifting print-ready design files and hundreds of professionally printed card decks for distribution by post and at OWASP chapter meetings * OWASP NYC for creating an OWASP box design and distributing packs at AppSec USA 2014.   Podcasts and videos  The following supporting OWASP Cornucopia resources are available online:   * Video - Using the cards, created during AppSec EU 2015 project summit, 20th May 2015 <https://www.youtube.com/watch?v=i5Y0akWj31k> * Podcast interview, OWASP 24/7 Podcast channel, 21st March 2014 <http://trustedsoftwarealliance.com/2014/03/21/the-owasp-cornucopia-project-with-colin-watson/> * Video of presentation, OWASP EU Tour 2013 London, 3rd June 2013 <https://www.youtube.com/watch?v=Q_LE-8xNXVk>   See the project website for further information and presentation materials. |  |