Institute of Software Technology

University of Stuttgart
Universitätsstraße 38
D–70569 Stuttgart

Fachstudie

Classification of cryptographic libraries

Andreas Poppele, Rebecca Eichler, Roland Jäger

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Examiner: Prof. Dr. rer. nat. Stefan Wagner

Supervisor: Kai Mindermann, M.Sc.

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Zusammenfassung

Bei der Umsetzung von Sicherheitskonzepten stehen Softwareentwickler vor der Herausforderung eine passende kryptografische Bibliothek zu finden. Es gibt eine Vielzahl von kryptographischen Bibliotheken für verschiedene Programmiersprachen, ohne dass es eine standardisierte Auffassung von verschiedenen Eigenschaften dieser kryptographischen Bibliotheken gibt. Dieser Bericht liefert eine Klassifizierung von über 700 kryptographischen Bibliotheken. Die Bibliotheken wurden in Bezug auf Aktualität und Beliebtheit ausgewählt. Um einen standardisierten Überblick zu liefern, wurden die wichtigsten Merkmale dieser Bibliotheken gesammelt und definiert. Die Datenerhebung zu diesen Merkmalen wurde sowohl manuell als auch automatisiert durchgeführt. Die Klassifizierung enthält Informationen, die erfahrenen und unerfahrenen Entwicklern im kryptografischen Bereich helfen, eine Bibliothek zu finden, die ihren Fähigkeiten und Anforderungen entspricht. Darüber hinaus kann sie als Grundlage für Studien über jede Form der Verbesserung dieser Bibliotheken und vieles mehr verwendet werden.

Abstract

Software developers today are faced with choosing cryptographic libraries in order to implement security concepts. There is a large variety of cryptographic libraries for diverse programming languages, without there being a standardized conception of different properties of these cryptographic libraries. This report provides a classification of over 700 cryptographic libraries. The libraries were chosen pertaining to currentness and popularity. In order to provide a standardized overview the most important traits and characteristics of these libraries were gathered and defined. Data collection on these characteristics was performed in a manual as well as automated fashion. The classification contains information that will help experienced and inexperienced developers in the cryptographic field to choose a library that fits their abilities. Furthermore, it may be used as a basis for studies concerning any form of improvement of these libraries and many more.

Contents

1. Introduction

1.1. Context

Today's software developers heavily rely on existent cryptographic libraries to provide features needed to implement security concepts. There is a large variety of cryptographic libraries for diverse programming languages. The libraries differ in terms of size, the range and type of features, the amount of authors and developers still maintaining it. There are libraries which are maintained by companies and some which are developed by individuals as a leisure activity. Some aren't maintained any more and are deprecated, others still offer great potential. A lot of libraries merely re-implement or use another, offering a different interface through which the functionality can be accessed.

Developers are faced with choosing a library which fits their needs in terms of offered functionality and application programmable interface, accessible with their level of experience and knowledge in the cryptographic field. This can be very daunting as there is no standardized conception of different properties of cryptographic libraries. There is no general overview which contrasts these libraries with which developers can choose libraries with properties that fit their needs.

1.2. Purpose

This report aims to provide a classification of a large number of cryptographic libraries. A number of selected libraries are examined in respect to defined criteria. The libraries are then systematically grouped according to the result of the examination [8]. This report does not introduce or use a taxonomy as the defined criteria and groupings aren't ordered in an hierarchical context [13].

To begin with, it is necessary to establish, which library features are relevant, for the purpose of contrasting cryptographic libraries. Additionally, we aim to ascertain, which libraries are relevant in the cryptographic field, pertaining to currentness and popularity and which ones out of the compiled collection have the highest impact. Furthermore, we wish to identify which of the previously selected libraries offer high potential for experienced developers in the cryptographic field and which ones are interesting for inexperienced developers.

1.3. Overview

The first section following the introduction is on the conducted literature review, the background and related work. The section 3, *Method*, contains the Research design, the approach on selecting programming languages and their corresponding cryptographic libraries. Furthermore, it has a section on how the data on the libraries was collected. The investigated properties of the libraries are explicated in section 4, *Classification*. The data on the collected libraries is contrasted in section 5, *Results*, and briefly summarised and evaluated in section 6, *Conclusion*.

2. Literature Review

In the field of classification of software related entities several approaches have been developed.

Medvidovic and Taylor came up with an approach for classifying architecture description languages [10]. The aim of this work was to provide a definition of architecture description languages to make them distinguishable from other types of specifications. In order to classify the architecture description languages, different characteristics were defined. Those include e.g. architecture modeling features like components, connectors or architectural configurations and tool support like multiple views or code generation.

Shaw and Clements also concentrated on architecture in their paper [16]. They developed a framework for the classification of architectural styles that should support initial design decisions in software development. Their framework mainly distinguishes between the components and connectors that are used in the different architectural styles and the control issues between those components. As a result, their classification scheme arranges the libraries in a two-dimensional grid. In this report, the use of a two-dimensional grid for the classification would not be feasible, as the cryptographic libraries have more than two main characteristics. Also, the number of libraries is too high to arrange them in a grid.

Another classification scheme that concentrates on software security patterns was developed by Alvi and Zulkernine [2]. Their classification makes use of the different phases of the software engineering process. Software security patterns are classified according to their relation to the requirement, design or implementation phase. On the level of individual software security patterns they also developed a template that defines the characteristics of each pattern that have to be collected. Besides their name, these also include, for example, the pattern's context, its problem as well as its solution and the consequences of using the pattern.

Seacord and Householder developed a classification scheme for software vulnerabilities [15]. In contrast to existing classification schemes that concentrate on vulnerability reports, an engineering analysis was used. Another aim was the automation of the classification process. The classification itself was done using attribute value pairs. These could for example be source code related, like 'illicit control transfer flow' or based on integer operations like 'integer signedness'.

A comparative analysis of software libraries that were developed for public key cryptography was done by Abusharekh and Gaj [1]. Aim of the analysis was to compare the libraries according to their performance on large integer and field operations. Abusharekh and Gaj realised the comparison by testing the performance of each of the libraries on their own platform. Testing the performance of the cryptographic libraries examined in this report is not possible, because of the high number of libraries. In addition, the authors of this paper are no experts in the field of cryptography, which makes the development of a meaningful performance test within this work impossible.

Delgado, Gates and Roach came up with a taxonomy of runtime software-fault monitoring tools [5]. Basis for the categorisation of the tools were attributes like the specification language, the monitoring mechanism and the event handler. The description of the

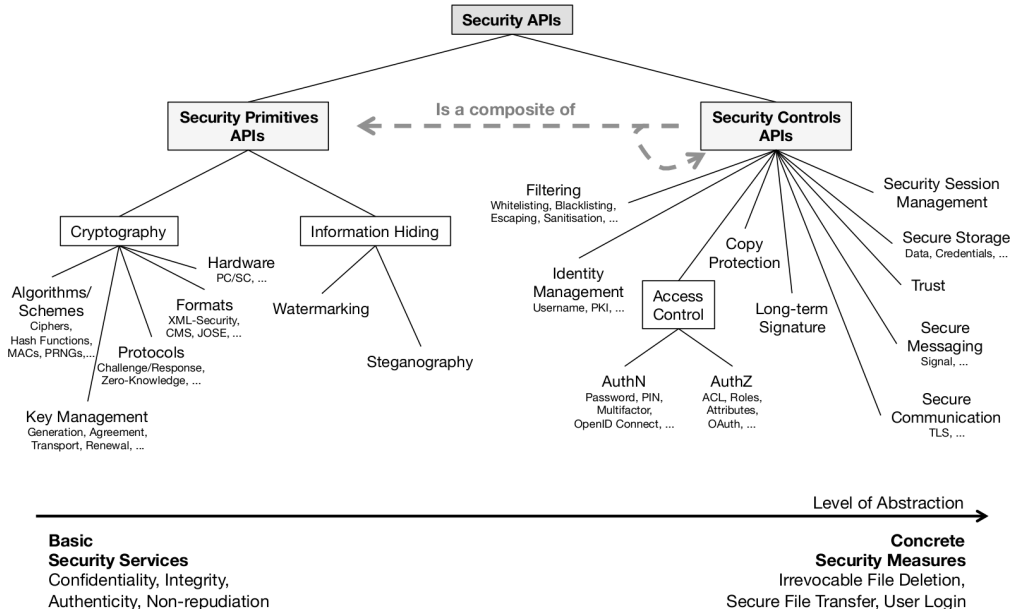

Figure 1: Classification scheme for security APIs [9]

taxonomy was given in textual form, supported by tables defining the absence or presence of attributes in binary form.

During the creation of this report, Lo Iacono and Gorski puplished their research in the field of security APIs [9]. Their goal was to find the most appropriate abstraction level of security APIs for common developers. One result of their work, was a classification scheme, that can be seen in Figure 1. From left to right the abstraction level of the security APIs increases. Their scheme divides security APIs in two categories.

The first category, called *Security Primitives APIs* contains basic functions. Security APIs in this category are very flexible in their use, but require the developer to have thorough knowledge in the field of software security. Otherwise the developer may fail in implementing robust and effective protection.

The second category is called *Security Controls APIs*. It contains security APIs of higher abstraction but lower flexibility. Inside the security APIs a lot of know-how and security expertise is encapsulated if implemented correctly. This makes them easy to use even by novice developers which can rely on secure defaults.

The methods and approaches, for the classification of cryptographic libraries, used in this report, are very similar to most of what was mentioned previously. Just like Medvidovic and Taylor, Seacord and Householder as well as Delgado, Gates and Roach, the classification is done by **determining important characteristics** of the object to classify. In addition, **details of the implementation** like the supported algorithms are used as done by Shaw and Clements. Especially our classification of the **interface level** of cryptographic libraries conforms to the classification for the abstraction level proposed by Lo Iacono and Gorski. The result of the classification will also be given in **textual form**, as Delgado, Gates and Roach did. However, the supporting tables will not be in a binary form, as the characteristics of the libraries can not be expressed, describing only their presence and absence.

3. Method

3.1. Research Design

As already stated in the introduction, there are many different cryptographic software libraries. However, it still remains unclear what the dominant characteristics of those libraries are and how they influence the use of those libraries. For this reason we want to provide a uniform overview over different characteristics of cryptographic libraries.

In order to guide our research we developed five research questions.

RQ1 Which library features are relevant for the purpose of contrasting cryptographic libraries?

RQ2 Which are relevant libraries in the cryptographic field pertaining to currentness and popularity?

RQ3 Which libraries in the context of RQ2 have the highest impact?

RQ4 Which libraries in the context of RQ2 offer high potential for experienced developers in the cryptographic field?

RQ5 Which libraries in the context of RQ2 offer high potential for inexperienced developers in the cryptographic field?

Answering these question will be done as follows. First, we will look at exemplary cryptographic libraries in order to collect interesting characteristics they have. In addition, we will collect cryptographic functions which are provided by cryptographic libraries. In the next step we will choose the programming languages for which we want to find all relevant cryptographic libraries. Afterwards we will compile a collection of libraries for each of the chosen languages. The filtering of the libraries we consider relevant will be done mostly by the factors currentness and popularity. In the meantime we will also add more characteristics that come to our mind. Once the list of cryptographic libraries is completed we will collect data on these corresponding to our collected characteristics. By analysing the libraries we collected and their characteristics we eventually will answer the last three research questions.

3.2. Languages Selection

We want to analyse the ten most popular programming languages. For this we review the TIOBE and PopularitY of Programming Language (PYPL) index. They are popular, frequently updated indexes that use search engines for their ranking. To circumvent the basis introduced by the search engine data, we also include the StackOverflow developer survey results.

TIOBE The TIOBE index is one of the most popular indexes for programming languages. Table 1 shows the March 2017 ranking. Since the index uses search engine results, it is somewhat lagging behind.

Even though the index is popular, it does have its faults. The ranking is heavily influenced by the amount of search results that turn up from a search. One incident happened in April 2004. In an attempt to get rid of unfair practices to improve search result rankings, Google changed their algorithm. As a result, languages like Java and C++ took a significant drop in the TIOBE ranking.[25] Since then, they have started to use multiple search engines eg. Youtube.com, Baidu.com (Chinese "Google") or Wikipedia.org to prevent such an event to reoccur in the future.[21]

March ranking				
2017	2016	Programming Language	Share	Trend
1	1	Java	16.384%	−4.14%
2	2	C	7.742%	−6.86%
3	3	C++	5.184%	−1.54%
4	4	C#	4.409%	+0.14%
5	5	Python	3.919%	−0.34%
6	7	Visual Basic .NET	3.174%	+0.61%
7	6	PHP	3.009%	+0.24%
8	8	JavaScript	2.667%	+0.33%
9	11	Delphi/Object Pascal	2.544%	+0.54%
10	14	Swift	2.268%	+0.68%
11	9	Perl	2.261%	+0.01%
12	10	Ruby	2.254%	+0.02%
13	12	Assembly language	2.232%	+0.39%
14	16	R	2.016%	+0.73%
15	13	Visual Basic	2.008%	+0.33%
16	15	Objective-C	1.997%	+0.54%
17	48	Go	1.982%	+1.78%
18	18	MATLAB	1.854%	+0.66%
19	19	PL/SQL	1.672%	+0.48%
20	26	Scratch	1.472%	+0.70%

Table 1: TIOBE Index for March 2017
Source: `www.tiobe.com`

PYPL The PYPL index tries to be more up-to-date by using Google Trends instead of search engine results. It also uses `tutorial` as qualifier in its queries – contrary to `programming` which is used by TIOBE. This is done to prevent languages from obtaining a worse score, because they do not need the `programming` qualifier. For example `PHP` is qualifier enough, so people seldom search for `PHP programming`. Since everybody needs

to start somewhere and most developers, search for tutorials, `tutorial` was chosen.

However, this is also far from perfect. In the case of Apple's Objective-C, the same problem they tried to fix appeared again. Objective-C developers seem to search for `iPhone tutorial` or `iPhone programming tutorial`.[6] A reason for that might be that Obective-C is exclusively used for that platform. The results for March are shown in Table 2.

March ranking				
2017	2016	Programming Language	Share	Trend
1	1	Java	22.7%	−1.4%
2	2	Python	15.0%	+3.0%
3	3	PHP	9.3%	−1.2%
4	4	C#	8.3%	−0.4%
5	7	Javascript	7.7%	+0.4%
6	5	C++	6.9%	−0.5%
7	6	C	6.9%	−0.1%
8	8	Objective-C	4.1%	−0.6%
9	9	R	3.5%	+0.4%
10	10	Swift	2.9%	+0.0%
11	11	Matlab	2.7%	−0.2%
12	12	Ruby	1.9%	−0.2%
13	13	Visual Basic	1.5%	−0.2%
14	14	VBA	1.4%	+0.0%
15	-	TypeScript	1.2%	+0.9%
16	16	Scala	1.1%	+0.3%
17	15	Perl	0.9%	−0.2%
18	-	Go	0.5%	+0.2%
19	17	lua	0.5%	−0.1%
20	-	Haskell	0.3%	+0.0%
21	-	Delphi	0.3%	−0.1%
22	-	Rust	0.3%	+0.0%

Table 2: PYPL Index for March 2017

StackOverflow developer survey The third ranking is provided by the StackOverflow developer survey. The survey is done on a yearly basis and should provide a different view on the use of programming languages. In contrast to the previous rankings, it doesn't rely on search-engines but answers from human beings. Interviewees were allowed to select all programming languages that applied to them. The results show a slightly different market share distribution that is not caped at 100%.

A drawback is the smaller amount of subjects. In 2016 roughly 50,000[17] and in 2017 35,000[18] developers were surveyed for the "Most popular Programming Language".

Ranking				
2017	2016	Programming Language	Share	Trend
1	1	JavaScript	61.9%	+6.5%
2	2	SQL	50.8%	+1.7%
3	3	Java	39.3%	+3.0%
4	4	C#	33.8%	+2.9%
5	6	Python	31.7%	+6.8%
6	5	PHP	27.9%	+2.0%
7	7	C++	22.1%	+2.7%
8	8	C	18.9%	+3.4%
9	–	TypeScript	9.4%	–
10	11	Ruby	9.0%	+0.1%
11	–	Swift	6.4%	–
12	12	Objective-C	6.4%	−0.1%
13	–	VB.NET	6.2%	–
14	–	Assembly	4.9%	–
15	–	R	4.4%	–
16	–	Perl	4.3%	–
17	–	VBA	4.3%	–
18	–	Matlab	4.2%	–
19	–	Go	4.2%	–
20	–	Scala	3.5%	–
21	–	Groovy	3.2%	–
22	–	CoffeeScript	3.2%	–
23	–	Visual Basic 6	2.9%	–
24	–	Lua	2.8%	–
25	–	Haskell	1.8%	–

Table 3: StackOverflow Developer Survey 2017
License: Open Database License

Chosen languages Table 5 shows the chosen languages and their average position in the indexes and the survey. If a language didn't make it into a ranking, it received a penalty rank of 30. Haskell for example wasn't included in the TIOBE index. That means that the rank of 25 is the result of $(30 + 25 + 20)/3$. The penalty value of 30 is the 'last' place of all languages (VBA/VB treated as separate entities).

Language	Chosen	ø Rank			
Java	✓	1.667	Visual Basic		17
C#	✓	4	SQL		17
Python	✓	4	Go	✓	18
JavaScript	✓	4.667	TypeScript		18
C++	✓	5.333	Assembly		19
PHP	✓	5.333	Delphi		20
C	✓	5.667	VBA		20.300
Swift	✓	10.333	Scala		22
Ruby	✓	11.333	Lua		24.333
Objective-C	✓	12	Haskell		25
R		12.667	Scratch		26.667
Perl		14.667	Groovy		27
MATLAB		15.667	CoffeeScript		27.333
Visual Basic .NET		16.333	Rust	✓	27.333

Table 5: Chosen Languages

In addition to the top ten of the average rankings, we choose Rust and Go pre-emptively as they show promise in our opinion. Go in particular was chosen beforehand as it has the highest rise in the 2016 TIOBE index.[20] These two languages are quite young (as is Swift) and it is interesting how they fare in comparison to older, more established languages.

The chosen languages are the following 12: C, C++, C#, Go, Java, JavaScript, Objective-C, PHP, Python, Ruby, Rust and Swift – as shown in Table 5. The purpose of the ranking was solely for the selection of the languages. That means that the ranking is not further considered in the study.

3.3. Search Methodology

Before we started to search for libraries for this report, we tried to get an overview of the available information about cryptographic libraries. This information covered basic information such as the language of the interfaces, cryptographic features like protocols and meta information like the last version or number of contributors. With this basic information we came up with the categories which are most important for the report.

We were forced to constrain our searches, as languages that have existed for an extended period of time have many libraries that compete in the cryptographic field. The goal of this report is to provide an overview of available cryptographic libraries. The overview would be useless if most of the libraries were outdated, covered exactly the same small feature set or reimplemented over and over again. Ultimately, this report should provide an overview of all useful cryptographic libraries by categorizing them in appropriate classes.

Important traits The following traits of the libraries were of particular interest to us:

- Interface level

  The interface level is especially important for people that are not affine with the cryptographic field or simply want a solution that works "out of the box".

- Type

  The type of the library is important in regard to the performance and the amount of dependencies pulled in for the functionality.

- Cryptographic level

  The cryptographic level (primitive to high) is closely coupled with the interface level. More experienced users usually prefer more primitives and a low-level interface in contrast to beginners.

- Impact

  The impact represents the state of the library in regard to the ongoing development, its usefulness and to a certain degree security (by auditing).

Section 4 defines these traits in more detail than this abstract description.

Most of the data used for this classification is derived from the libraries source code. No budget to purchase commercial libraries was provided in order to analyse the source code if accessible. Therefore, the collection of considered libraries was limited to ones which are either of non-commercial or open-source distribution.

The objective of the search was to come up with a collection of libraries for each selected programming language. The collections contain the libraries which are analysed and contrasted in the context of this classification as can be seen in section 5 *Results*. In order to conduct a structured search, specific search constraints were constructed for each of the programming languages, producing one collection of libraries for each language. As libraries can be written in languages different to that for which it is made, this report differentiates between the terms *main language* and *interface language*. In this context "main language" represents the language in which most of the source code is written. "Interface language" on the other hand signifies the language the library was written for. The collections of libraries are sorted by the interface language. Libraries found by the main language were manually added to the collection of the according interface language. Illustrating this setting with an example: the library `https://github.com/php/php-src` was found while looking for libraries with the interface-language *C*, as more than half of its source code is written in *C*. It is, however, written for *php* so this library was added to the php library collection.

3.3.1. Code hosting sites

Prior to compiling a collection of libraries it was necessary to consider which code hosting platforms present an interesting list of cryptographic libraries for this classification. Looking at the variety of projects on the platforms *GitHub*, *GitLab*, *BitBucket* and *SourceForge* yielded that GitLab and BitBucket hardly had any significant libraries that couldn't also

be found on GitHub. Another problem with GitLab is that projects can't be filtered by programming language, which would make a selection tedious. Consequently, GitLab and BitBucket were excluded from the sites used to search for libraries.

In addition to searching on specific platforms, other sources for libraries such as *Stack Overflow*, the *Federal Information Processing Standard (FIPS)* and *Google search* were considered. As significant Stack Overflow entries are also listed in the Google search results, this site was not used directly. Most of the libraries listed under FIPS are commercial and not open-source. Thus, these can't be considered in the scope of this report and FIPS was not consulted any further.

Ultimately, the code hosting sites GitHub and SorceForge and Google search were used to assemble the collection of libraries. Search constraints used for the search are listed in the following subsubsection 3.3.3.

3.3.2. Criteria for exclusion

A lot of libraries that can be found on the previously mentioned sites with the search constraints used aren't of interest for this classification. Consequently, a list of exclusion criteria was necessary to enable a consistent selection. Libraries matching any of the following criteria were excluded from the collection. Note that some of these criteria can only be checked on sites such as GitHub, as the required information is not available on every site. GitHub was handled as the preferred site and additional sites hosting the same Library were ignored.

- Missing Documentation

  This only includes libraries that have neither a description nor any form of documentation. If, however, the library had a lot of contributors and commits, the files were checked to see whether it has a lot of features. In such cases the library was not excluded. "A lot" of contributors and commits for a library with missing documentation might be >5 contributors and >50 commits.

- Tiny Libraries

  These are libraries which hardly offer any functionality and hardly have any commits and contributors. A library with two commits and one contributor might match this criterion depending on the offered scope of functionality.

- Exclusively Educational Libraries

  Projects for school or university were excluded. If explicitly stated in the documentation, that a library was constructed to "learn or play with cryptography," these were also rejected.

- Documentation Language

  Documentation was used to select relevant libraries. According to our language skills, documentation in either German, English or Spanish was accepted.

- Insufficient Security

  "Rejection" if explicitly stated in the documentation that the functionality should not be considered secure.

- Deprecated

  "Rejection" if explicitly stated in the documentation that the functionality is deprecated.

- Fork with no additional functionality

  "Rejection" if the Fork in question doesn't contain additional functionality to the original library.

3.3.3. Search constraints

This section lists the constraints used to filter libraries to be classified for specific languages. As previously stated, constraints were necessary as older languages gained an almost uncountable amount of cryptographic libraries and we were first and foremost interested in the useful libraries.

Prioritisation As two code hosting sites and the Google search were used, it occurred that a library excluded by a search constraint for one code hosting site was, nevertheless, listed in the results of another. It is the main purpose of the GitHub constraints to confine the results to the more important libraries. However, one or more important libraries were also excluded during this process. In order to find these libraries none the less, the Google search constraint was constructed very leniently, merely containing "programming language + crypto." As far as we could tell, the most important libraries were repeatedly listed under the first three pages of the Google search results. Hence, all search results listed on each site were considered even if these were excluded on another. With this approach, even if an important library was missed on GitHub, it would be found through Google or on SourceForge and vice versa.

The following paragraphs list the specific constraints used for each programming language. In the case of GitHub *# without constraint* states how many repositories were listed for the term "crypto + language:programming language." *# with constraint* states how many Repositories were listed with the given constraint.

C Specific Constraints

GitHub	Constraint:	`crypto language:C stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin`
	# without constraint:	1058
	# with constraint:	230
	Constraint:	`tls language:C stars:>9`
	# without constraint:	288
	# with constraint:	55
Google	Constraint:	`crypto C`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `C`

C++ Specific Constraints

GitHub	Constraint:	`crypto language:C++ stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin`
	# without constraint:	1283
	# with constraint:	201
Google	Constraint:	`crypto C++`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `C++`

Python Specific Constraints

GitHub	Constraint:	`crypto language:Python pushed:> 2015-01-01 NOT currency NOT bitcoin NOT ctf stars:>0 NOT cryptopals NOT Matasano`
	# without constraint:	2851
	# with constraint:	316
	Constraint:	`tls language:Python stars:>9 pushed:>2015-01-01`
	# without constraint:	340
	# with constraint:	40
Google	Constraint:	`crypto python`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `Python`

Java Specific Constraints

GitHub	Constraint:	`crypto language:Java stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin`
	# without constraint:	2259
	# with constraint:	222
Google	Constraint:	`crypto Java`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `Java`

JavaScript Specific Constraints

GitHub	Constraint:	`crypto language:Javascript stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin NOT matasano NOT cryptopals`
	# without constraint:	2780
	# with constraint:	470
Google	Constraint:	`crypto JavaScript`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `JavaScript`

PHP Specific Constraints

GitHub	Constraint:	`crypto language:Javascript stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin NOT matasano NOT cryptopals`
	# without constraint:	421
	# with constraint:	84
Google	Constraint:	`crypto PHP`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `PHP`

C# Specific Constraints

GitHub	Constraint:	`crypto language:C# stars:>0 pushed:>2015-01-01 NOT currency`
	# without constraint:	811
	# with constraint:	131
Google	Constraint:	`crypto C#`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `C#`

Swift Specific Constraints

GitHub	Constraint:	`crypto language:Swift`
	# without constraint:	159
	# with constraint:	159
	Constraint:	`tls language:Swift stars:>9 pushed:>2015-01-01`
	# without constraint:	11
	# with constraint:	3
Google	Constraint:	`crypto Swift`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto Swift`

Objective-C Specific Constraints

GitHub	Constraint:	`crypto language:Objective-C created:>2015-01-01`
	# without constraint:	132
	# with constraint:	74
	Constraint:	`crypto language:Objective-C stars:>0`
	# without constraint:	132
	# with constraint:	56
Google	Constraint:	`crypto Objective C`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto` written in `Objective C`

Rust Specific Constraints

GitHub	Constraint:	`crypto language:Rust pushed:>2015-01-01 NOT currency NOT cryptocurrency NOT Matasano NOT cryptopals`
	# without constraint:	241
	# with constraint:	83
Google	Constraint:	`crypto Rust`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto Rust`

In the case of Rust an additional list of cryptographic libraries derived from Philipp Keck's master thesis 'Analysing and improving the crypto ecosystem of Rust' [7] was given to us. As the constraints used to make the list aren't known to us, they aren't stated in this paragraph.

Ruby Specific Constraints

GitHub	Constraint:	`crypto language:Ruby stars:>0 pushed:>2015-01-01 NOT currency NOT cryptocurrency NOT cryptopals NOT Matasano`
	# without constraint:	432
	# with constraint:	32
Google	Constraint:	`crypto Ruby`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto Ruby`

Go Specific Constraints

GitHub	Constraint:	`crypto language:Go stars:>0 pushed:>2015-01-01 fork:true NOT cryptocurrency NOT currency NOT bitcoin NOT matasano NOT cryptopals`
	# without constraint:	626
	# with constraint:	171
Google	Constraint:	`crypto Go`
	Google pages:	1 - 3
SourceForge	Constraint:	`crypto Go`

3.4. Data Collection

The previous subsection 3.3 describes how libraries were selected. This section explains how the data on the selected libraries was assembled. In between realising these two steps it was determined what information on the libraries is relevant for this classification. In order to start collecting the information it was necessary to compile detailed explanations and definitions on what these involve and are. These can be found in section 4. Some data such as the *number of authors* and *contributors* of a library can be collected in an automated fashion. Other types such as the *interface-level* must be extracted manually. Within the framework of this report a tool called *GitScrabber* described in subsubsection 3.4.2 was developed for the automated data collection and data presentation. The approach for the not automatic data collection is specified in the following subsubsection 3.4.1.

3.4.1. Manual data Collection

Collecting data manually generally involved looking into each repository's documentation and source code. Depending on how easily the sought information was found, the data assembly could be very time consuming. As the list of collected libraries was too long for all of them to be inspected, it was necessary to reduce the number of those for manual data gathering. This was done by looking at each libraries *impact*. The *impact* is a classification criterion which was derived automatically, as is described in the following subsubsection 3.4.2. The collected libraries can have an *impact* of one through forty. For the purpose of reducing the amount of manual work, only libraries with an impact greater than or equal to 20 were inspected manually. The only exception was JavaScript, as there still were to many libraries with an impact greater or equal to 20 an impact of 25 was chosen as a limit.

It is important to mention, that there is not always a definite value for some of the criterion. Assignment of some values is a subjective business. To counteract an ultimately subjective assignment, the definition for each classification criterion was prepared thoroughly beforehand. These are listed in section 4.

Following data was gathered in a manual fashion:

- Type

  To begin with, the documentation was consulted to assign one of the four types *Standalone*, *Fork*, *Reimplementation* or *Wrapper*. In some cases the type was stated outright, in others it was possible to detect it out of the context and in the worst case there was no information on the topic at all. If no information is given, it is almost impossible to find out if the repository is of the type, Reimplementation or Fork. Thus these weren't considered in these situations and it was assumed that the library is of the type, Standalone. A few files of the source code were scanned and checked to see whether the offered functionality is mostly implemented or that of another cryptographic library is used. In the latter case, the type Wrapper was assigned.

- Related

  If the library is of the type *Wrapper*, *Reimplementation* or *Fork*, the wrapped, reimplemented or forked libraries are listed in this section respectively.

- Dependencies

  This was only filled out if the documentation explicitly stated other repositories as dependencies. Furthermore, it was mainly used for libraries of the type *Standalone*, as these most often listed other repositories their functionality depends upon.

- Licenses

  In order to find out under which license a library is published, the readme was scanned and a file containing the word *license* was looked for. If these files did not exist or did not state any, or the full license information, the whole repository was searched for appearances of the word *license*. If this still did not lead to any result it was assumed that the library was not published under any license.

- Documentation

  Documentation makes an essential difference in the ease of use if it contains required information, sufficient explanations and examples. Therefore the presence and completeness of the documentation was examined. We checked whether a readme, an additional website and a downloadable version exists. Completeness is described by the presence of an API, examples and explanations. The criterion *readme* was not necessarily set to `true` if such a file existed as a lot of these files were empty. It had to contain some form of helpful information. This is also true for the website and downloadable version. For *API* to be set to `true`, all the libraries methods and their required parameter had to be listed. *Example* was set to `true` if the documentation contained a few examples. It was not necessary for there to be one for each listed method. The explanation criterion was handled the same way as the example criterion.

- Interface-level

  We checked if the libraries had a low and/or a high level interface. If it was explicitly stated in the documentation what kind of interface is provided, then this type was adopted after a quick check in the source code. Otherwise, this was mainly done by looking at the API or the source code if an API wasn't provided. The interface-level

was then determined by looking at the amount and type of parameters the methods require. The parameters are an indicator for the influence a user can take. If a method requires hardly any parameters and hardly any knowledge on the topic, it belongs in the high-level category. If in contrast it takes a lot of parameters, which require an advanced skill set in the cryptographic area, then it is of the type low-level. In some cases the methods had optional parameters, giving the user a choice of using the default values or configuring his own. These libraries were categorized as having both types of interface. Some libraries however had some methods that fit the high-level category and other methods that fit the low-level category. These libraries were also assigned both types of interface.

- Interface-language

  We generally assumed that the interface-language is the same as the programming language the library was written in. It was part of the manual data collection process nonetheless as a library can have several interface languages and occasionally the interface language doesn't match the main programming language. The documentation was scanned briefly to check if it contained further information on the interface language or languages. If this was not the case, then it was assumed that it only has one interface language and that it matches the main programming language.

3.4.2. Automated Data Collection

The *GitScrabber* was written to automate and thus speed up the accumulation of information about the different libraries. The name is a pun on data mining and big data, as this tool is rather primitive in comparison to big frameworks like Hadoop. This tool is nevertheless more than able to satisfy the requirements that come with this study.

For a 'cold' analysis of all projects (about 738 accounting to $\approx 19GB$ of data) roughly two hours are needed. If a report of a previous analysis is provided the time shrinks to two minutes – depending on how big the new project is or how demanding the tasks are that where changed. While some effort went into the performance of the tool it was not the goal of the study – there are still quite a few optimisation options left.

Structure In Figure 2 the rough architecture of the GitScrabber is shown. The abstract process of the GitScrabber is the following:

1. Read tasks
   The projects to analyse, their manually gathered data and the tasks that analyse the projects are given in a yaml configuration file.

2. Queue project tasks
   The tasks that analyse and gather data from the projects are queued to execute them in parallel.

3. Execute project tasks
   In this step the projects are analysed by the specified project tasks. This also means, cloning or downloading the projects via version control system (VCS) or in archive

form to initialize the sources or updating them. If anything changed (sources, tasks or task parameter) the task has to analyse the project, otherwise a provided report can be used to reuse it's results.

4. Collect job results
   The main thread collects the results from the projects and joins them to a 'report'.

5. Execute report tasks
   Once all projects are analysed the report is analysed sequentially by the report tasks that can access all project data and change it if necessary. These tasks are able to execute statistical calculation or generate LaTeX output.

6. Output report
   At the end the report can be written to a file or printed to the console.

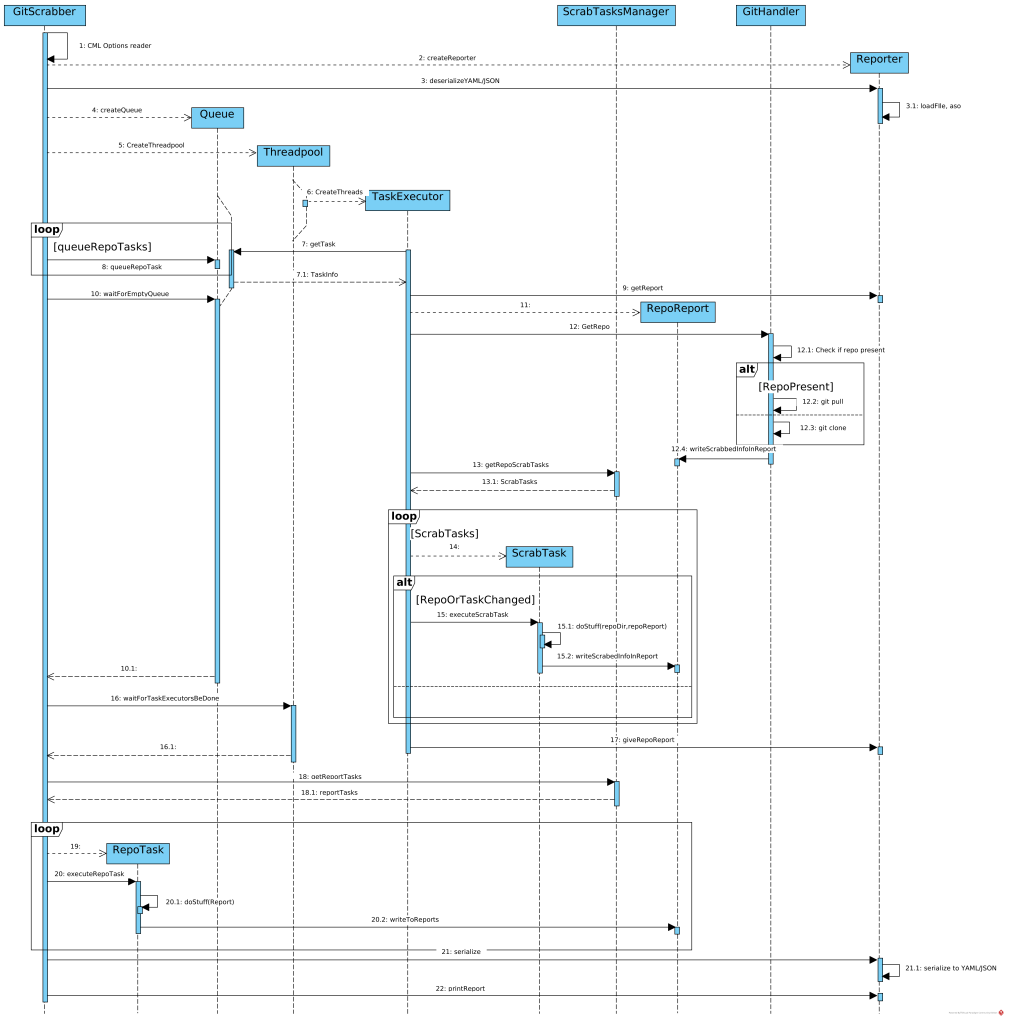

Figure 2: Architecture of the GitScrabber

Data In the following list the tasks and their produced outputs are listed:

1. Project tasks

   (a) AuthorContributorCounter
   This task estimates how many authors and contributors are involved in a project. This is only possible if a commit history exists from either a svn or git repository.

   (b) MetaDataCollector
   This task obtains meta data from the github api[1] – for example, the used programming languages.

   (c) LanguageDetector
   In case the project is not hosted on github the used languages are estimated by this task. The estimation basically counts the filename extensions and divides the header files (`.h`) between C, C++ and Objective-C as the three languages use the same extension. Because of that very rough estimation the report tasks prefer the data from github's api.

   (d) ProjectDates
   This task obtains the date of the first commit and the last from projects that where provided via VCS as indication of how old the projects are and when they were last updated.

   (e) ProjectMetrics
   To calculate the size of the projects this task counts the lines of code that they contain.

   (f) LicenceDetector
   The LicenceDetector tries to match licence texts against the project files using the cosine similarity. This is one of the most intensive tasks that benefits greatly from reusing a previous report as licences seldom change. The licence texts are obtained from the spdx.org[2] repository.

   (g) FeatureDetector
   Another computational intensive task is the FeatureDetector task. This task searches the project files for specific keywords that indicate that a certain feature is provided by the project. An example, for such a keyword is *Cipher Block Chaining* and *CBC* that indicate that CBC is supported. Since the later keyword is quite short the short keywords are searched as regex that expects a word boundary (`\b`) at the start and end of the keyword. The list of keywords was manually collected by looking at libraries and what they implement as well as lists about a category as found on wikipedia.

[1] https://developer.github.com/v3/
[2] https://github.com/spdx/license-list-data

2. Report tasks

   (a) ImpactCalculator
   The ImpactCalculator calculates the impact which needs the output of multiple project tasks, which is why this task has to be a report task.

   (b) ProjectSizeCalculator
   This task compares the ProjectMetrics results of the different projects and their interface languages and classifies them to be either big ($>$ 3. quartile), normal (between 3. and 1. quartile) or small ($<$ 1. quartile) in regards to all projects and other projects of the same interface language.

   (c) EaseOfUseEstimation
   The ease-of-use estimation is the result of the availability of the documentation, documentation completeness and the interface level that the library provides.

   (d) NumericID
   This task assigns all projects a numeric id. While the id is unique it is not fixed to one project – if a new project is added to the list the id might change – but the id is intended to only be a guide for the reader.

   (e) GenerateLaTeXOverviewTable
   The purpose of this task is to generate the tables that provide an overview of the projects of the different interface languages – as seen in section 5.

   (f) GenerateLaTeXDetailTable
   For the curious readers that are interested in the details of the libraries this task generates a table that contains all information about the analysed projects in this report.

4. Classification

This section contains explanations and definitions for the collected characteristics of libraries with which these are later contrasted in the *Results* section 5.

4.1. Library Types

All cryptographic libraries which are examined in the scope of this study are allotted a *type*. Each library can be of one or more of the following six types: *standalone*, *reimplementation*, *port*, *binding*, *wrapper* and *fork*.

Standalone In this report libraries are called *standalone* if their main function is implemented within itself and not provided by only wrapping or reimplementing this main function from another library. So a *standalone* library may still depend on other libraries if it only uses their provided functions to provide a new function.

Reimplementation A library is a *reimplementation* if the entire functional scope of a known cryptographic library is newly implemented. At this point it is important to differentiate between a *reimplementation* and a *port*, the difference lying therein that the functionality is not necessarily reimplemented in another programming language. Furthermore a *reimplementation* aims at providing an improved functional scope to users which is derived from the origial library. While keeping in mind that the new interface should be very similar to that of the original library enabling an easy migration between the two.

Port In comparison to a *reimplementation*, a library is a *port* if it is a *reimplementation* in another programming language. The main objective of a *port* is to keep the provided interface as close as possible to the original interface. The essential difference to a *reimplementation* being that no further functionality and behaviour is added. Furthermore a *port* aims to achieve that the functional behaviour is essentially the same.

Binding A library is a *binding* if it uses functionality of another cryptographic library. It merely offers an altered interface to access the functional features of the original. Hence the functions are not improved and no additional features are implemented. A *binding* is usually implemented in a different programming language to provide equal access to functionality of an existing cryptographic library.

Wrapper The definition of a *wrapper* in this report is very similar to that of a *binding*. The main difference is that a *wrapper* extends the functional scope, offering extra features in addition to those of the other library. This can be done in the same- as well as a different programming language from that of the *wrapped* library. Moreover, a *wrapper* often implements additional features improving convenience such as memory management. The objective is often to simplify the usability of the *wrapped* library.

Fork Libraries that use existing source code and advance independent of the original are a *fork*. In terms of source code control it can be thought of as a branch of the original. They are, however, treated as autonomous libraries with possibly different names and usually different developer teams. E.g. a *fork* may emerge from a difference of opinions between developers which then separately continue the projects, creating two.

We see that the *wrapper* and *binding* are very similar, so it might be tough to decide on the assignment of one of those types. This applies also to *reimplementation* and *port*. For this reason we will assign the type *wrapper* to both *wrappers* and *bindings* and the type *reimplementation* to both *reimplementations* and *ports*. So eventually each library will be assigned one of the types *standalone*, *reimplementation*, *wrapper* and *fork*.

4.2. Interface-Level

The examined libraries are assigned an *interface-level*. This is done similarly to the paper 'I Do and I Understand. Not Yet True for Security APIs. So Sad' in which a broader scope of APIs referred to as *Security APIs* are classified according to the APIs abstraction

level. Lo Iacono and Gorski distinguish between *security primitives* and *security controls* [9]. Security primitives API can be considered synonymous to what is called a *low-level API* in this report. Similarly the term *high-level API* is used as synonym for security controls API. It is important to know that libraries can offer either one or both of the interface levels.

High-level A *high-level* interface has a high abstraction level, thus making it easier to use as well as more goal-oriented. Generally, security controls are a composite of security primitives. Security controls' functionality and complexity is encapsulated, hidden from the developer. Therefore, the developer hardly needs any knowledge about the used cryptographic primitives, as the security expertise is handled for him by the library. The less information required by the library the easier it is to use for less knowledgeable developers. To accomplish this, libraries with an high abstraction level work with security defaults and encapsulating containers (e.g. objects and types). A high-level interface is less prone to errors because it offers less options for configuration. On the down side this also makes it a lot less flexible.

Low-level Security primitives usually implement basic security services like authenticity, integrity, confidentiality and non-repudiation. As previously mentioned a security primitives API or low level interface has a low abstraction level and therefore requires a higher level of understanding of the cryptographic primitives. The individual security primitives can be combined to form security controls. This enables taking influence on a granular level. High flexibility however requires thorough knowledge and skill from the developer. Furthermore it increases risk of errors at many levels (e.g. configuration of a low-level primitives or combining primitives in an insecure way).

4.3. Dependencies

Many of the examined libraries don't implement all cryptographic features by themselves but rely on external libraries. These provide certain cryptographic primitives or other features. As long as the examined library uses the imported libraries to offer new functionality – which exceeds that of the used libraries – they will be listed as *dependencies*. The crucial point is that the used libraries are indeed used to offer new functionality and are not extended themselves.

4.4. Related Libraries

As defined above there are cryptographic libraries that wrap, bind, fork, reimplement or port another library. If this is the case, the other library will be listed as *related*.

4.5. Licenses

The license, a library is published under describes the rights and commitments a person has, when using this library. Even though a person is free in formulating his own license agreement most of the developers use a pre-formulated license. Popular licenses are, for example, the MIT license, the GNU General Public License as well as its lesser form, the Apache License and the Internet Systems Consortium (ISC) license. Some are also published in the public domain which means that the developer grants everyone the unlimited right to do anything they wish with the software.

If the *licenses* field only contains a dash this means that there is no license assigned to the library or that there is insufficient data.

4.6. Cryptographic Features

This report differentiates between two levels of features. They can either be a *primitive* or *high-level* feature. This distinction is closely related to the *interface-level* explained in subsection 4.2.

Primitive A primitive is a low-level feature that is designed to do one specific task. In general, it is a publicly known algorithm that is well-established, highly reliable and can't be divided into further aspects which are still specifically related to security. Primitives are used as generic building blocks for cryptographic systems and protocols.

The examined libraries were checked for primitives of the following eight types.

- Block Ciphers

  A block cipher divides the given plaintext M into consecutive blocks $M_1, M_2, \ldots, M_n$ with $|M_1| = |M_2| = \ldots = |M_n|$ which usually consist of several characters or bits. All of these blocks are then enciphered with the same key K.[24]

  $$E_K(M) = E_K(M_1)E_K(M_2)\ldots E_K(M_n)$$

  An example of a block cipher are DES and AES.

- Stream Cipher

  As opposed to block ciphers, a stream cipher is a method that enciphers a message M by applying a different key k_r to each consecutive character or bit instead of blocks of bits.[12]

  $$E_K(M) = E_{K1}(M_1)E_{K2}(M_2)\ldots E_{Kn}(M_n)$$

  An example of a stream cipher are Salsa20 and ChaCha20.

- Encryption Modes

  - Symmetric Modes

    A mode of operation is a method for encryption using block ciphers. A message encrypted by a block cipher is only secure if it consists of one block. If a message consists of more than one block, a mode of operation has to be used to securely encrypt the message. It describes how to apply a block cipher operation several times to obtain a suitably encrypted message.[11, 3]

    ECB and CBC are examples of modes of operation.

  - Encryption and Authentication Modes

    These modes provide authenticity as well as encryption of messages.[3]

    GCM is such an encryption and authentication mode.

- Hash

  Hash is short for hash function, which is a function h that maps an input x of variable bit length onto an output $h(x)$ with fixed bit length. The output is also called a fingerprint of the input. If x and h are known, $h(x)$ can be determined in polynomial time. A hash function is required to be designed such that the fingerprint can't be forged and that it is practically impossible to determine x with a known output $z = h(x)$.[24]

  Hash functions can also be used outside of a security context in which case aspects like speed might be of more interest than security.

  MD5 and SHA are examples of such an hash function. MD5 is deemed to be insecure but is used as a quick way to check file integrity. The SHA family of hash functions has both insecure and (still) secure functions. SHA-1 is considered to be insecure[23]. SHA-2 is still deemed to be fit for security related applications.[14]

- Message Authentication Code (MAC)

  A MAC value is a checksum, generated by hashing an input text with a secret key. The checksum is used to ensure authenticity of a message. The generated checksum is sent along with the message so that the recipient can calculate the checksum if he knows the secret key and can compare the new checksum with the received checksum.[24]

  HMAC is an an example MAC.

- Public Key Cryptography (PKC)

  In PKC each participant has a private and a public key. As the names imply, the private key is kept secret as opposed to the other key that is publicly accessible. The idea is that a message encrypted with either one of the keys can only be decrypted with the other key. PKC can be used to ensure integrity as well as authenticity of messages.

  Integrity is established when encrypting a message with the recipients public key. The encrypted message can only be decrypted with the recipients private key, thus ensuring integrity as that key should be exclusively known to him.

Authenticity on the other hand is met by encrypting the sent message with the senders private key. The recipient can then only decrypt the message with the senders public key, thus authenticating the sender.[24]

The RSA method is one of the best known public key cryptosystems.

High-level High-level features are built with primitive features. A high-level feature is not limited to one specific task, but has a broader functional scope.

- Public Key Infrastructure (PKI) PKC is is the basis for PKI. A PKI provides security for protocols like SSL and HTTPS in a public network. It consists of a registration and authority that provides, verifies, manages and when necessary, revokes digital certificates.[22]
- Protocols

  A cryptographic protocol is an algorithm that determines what interactions between two communicating bodies must take place to achieve certain security aspects.[19]

  SSL is an example for a cryptographic protocol.

4.7. Authors and Contributors

The amount of authors and contributors gives a good clue about the impact of the library. Where a high number of authors and contributors depict a higher impact as people have to know and use a project before they can contribute to it. Obviously authors are more 'valuable' to the impact of the project as they very much define the success of it.

Since the number of authors and contributors are mostly taken from VCSs, we need to specify a way to distinguish between them. Possible approaches are the following four algorithms, where the fourth is the one that provides the most accurate numbers in our opinion.

1. Cut-off at the highest difference in commits.

   This algorithm works well for distributions that can be projected on a logistic growth curve. It fails however, for linear and exponential distributions where all or only one are considered authors.

2. Cut-off at $x\%$ of the highest number of commits.

   This works well in most cases – but not well enough. From a pure mathematical point of view the results are fine. However seen from a human point of view, it is puzzling that some contributors are considered as an author if there is a huge gap between them and a previous author.

3. Cut-off at highest difference in commits with an additional limit at $x\%$ of the highest number of commits.

   This combination of item 1 and item 2 solves the problems from item 1 quite well. In case that the distribution is exponential however it is still possible that there

will be only one author even though other contributors put a lot of effort into the project. Thus this algorithm didn't seem fair to us.

4. Cut-off at $x\%$ of commits the previous author has in combination with the requirement to have at least $y\%$ of the author with the most commits.

   This algorithm counts everyone that has at least $x\%$ of commits of the previous author as an author too. To prevent the problem with linear distributions as in item 1, there is also a limit that each author has to have at least $y\%$ commits of the author with the most commits.

   While coming up with the algorithm and testing it we found that $x = 40\%$ and $y = 5\%$ yields results that seem to fit with our human-guessed estimate of who should be considered an author and who not.

As the algorithms only consider the number of commits and not the lines added, changed or deleted, the results can only be considered an approximation. However the approximation is good enough as there have to be made trade-offs. For example, if someone does a lot of reformation of code, it should not have the same impact as someone that has the same amount of changed lines but adds features with them. On the other hand is someone who adds a lot legal documentation code – like licence texts – and even though many new lines are added, it is implausible to consider it counting towards author rank. By restricting the algorithms to the number of commits these special cases have neglectable impact on the categorisation of authors and contributors.

4.8. Project size

This characteristic tries to give an idea of the size of a project. The basis of our calculation is the number of LOC. As, however, the absolute number is not that meaningful in itself, we did a comparison between the libraries. A comparison in between all libraries of the same interface language was conducted, as well as in between all collected libraries. The final result of each comparison is the assignment of one of the project sizes, "small", "medium", or "large". A small project thereby has a number of LOC that is below the 25% percentile of the libraries, while "large" means that the number of LOC is greater than the 75% percentile. Each library was assigned a project size in refference to all libraries of the same interface language and the entire library collection.

4.9. Impact

The impact of a library describes its relevance for cryptographic applications. As data about the usage of each library is hard to obtain, it will be modeled using the following factors:

- Contributors:

  Contributors are all persons who have contributed to the library in terms of source code at least once. We assume a high number of contributors also reflects a high number of users.

- Authors:

  Authors of a library are those contributors with a significant higher amount of source code, contributed to the library. A large number of authors leads to the possibility to quickly react to security issues. It also enables them to put more effort into the library. Additionally, a large number of authors is necessary if some of them want to specialise in a specific part of the library and therefore, develop a much higher knowledge for these but are lacking in other parts.

  The number of authors, depending on their knowledge and importance to the library, influences another important factor, the bus factor[3] which is also an important influence on the impact of the library. It states that the library is less likely to be abandoned if it has several authors as all of these would have to quit their participation. We have not calculated the bus factor separately from the pure number of authors.

- Last modified:

  Last modified means the date, when the source code or documentation of the library got updated the last time. This factor represents the current development effort put into the library to keep it maintained and up-to-date. Cryptographic libraries that are not kept up-to-date are a possible security risk and should not be used (anymore). In the following we honor a library that has been updated within the last 90 days with the highest impact. If it has been updated longer than 90 days ago, we have reduced the impact of this factor drastically.

- Age:

  The age of a library is the amount of days the library exists. This factor is included for two reasons: On the one hand cryptographic libraries need to mature to become used or be proposed by security experts. Young libraries cannot be evaluated as much as older libraries. However, the age alone is not a guarantee that the library is secure or has already matured. A combination of a high impact (high relevance for the field) and an old age may indicate that there are not many known security issues left and all intended features have already been implemented.

When trying to calculate the impact of a library based on the factors above, one might expect the following challenge to arise. Libraries written in languages that are newer than others, have not had the time to grow a large number of authors or contributors. Naturally one would expect the impact of those libraries to be lower, as fewer people use the newer languages than more established ones. However, the evaluation of our selected libraries showed that there is no big difference in the highest impact ratings of libraries in newer languages than in older languages. The library with the highest impact rating in the Go language, for example, has been assigned a value of about 39.48 which is really close to the maximum rating of 40. For the Rust language the library with the highest impact rating was assigned a value of 36.37 which is still quite high. Considering the age of those languages – seven years in both cases – which is quite young compared to the other languages, there is no evidence for assuming that the age of the interface language might have a negative influence on the libraries impact rating. The only two exceptions

[3] Also known as *truck factor*: 'The number of people on your team who have to be hit with a truck before the project is in serious trouble'Bowler, 2005

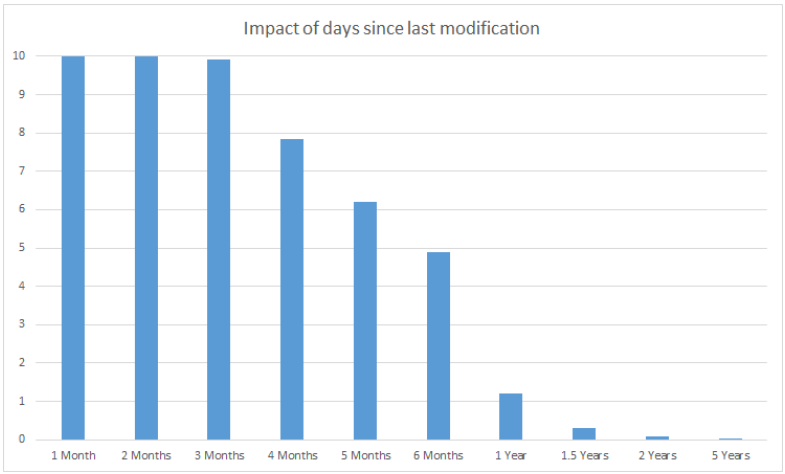

Figure 3: Distribution of the last modified factor over some exemplary amount of days

are the languages Objective-C and Swift, which are nine and seven years old. Their libraries have received lower maximum ratings than in the other languages. In this case, however, one has to consider that the standard library of these languages, Security (ID: 621), had to be analysed manually and, therefore, was not assigned an impact rating.

Eventually, all the factors have to be combined, in order to calculate the impact of the library. The number of authors and contributors and the age will be considered inverse exponentially (see Figure 5, Figure 6, and Figure 4) to achieve a saturation at 10. Therefore, the number of authors is ten times more important than the number of contributors (see the weights in the formula.)

For the calculation of the influence of the last modified date, we take the logarithm of the days since the last modification and multiply it by two. This value will then be subtracted from ten. In Figure 3 the result of this calculation is shown with some exemplary values. The logarithm is used to account for the decreasing impact of the last modification date the further this date lies in the past. If for example two libraries got last modified some years ago but with some days difference, this is negligible. If they both got modified just some weeks ago, a difference of some days is more important.

This leads to the following formula that we use to calculate the impact I of a cryptographic library:

$$I = 10 - 2^{(log_2(10) - w_1 * c)} + 10 - 2^{(log_2(10) - w_2 * a)} + w_3 * (10/2^{(d_1/90-1)}) + 10 - 2^{(log_2(10) - w_4 * d_2/365)}, \quad d_1 \in [90, \infty) \quad (1)$$

w_n: weighting factors
c: number of contributors
a: number of authors
d_1: days since last modified date
d_2: age of the library in days

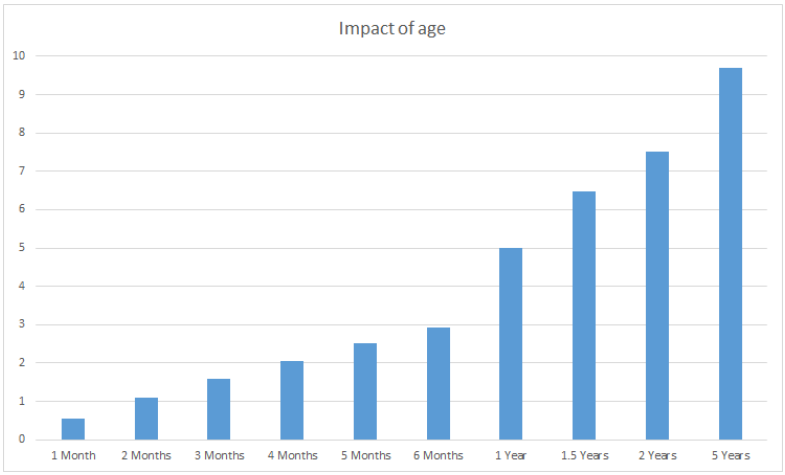

Figure 4: Distribution of the age impact

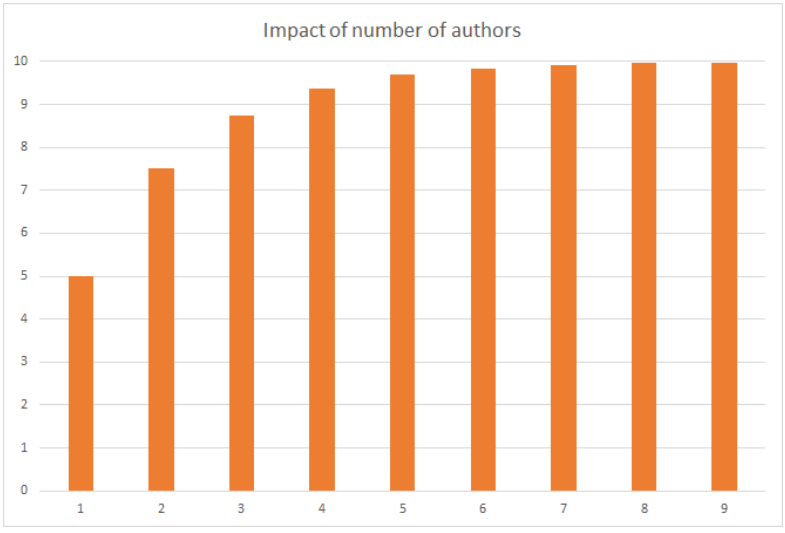

Figure 5: Distribution of the authors impact

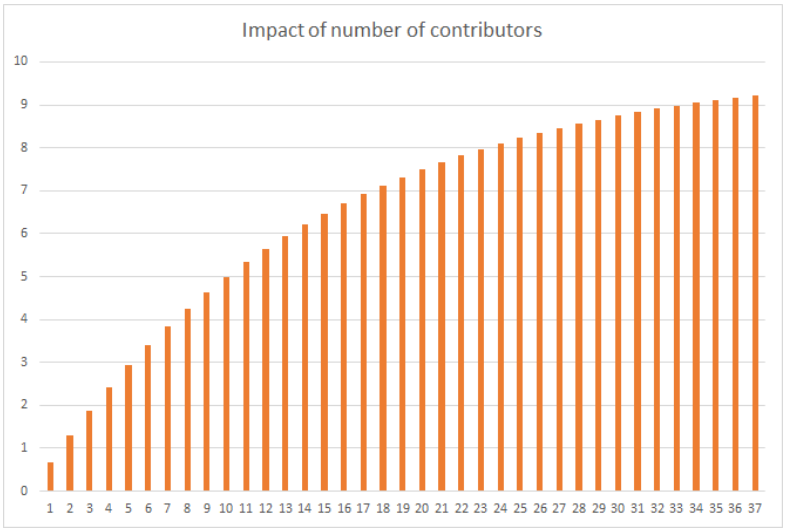

Figure 6: Distribution of the contributors impact

Based on the resulting values we chose the following weights:

$w_1 = 0.1$ and $w_2 = 1$. This means authors are 10 times more important for the impact than contributors.
$w_3 = 1$ as the weight for the last modification time
$w_4 = 1$ as the weight for the age of the library.

With this the final formula is:

$$I = 10 - 2^{(log_2(10) - 0.1 * c)} + 10 - 2^{(l0g_2(10) - 1 * a)} + 1 * (10/2^{(d_1/90-1)}) + 10 - 2^{(log_2(10) - 1 * d_2/365)}, \quad d_1 \in [90, \infty) \quad (2)$$

4.10. Standard Library

Some of the twelve chosen programming languages offer a cryptographic library as part of their standard library. These libraries can be identified by an *(S)* for *standard* added to their name. The name in this case is either the name of the programming language itself or something more general like "security", which is what we called Apples Objective-C and Swift cryptographic standard library. We couldn't give it the specific modules name, as there are several modules within the standard library which offer cryptographic services, which we nevertheless, treat as one library. As the standard library is often included in the distribution of the language itself, the GitScrabber couldn't be used to analyse these libraries as analysing the entire language would have falsified results, such as the project size. It was possible to use the feature detector for some of the standard libraries, but apart from that hardly any data was collected on them. The impact of the standard libraries could not be determined either, as the necessary data for the calculation wasn't available. However by way of importance these belong at the top of the list amongst the libraries with the highest impact.

4.11. Documentation

Documentation is one of the key features of a library in matters of usability. The documentation was checked in terms of existence and completeness. Existence in this case involves whether the documentation consists of a readme, an external website and a downloadable version. A documentation was considered to be complete if it contained the libraries API as well as examples and explanations on the usage and functionality.

4.12. Ease of Use

This characteristic is supposed to help developers judge whether they have the necessary skill set to use a library. Ease-of-use can take the three values, *easy*, *normal* and *difficult*. It is derived from each libraries' interface level and documentation by assigning weights to these, which are then added up. The weights for the existence of the documentation were awarded as follows. Three points for a website, two for a downloadable version and one for a readme. A documentation with an API was awarded another three points, another two for examples and one for extra explanations. If an high level interface existed, five points were given as opposed to one point for a low level interface. In the case that a library had both, it was awarded an extra six points. For a sum of over 16 points a library was assigned "easy", a sum between 16 and 9 lead to an assignment of "normal" and less than 9 to "difficult". We recommend inexperienced developers to choose libraries with an ease-of-use of either easy or normal. Experienced users may choose libraries of any of these three categories as they will be able to understand the given functionality better, even if it is not documented well.

5. Results

The Result section is dedicated to answering the research questions as well as showing excerpts of the data collected for the classification and the interpretation of it to a certain extent. Data listed in the tables in the following subsections belong to those characteristics of the libraries which we considered most important referring to our research questions. The entire range of data is presented in one large table listed in the appendix of this report. If this is a printed copy then the table can be found on the enclosed CD.

RQ1 Which library features are relevant for the purpose of contrasting cryptographic libraries?

The features we perceived to be of most importance for choosing and contrasting cryptographic libraries are the *library types*, *interface level*, *dependencies*, *related libraries*, *cryptographic features*, the *number of authors and contributors*, as well as the *impact*, state of the *documentation*, *project size* and *ease-of-use*. All of these features or characteristics are explained in detail in section 4, *Classification*. Some features like the version, were neglected, as they are not standardised and therefore can't be used to compare libraries. Other features, such as, if they are security-audited or what kind of attacks they might be resilient against, would be subject to future work because they exceed the scope of

this report. The collection of features is comprehensive but could be expanded by way of future work.

RQ2 Which are relevant libraries in the cryptographic field pertaining to currentness and popularity?

All the libraries collected matching these criteria, filtered through the search constraints listed in subsubsection 3.3.3, are listed for each language in the following subsections.

RQ3 Which libraries in the context of RQ2 have the highest impact?

The impact of each library is also listed in the following subsections. The libraries with the highest impacts are also mentioned in the respective sections, please see the corresponding sections for more detailed information.

RQ4 Which libraries in the context of RQ2 offer high potential for experienced developers in the cryptographic field?

The characteristics interface level, documentation and features were used to judge whether a library is written for more experienced users. Generally a low level interface requires more knowledge on the offered functionality and offers more configuration options. The feature set was inspected as to whether the library offers primitive features which can be used as building blocks for high level features. Documentation is interesting as it may help an experienced developer to judge how many options the library effectively offers. Libraries which offer a low level interface, some primitive features and extensive documentation are therefore considered to be interesting and have high potential for experienced developers.

RQ5 Which libraries in the context of RQ2 offer high potential for inexperienced developers in the cryptographic field?

Similarly to research question four, interface level, documentation, features and ease-of-use were consulted to see if the libraries are written for inexperienced developers. Ease-of-use is derived from the existence and completeness of the documentation as well as the interface level. See subsection 4.12 for a more detailed explanation. It takes the three values easy, normal and difficult. If the libraries ease-of-use is either easy or normal, it was considered fit to be used by less experienced developers.

5.1. C Libraries

The collection of libraries for the interface language C resulted in a list of 82 libraries which are reasonably current and popular. On average, these libraries have an impact of 19.81, whereas the lowest impact is 11.29 and the highest 39.37 on a scale of 0 through 40. No dedicated standard library for cryptographic purposes exists for the programming language C. There are, however, some very popular libraries that provide a C interface. For this reason libraries with a C interface can be considered as a base for many of the

cryptographic libraries. The five libraries with the highest impact are OpenSSL, wolfSSL, Libsodium, Libgcrypt and BoringSSL.

Even though OpenSSL can be considered one of the most popular cryptographic libraries, it does not provide a detailed documentation of its API. It does, however, provide examples and explanations regarding its use. OpenSSL has a high level interface as well as a low level interface and offers both high and low level cryptographic functions. For this reason it is both appropriate for experienced and inexperienced developers.

wolfSSL is advertised to be 'lightweight [and] portable' and having a 'simple API' [26]. If offers both high and low level features but only provides a high level interface. In addition, it provides a detailed documentation. For this reason, it is appropriate for inexperienced developers. However, one has to consider that this library is not freely available as it is published under a commercial license.

Libsodium also is an easy-to-use library which offers both a high level and a low level interface. Given its detailed documentation it is appropriate for inexperienced developers as well as experienced developers.

Libgcrypt is a cryptographic library based on GnuPG. It offers only a high-level interface but both high and low level cryptographic functions. This makes it rather interesting for inexperienced developers.

Lastly, BoringSSL is a fork of OpenSSL maintained by Google. As it is not meant to be used for general use, Google does not recommend for third parties to rely on it, because its API or ABI might change unexpectedly.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
137	openssl	39.37	▲	▲	72	46	-	OpenSSL, SSLeay
136	wolfssl	38.94	▲	▲	35	36	-	GPL-2.0, commercial
140	s2n	38.4	●	▲	29	21	▼	-
139	mbedtls	37.24	▲	▲	35	26	▼	-
132	libsodium	34.53	▲	▲	26	9	-	ISC
085	libgcrypt	34.23	▲	▲	45	28	-	GPL-2.0, LGPL-2.1
134	boringssl	33.87	▲	▲	52	38	●	OpenSSL, SSLeay, ISC
004	cryptominisat	33.71	▲	▲	14	11	▲	MIT
135	libtomcrypt	33.17	▲	▲	49	19	-	Public Domain, WTFPL
133	trezor-crypto	31.32	●	▲	32	10	▼	MIT
070	themis	31.05	●	▲	32	25	-	Apache-2.0
109	vita-openssl	30.39	▲	▲	54	40	▼	OpenSSL, SSLeay
113	Crypto-Engine-Contiki	29.93	▲	▲	54	45	▼	BSD-3-Clause
074	milagro-crypto-c	29.28	●	▲	20	16	▲	Apache-2.0
067	simon-speck-supercop	27.91	▲	▲	79	29	▼	-
076	engine	27.61	▲	▲	16	15	▼	OpenSSL, SSLeay
143	matrixssl	25.59	▲	▲	35	35	▼	-
111	libsodium	24.39	●	▲	21	7	▼	ISC

103	libsodium-CMake	23.98	●	▲	21	6	-	ISC
141	picotls	23.63	●	▲	25	19	▼	-
128	ckm	23.62	▲	▲	34	35	▼	Apache-2.0, BoostSoftwareLicense
116	nsec5-crypto	23.45	▼	●	3	8	▼	-
079	tlse	23.37	▲	▲	43	24	●	Public Domain, MIT, BSD
061	aes_128	22.81	●	●	5	1	-	MIT
068	ArduinoSpritzCipher	22.38	▼	●	6	3	●	MIT, CC-BY-SA-4.0, PublicDomain
100	sha2-le	22.09	▼	●	7	6	▼	-
101	Monocypher	21.31	●	▲	11	7	-	BSD-2-Clause, OwnLicense
138	org.eclipse.tinydtls.git	20.74	●	▲	11	11	▼	EPL-1.0, EclipseDistributionLicense1.0(BSD)
142	cifra	19.68	●	▲	20	9	▼	-
089	cryptobox-c	19.47	▼	●	4	3	▼	GPL-3.0, MIT, BSD-3-Clause, Apache-2.0, ISC
065	libhydrogen	19.06	●	●	6	7	▼	ISC
081	cardano-crypto	18.93	●	●	11	4	▼	MIT
062	wickr-crypto-c	18.88	●	▲	20	10	▼	Wickr Public Review License
093	CycloneCrypto	18.59	●	▲	23	12	▼	GPL-2.0
071	lua-chacha	18.51	▼	●	5	2	▼	MIT
130	TinyECC	18.49	●	▲	6	10	▼	RSAREF2.0 License
126	php-lcrypto	18.45	●	●	2	5	▼	PHP-3.01
124	luanacha	18.17	●	●	7	4	▼	MIT, OwnLicense
077	libvmod-crypto	17.96	▼	▼	4	3	▼	BSD-2-Clause
075	SHA-Intrinsics	17.92	▼	●	2	1	▼	-
121	NACrypto	17.75	●	●	12	5	▼	MIT
107	nim-crypto	17.53	●	▲	44	13	▼	Public Domain, WTFPL, GPL, BSD-3-Clause
069	cryptoauth-openssl-engine	17.13	●	▲	16	22	▼	Own License
112	itsp-crypto-practice	17.13	●	●	4	5	▼	MIT
119	cryptoauth-openssl-engine	17.13	●	▲	16	22	▼	Own License
117	cipher-aes128	17.06	●	●	12	3	▼	BSD-3-Clause
131	AESLib	17.06	▼	●	11	2	▼	GPL-3.0
090	mbedtls_ecp_compression	16.81	▼	▼	4	6	▼	-
122	CryptoAuth-explorations	16.44	▲	▲	19	16	▼	Apache-2.0, BSD-3-Clause
072	kr-crypto	16.38	▼	●	2	2	▼	-

094	65816-crypto	16.26	●	●	9	4	▼	-
080	openzkp	15.69	▼	●	7	8	▼	Apache-2.0
120	php-ext-sqrl	15.63	●	●	27	22	▼	LGPL-3.0
087	CryptoLab	15.58	●	▲	42	33	▼	MIT
073	cryptoauth-arduino	15.5	●	▲	8	5	▼	Own License
127	cryptoauth-arduino	15.5	●	▲	8	5	▼	Own License
078	crypto_ext	15.47	●	●	6	2	▼	BSD-3-Clause
084	4d-plugin-common-crypto	14.98	▲	▲	40	30	▼	OpenSSL, SSLeay
066	incubator-milagro-crypto	14.97	▲	▲	15	9	▼	Apache-2.0
098	cryptoapi	14.89	●	●	25	24	▼	BSD-2-Clause
125	Quadratic-Sieve	14.42	▼	●	3	3	▼	-
095	yacl	14.25	●	▲	22	14	▼	-
108	proest-arm11	14.04	▼	●	3	3	▼	-
104	crypto-collection	13.73	●	●	33	18	▼	-
110	vane	13.65	●	▲	18	8	▼	-
105	crypto_wrapper	13.63	▼	●	5	4	▼	-
064	crypto	13.31	●	●	11	4	▼	-
091	AtCryptoAuthLib	13.17	●	▲	8	14	▼	-
118	php-rsa	13.15	▼	●	2	4	▼	-
115	cse539_crypto_prj	13.0	▼	●	4	9	▼	-
086	CryptoMalloc	12.97	●	●	17	15	▼	-
096	libpaillier	12.9	▼	●	5	7	▼	-
083	cryptoauthlib	12.72	●	●	7	8	▼	-
102	node-weixin-crypto	12.68	▲	▲	35	28	▼	-
114	CryptoWrapperForCCode	12.68	▲	▲	40	31	▼	-
123	crypto1_bs	12.29	▼	●	8	3	▼	-
106	pebble-crypto	12.19	▼	▼	3	2	▼	-
088	scrypto	11.99	●	▲	22	18	▼	-
129	cryptlib	11.9	▲	▲	54	48	▼	-
082	cryptonight	11.45	●	▲	12	4	▼	-
092	LatticeCrypto	11.44	●	●	6	4	▼	-
097	Cryptology	11.44	▼	●	2	0	▼	-
099	cryptomiser	11.31	▼	●	4	1	▼	-
063	cryptospecs	11.3	●	▲	82	42	▼	-
144	lightcrypto	-	-	-	1	1	▼	-
145	pyaes	-	-	-	1	1	▼	-

Table 6: C-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 7 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the projects.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.30	13.96	17.33	19.80	23.49	39.37
Age in days	64.00	361.00	641.00	1069.00	1102.50	7231.00
Days since updated	0.00	53.00	177.50	272.51	480.00	968.00
Authors	1.00	1.00	1.00	1.30	1.00	6.00
Contributors	0.00	0.00	1.00	15.61	4.00	372.00
LOC	0.16k	1.59k	11k	102k	47k	3978k

Table 7: C statistics

5.2. C++ Libraries

The collection of libraries for the interface language C++ resulted in a list of 60 libraries which are reasonably current and popular. On average, these libraries have an impact of 18.40 , whereas the lowest impact is 11.8 and the highest 37.28 on a scale of 0 through 40. There is no dedicated standard library for cryptographic libraries on C++. The five libraries with the highest impact are qca, botan, cryptopp, cryptominisat, libkleo.

qca only provides a high level interface. Its documentation is quite detailed. The cryptographic functions it provides are high as well as low level so it might not only be appropriate for inexperienced developers but also for experienced developers.

botan, cryptopp and cryptominisat all provide both a high and a low level interface. They all provide high and low level functions with cryptominisat being the one with the lowest number of features. cryptopp has less high level functions than botan. For this reason cryptopp might be the best library to choose.

The last one, libkleo, mainly does mail cryptography. As there is no documentation available we do not suggest using it.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
021	qca	37.28	▴	▴	28	31	▴	LGPL-2.1
003	botan	34.89	▴	▴	57	38	-	BSD-2-Clause
001	cryptopp	34.69	▴	▴	57	18	-	Public Domain, BoostSoftwareLicense1.0
004	cryptominisat	33.71	▴	▴	14	11	▴	MIT
046	libkleo	31.71	●	▴	8	14	▾	GPL-2.0, GPL-2.1
070	themis	31.05	▴	▴	32	25	-	Apache-2.0

031	virgil-foundation-x	26.32	●	▲	28	20	▲	BSD-3-Clause
019	ruby-cryptopp	24.94	●	●	33	7	▼	MIT
023	virgil-sdk-cpp	24.87	●	▲	15	7	-	BSD-3-Clause
005	crypto	24.83	●	▲	16	23	▲	Apache-2.0
049	ofxCrypto	24.71	▼	▼	6	3	▼	-
010	arduino-crypto	22.42	▼	●	4	2	▼	BSD-2-Clause
056	cc7	22.18	●	▲	16	17	▼	Apache-2.0
018	cryptoTools	22.17	●	▲	12	6	▼	Public Domain
008	Cryptosuite	21.54	▼	●	6	3	-	-
030	CryptoCaesar	21.33	▼	●	8	4	▼	-
006	Whitebox-crypto-AES	21.26	●	▲	5	3	▼	-
014	mbedcrypto	21.14	●	▲	27	15	▼	MIT
057	NSSWrapper	20.26	●	▲	33	26	▼	MPL-2.0, GPL-3.0, Apache-2.0
017	cryptoBoost	20.08	●	●	21	8	▼	-
051	ChaoticImageCrypto	18.89	●	●	19	10	▼	-
024	CryptoGateway	18.81	●	▲	10	9	▼	-
045	esp8266-cryptosign	18.25	▼	●	4	4	▼	-
016	CryptoStreamPP	17.6	▼	●	19	3	▼	-
029	react-native-fast-crypto	17.44	●	▲	42	31	▼	-
009	ofxCrypto	17.25	▼	▼	5	3	▼	-
044	ZeroKit-Client-Native-Crypto	17.04	●	●	28	18	▼	-
026	Cryptography	16.93	●	●	9	9	▼	-
041	RnCAtmelCrypto	16.85	●	▲	20	9	▼	-
043	CryptoGL	16.47	●	▲	32	6	▼	-
034	cc7	16.09	●	▲	16	17	▼	-
013	Crypto	15.37	▼	●	6	3	▼	-
040	FBICRY	15.32	▲	▲	31	33	▼	-
038	cryptopp-ane	15.06	▲	▲	56	21	▼	-
042	botan-crypto-ane	15.06	▲	▲	57	31	▼	-
037	cryptopp	15.01	▲	▲	49	15	▼	-
054	AES128	14.79	●	▲	9	4	▼	-
039	cryptology	14.18	▼	●	6	3	▼	-
027	CryptoJPM	14.13	▲	▲	52	19	▼	-
053	Data_Encryption_using_RSA_cryptography	14.13	▼	▼	4	0	▼	-
035	Cryptography	14.04	▼	●	2	1	▼	-
052	php-cryptopp	13.69	●	▲	18	4	▼	-
059	CryptoEngine	13.68	●	▲	43	16	▼	-
036	cryptowrapper	13.4	▼	●	6	6	▼	-

050	QtCryptoHash	13.24	●	●	6	3	▼	-
025	cryptox	13.13	●	●	9	7	▼	-
028	cryptosha	13.09	●	▲	10	5	▼	-
020	Cryptographic-Algorithms	13.04	●	●	12	1	▼	-
022	urweb-crypto-random-openssl	12.89	▼	▼	4	1	▼	-
012	crypto	12.86	▼	▼	6	5	▼	-
007	CryptoppECC	12.79	▲	▲	50	16	▼	-
058	tinycrypto	12.63	●	●	7	5	▼	-
011	CryptoLib	12.54	●	●	5	3	▼	-
048	RRGCodingAndCrypto	12.54	▲	▲	65	54	▼	-
055	Curve25519_ESP8266	12.47	●	●	6	5	▼	-
033	newton-des-crypto	12.44	▲	▲	47	45	▼	-
015	ESP8266-Arduino-cryptolibs	12.31	▼	●	4	3	▼	-
032	react-native-rncrypto	12.23	▲	▲	56	35	▼	-
047	ope-from-cryptodb	12.14	▼	▼	8	4	▼	-
002	libchaos	11.78	●	▲	19	13	▼	-
060	poco	-	▲	▲	33	24	▼	-
659	DotNet(S)	-	-	-	1	1	-	MS-RSL

Table 8: C++-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▼), medium (●), large (▲), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▲), normal (●), difficult (▼), dash (-) if no data available.

Table 9 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the projects.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.78	13.21	16.28	18.38	21.38	37.28
Age in days	64.00	438.75	684.50	1104.17	1069.25	5450.00
Days since updated	20.00	85.00	225.50	364.52	605.75	1059.00
Authors	1.00	1.00	1.00	1.18	1.00	3.00
Contributors	0.00	0.00	1.00	5.05	2.00	66.00
LOC	0.12k	1.46k	9.81k	61k	45k	1113k

Table 9: C++ statistics

5.3. JavaScript Libraries

For the language JavaScript we found the largest number of libraries which we consider relevant. Eventually our list contained 146 libraries with the interface language JavaScript. On average, these libraries have an impact of 18.25, whereas the lowest impact is 11.31 and the highest 39.33 on a scale of 0 through 40.

JavaScript does not have a dedicated standard library for cryptography. Therefore developers might be most interested in the following five libraries. Google's Closure Library, the Stanford Javascript Crypto Library, xml-crypto, react-native-crypto and crypto-browserify are the five libraries with the highest impact.

Google's closure-library is not a specific cryptographic library but it still offers cryptographic functions. Therefore, its impact reflects the frequent use of the library in a whole rather than its cryptographic parts. However it has a high ease-of-use as it offers detailed documentation. As it offers only a high-level interface it is less attractive for experienced developers.

The name of the xml-crypto library already suggests that its purpose is to do cryptography on xml. Currently it supports only digitally signing xml but other cryptographic functions are planned.

The Stanford JavaScript Crypto Library is a general purpose cryptographic library that has a high level interface. It offers high and low level features. Due to its detailed documentation it is appropriate for experienced developers.

react-native-crypto and crypto-browserify are both partial implementations of node's crypto module for react-native and the browser. react-native-crypto offers both a high level interface and a low level interface while crypto-browserify only provides a high level interface. Both, however, provide only poor documentation.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
580	closure-library	39.33	▲	▲	49	23	-	Apache-2.0
440	sjcl	38.53	▲	▲	35	28	-	BSD-2-Clause, GPL-2.0
445	xml-crypto	35.81	●	●	6	9	●	MIT
458	react-native-crypto	35.23	●	●	10	7	▼	MIT
443	crypto-browserify	35.08	●	●	10	7	▼	MIT
449	forge	34.69	▲	▲	32	22	●	GPL-2.0
577	openpgpjs	34.64	▲	▲	29	18	-	GPL-3.0+
576	jsencrypt	34.0	▲	▲	35	34	▲	ISC, MIT
558	sjcl	32.4	▲	▲	34	32	▼	BSD-2-Clause, GPL-2.0
465	end-to-end	32.0	▲	▲	25	24	▼	Apache-2.0
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
439	sha.js	30.44	●	●	4	4	▼	MIT
438	crypto-js	29.08	▲	▲	18	5	-	MIT
467	js-libp2p-crypto	28.77	●	●	10	7	-	MIT

447	browserify-aes	28.65	●	●	15	3	▼	MIT
452	tweetnacl-js	28.06	▲	▲	43	42	●	Public Domain
442	node-argon2	27.61	●	●	5	3	▼	MIT, CC0-1.0, Apache-2.0
450	crypto-pouch	27.39	▲	▲	21	16	●	MIT
453	scrypt-async-js	27.04	●	●	3	4	▼	MIT, BSD-2-Clause
480	virgil-crypto-javascript	26.9	▲	▲	6	7	-	BSD-3-Clause
459	cryptiles	26.79	●	▼	2	2	●	BSD-3-Clause
437	node-rsa	25.99	●	●	6	5	●	Own Licenses
436	crypto	25.51	●	▼	5	5	▼	BSD-3-Clause
441	js-jose	25.19	▲	●	6	8	▼	Apache-2.0
573	forge-universal	24.87	▲	▲	32	23	▼	-
575	ursa	24.78	●	●	13	12	▼	-
483	get-random-values	24.49	▼	▼	4	2	▼	-
446	browserid-crypto	24.26	▲	●	10	11	▼	-
526	crypto-lite	24.04	●	●	5	3	▼	-
464	react-native-rsa	23.83	●	●	5	4	▼	MIT
540	webcrypto	23.77	●	●	9	8	▼	-
485	WebCrypto.js	23.65	●	●	7	5	▼	-
501	crypto-api	22.71	●	●	6	4	▼	-
543	node-npmdoc-angular-crypto	22.56	●	▼	3	4	▼	-
542	crypto-js	22.11	▲	▲	18	5	▼	-
574	js-nacl	21.98	●	●	17	8	▼	-
516	cryptobject	21.57	▼	▼	2	1	▼	-
454	CryptoStego	21.53	●	●	9	6	▼	-
466	native-crypto	21.52	●	●	8	9	▼	-
520	meteor-aes-crypto	21.4	▼	▼	3	2	▼	-
546	crypto-password-helper	20.84	●	▼	3	2	▼	-
474	crypto2	20.4	●	●	7	4	▼	-
489	mpw-js	20.13	●	●	5	3	▼	-
471	sas-crypto	19.8	▼	▼	7	2	▼	-
456	crypto-async	19.64	●	●	6	3	▼	-
538	angular-sha1	19.59	▼	▼	3	2	▼	-
536	gencryption	19.51	▲	▲	19	4	▼	-
549	meteor-sjcl	19.42	▼	▼	6	3	▼	-
451	javascript-crypto-library	19.41	▲	▲	13	9	▼	-
562	digest-stream	19.41	●	▼	4	2	▼	-
494	asymmetric-crypto	19.31	▼	▼	6	1	▼	-
497	js-crypto	19.29	●	●	6	3	▼	-
510	nxt-crypto	19.2	●	●	3	3	▼	-

476	n-crypto	18.81	●	●	8	5	▼	-
541	xml-crypto-browser	18.61	●	●	4	8	▼	-
479	crypto	18.6	▲	▲	15	21	▼	-
468	crypto-pro	18.56	▲	●	3	2	▼	-
477	crypto-hashing	18.35	▼	▼	3	1	▼	-
507	es-crypto	18.33	●	●	8	6	▼	-
462	crypto	18.13	●	●	6	3	▼	-
530	crypto-promise	18.11	▼	▼	6	1	▼	-
552	node-cryptopia-api	17.71	▼	▼	3	1	▼	-
457	merkle	17.68	●	●	4	2	▼	-
473	web-eid.js	17.62	●	▼	3	5	▼	-
455	js-crypto	17.44	●	▼	4	2	▼	-
514	node-cryptopia	17.41	●	▼	4	3	▼	-
448	angularjs-crypto	17.06	●	●	8	8	▼	-
461	angular-cryptography	16.9	▼	▼	4	2	▼	-
502	Cryptor	16.84	●	▼	11	1	▼	-
522	runtime-node-crypto	16.72	▼	▼	5	3	▼	-
515	cryptozoa	16.71	●	●	3	2	▼	-
555	webcrypto-crypt	16.7	●	●	12	9	▼	-
475	node-cryptojs-aes	16.59	▲	▲	13	5	▼	-
435	crypto	16.02	▲	▲	15	22	▼	-
567	wechat-dingding-cryptor	15.97	●	▼	5	2	▼	-
579	obsolete.cifre	15.88	▲	▲	21	14	▼	-
517	cryptonic	15.72	●	●	18	17	▼	-
482	WhiteBoxCrypto	15.6	▲	▲	7	4	▼	-
500	OpenCrypto	15.6	●	●	3	3	▼	-
553	Cryptor-Eof	15.6	●	●	3	3	▼	-
463	crypto-lib	15.19	▲	▲	22	14	▼	-
539	streembitlib	15.16	●	●	6	3	▼	-
527	CryptoCookie	15.15	●	▼	7	2	▼	-
560	hashifier	15.15	▼	▼	3	1	▼	-
490	node-nxt-api	15.08	▲	●	7	7	▼	-
488	createECDH	15.05	●	▼	2	5	▼	-
484	node-hashit	14.92	●	●	2	3	▼	-
486	meteor-crypto-sha256	14.92	▼	▼	3	2	▼	-
544	crypto-pouch	14.88	▼	▼	3	3	▼	-
444	crypto	14.74	▲	●	13	5	▼	-
578	cryptico	14.71	▲	●	17	12	▼	-
472	djcl	14.64	▲	▲	21	12	▼	-
470	crypto	14.63	▼	▼	4	2	▼	-
513	forward-secrecy	14.62	●	●	4	5	▼	-

508	crypto-js	14.6	▲	▲	27	13	▼	-
550	easy-encryption	14.44	●	▼	4	1	▼	-
499	crypto-token	14.4	▼	▼	3	1	▼	-
557	WebCrypto.js	14.34	●	▼	8	3	▼	-
561	subtle-digest	14.18	▼	▼	3	2	▼	-
506	crypto-random	14.17	▼	▼	3	1	▼	-
565	machinepack-aes256	14.11	●	▼	6	3	▼	-
564	libnatrium.js	14.08	▼	▼	4	1	▼	-
566	jscrypt	14.03	▼	▼	22	2	▼	-
547	cryptoJsPasswordEncoder	13.99	▼	▼	3	1	▼	-
568	node-aes256	13.97	●	●	7	1	▼	-
512	node-crypto-gcm	13.9	●	▼	9	2	▼	-
525	crypto-json	13.89	▼	▼	7	1	▼	-
521	neoatlantis-crypto-js	13.87	▲	▲	9	5	▼	-
570	crypt-maker	13.84	●	▼	12	2	▼	-
504	webcrypto-jwt	13.78	●	▼	4	3	▼	-
532	storj-crypto	13.76	●	▼	4	2	▼	-
492	cryptopeer-crypto	13.71	●	●	5	6	▼	-
559	secret-utils	13.71	▼	▼	3	1	▼	-
495	borschik-hash	13.58	▼	▼	3	1	▼	-
519	crypto-rc4	13.58	▼	▼	4	3	▼	-
535	microstar-crypto	13.53	●	▼	3	1	▼	-
496	cryptojs-extension	13.51	▲	▲	23	11	▼	-
563	crc-hash	13.5	●	●	3	3	▼	-
545	crypto-classic-otp	13.43	▼	▼	2	2	▼	-
518	cryptoanalysis	13.41	▲	●	17	8	▼	-
534	node-crypto	13.36	●	▼	8	2	▼	-
498	libaxolotl-crypto-node	13.35	●	▼	7	3	▼	-
487	crypto.js	13.25	▼	▼	8	1	▼	-
505	node-crypto-extra	13.15	●	▼	7	2	▼	-
460	crypto	13.12	●	●	2	2	▼	-
469	cryptohat	12.99	●	●	6	2	▼	-
569	node-acrypto	12.87	▼	▼	4	1	▼	-
528	crypto-stream	12.86	●	▼	8	2	▼	-
554	awesome-cryptography	12.85	●	●	5	0	▼	-
493	node-password-encrypter	12.68	●	●	3	3	▼	-
523	minimalistic-crypto-utils	12.55	▼	▼	3	2	▼	-
478	cryptoidentity	12.43	●	▼	9	18	▼	-
551	meteor-server-encryption	12.42	●	▼	3	3	▼	-
529	random-crypto	12.4	▼	▼	2	1	▼	-

531	node-crypto	12.25	●	▼	5	2	▼	-
548	node-easy-crypto	12.13	●	▼	6	2	▼	-
491	react-native-webview-crypto	12.05	▼	▼	3	3	▼	-
533	crypto-xor	12.03	▼	▼	3	1	▼	-
556	des	12.02	●	●	3	1	▼	-
511	SM2	11.99	▲	▲	8	24	▼	-
524	zymkey	11.76	●	▼	3	3	▼	-
571	crypt	11.55	●	▼	6	2	▼	-
537	crypt	11.48	▼	▼	3	2	▼	-
503	cryptojs	11.47	▲	●	11	5	▼	-
572	hmac-file-stream	11.44	▼	▼	4	1	▼	-
481	crypto-random-string	11.35	▼	▼	3	1	▼	-
509	crypto-aes	11.31	▲	●	7	5	▼	-
581	jscryptolib	-	▼	▼	4	2	▼	-
582	crypto-js	-	▲	▲	36	23	▼	-
583	msrCrypto1.4	-	▲	▲	14	9	▼	-

Table 10: JavaScript-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 11 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the JavaScript libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.31	13.77	16.02	18.58	21.55	39.33
Age in days	58.00	480.50	864.00	948.82	1246.50	2863.00
Days since updated	4.00	101.50	258.00	376.96	575.50	1655.00
Authors	1.00	1.00	1.00	1.24	1.00	5.00
Contributors	0.00	0.00	1.00	8.71	2.50	606.00
LOC	0.00k	0.21k	0.69k	12k	5.52k	698k

Table 11: JavaScript statistics

5.4. Ruby Libraries

The collection of libraries for the interface language Ruby resulted in a list of 19 libraries which are reasonably current and popular. On average, these libraries have an impact of

20.26, whereas the lowest impact is 11.46 and the highest 32.45 on a scale of 0 through 40. Ruby offers a Wrapper for the OpenSSL library as part of its standard library. Within the scope of this Wrapper it provides SSL, TLS and general purpose cryptography. It has both a high and low level interface and good documentation which makes it suitable for both inexperienced and experienced developers. Apart from the standard library, rbnacl and themis have a high impact. themis has a larger feature set than rbnacl. However, it only has a high level interface as opposed to rbnacl which has both. Either one is documented sufficiently and is therefore also of interest to both experienced and inexperienced developers.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
243	rbnacl	32.46	▲	●	14	8	-	MIT
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
251	scrypt	30.52	▲	●	7	6	●	MIT
236	reversible_cryptography	27.49	▼	▼	6	2	●	-
250	bcrypt-ruby	26.2	●	●	7	6	▼	MIT
245	gibberish	24.59	●	●	9	9	-	MIT
235	cryptosystem	21.64	▼	▼	5	3	●	MIT
237	sirp	19.61	●	●	4	10	-	BSD-3-Clause
239	virgil-crypto-ruby	18.69	●	●	2	4	▼	-
246	krypt	18.66	▲	▲	11	19	▼	-
247	ruby-mcrypt	16.26	▲	●	21	4	▼	-
248	ezcrypto	15.67	●	●	20	11	▼	-
238	lupine_crypto	14.93	▼	▼	3	2	▼	-
244	cryptor	14.66	●	●	12	5	▼	-
249	crypt	14.42	●	●	9	2	▼	-
242	ossl_cryptor	13.58	●	●	8	4	▼	-
241	session-keys-rb	12.36	▼	▼	5	7	▼	-
240	Ruby-Cryptography	11.46	▼	▼	2	0	▼	-
234	OpenSSL(S)	-	-	-	1	1	-	Ruby, GPL-2.0, BSD-2-Clause

Table 12: Ruby-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▼), medium (●), large (▲), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▲), normal (●), difficult (▼), dash (-) if no data available.

Table 13 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the Ruby libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.46	14.73	18.68	20.24	25.80	32.46
Age in days	287.00	597.50	1621.50	1739.72	2430.75	4430.00
Days since updated	20.00	143.75	305.00	753.50	1155.50	3101.00
Authors	1.00	1.00	1.00	1.22	1.00	3.00
Contributors	0.00	0.25	1.50	6.28	9.25	26.00
LOC	0.14k	0.49k	1.10k	4.87k	3.48k	47k

Table 13: Ruby statistics

5.5. Rust Libraries

The collection of libraries for the interface language Rust resulted in a list of 88 libraries which are reasonably current and popular. On average, these libraries have an impact of 18.35, whereas the lowest impact is 11.22 and the highest 34.81 on a scale of 0 through 40. Rust doesn't have a cryptographic standard library like other programming languages. Thus, other libraries with the highest impacts should be considered such as Rust-OpenSSL, sodiumoxide and rustls. Out of these libraries Rust-OpenSSL offers the most cryptographic features, both a high and low level interface and reasonably good documentation and is therefore suited for both experienced and inexperienced developers. sodiumoxide and rustls have a reasonably interesting amount of features and good documentation. However, sodiumoxide only has a high level-, and rustls a low level interface. rustls mainly contains high-level features. Although it is not under the top five libraries with the highest impact, the Ring library might be of interest to Rust developers. It has several cryptographic features, is documented sufficiently and offers a high level interface. The Ring library seems to be the best alternative to Rust-OpenSSL.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
216	rust-openssl	34.81	▲	▲	32	32	-	Apache-2.0, MIT, OpenSSL, SSLeay
215	sodiumoxide	32.07	▲	●	13	7	-	Apache-2.0, MIT
175	RustySecrets	28.28	▲	●	9	6	-	BSD-3-Clause
222	rustls	27.99	▲	▲	22	22	▲	Apache-2.0, MIT, ISC
225	rust-security-framework	27.58	▲	●	8	8	-	Apache-2.0, MIT
226	schannel-rs	27.35	▲	●	6	13	-	MIT
153	noise-rust	27.21	●	●	11	5	▼	Unlicense
212	rust_sodium	27.0	▲	●	15	7	-	-
207	tiny-keccak	25.93	●	●	3	2	-	CC0-1.0
146	rust-crypto	25.29	▲	▲	23	8	▼	MIT, Apache-2.0
192	md5	25.27	▼	▼	6	1	▼	Apache-2.0, MIT
224	rust-native-tls	25.03	●	●	5	9	-	MIT, Apache-2.0, BSD-like
184	curve25519-dalek	24.94	▲	▲	4	7	-	BSD-3-Clause

203	rust-gpgme	24.29	▲	▲	9	16	-	LGPL-2.1
179	argon2rs	24.05	●	●	4	2	-	MIT
227	webpki	23.84	●	●	6	16	-	ISC
208	twox-hash	23.45	●	●	4	1	-	MIT
197	ring-pwhash	23.39	●	●	6	3	-	MIT, Apache-2.0
206	rust-sha1	23.16	▼	▼	4	3	-	BSD-3-Clause
148	rust-gcrypt	22.79	▲	●	8	9	▲	LGPL-2.1
219	rust-djangohashers	22.58	●	●	5	3	-	BSD-3-Clause
210	hashes	22.54	▲	▲	10	7	-	Apache-2.0, MIT
176	scram	22.05	●	●	6	4	-	MIT
218	nobsign	21.55	▼	▼	3	1	▲	BSD-3-Clause
163	ruma-signatures	21.27	●	●	5	3	-	MIT
189	hc256	20.8	▼	▼	3	1	●	MIT
188	hc128	20.79	▼	▼	3	1	●	MIT
232	webpki-roots	20.75	●	●	10	12	▼	MPL-2.0
157	crypto-hash	20.66	▼	▼	4	3	-	MIT
194	newhope	20.48	●	●	5	3	▼	MIT
166	rust-fcp-cryptoauth	20.38	●	●	7	3	▼	MIT
209	block-ciphers	20.24	▲	●	15	3	-	Apache-2.0, MIT
169	blissb	20.08	●	●	3	3	▼	-
229	seckey	20.07	●	●	3	4	▼	-
213	rust-commoncrypto	19.9	●	●	4	1	▼	-
168	heimdal	19.89	●	●	5	3	▼	-
228	clear_on_drop	19.88	●	●	5	4	▼	-
185	ed25519-dalek	19.77	●	●	4	4	▼	-
155	milagro-crypto-rust	19.6	●	●	3	3	▼	-
182	chacha	19.35	●	●	6	3	▼	MIT, Apache-2.0
196	pwhash	18.9	●	●	5	6	▼	-
231	untrusted	18.76	▼	▼	2	2	▼	-
147	octavo	18.74	▲	▲	10	11	▼	-
180	blake2b	18.49	●	●	5	4	▼	-
193	murmurhash64-rs	17.4	▼	▼	4	1	▼	-
230	secrets	17.24	●	●	4	2	▼	-
173	rust-paillier	17.02	▲	●	5	5	▼	-
214	sodalite	16.83	▲	●	6	4	▼	-
150	minimal-tls	16.8	▲	●	7	8	▼	-
151	rust-siphash	16.59	●	●	2	4	▼	-
199	rust-bcrypt	16.19	▼	▼	4	1	▼	-
191	lioness-rs	16.06	▼	▼	5	2	▼	-
201	rust-farmhash	16.01	●	●	62	19	▼	-
165	cryptohash	15.82	▼	▼	2	1	▼	-

159	rust-crypto-working	14.87	▲	●	9	4	▼	-
171	message_verifier	14.87	●	●	10	2	▼	-
174	rust-threshold-secret-sharing	14.83	●	●	4	1	▼	-
181	blake2-rfc	14.52	●	●	7	4	▼	-
200	rust-blake2	14.48	▲	●	2	3	▼	-
195	pumpkin	14.33	▼	●	4	4	▼	-
204	rust-hkdf	14.28	▼	▼	4	4	▼	-
156	steam-crypto-rs	13.99	▼	▼	5	2	▼	-
217	edcert	13.96	●	●	4	4	▼	-
160	rust-cryptopp	13.85	●	●	4	3	▼	-
158	rust-crypto	13.84	▼	▼	5	0	▼	-
177	susurrus	13.64	●	●	8	4	▼	-
149	crypto	13.52	▼	▼	3	1	▼	-
170	dono-crate	13.51	●	●	4	4	▼	-
221	libtls.rs	13.44	●	●	2	4	▼	-
154	rust-crypto-nacl	13.34	●	●	4	3	▼	-
202	rust-fastpbkdf2	13.12	▼	▼	5	1	▼	-
187	hashsign	12.97	●	●	2	4	▼	-
186	hash-rs	12.89	▼	▼	4	1	▼	-
164	crypto_vault	12.85	▼	▼	4	2	▼	-
172	noises	12.66	●	●	9	2	▼	-
162	rust-tweetnacl	12.52	●	●	5	4	▼	-
152	rust-sparx	12.49	▼	●	5	1	▼	-
233	zerodrop-rs	12.45	▼	▼	4	2	▼	-
161	rust-paillier	12.4	●	●	4	5	▼	-
205	rust-rabbit	12.27	●	●	3	1	▼	-
167	rs-encryptfile	12.11	●	●	7	2	▼	-
190	jhash-rs	12.07	▼	▼	5	2	▼	-
183	chacha20-poly1305-aead	11.93	●	●	7	1	▼	-
198	rlwekex	11.76	●	●	2	1	▼	-
178	aes	11.67	●	●	7	1	▼	-
223	rust-mbedtls	11.37	▲	▲	38	25	▼	-
220	alt-tls	11.23	▲	●	7	10	▼	-
211	ring	-	▲	▲	31	17	-	ISC, OpenSSL, SSLeay, IntelLicense, Apache-2.0, EricYoungOpenSourceLicense

Table 14: Rust-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.

- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▲), normal (●), difficult (▼), dash (-) if no data available.

Table 15 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the Rust libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.23	13.74	18.49	18.52	22.30	34.81
Age in days	45.00	373.50	579.00	616.95	791.50	2091.00
Days since updated	20.00	54.75	149.50	256.48	430.00	975.00
Authors	1.00	1.00	1.00	1.05	1.00	2.00
Contributors	0.00	0.00	1.00	5.89	3.00	143.00
LOC	0.10k	0.55k	1.23k	4.30k	2.94k	110k

Table 15: Rust statistics

5.6. C# Libraries

The collection of libraries for the interface language C# resulted in a list of 41 libraries which are reasonably current and popular. On average, these libraries have an impact of 18.11, whereas the lowest impact is 11.21 and the highest 38.94 on a scale of 0 through 40. There is a cryptographic standard library for C# which is called DotNet in the list below. The .Net Framework offers a wide range of cryptographic features through the System.Security.Cryptography namespace. The functionality is accessible through a high level interface and is well documented and therefore suited for both experienced and inexperienced developers. Apart from the standard library, wolfSSL, bc-csharp, bcrypt.net and PCLCrypto are the libraries with the highest impact. Although the wolfSSL library has the highest impact and seems to offer both primitive and high level features this library seems to specialise in high level features and only offers a high level interface. Therefore, we recommend the standard library or bc-csharp as an alternative. bc-csharp offers a large range of both primitive and high level features through a high and low level interface. It is however insufficiently documented and as listed in the table below is "difficult" to use. bcrypt.net and PCLCrypto both have a limited set of features although both have a high and low level interface. Opposed to bcrypt.net which seems to be more difficult to use, PCLCrypto is easy to use.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
136	wolfssl	38.94	▲	▲	35	36	-	GPL-2.0, commercial
692	bc-csharp	30.1	▲	▲	60	50	▼	MIT, Apache-2.0
693	bc-csharp	29.45	▲	▲	60	50	▼	-
695	bcrypt.net	28.31	●	●	21	12	▼	MIT
661	PCLCrypto	27.54	▲	▲	21	11	▲	MS-PL
694	Cauldron	27.28	▲	▲	17	14	-	MIT

681	Science.Cryptography.Ciphers	25.27	●	●	6	3	▲	MIT
662	SecurityDriven.Inferno	23.43	●	●	7	4	-	MIT
665	GostCryptography	21.9	▲	▲	10	8	▼	mit
687	Isopoh.Cryptography.Argon2	21.0	●	▲	5	4	▼	Public Domain
673	Cryptography.ECDSA	20.6	●	▲	10	8	▼	MIT
688	CryptoHelper	20.4	▼	▼	4	2	▼	MIT
660	StreamCryptor	20.07	●	●	14	9	▼	MIT
680	cs-libp2p-crypto	19.38	▼	●	7	4	▼	MIT
666	nsec	18.74	●	▲	13	5	-	MIT
674	Kalix.ApiCrypto	17.8	●	●	4	5	▼	-
668	Konscious.Security.Cryptography	16.32	●	●	6	3	▼	-
670	Delta.Cryptography	16.08	▲	▲	26	35	▼	-
689	PWDTK.NET	15.81	▼	●	3	2	▼	-
678	Lightweight_IoT_Crypto_Library	14.66	▲	▲	26	19	▼	-
664	crypto	14.59	▼	●	4	2	▼	-
676	BouncyCastleCrypto	14.57	▲	▲	49	38	▼	-
671	CryptoService	14.56	▼	●	10	9	▼	-
667	EasyCrypto	14.11	●	●	7	3	▼	-
663	Cryptography	14.1	●	●	8	3	▼	-
683	cryptography.Net	13.54	●	●	26	20	▼	-
686	Free.Crypto	12.81	●	▲	7	2	▼	-
669	CryptoN	12.57	▼	●	4	3	▼	-
691	CryptoProgram	12.56	●	●	6	5	▼	-
679	virgil-crypto-net	12.41	●	▲	13	4	▼	-
685	SSMonoCryptographyLibrary	12.15	●	▲	11	9	▼	-
684	NoEdgeSoftware.Cryptography	11.81	●	●	9	5	▼	-
690	CryptoLibrary	11.65	▼	●	7	6	▼	-
682	Xamarin.Droid.AesCrypto	11.37	●	▲	9	3	▼	-
677	next-generation-crypto-.NET.git	11.31	●	●	6	5	▼	-
672	CryptoNet	11.21	▼	●	4	1	▼	-
675	cryptography	11.21	▼	▼	5	2	▼	-
659	DotNet(S)	-	-	-	1	1	-	MS-RSL
696	netcologne	-	-	-	1	1	▼	-

Table 16: C#-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 17 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the C# libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.21	12.57	15.81	18.10	21.00	38.94
Age in days	105.00	429.00	578.00	857.95	1291.00	2457.00
Days since updated	11.00	73.00	255.00	311.22	467.00	1128.00
Authors	1.00	1.00	1.00	1.16	1.00	4.00
Contributors	0.00	0.00	1.00	3.11	2.00	49.00
LOC	0.24k	2.42k	5.32k	43k	21k	330k

Table 17: C# statistics

5.7. Swift Libraries

The collection of libraries for the interface language Swift resulted in a list of 40 libraries which are reasonably current and popular. On average, these libraries have an impact of 17.56, whereas the lowest impact is 11.22 and the highest 33.65 on a scale of 0 through 40. There is a cryptographic standard library for Swift which is called Security in the list below. Apple provides several APIs for security related features amongst others the SecKey API for asymmetric keys and the Common Crypto Library. In the scope of this report all of these are treated as one standard library which offers a large range of features. It has detailed documentation and is accessible through a high and low level interface and thus suitable for both experienced and inexperienced developers. Apart from the standard library CryptoSwift, IDZSwiftCommonCrypto, themis and crypto (ID 624) have the highest impacts. Out of these four libraries CryptoSwift, IDZSwiftCommonCrypto and themis represent a respectable alternative to the standard library. They offer a few features with reasonable documentation and while themis only offers a high level interface, the other two have both a high and low level interface. crypto also has a few features and only a high level interface, it is, however, not documented sufficiently. A lot of the libraries listed in Table 18 are Wrappers of Apples Common Crypto library.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
625	CryptoSwift	33.65	▴	●	18	5	●	Zlib
627	IDZSwiftCommonCrypto	31.55	▴	●	16	8	●	MIT

070	themis	31.05	▲	▲	32	25	-	Apache-2.0
624	crypto	24.54	●	●	20	4	▼	MIT
642	CryptoKitten	24.08	●	●	6	3	▼	-
623	Crypto	23.94	▼	▼	4	2	●	MIT
629	BlueCryptor	23.57	▲	●	17	5	▼	Apache-2.0
632	CryptoJS.swift	23.38	●	●	11	2	●	MIT
657	BlueSSLService	23.31	●	●	4	6	●	Apache-2.0
614	cryptokit	22.39	▲	●	5	3	▼	BSD-3-Clause
621	swift-sodium	20.28	▲	●	16	5	●	ISC
640	CryptoKit	20.08	●	●	7	3	▼	MIT
638	Perfect-Crypto	19.58	●	●	20	6	●	Apache-2.0
647	CommonCrypto	18.08	●	●	5	3	▼	MIT
644	WebCrypto.swift	17.41	●	●	5	1	●	MIT
626	crypto	17.27	▼	▼	2	1	▼	-
653	CryptoWithSwift	16.58	▼	▼	3	2	▼	-
658	SwiftCommonCrypto	16.56	▼	▼	4	1	▼	-
628	AsymmetricCrypto	16.31	●	●	11	8	▼	-
639	CommonCrypto	15.71	▼	▼	2	2	▼	-
633	CryptoEssentials	15.36	●	●	5	3	▼	-
636	Crypto	15.08	●	▼	5	4	▼	-
630	SwiftSSL	14.53	●	▼	4	2	▼	-
648	CryptoSwift	14.36	▲	●	12	4	▼	-
643	SwiftCrypt	14.35	●	●	9	6	▼	-
645	RDHCommonCrypto	13.72	●	●	3	2	▼	-
649	SwiftCrypto	13.12	●	▼	4	5	▼	-
637	Crypto	12.93	▼	▼	2	3	▼	-
641	Crypto	12.79	●	▼	3	3	▼	-
646	CryptoSwift	12.48	▲	●	10	3	▼	-
650	TomatoCrypto	12.36	▲	●	12	5	▼	-
655	UTSwiftCrypto	12.28	●	▼	4	1	▼	-
656	TextCrypto	12.25	▼	▼	5	2	▼	-
654	SwiftCrypto	12.19	▼	▼	4	3	▼	-
634	Crypto	11.9	▼	▼	3	5	▼	-
651	CryptoKitten	11.64	▲	●	8	3	▼	-
631	Cryptography	11.51	●	●	7	4	▼	-
652	CommonCryptoSwift	11.3	▼	▼	4	1	▼	-
635	Crypto	11.22	●	●	3	1	▼	-
622	Security(S)	-	-	-	1	1	-	Own License

Table 18: Swift-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 19 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the Swift libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.22	12.63	15.71	17.56	21.34	33.65
Age in days	50.00	290.50	490.00	597.87	735.50	3294.00
Days since updated	20.00	70.50	211.00	263.92	380.50	1080.00
Authors	1.00	1.00	1.00	1.08	1.00	2.00
Contributors	0.00	0.00	1.00	3.72	2.00	54.00
LOC	0.01k	0.39k	1.16k	2.76k	2.65k	47k

Table 19: Swift statistics

5.8. Java Libraries

The collection of libraries for the interface language Java resulted in a list of 65 libraries which are reasonably current and popular. On average, these libraries have an impact of 18.35, whereas the lowest impact is 11.26 and the highest 38.94 on a scale of 0 through 40.

In the Java Standard Libraries which are part of, for example, OpenJDK, there is a cryptographic framework called Java Cryptography Extension (JCE). This can be considered to be the cryptographic standard library with a Java interface. However, the JCE does not implement the cryptographic algorithms itself. It only provides the API so a provider for the cryptographic functions is still needed. JCE provides a high and a low level interface and it is well documented.

Apart from the standard library, commons-crypto, org.globaltester.cryptoprovider, java-aes-crypto, tweetnacl-java and jnacl have the highest impacts.

For general purpose, commons-crypto might be the best alternative to the JCE. It offers both a high and a low level interface and is well documented. However, the number of features is quite low for both the high and low level cryptographic functions.

The library org.globaltester.cryptoprovider provides high and low level functions as well as a high level interface. Due to its minimal documentation it is only appropriate for experienced developers.

java-aes-crypto is a rather small library which only provides an Android class to encrypt and decrypt strings. The high number of 465 GitHub stars, however, shows the high demand for such a library. It is most appropriate for inexperienced developers which want to do this specific kind of cryptography in this specific environment.

The last two are also small libraries, providing curve cryptography. As tweetnacl-java offers both a low and a high level interface and has a more detailed documentation it might be preferred over jnacl.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
136	wolfssl	38.94	▲	▲	35	36	-	GPL-2.0, commercial
264	commons-crypto	34.21	▲	▲	14	6	-	Apache-2.0
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
299	org.globaltester.cryptoprovider	28.6	▼	▼	22	29	▼	GPL-2.0, GPL-2.0+
254	java-aes-crypto	28.5	▼	●	9	5	▲	MIT
261	tweetnacl-java	28.02	▲	▲	6	3	-	MIT
257	jnacl	27.23	●	●	4	3	●	BSD-2-Clause
319	jasypt	27.19	▲	▲	27	28	▼	-
255	spring-crypto-utils	26.83	●	▲	7	5	▲	Apache-2.0
270	java-crypto-conditions	25.79	●	●	5	6	▼	Apache-2.0
263	cryptacular	25.58	▲	▲	21	24	▼	Apache-2.0, LGPL-3.0
267	hadoop-crypto	25.25	●	●	6	8	▼	Apache-2.0
262	tink	23.93	▲	▲	22	13	▲	Apache-2.0
281	virgil-sdk-java-android	22.81	▲	▲	23	27	-	BSD-3-Clause
277	Java-PBKDF2	22.62	●	●	4	3	▼	BSD-2-Clause
260	Cryptolite	21.82	●	●	10	7	▼	MIT
266	cryptolib	21.39	●	●	11	4	▼	AGPL-3.0, commerciallicence
273	java-aes-crypto	20.69	●	●	9	4	▼	MIT
274	cryptobox-jni	20.45	●	●	4	4	▼	GPL-3.0
268	oversec_crypto	20.09	▲	▲	50	25	▼	GPL-3.0
288	java-crypto-utils	19.42	●	●	4	4	▼	-
256	Whitebox-crypto-AES-java	19.39	●	●	5	3	▼	GPL-3.0, LGPL-2.1+
315	chloride	19.17	▼	●	4	3	▼	-
280	org.globaltester.cryptoprovider	19.07	▼	▼	22	29	▼	-
258	aerogear-crypto-java	18.71	●	●	6	7	▼	-
306	amv-highmobility-crypto tool-wrapper	18.63	●	●	10	6	▼	-
265	CloudCrypto	18.36	▲	▲	9	7	▼	-
303	ntru-crypto	18.33	▲	▲	14	19	▼	-
271	android_crypto	18.31	●	●	6	6	▼	-
304	crypto-exist-java-lib	17.75	●	●	4	5	▼	-
312	tweetPepper	17.59	▲	▲	13	7	▼	-
283	Cryptography	17.46	●	●	6	2	▼	-

317	jnacl	17.41	●	●	4	3	▼	-
305	drill-crypto-functions	16.98	▼	▼	5	3	▼	-
307	sec-crypto-utils-2017-ist	16.95	▼	▼	4	2	▼	-
294	crypto-function	16.8	●	●	2	3	▼	-
286	crypto-service	16.44	▼	▼	2	2	▼	-
298	EllipticCurveCryptography	16.35	●	●	3	2	▼	-
300	cryptonit-applet	16.3	●	●	5	9	▼	-
316	Java-Crypt	16.28	▲	▲	8	11	▼	-
276	crypto-utils	15.9	▼	▼	4	0	▼	-
278	crypto-signatures	15.75	▼	●	4	2	▼	-
293	AbarrowCrypto	15.26	▲	▲	14	4	▼	-
259	jackson-crypto	15.25	●	●	7	3	▼	-
310	Whitebox-crypto-AES-java	15.15	●	●	5	3	▼	-
253	Cryptosuite	14.94	▼	▼	4	1	▼	-
285	ahome-crypto	14.36	▼	●	5	1	▼	-
313	idcrypt	13.66	●	●	9	9	▼	-
301	CryptoMarketsAPI	13.63	●	●	3	3	▼	-
311	djanpto	13.58	▼	▼	4	4	▼	-
284	crypto-util	13.37	●	●	9	3	▼	-
309	java-cryptobox	13.25	▼	▼	3	2	▼	-
287	aws-crypto-tools-java	13.23	▼	▼	5	6	▼	-
269	Crypto	13.21	●	●	2	5	▼	-
314	memlo	13.2	▼	▼	5	5	▼	-
302	CloudCrypto	13.16	●	●	12	29	▼	-
295	pdfbox-crypto	13.13	●	●	3	7	▼	-
289	cryptoutils	12.95	●	●	19	5	▼	-
290	gwt-crypto	12.81	▲	▲	49	41	▼	-
275	trestor-crypto-java	12.58	●	▲	4	4	▼	-
292	CryptoLibrary	12.5	▼	●	3	4	▼	-
279	CryptoManager	12.36	▼	●	3	3	▼	-
296	commons-crypto	12.24	●	●	4	9	▼	-
282	smcrypto	11.94	●	●	12	19	▼	-
272	CryptokCodeCracker	11.39	●	●	49	16	▼	-
308	cryptography-samples	11.33	●	●	9	11	▼	-
297	cryptoGriffin	11.27	▲	▲	32	40	▼	-
252	JDK(S)	-	-	-	1	1	-	GPL-2.0 + linking exception
291	dna-crypto	-	●	●	4	2	▼	-
318	bouncycastlecrypto157	-	▲	▲	76	65	▼	-

Table 20: Java-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 21 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the projects.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.27	13.47	16.98	18.48	21.04	38.94
Age in days	63.00	402.75	703.50	858.49	1008.00	3934.00
Days since updated	20.00	73.50	217.00	334.65	488.25	2659.00
Authors	1.00	1.00	1.00	1.24	1.00	4.00
Contributors	0.00	0.00	1.00	3.25	3.00	49.00
LOC	0.26k	0.95k	2.06k	28k	9.01k	795k

Table 21: Java statistics

5.9. Objective-C Libraries

The collection of libraries for the interface language Objective-C resulted in a list of 40 libraries which are reasonably current and popular. On average, these libraries have an impact of 16.74 , whereas the lowest impact is 11.21 and the highest 31.05 on a scale of 0 through 40. There is a cryptographic standard library for Objective-C which is called Security in the list below. As mentioned in subsection 5.7 Apple provides several APIs for security related features amongst others the SecKey API for asymmetric keys and the Common Crypto Library. In the scope of this report all of these are treated as one standard library which offers a large range of features. It has detailed documentation and is accessible through a high and low level interface and thus suitable for both experienced and inexperienced developers. themis, Objective-C-RSA, tweetnacl-objc and aerogear-cordova-crypto are the libraries with the highest impact. Apart from themis none of these represent a real alternative to the standard library. They only have very few features and a high level interface with however passable documentation. themis has more features, good documentation, although like the others only offers a high level interface.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
070	themis	31.05	▴	▴	32	25	-	Apache-2.0
616	Objective-C-RSA	24.64	▾	●	2	3	-	BSD-3-Clause
584	tweetnacl-objc	23.53	●	●	5	3	▾	-
612	aerogear-cordova-crypto	23.48	●	●	12	21	▴	Apache-2.0

600	INBSecurityCrypto	22.98	●	●	7	8	▼	MIT
614	cryptokit	22.39	▲	●	5	3	▼	BSD-3-Clause
621	swift-sodium	20.28	▲	●	16	5	●	ISC
603	aerogear-crypto-ios	18.83	●	●	6	2	-	Apache-2.0
586	react-native-aes	18.69	▼	▼	6	2	●	GPL-3.0
598	react-native-des	18.04	●	●	6	4	●	MIT
597	react-native-ecc	17.42	●	●	4	5	▼	MIT
591	LaraCryptObjC	16.36	●	●	6	3	▼	-
617	MIHCrypto	16.25	▲	●	14	10	-	MIT
588	RSA_crypto	16.14	▼	●	5	4	▼	-
609	nv-ios-digest	16.0	●	●	3	3	▼	-
596	Encryption-Key	15.93	▼	▼	3	1	▼	MIT
606	iOS-Crypto-API	15.8	●	●	3	4	▼	-
611	ObjC-PyCrypto	15.27	▲	●	8	2	▼	-
607	cocoa-crypto	14.98	●	●	2	1	▼	-
604	NuCrypto	14.91	▼	●	6	4	▼	-
592	CommonCrypto-module-clang	14.88	▼	▼	3	2	▼	-
589	nu-crypto	14.86	▲	●	11	14	▼	-
601	CryptoCoding	14.68	●	●	4	3	▼	-
610	CommonCrypto	14.5	▼	●	2	2	▼	-
608	RadCrypto	14.49	▲	●	11	14	▼	-
605	NSData-Crypto	14.18	▼	▼	3	1	▼	-
585	crypto	14.16	●	●	4	3	▼	-
602	GMEllipticCurveCrypto	14.07	●	●	2	7	▼	-
594	cryptobox-ios	14.03	●	●	8	4	▼	-
599	LFCommonCrypto	13.71	●	●	3	3	▼	-
613	crypto	13.63	▼	▼	2	2	▼	-
615	ReactiveCryptor	13.61	●	●	3	4	▼	-
590	EasyCrypto	13.21	▲	●	4	3	▼	-
595	IRCrypto	12.42	▲	●	6	4	▼	-
587	Cryptos	11.49	▼	▼	2	3	▼	-
593	iOS-and-Java-AES-Cryptor	11.21	●	●	3	2	▼	-
618	chilkat	-	▲	▲	42	35	▼	-
619	objc-crypto-lib	-	●	●	6	4	▼	-
620	bdangerous-crypto	-	●	●	11	7	▼	-
622	Security(S)	-	-	-	1	1	-	Own License

Table 22: Objective-C-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 23 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the Objective-C libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.21	14.14	15.12	16.73	18.20	31.05
Age in days	64.00	636.00	1029.50	1129.33	1533.75	3294.00
Days since updated	20.00	145.50	486.50	660.64	809.75	3209.00
Authors	1.00	1.00	1.00	1.06	1.00	2.00
Contributors	0.00	0.00	0.00	1.69	1.25	19.00
LOC	0.08k	0.78k	1.65k	6.85k	2.78k	149k

Table 23: Objective-C statistics

5.10. Go Libraries

The collection of libraries for the interface language Go resulted in a list of 69 libraries which are reasonably current and popular. On average, these libraries have an impact of 19.72, whereas the lowest impact is 11.22 and the highest 39.48 on a scale of 0 through 40.

There is a crypto package in the Go standard library which provides cryptographic functions. It has a low as well as a high level interface and is well documented. Therefore it is suited for both experienced and inexperienced developers.

Apart from the standard library, go-crypto, crypto (ID 321), sftp (ID 391) and sftp (ID 392) are the libraries with the highest impact.

Out of these, sftp (ID 391) might be the most interesting one. It is rather small and offers a high level interface for both high and low level cryptographic functions. As it provides a rather specific function, which is 'support for file system operations on remote ssh servers using the SFTP subsystem' it is more appropriate for experienced developers.

The other two libraries are forks of either Go's crypto package or the sftp library.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
321	crypto	39.48	▲	▲	40	31	-	BSD-3-Clause
332	go-crypto	39.45	▲	▲	43	36	-	BSD-3-Clause
325	crypto	39.17	▲	▲	40	31	-	BSD-3-Clause
324	crypto	38.01	▲	▲	39	30	▼	-
391	sftp	37.33	▲	▲	9	7	-	BSD-2-Clause
392	sftp	37.17	▲	▲	9	7	▼	-

330	kyber	36.88	▲	▲	20	12	-	MPL-2.0
390	sftp	36.29	▲	▲	9	11	-	BSD-2-Clause
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
351	pkcs11key	30.43	●	●	4	9	▼	BSD-2-Clause
329	libsodium-go	30.01	●	●	10	3	▲	ISC
326	go-jose	29.69	▲	▲	13	16	-	Apache-2.0
074	milagro-crypto-c	29.28	▲	▲	20	16	▲	Apache-2.0
356	golang-crypto	28.72	▲	▲	35	28	▲	-
345	go-libp2p-crypto	27.72	●	●	6	6	▼	MIT
393	sftp	25.47	●	▲	7	7	▼	-
333	whirlpool	25.08	●	●	5	2	▼	BSD-3-Clause
370	openpgp	24.81	▲	▲	11	13	▼	-
331	go-crypto	24.13	●	●	22	10	▼	Apache-2.0
355	go-crypto	23.42	●	●	8	4	▼	MIT
328	crypt2go	23.05	●	●	6	2	●	BSD-3-Clause
327	crypto	22.58	●	●	9	7	▲	MIT
388	pki	21.49	●	●	3	11	▼	ISC
336	cryptokit	21.21	●	●	10	3	▲	MIT
364	gear-auth	20.57	●	●	5	3	-	MIT
376	virgil-crypto-go	19.8	▼	▼	2	0	▼	-
368	go-openssl	19.51	▼	▼	5	1	▼	-
322	crypto	19.11	●	●	12	10	▼	-
352	fastrand	19.09	●	●	4	3	-	MIT
373	cryptoconditions	18.97	●	●	5	4	▼	-
357	cf-tls	18.15	▲	▲	13	16	▼	-
341	crypto	17.73	▼	▼	3	0	▼	-
362	golang-crypto-tls	17.57	▲	▲	15	18	▼	-
366	token	17.33	▼	▼	3	1	▼	-
383	cryptohelpers-go	17.17	▼	▼	3	1	▼	-
381	tlsdialer	16.84	●	●	3	9	▼	-
323	crypto	16.82	▲	▲	14	8	▼	-
378	EcDSA--EcDH-in-Go	16.52	●	●	3	2	▼	-
382	go-cryptopia	16.24	●	●	3	2	▼	-
342	crypto	16.14	▼	▼	6	2	▼	-
369	crypto-go	16.09	●	●	6	2	▼	-
359	crypto11	15.79	●	●	5	10	▼	-
349	go-cryptoapi	15.39	●	●	3	4	▼	-
358	cryhel	14.88	▼	▼	3	2	▼	-
350	go-crypto	14.85	●	●	5	6	▼	-
334	go-crypto	14.57	●	●	5	1	▼	-
339	crypto	14.56	▼	▼	5	3	▼	-

374	cryptoauth	14.5	●	●	3	5	▼	-
353	gosshtool	14.36	●	●	4	4	▼	-
335	cryptogo	14.28	●	●	6	4	▼	-
354	crypto-conditions	13.98	●	●	10	7	▼	-
384	go-sha3	13.82	●	●	8	5	▼	-
361	bletchley	13.75	●	●	6	7	▼	-
340	gocrypto	13.67	▼	▼	5	8	▼	-
338	crypto	13.62	●	●	11	3	▼	-
385	godjan	13.61	▼	▼	4	1	▼	-
363	hydrogen	13.58	●	●	6	3	▼	-
367	aws-crypto-tools-go	13.57	▼	▼	6	6	▼	-
360	randomstring	13.4	▼	▼	4	2	▼	-
344	cryptoauth	13.36	●	●	3	5	▼	-
343	ecdh	13.33	▼	▼	4	4	▼	-
346	cryptohelper	13.29	▼	▼	3	2	▼	-
380	gocrypto	13.21	●	●	6	1	▼	-
379	cmac	13.0	▼	▼	3	2	▼	-
386	gotls	12.98	▲	▲	12	17	▼	-
375	hog	12.95	▼	▼	3	1	▼	-
372	gpgeez	12.94	▲	▲	9	12	▼	-
389	tlsrp	12.86	▲	▲	14	17	▼	-
394	ca	12.85	▼	▼	3	9	▼	-
348	sm_crypto_golang	12.64	●	●	7	2	▼	-
337	crypto	12.52	●	●	2	3	▼	-
347	go-dkim	12.4	●	●	4	8	▼	-
371	sodiumbox	12.38	▼	▼	4	2	▼	-
377	shortid	12.22	▼	▼	4	2	▼	-
365	cryptostack	11.71	●	●	4	5	▼	-
387	bn448	11.21	●	●	2	2	▼	-
320	Crypto(S)	-	-	-	1	1	-	BSD-like + patent grant

Table 24: Go-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▼), medium (●), large (▲), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▲), normal (●), difficult (▼), dash (-) if no data available.

Table 25 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the projects.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.21	13.58	16.38	19.71	23.60	39.48
Age in days	64.00	347.25	778.50	852.00	1089.50	2631.00
Days since updated	13.00	80.25	200.50	311.87	538.75	1060.00
Authors	1.00	1.00	1.00	1.42	1.00	5.00
Contributors	0.00	0.00	1.00	11.36	4.00	140.00
LOC	0.06k	0.48k	1.27k	8.20k	7.47k	62k

Table 25: Go statistics

5.11. PHP Libraries

The collection of libraries for the interface language PHP resulted in a list of 41 libraries which are reasonably current and popular. On average, these libraries have an impact of 18.72, whereas the lowest impact is 11.21 and the highest 40 on a scale of 0 through 40. In the PHP standard library there are already many cryptographic functions included. Amongst them are low level and high level functions. The PHP standard library offers both a high and a low level interface and is fully documented. For this reason it should be appropriate for most developers.

Apart from the standard library phpseclib, php-encryption, libsodium-php and virgil-sdk-crypto-php are the libraries with the highest impact.

Of these php-encryption, libsodium-php and virgil-sdk-crypto-php are designed to be easy to use and should therefore be appropriate for inexperienced developers. They all provide at least a high level interface and are well documented which justifies their claim to be easy to use. libsodium-php in addition provides an extension to the popular libsodium library.

phpseclib provides a high level interface and high and low level cryptographic functions. As it is well enough documented it may also be appropriate for inexperienced developers.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
426	php-src	40.0	▲	▲	60	48	-	PHP-3.01
136	wolfssl	38.94	▲	▲	35	36	-	GPL-2.0, commercial
431	phpseclib	34.95	▲	▲	32	26	-	MIT
428	php-encryption	32.73	▲	●	23	17	-	MIT
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
430	libsodium-php	30.5	●	●	13	1	-	BSD-2-Clause
404	virgil-sdk-crypto-php	28.6	▲	●	3	3	▼	BSD-3-Clause
403	windwalker-crypt	24.98	●	●	11	6	●	LGPL-2.0+, LGPL-3.0+
427	php-crypto	23.24	▲	●	18	5	●	PHP-3.01
395	CryptoLib	20.01	●	●	4	4	-	AGPL-3.0+
416	php-Crypto	19.25	●	●	16	15	▼	-
429	halite	19.17	▲	●	17	10	▼	-

419	dterranovaCryptoBundle	19.14	▼	▼	5	3	▼	-
423	security	18.82	●	●	11	11	▼	-
405	php-crypto	18.62	▼	▼	8	2	▼	-
408	CryptoKit	18.26	●	●	4	4	▼	-
413	crypto-bundle	17.74	▲	●	6	4	▼	-
407	cryptal	16.99	▲	●	21	12	▼	-
412	CwsCrypto	16.66	●	●	7	5	▼	-
417	crypto-encoding	16.28	●	▼	9	9	▼	-
432	crypto-types	16.24	▲	●	14	8	▼	-
418	crypto-bridge	16.23	●	●	5	7	▼	-
433	pkcs5	16.21	●	●	5	4	▼	-
434	pkcs8	16.21	●	▼	10	7	▼	-
399	crypto	16.02	●	▼	6	3	▼	-
396	Crypto	14.73	●	▼	2	3	▼	-
397	CryptoApi	14.66	●	●	4	8	▼	-
409	crypto_lib	14.47	▼	▼	3	2	▼	-
414	cryptosecureprng	14.13	▼	▼	3	2	▼	-
410	dynamic-crypto	13.9	●	●	5	4	▼	-
425	Inner-Cryptography	13.34	●	▼	6	3	▼	-
402	cryptomute	13.08	●	●	11	6	▼	-
424	silverstripe-cryptofier	12.88	●	●	6	4	▼	-
398	crypto	12.77	▼	▼	3	2	▼	-
415	Cryptography	12.73	▼	▼	5	2	▼	-
406	cryptojs-aes-php	12.7	▼	▼	7	4	▼	-
411	Crypto228	12.23	▼	▼	2	0	▼	-
422	yacl	12.03	●	●	16	2	▼	-
401	php-openssl-cryptor	11.48	▼	▼	6	0	▼	-
421	crypto-utils-php	11.24	▼	▼	3	1	▼	-
400	crypto	11.23	▼	▼	7	0	▼	-
420	JsCrypto_for_PHP	11.21	●	●	3	1	▼	-

Table 26: PHP-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▼), medium (●), large (▲), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▲), normal (●), difficult (▼), dash (-) if no data available.

Table 27 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the projects.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.21	13.14	16.23	18.71	19.23	40.00
Age in days	68.00	348.00	737.50	957.07	1082.75	6726.00
Days since updated	20.00	46.00	213.50	287.69	401.00	1182.00
Authors	1.00	1.00	1.00	1.60	1.00	19.00
Contributors	0.00	0.00	0.00	23.79	2.00	779.00
LOC	0.07k	0.40k	1.10k	49k	4.23k	1619k

Table 27: PHP statistics

5.12. Python Libraries

The collection of libraries for the interface language python resulted in a list of 41 libraries which are reasonably current and popular. On average, these libraries have an impact of 21.61, whereas the lowest impact is 11.26 and the highest 38.94 on a scale of 0 through 40. There is a cryptographic standard library for python which is called CryptographicServices in the list below. Although the standard libraries couldn't be analysed to calculate an impact these are considered to be under the most important in reference to impact. In this case the standard library is very small, offers hardly any functionality and only has a high level interface. Therefore most developers might be more interested in one of the following libraries. Apart from the standard library, wolfSSL, PyCryptodome, Cryptography, PySodium and PyOpenSSL are the five libraries with the highest impact. From looking at our data Cryptography is a good alternative to the python standard library. As it offers a lot of primitive and high level features and has a high and low level interface with good documentation it is an attractive library for both experienced and inexperienced developers. PyCryptodome is a nice alternative to Cryptography with however, only a high level interface. While Cryptography is of the type Standalone, PySodium and PyOpenSSL are Wrappers for Libsodium and OpenSSL respectively. For people who want to stick with well known libraries these might be more interesting, although both do not provide an extensive range of features. Especially PyOpenSSL only has a high level interface and is therefore less attractive for experienced developers looking for a lot of configuration options. It does however, have more documentation than PySodium. Although the wolfSSL library has the highest impact and seems to offer both primitive and high level features this library seems to specialise in high level features and only offers a high level interface.

			Size		Features			
ID	Name	Impact	In	Ov	Pri	Hi	EoU	Licence
136	wolfssl	38.94	▲	▲	35	36	-	GPL-2.0, commercial
699	pycryptodome	37.18	▲	▲	52	29	-	BSD-2-Clause, PublicDomain
702	cryptography	36.91	▲	▲	44	39	-	Apache-2.0, BSD-3-Clause, PSFLicense
708	pysodium	36.43	●	●	7	2	●	BSD
732	pyopenssl	34.77	●	▲	15	22	-	Apache-2.0
004	cryptominisat	33.71	▲	▲	14	11	▲	MIT

700	pynacl	32.92	▲	▲	29	11	-	Apache-2.0
070	themis	31.05	▲	▲	32	25	-	Apache-2.0
074	milagro-crypto-c	29.28	▲	▲	20	16	▲	Apache-2.0
711	tls	29.26	●	●	8	10	●	Apache-2.0, BSD-3-Clause
697	pycryptopp	27.97	▲	▲	47	18	●	GPL-2.0, MIT, TGPPL-1.0, SPL-1.0
731	pycrypto	26.77	▲	▲	46	19	-	Public Domain, Python2.2License
706	pysha2	25.93	▼	▼	4	3	▼	MIT
717	sjcl	24.75	▼	▼	4	3	▼	BSD-3-Clause
701	pyaes	23.04	●	●	10	2	●	MIT
710	oscrypto	22.21	●	▲	23	21	▼	MIT
704	crypto_utils	22.02	●	●	8	2	▼	GPL
725	django-x509	21.2	●	●	5	7	▼	-
716	CryptographyKit	20.3	▲	▲	6	4	●	-
705	python-cryptoplus	19.7	●	▲	26	7	▼	-
712	crysp	17.75	●	●	13	5	▼	-
714	python-csiphash	17.07	●	●	5	2	▼	-
707	m2crypto	16.33	●	▲	26	23	▼	-
720	mcrypt	15.72	▼	▼	2	0	▼	-
718	M2Crypto	14.57	●	▲	26	23	▼	-
715	Elliptical-Curve-Cryptography	14.48	●	●	8	7	▼	-
703	crypto	14.45	●	●	7	6	▼	-
730	cypher	14.2	▼	▼	3	0	▼	-
709	django-cryptography	13.94	●	●	6	4	▼	-
727	cryptodev-python	13.93	●	●	8	4	▼	-
728	Rabin_cryptogram	13.73	▼	▼	2	0	▼	-
719	adver-neural-crypto	13.56	▼	▼	7	5	▼	-
726	senic.cryptoyaml	13.5	▼	▼	4	2	▼	-
721	cryptosystem-RSA	13.3	●	●	3	2	▼	-
722	python-ifalg	13.14	●	●	11	5	▼	-
724	otw	12.7	▼	▼	5	8	▼	-
713	cryptoshop	12.35	●	▼	13	4	▼	-
729	Cryptopie	11.77	▼	▼	5	3	▼	-
723	noxcrypt	11.26	●	●	9	1	▼	-
698	CryptographicServices(S)	-	-	-	8	0	-	PSFL
733	pyAES	-	▼	▼	6	2	▼	-

Table 28: Python-interface library overview

In the table above the following symbols and short forms were used.

- Size In/Ov (Internal/Overall): Project size compared to other libraries with the same interface language (In) and compared to all languages (Ov). Small (▾), medium (●), large (▴), dash (-) if no data available.
- Features Pri/Hi (Primitive/High): Number of features.
- EoU (Ease-of-Use): easy (▴), normal (●), difficult (▾), dash (-) if no data available.

Table 29 provides an overview of the impact, age in days, the time elapsed since the projects were last updated, number of authors and contributors and the size of the Python libraries.

	Min	1st Qu.	Median	Mean	3rd Qu.	Max
Impact	11.26	13.93	19.70	21.59	28.62	38.94
Age in days	261.00	535.50	929.00	1473.69	1629.00	6841.00
Days since updated	20.00	48.50	191.00	305.23	519.50	929.00
Authors	1.00	1.00	1.00	1.44	2.00	4.00
Contributors	0.00	0.00	1.00	12.38	11.00	151.00
LOC	0.12k	0.71k	2.03k	24k	34k	259k

Table 29: Python statistics

6. Conclusion

Software developers today use cryptographic libraries to implement security concepts. They are faced with choosing one out of a large variety of cryptographic libraries for diverse programming languages. This is rendered difficult as there is no standardized conception of different properties of cryptographic libraries. Within this report we established which library features are relevant for the purpose of comparing cryptographic libraries, and defined these. Additionally, a list of libraries, which were considered to be relevant, was derived. Ultimately this report provides a classification of over 700 cryptographic libraries. This classification can be used by developers to ascertain which library fits their abilities and requirements. Furthermore, it may be used as a basis for a wide range of studies on cryptographic libraries.

By way of contribution, this classification is the first of its kind, providing an overview that was generated in a uniform way over all libraries and languages. No form of an overview or uniform data collection on cryptographic libraries existed prior to this classification. The same can be said for the collection of the characteristics of the libraries.

6.1. Future work

The work done in this report is some very basic work that can serve as a basis for a large amount of different research topics. In this report we provided a general overview of the most important characteristics of the relevant libraries in twelve different programming languages. For this reason the type of research that might follow this work can be very diverse.

One basic direction in which research might go is the extension of the list of characteristics we collected for each library. Even though we tried to come up with the most important features, different perspectives or different goals could lead to additional characteristics that are worth adding to our list.

Another direction in which research might go is the improvement of various characteristics of cryptographic libraries. As it is important to know about the current distribution of those characteristics this report forms an essential basis for that type of research.

Furthermore the use of libraries by each other could be analysed automatically. By means of data mining, all libraries we found could be scanned for dependencies in between each other. By using our collection of libraries as a basis, this could be done to find out which libraries are used, that is, dependend upon most.

Finally another direction of research might be to analyse availability of cryptographic libraries. This could be done with respect to programming language, interface level, specific cryptographic functions and many other characteristics. Eventually one could suggest what kind of new cryptographic library would be worth developing.

6.2. Remarks

While working on this report, one of our priorities was the reproducibility of our work. Our goal was that this classification could be repeated with similar results given this report and the automated data collection tool we created.

One thing we did in order to fulfil this requirement was to thoroughly document the way we filtered out relevant libraries as can be seen in subsection 3.3. This was done by reporting the sites we used to look up the libraries as well as the search terms and filters we applied. In addition we documented the criterion we used to determine if a library is relevant to us.

In section 4 we described the individual characteristics we determined for each library. This should make it possible to repeat the data elicitation of each characteristic.

So finally this report should give guidance if one tries to repeat the two steps of collecting all relevant libraries and determining their characteristics. While doing so, one might assume that some characteristics haven't changed after we wrote our report like for example the main language. Other features in turn will definitely need to be confirmed or checked again like for example the supported features and the date of the last commit.

7. Acknowledgements

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Glossary

ABI Application binary interface.
API Application programmable interface.
LOC Lines of Code.
readme is a file which contains information on software and is usually provided as part of the software repository .
VCS version control system.

Acronyms

ISC Internet Systems Consortium.
JCE Java Cryptography Extension.
MAC Message Authentication Code.
PKC Public Key Cryptography.
PKI Public Key Infrastructure.
PYPL PopularitY of Programming Language.

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A. Detailed Library Table

In this appendix the complete table of all libraries can be found. It contains all data we collected about those libraries.

In the following table the following symbols and short forms were used.

- ID: Individual identification number; used consistently throughout the report.
- I. L.: Interface language.
- M. L.: Main language.
- I. Lvl.: Interface level (High, Low or both).
- Type: Standalone (Stan), Wrapper (Wrap), Fork or Reimplementation (Reim).
- Related: Related libraries as described in section 4.
- Depen.: Dependencies of the library as described in section 4.
- kLOC: Number of thousand lines of code.
- People: The number of people that worked on the library, split up into authors (A) and contributors (C).
- Doc. Kind: Type of documentation (any of Readme, Website and Download).
- Doc. Com. Completeness of the documentation (any of API-listed, examples and explanations).
- Dates: First published and last modified.
- EAM: Encryption and Authentication Modes.
- MAC: Message Authentication Code.
- PKC: Public Key Cryptography.
- PKI: Public Key Infrastructure.

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
021	qca	C++	C++	High	Wrap.	-	-	37.28	93	A 2 C 55	Readme, Website	Examples	2003-07-01 2017-07-08	LGPL-2.1	https://github.com/KDE/qca

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, DEAL, IDEA, M6, M8, NDS, PRESENT, SEED	WAKE	MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC	DH, DSA, DSS, RSA	CMP, OCSP, PKCS, PKIX, SET, X.509	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, IPsec, OCSP, PE, PEM, PGP, PoSE, SASL, SEND, SPNEGO, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
003	botan	C++	C++	High, Low	Stan.	-	-	34.89	167	A 1 C 66	Readme, Website, Download	Apis, Examples, Explanations	2006-05-18 2017-08-16	BSD-2-Clause	https://github.com/randombit/botan

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, DEAL, FPE, GOST, IDEA, KASUMI, M6, M8, Mercy, MISTY1, NDS, NOEKEON, PRESENT, RC, RC5, SAFER, Serpent, SEED, SHACAL, Simon, SM4, Threefish, Twofish, XTEA	ChaCha, Dragon, eSTREAM, LEX, MAG, NLS, RC, Salsa, Turing	BLAKE2, GOST, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SipHash, Skein, Streebog, Tiger, WHIRLPOOL	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, ElGamal, McEliece, RSA	CMP, Identrus, OCSP, PKCS, PKIX, SET, X.509	AS2, AKA, CMP, CSR, CMS, DTLS, DPD, DCII, EST, GPG, HTTPS, IKE, OTR, OCSP, PE, PEM, PGP, RTD, SEND, SRTP, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
001	cryptopp	C++	C++	High, Low	Stan.	-	-	34.69	106	A 1 C 50	Readme, Website, Download	Apis, Examples, Explanations	2002-10-04 2017-08-17	Public Domain, BostSoftwareLicense 1.0	https://github.com/weidai11/cryptopp

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305, VMAC	AES, AES-128, AES-192, AES-256, ARIA, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, IDEA NXT, IDEA, Kalyna, M6, M8, MARS, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, Threefish, TEA, Twofish, XXTEA	ChaCha, Dragon, eSTREAM, Panama, Salsa, SEAL, Sosemanuk, WAKE	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SipHash, Skein, Tiger, WHIRLPOOL	HMAC, Poly1305, VMAC	DH, DSA, DSS, ElGamal, LUC, RSA	CMP, PKIX, PKCS, SET	AS1, AS2, CMP, EST, HTTPS, IKE, SEND, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
004	cryptominisat	C++, C, Python	C++	High, Low	Stan.	-	-	33.71	61	A 1 C 30	Readme, Website	Examples	2009-08-10 2017-08-17	MIT	https://github.com/msoos/cryptominisat

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES, AES-128, ARIA, CAST, DEAL, IDEA, PRESENT, SEED, Simon	FISH, VMPC	MD5, SHA, SHA-1	-	DH	CMP, SET	CMP, CMS, EST, HTTPS, IKE, SCP, SEND, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
046	libkleo	C++	C++	High	Stan.	-	-	31.71	20	A 3 C 13			2015-12-08 2017-08-16	GPL-2.0, GPL-2.1	https://github.com/KDE/libkleo

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	-	CAST, Chiasmus, IDEA, NDS, PRESENT	-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512		-		-	CMP, LDAP, SET, X.509	CMP, CMS, EST, GPG, HTTPS, PEM, PGP, PoSE, S/MIME, X.509					
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossaclabs/themis	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA			LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, ECDH, ECDSA, RSA	CMP, LDAP, RDBMS, SET		AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
031	virgil-foundation-x	C++	C++	High	Stan.	-	-	26.32	22	A 2 C 2	Readme, Website	Examples, Explanations	2015-08-31 2017-08-08	BSD-3-Clause	https://github.com/VirgilSecurity/virgil-foundation-x	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, M6, M8, MMB, NDS, PRESENT, SEED, TEA, XTEA			Crypto1, RC		MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSS, ECDH, ECDSA, RSA	CMP, PKCS, SET, X.509		CMP, CMS, EST, HTTPS, IES, PE, PEM, RMA, TLS, WPA, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
019	ruby-cryptopp	C++	C++	High	Wrap.	001	-	24.94	7.92	A 1 C 0	Readme	Explanations	2010-03-16 2017-06-28	MIT	https://github.com/dark-panda/ruby-cryptopp	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, DEAL, IDEA NXT, IDEA, MARS, RC, RC2, RC5, RC6, SAFER, Serpent, SHACAL, SHARK, Skipjack, TEA, Twofish			Panama, SEAL		HAVAL, MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL				HMAC		DSS	CMP, PKCS, SET		CMP, EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
023	virgil-sdk-cpp	C++	C++	High	Stan.	-	-	24.87	29	A 1 C 3	Readme, Website	Apis, Explanations	2015-05-14 2017-08-16	BSD-3-Clause	https://github.com/VirgilSecurity/virgil-sdk-cpp	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-256, CAST, DEAL, IDEA, M8, NDS, PRESENT, SEED			Crypto1, LEX		-				-		RSA	SET		EST, HTTPS, PoSE, SEND, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
005	crypto	C++	C++	High	Stan.	-	-	24.83	34	A 1 C 5	Readme, Download	Apis, Examples, Explanations	2015-12-29 2017-06-13	Apache-2.0	https://github.com/TrustedPlus/crypto	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**

	-	AES, AES-256, CAST, DES, DEAL, IDEA, M6, M8, PRESENT	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256	-	DH, DSA, DSS, RSA	CMP, PKCS, X.509	OCSP, SET,	CMP, CSR, CMS, EST, HTTPS, IKE, OCSP, PE, PEM, PHE, SEND, SSL, TSP, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
049	ofxCrypto	C++	C++	High	Fork	009	-	24.71	0.32	A 3 C 0	Readme	Examples	2013-02-27 2017-04-11	-	https://github.com/musiko/ofxCrypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	DEAL, M6, PRESENT	-	MD5, SHA, SHA-1	HMAC	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
010	arduino-crypto	C++	C++	High	Stan.	-	-	22.42	1.0	A 1 C 2	Readme	Examples, Explanations	2016-04-25 2017-08-07	BSD-2-Clause	https://github.com/intrbiz/arduino-crypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES	-	SHA, SHA-2, SHA-3, SHA-256	HMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
056	cc7	C++	C++	High	Wrap.	137	-	22.18	9.2	A 1 C 2			2016-04-05 2017-06-02	Apache-2.0	https://github.com/lime-company/cc7

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, Blowfish, Camellia, CAST, DES, IDEA, PRESENT, RC, RC2, SEED	RC, Turing	MD5, RIPEMD	HMAC	DH, DSA, DSS, ECDH, ECDSA, RSA	OCSP, SET, X.509	CMS, EST, IKE, OCSP, PEM, SRTP, SSL, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
018	cryptoTools	C++	C++	High	Stan.	https://www.miracl.com/index	-	22.17	13	A 1 C 5	Readme		2016-11-18 2017-08-05	Public Domain	https://github.com/ladnir/cryptoTools

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES, CAST, DEAL, IDEA, PRESENT, RC, RC2, SEED	-	SHA, SHA-1	-	-	CMP, SET	CMP, EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
008	Cryptosuite	C++	C++	High	Fork	https://github.com/bakercp/Cryptosuite	-	21.54	1.25	A 2 C 5	Readme, Website	Apis, Explanations	2010-05-26 2016-09-02	-	https://github.com/spaniakos/Cryptosuite

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	IDEA, PRESENT	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256	HMAC	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
030	CryptoCaesar	C++	C++	High	Stan.	-	-	21.33	0.8	A 1 C 2			2016-06-08 2017-05-28	-	https://github.com/hieifn/CryptoCaesar

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	M6, M8	MAG	-	-	DH	-	CMC, DPD, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
006	Whitebox-crypto-AES	C++	C++	High	Stan.	-	-	21.26	9.81	A 1 C 5	Readme		2013-02-27 2017-01-31	-	https://github.com/ph4r05/Whitebox-crypto-AES

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES, IDEA, PRESENT	-	MD5	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

014	mbedcrypto	C++	C++	High	Stan.	139	-	21.14	7.71	A 1 C 1	Readme	Examples, Explanations	2016-03-03 2017-05-24	MIT		https://github.com/azadkuh/mbedcrypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	CBC-MAC, HMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, IDEA, M8, PRESENT, SAFER, SEED, 3DES, Twofish				Crypto1	MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				CBC-MAC, HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, SET		AKA, CMP, EST, HTTPS, PEM, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
057	NSSWrapper	C++	C++	High	Wrap.	https://developer.mozilla.org/en-US/docs/Mozilla/Projects/NSS	-	20.26	45	A 1 C 0	Readme	Explanations	2016-08-09 2017-07-13	MPL-2.0, GPL-3.0, Apache-2.0		https://github.com/glueckkanja-pki/NSSWrapper
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Camellia, CAST, DES, DEAL, IDEA, M6, M8, MAGENTA, NDS, NewDES, PRESENT, RC, RC2, RC5, SEED, Skipjack, 3DES				MAG, RC, Turing, WAKE	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, OCSP, PKIX,	LDAP, PKCS, SET, X.509	AKA, CMP, CMS, DCII, EST, HTTPS, IKE, OCSP, PE, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
017	cryptoBoost	C++	C++	High	Stan.	-	-	20.08	3.54	A 1 C 4	Readme		2016-10-05 2017-05-08	-		https://github.com/romangol/cryptoBoost
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256, CAST, DES, M6, RC M8, PRESENT, SEED, SM4, TEA, XTEA					SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC		DH, DSS, ECDSA, SET RSA			EST, PE, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
051	ChaoticImageCrypto	C++	C++	High, Low	Wrap.	-	-	18.89	1.74	A 1 C 2			2017-03-31 2017-06-12	-		https://github.com/botezatumihaicatalin/ChaoticImageCrypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, DFC, FPE, M6, M8, MMB, RC, RC2, Serpent, SM4				-	-				-		DH	-		CGA, EST, GSI, HTTPS, I2P, IKE, MSE, PE, RTD
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
024	CryptoGateway	C++	C++	High, Low	Wrap.	-	-	18.81	21	A 2 C 2			2014-10-30 2016-09-25	-		https://github.com/JonWBedard/CryptoGateway
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	CAST, M6, M8, PRESENT, SEED				Crypto1, RC	scrypt				-		DH	CMP, SET		CMP, DPV, EST, PE, SEND, TSP
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
045	esp8266-cryptosign	C++	C++	High, Low	Wrap.	-	-	18.25	0.85	A 1 C 0			2016-11-28 2017-05-26	-		https://github.com/kotl/esp8266-cryptosign
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT				-	-				-		-	SET		HTTPS, SEND, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
016	CryptoStreamPP	C++	C++	High, Low	Wrap.	-	-	17.6	0.86	A 1 C 1			2015-01-08 2017-01-22	-		https://github.com/benhj/CryptoStreamPP
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**

	-					AES, Blowfish, Camellia, CAST, DES, IDEA, MARS, RC, RC5, RC6, Serpent, SEED, SHACAL, Skipjack, TEA, Twofish		-			PBKDF2, scrypt				-		DSS		SET		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
029	react-native-fast-crypto	C++	C++	High, Low	Wrap.	-		-		17.44	17	A C	1 2				2017-07-03 2017-07-23	-			https://github.com/Airbitz/react-native-fast-crypto
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	HMAC, XCBC	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, GOST, IDEA NXT, IDEA, M6, M8, MESH, NDS, PRESENT, RC, RC2, RC5, SEED					RC, Salsa, SEAL, Vernam		GOST, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL					HMAC, XCBC		DH, DSA, DSS, ECDH, ECDSA, RSA		CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509		CMC, CMP, CMS, DTLS, EST, HTTPS, IKE, IPsec, OCSP, PE, PEM, PHE, SEND, SRTP, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
009	ofxCrypto	C++	C++	High, Low	Wrap.	-		-		17.25	0.3	A C	2 0				2013-02-27 2016-01-06	-			https://github.com/jkosoy/ofxCrypto
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	-	DEAL, M6, PRESENT					-		MD5, SHA, SHA-1						-		-		SET		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
044	ZeroKit-Client-Native-Crypto	C++	C++	High, Low	Wrap.	-		-		17.04	3.01	A C	1 0				2017-05-08 2017-07-03	-			https://github.com/tresorit/ZeroKit-Client-Native-Crypto
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	HMAC, Poly1305, XCBC	AES, AES-128, AES-256, Blowfish, Camellia, CAST, DES, IDEA, RC, RC2, RC5, SEED					ChaCha, RC, SEAL		BLAKE2, MD2, MD5, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC, Poly1305, XCBC		DH, DSA, DSS, ECDH, ECDSA, RSA		CMP, OCSP, SET, X.509		CMP, CMS, HTTPS, OCSP, PEM, SRTP, SSL, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
026	Cryptography	C++	C++	High, Low	Wrap.	-		-		16.93	4.33	A C	2 4				2016-03-13 2016-06-04	-			https://github.com/duy0503/Cryptography
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	-	DES, M6, M8, PRESENT					Vigenere cipher		-						-		DH, DSS, RSA		SET		HTTPS, PE, PEM, SEND, SILC
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
041	RnCAtmelCrypto	C++	C++	High, Low	Wrap.	-		-		16.85	15	A C	1 1				2016-12-10 2017-04-26	-			https://github.com/RiddleAndCode/RnCAtmelCrypto
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	OMAC	AES, AES-128, AES-192, AES-256, CAST, DEAL, IDEA, M6, M8, NDS, PRESENT, SEED					Turing, WAKE		SHA, SHA-2, SHA-3, SHA-256					OMAC		ECDSA		CMP, SET		AKA, CMP, EST, HTTPS, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
043	CryptoGL	C++	C++	High, Low	Wrap.	-		-		16.47	21	A C	1 3				2013-03-25 2015-07-27	-			https://github.com/glapointe7/CryptoGL
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**						**MAC**		**PKC**		**PKI**		**Protocol**
	CBC-MAC, HMAC, OMAC, TMAC, XCBC	CAST, CAST-128, CAST-256, DEAL, IDEA NXT, IDEA, NOEKEON, PRESENT, RC, RC5, SEED, Skipjack, Twofish, XTEA					ISAAC, MAG, RC, Salsa, SEAL, SNOW		RIPEMD, SHA, SHA-3, Tiger					CBC-MAC, HMAC, OMAC, TMAC, XCBC		-		CMP, SET		CMP, EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
034	cc7	C++	C++	High, Low	Wrap.	-	-	16.09	9.2	A 1 C 1			2016-04-05 - 2017-02-13		https://github.com/hvge/cc7
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, Blowfish, Camellia, CAST, DES, IDEA, PRESENT, RC, RC2, SEED			RC, Turing		MD5, RIPEMD					HMAC	DH, DSA, DSS, ECDH, ECDSA, RSA	OCSP, SET, X.509	CMS, EST, IKE, OCSP, PEM, SRTP, SSL, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
013	Crypto	C++	C++	High, Low	Wrap.	-	-	15.37	1.25	A 2 C 1			2015-11-30 - 2015-12-02		https://github.com/Codehhh/Crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, CAST			LEX		-					-	DH	SET	SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
040	FBICRY	C++	C++	High, Low	Wrap.	-	-	15.32	117	A 1 C 0			2011-08-16 - 2016-05-08		https://github.com/art-drobanov/FBICRY
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, DFC, IDEA NXT, M6, M8, NDS, PRESENT, RC, RC2, RC5, RC6, SEED, UES			LEX		FSB, MD2, MD5, MD6, SHA, SHA-1, SHA-3					HMAC	DH, DSA, ECDH, LUC, RSA, YAK	CMP, SET	AS1, AS2, CMP, CGA, DTLS, DPV, EKE, EST, GSI, GPG, IKE, OTR, PCT, PE, PEM, PHE, PGP, RMA, RTD, SCP, SSH, SSL, TSP, TLS, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
038	cryptopp-ane	C++	C++	High, Low	Wrap.	-	-	15.06	72	A 1 C 2			2014-09-08 - 2015-03-14		https://github.com/vpmedia/cryptopp-ane
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, DEAL, IDEA NXT, IDEA, M6, M8, MARS, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, SM4, TEA, Twofish, XXTEA			eSTREAM, LEX, Panama, Salsa, SEAL, Sosemanuk, WAKE		MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL					HMAC, VMAC	DH, DSA, DSS, ElGamal, LUC, RSA	CMP, PKCS, SET	CMP, CGA, EST, GSI, HTTPS, IKE, PE, PEM, SCP, SEND, SSH, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
042	botan-crypto-ane	C++	C++	High, Low	Wrap.	-	-	15.06	100	A 1 C 2			2014-09-08 - 2015-03-14		https://github.com/vpmedia/botan-crypto-ane
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Anubis, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, DEAL, FPE, GOST, IDEA, KASUMI, KHAZAD, M6, M8, MARS, MISTY1, MMB, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, Skipjack, TEA, 3DES, Twofish, XTEA			Dragon, eSTREAM, LEX, RC, Salsa, Turing, WAKE		GOST, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Skein, Tiger					HMAC	DH, DSA, DSS, ECDH, ECDSA, ElGamal, RSA	CMP, PKCS, X.509	LDAP, SET,	AKA, CMP, CMS, DPD, EST, GPG, HTTPS, IKE, IPsec, PE, PEM, PGP, RTD, SEND, SSH, SSL, TSP, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
037	cryptopp	C++	C++	High, Low	Wrap.	-	-	15.01	69	A 1 C 0			2002-10-04 - 2015-02-01		https://github.com/cawka/cryptopp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, IDEA NXT, IDEA, MARS, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, TEA, Twofish, XXTEA	eSTREAM, Panama, Salsa, SEAL, Sosemanuk, WAKE	MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL	HMAC, VMAC	DH, DSA, DSS, ElGamal, LUC, RSA	CMP, PKCS, SET	CMP, EST, HTTPS, IKE, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
054	AES128	C++	C++	High, Low	Wrap.	-	-	14.79	32	A 1 C 2			2015-03-09 2016-02-24	-	https://github.com/GLADICOS/AES128

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-128, M6, PRESENT	-	-	-	-	SET	EST, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
039	cryptology	C++	C++	High, Low	Wrap.	-	-	14.18	1.2	A 1 C 1			2015-03-02 2016-02-22	-	https://github.com/jonaskirkemyr/cryptology

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL, PRESENT, SEED	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
027	CryptoJPM	C++	C++	High, Low	Wrap.	-	-	14.13	82	A 1 C 1			2015-01-05 2015-04-24	-	https://github.com/DevJPM/CryptoJPM

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, IDEA NXT, IDEA, M6, M8, MARS, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, Threefish, TEA, Twofish, XXTEA	eSTREAM, Panama, Salsa, SEAL, Sosemanuk, WAKE	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Skein, Tiger, WHIRLPOOL	HMAC, VMAC	DH, DSA, DSS, ECDSA, ElGamal, LUC, McEliece, RSA	CMP, PKCS, SET	CMP, EST, HTTPS, IKE, PE, PEM, SEND, WTLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
053	Data_Encryption_using_RSA_cryptography	C++	C++	High, Low	Wrap.	-	-	14.13	0.36	A 1 C 1			2017-02-16 2017-03-16	-	https://github.com/mk9440/Data_Encryption_using_RSA_cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	IDEA, PRESENT	-	-	-	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
035	Cryptography	C++	C++	High, Low	Wrap.	-	-	14.04	0.57	A 1 C 1			2015-02-02 2015-05-05	-	https://github.com/anthok/Cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	DSA	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
052	php-cryptopp	C++	C++	High, Low	Wrap.	-	-	13.69	15	A 1 C 0			2014-10-21 2015-07-26	-	https://github.com/samleybrize/php-cryptopp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, CAST, DEAL, PRESENT	Panama, Salsa, Sosemanuk	MD5, SHA, SHA-1, SHA-3, SHA-256, SHA-512	HMAC	-	SET	EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

059	CryptoEngine	C++	C++	High, Low	Wrap.	-		-	13.68	28	A 1 C 0		2014-10-08 2014-10-13	-		https://git.code.sf.net/p/qt-cryptoengine/CryptoEngine
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, VMAC	AES, Blowfish, Camellia, CAST, DES, DEAL, IDEA, M6, M8, MARS, NDS, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, TEA, Twofish			eSTREAM, Panama, Salsa, SEAL, Sosemanuk, WAKE			MD2, MD5, RIPEMD, SHA, SHA-2, SHA-3, SHA-256, SHA-512, Tiger				HMAC, VMAC	DH, DSA, DSS, El-Gamal, LUC, RSA		PKCS, SET, X.509	EST, HTTPS, IKE, PE, SEND, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
036	cryptowrapper	C++	C++	High, Low	Wrap.	-		-	13.4	1.46	A 1 C 0			2015-01-20 2015-01-20	-	https://github.com/giovani-milanez/cryptowrapper
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, PRESENT			-			-				-	-		CMP, SET, X.509	CMP, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
050	QtCryptoHash	C++	C++	High, Low	Wrap.	-		-	13.24	3.03	A 1 C 1			2015-11-19 2016-05-02	-	https://github.com/rikyoz/QtCryptoHash
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, IDEA NXT, PRESENT			-			RIPEMD, Tiger, WHIRLPOOL				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
025	cryptox	C++	C++	High, Low	Wrap.	-		-	13.13	2.25	A 1 C 0			2016-11-20 2017-02-05	-	https://github.com/madera/cryptox
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, IDEA NXT, MAGENTA, PRESENT, SEED			SNOW			MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-		CMP, SET	CMP, EST, HTTPS, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
028	cryptosha	C++	C++	High, Low	Wrap.	-		-	13.09	25	A 1 C 2			2016-12-06 2016-12-21	-	https://github.com/Alex-Kuz/cryptosha
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, IDEA, NDS, PRESENT, SEED			eSTREAM, LEX			-				-	-		SET	AKA, EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
020	Cryptographic-Algorithms	C++	C++	High, Low	Wrap.	-		-	13.04	4.4	A 1 C 0			2015-05-11 2015-05-20	-	https://github.com/JamisHoo/Cryptographic-Algorithms
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, DES, DEAL, SM4			-			SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	DSS		-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
022	urweb-crypto-random-openssl	C++	C++	High, Low	Wrap.	-		-	12.89	0.12	A 1 C 0			2015-06-23 2015-08-19	-	https://github.com/bbarenblat/urweb-crypto-random-openssl
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, PRESENT			-			-				-	-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
012	crypto	C++	C++	High, Low	Wrap.	-		-	12.86	0.58	A 1 C 0			2015-07-03 2015-09-04	-	https://github.com/thiagoh/crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**

	-	AES, AES-256, IDEA NXT		-	-			-		-		SET		EST, HTTPS, PE, SSL		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
007	CryptoppECC	C++	C++	High, Low	Wrap.	-	-	12.79	71	A 1 C 1			2016-01-03 - 2016-02-11	-	https://github.com/SandeepAggarwal/CryptoppECC	
	EAM	**Block Cipher**		**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CAST-128, CAST-256, DES, DEAL, IDEA NXT, IDEA, MARS, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, TEA, Twofish, XXTEA		eSTREAM, Panama, Salsa, SEAL, Sosemanuk, WAKE			MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL			HMAC, VMAC		DH, DSA, DSS, ElGamal, LUC, RSA		CMP, PKCS, SET	AKA, CMP, EST, HTTPS, IKE, PE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
058	tinycrypto	C++	C++	High, Low	Wrap.	-	-	12.63	1.67	A 1 C 0			2017-02-25 - 2017-02-26	-	https://github.com/evilJazz/tinycrypto	
	EAM	**Block Cipher**		**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, CAST, IDEA NXT		-			PBKDF2			-		-		PKCS, PKCS#7, SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
011	CryptoLib	C++	C++	High, Low	Wrap.	-	-	12.54	3.04	A 1 C 0			2016-12-11 - 2017-01-24	-	https://github.com/MXWXZ/CryptoLib	
	EAM	**Block Cipher**		**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, RC, RC2		-			MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			-		-		-	HTTPS, PE, SCIP	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
048	RRGCodingAndCrypto	C++	C++	High, Low	Wrap.	-	-	12.54	1113	A 1 C 0			2015-10-08 - 2016-01-09	-	https://github.com/noprops/RRGCodingAndCrypto	
	EAM	**Block Cipher**		**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC, XCBC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, DFC, FPE, GOST, IDEA NXT, IDEA, M6, M8, MAGENTA, MESH, MMB, NDS, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, UES, XXTEA		eSTREAM, FISH, LEX, MAG, RC, SEAL, SNOW, Turing, Vernam, WAKE			FSB, GOST, MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL			HMAC, XCBC		DH, DSA, DSS, ECDH, ECDSA, LUC, RSA		CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	AS1, AS2, AKA, CCMP, CMC, CMP, CSR, CMS, DTLS, DPD, EKE, EST, GSI, GPG, HTTPS, I2P, IKE, IPsec, OCSP, PANA, PCT, PE, PEM, PGP, PoSE, RTD, SASL, SCP, SEND, SFTP, SRTP, SSH, SSL, TSP, TLS, VBR, WPA, WPS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
055	Curve25519_ESP8266	C++	C++	High, Low	Wrap.	-	-	12.47	4.04	A 1 C 0			2016-12-30 - 2017-01-30	-	https://github.com/c-mysec/Curve25519_ESP8266	
	EAM	**Block Cipher**		**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, PRESENT		-			-			-		ECDH		SET	EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
033	newton-des-crypto	C++	C++	High, Low	Wrap.	-	-	12.44	511	A 1 C 1			2016-03-06 - 2016-03-06	-	https://github.com/txomin-jimenez/newton-des-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, MMH-Badger, Poly1305, XCBC	AES, CAST, CRYPTON, DES, DEAL, FROG, IDEA NXT, IDEA, KASUMI, M6, M8, MAGENTA, MESH, NDS, PRESENT, Prince, RC, RC2, RC6, SAFER, SEED, Simon, TEA				eSTREAM, FISH, ISAAC, LEX, MAG, NLS, Panama, RC, Salsa, SEAL, SNOW, Turing, Vernam, WAKE		MD5, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, MMH-Badger, Poly1305, XCBC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, RPKI, SET, X.509	AKA, CAVE, CCMP, CMC, CMP, CMS, DCII, EST, HTTPS, IES, IKE, IPsec, MIKEY, OCSP, PCT, PE, PEM, PGP, SCVP, S-HTTP, SEND, SRTP, SSH, SSL, S/MIME, TLS, VBR, WPA, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
015	ESP8266-Arduino-cryptolibs	C++	C++	High, Low	Wrap.	-	-	12.31	1.13	A 1 C 0			2015-11-05 - 2015-11-06	-	https://github.com/CSSHL/ESP8266-Arduino-cryptolibs
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				-	ECDH	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
032	react-native-rncrypto	C++	C++	High, Low	Wrap.	-	-	12.23	51	A 1 C 1			2016-04-27 - 2016-05-03	-	https://github.com/daniellking/react-native-rncrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DFC, FPE, IDEA NXT, IDEA, M6, M8, MARS, MMB, NDS, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, SM4, TEA, Twofish, XXTEA				eSTREAM, NLS, Panama, RC, Salsa, SEAL, Sosemanuk, WAKE		BLAKE2, MD2, MD5, MD6, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger				HMAC, VMAC	DH, DSA, DSS, ECDSA, ElGamal, LUC, RSA	PKCS, PKIX, SET	AS2, AKA, CMC, CSR, CMS, CGA, EKE, EST, GSI, HTTPS, IES, IKE, MSE, PCT, PE, PEM, PHE, PGP, RMA, RTD, SCP, SEND, SSL, TLS, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
047	ope-from-cryptodb	C++	C++	High, Low	Wrap.	-	-	12.14	0.46	A 1 C 1			2016-05-25 - 2016-06-03	-	https://github.com/hilder-vitor/ope-from-cryptodb
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, PRESENT, SEED				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	CMP, SET	CMC, CMP
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
002	libchaos	C++	C++	High, Low	Wrap.	-	-	11.78	14	A 1 C 0			2016-12-27 - 2017-01-01	-	https://github.com/maciejczyzewski/libchaos
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, ARIA, CAST, DEAL, IDEA, M6, M8, PRESENT, SAFER, SEED, SM4, UES				Turing		PBKDF2				-	DH	CMP, LDAP, SET	AKA, CMP, EST, HTTPS, IKE, PE, SEND, SSL, S/MIME
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
060	poco	C++	C++	High, Low	Wrap.	-	-	-	645	A - C -			- -	-	https://pocoproject.org/releases/poco-1.7.8/poco-1.7.8p3-all.zip

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-256, CAST, DES, DEAL, IDEA NXT, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC2, SAFER, SEED	FISH, LEX, Turing, WAKE	MD5, PBKDF2, SHA, SHA-1, SipHash	HMAC	DH, DSS, ECDH, RSA	CMP, LDAP, SET, X.509	AKA, CMP, CSR, DPD, EST, HTTPS, IKE, PE, PEM, SASL, SEND, SSH, SSL, TSP, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
659	DotNet(S)	C#, C++, VB	-	High	Stan.	-	-	-	-	A - C -	Website, Download	Apis, Examples, Explanations	- -	MS-RSL	-

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
137	openssl	C	C	High, Low	Stan.	-	-	39.37	396	A 4 C 372	Readme, Website	Examples, Explanations	1998-12-21 2017-08-19	OpenSSL, SSLeay	https://github.com/openssl/openssl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305, TMAC, XCBC	3-Way, AES, AES-128, AES-192, AES-256, ARIA, ARIA-128, ARIA-192, ARIA-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, FEAL, GOST, IDEA NXT, IDEA, M6, M8, MESH, MMB, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, SM4, 3DES, UES	ChaCha, Crypto1, Dragon, FISH, LEX, MAG, Py, RC, Salsa, SEAL, Turing, Vernam, VEST, WAKE, ZUC	BLAKE2, GOST, MD2, MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, SipHash, WHIRLPOOL	HMAC, Poly1305, TMAC, XCBC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, OpenCA, PKCS, PKIX, SET, X.509	AS2, AKA, CMC, CMP, CSR, CMS, DTLS, DPD, EST, GSI, HTTPS, IES, IKE, IPsec, OCSP, PCT, PE, PEM, PHE, PoSE, RTD, SEND, SRTP, SSH, SSL, TSP, TLS, WPA, WPS, WTLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
136	wolfssl	C, Java, C#, Python, PHP, Perl	C	High	Wrap.	https://www.wolfssl.com/wolfSSL/Products-wolfcrypt.html	-	38.94	259	A 4 C 49	Readme, Website, Download	Apis, Examples, Explanations	2011-02-05 2017-08-16	GPL-2.0, commercial	https://github.com/wolfssl/wolfssl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, CRYPTON, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES	ChaCha, LEX, MAG, Rabbit, RC, Vernam	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, NTRUEncrypt, RSA	CMP, OCSP, PKCS, PKIX, RTCS, SCEP, SET, X.509	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, RTD, SCEP, SEND, SSH, SSL, TLS, WPA, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
140	s2n	C	C	High, Low	Wrap.	-	-	38.4	29	A 5 C 57			2014-06-27 2017-08-30	-	https://github.com/awslabs/s2n

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-256, Camellia, CAST, DES, DEAL, IDEA, M6, M8, PRESENT, Prince, RC, RC5, SEED, 3DES	ChaCha, eSTREAM, RC	MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, RSA	OCSP, SET, X.509	AKA, CSR, DPD, EST, HTTPS, OCSP, PE, PEM, SEND, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
139	mbedtls	C	C	High, Low	Wrap.	-	-	37.24	107	A 2 C 54			2009-01-03 2017-08-10	-	https://github.com/ARMmbed/mbedtls
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, SAFER, SEED, 3DES, XTEA				LEX, MAG, RC, Vernam		MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, PKCS, PKIX, SET, X.509	AKA, CMP, CSR, DTLS, EST, HTTPS, IKE, IPsec, PE, PEM, SEND, SSL, TLS, VBR, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
132	libsodium	C	C	High, Low	Fork	http://nacl.cr.yp.to	-	34.53	45	A 1 C 73	Readme, Website, Download	Apis, Examples, Explanations	2013-01-19 2017-08-18	ISC	https://github.com/jedisct1/libsodium
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, CAST, DEAL, M6, M8, PRESENT, RC, RC2, SEED				ChaCha, Dragon, eSTREAM, LEX, Salsa, SEAL, Turing		BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				HMAC, Poly1305	ECDH	CMP, SET	AKA, CMP, EST, HTTPS, IKE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
085	libgcrypt	C	C	High	Stan.	-	-	34.23	147	A 1 C 37	Readme, Website, Download	Apis, Examples, Explanations	1997-11-18 2017-08-07	GPL-2.0, LGPL-2.1	https://github.com/gpg/libgcrypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	CBC-MAC, HMAC, Poly1305	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, GOST, IDEA, NOEKEON, PRESENT, RC, RC2, SAFER, Serpent, SEED, Simon, 3DES, Twofish				ChaCha, Dragon, eSTREAM, LEX, RC, Salsa, Vigenere cipher		BLAKE2, GOST, HAVAL, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, Tiger, WHIRLPOOL				CBC-MAC, HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, ElGamal, RSA	CMP, PKCS, SET, X.509	AKA, CMC, CMP, EST, GPG, HTTPS, IES, IKE, IPsec, PE, PEM, PGP, PoSE, SEND, SFTP, SSH, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
134	boringssl	C	C++	High, Low	Fork	137	-	33.87	321	A 1 C 77	Readme	Apis, Examples, Explanations	2014-06-20 2017-09-05	OpenSSL, SSLeay, ISC	https://boringssl.googlesource.com/boringssl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, DFC, GOST, IDEA, M6, M8, MAGENTA, NDS, PRESENT, Prince, RC, RC2, RC5, SAFER, SEED, 3DES				ChaCha, Dragon, eSTREAM, RC, Salsa, SEAL, Turing, Vernam		GOST, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	AKA, ACME, CMC, CMP, CMS, DTLS, DPD, DPV, DCII, EST, HTTPS, IES, IKE, IPsec, OCSP, PE, PEM, SEND, SRTP, SSL, TLS, WPA, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
004	cryptominisat	C++, C, Python	C++	High, Low	Stan.	-	-	33.71	61	A 1 C 30	Readme, Website	Examples	2009-08-10 2017-08-17	MIT	https://github.com/msoos/cryptominisat
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-128, ARIA, CAST, DEAL, IDEA, PRESENT, SEED, Simon				FISH, VMPC		MD5, SHA, SHA-1				-	DH	CMP, SET	CMP, CMS, EST, HTTPS, IKE, SCP, SEND, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
135	libtomcrypt	C	C	High, Low	Stan.	-	-	33.17	90	A 1 C 25	Readme, Website, Download	Apis, Examples, Explanations	2010-06-16 2017-08-16	Public Domain, WT FPL	https://github.com/libtom/libtomcrypt

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, OMAC, Poly1305, XCBC	AES, AES-256, Anubis, Blowfish, Camellia, CAST, DES, DEAL, IDEA, KASUMI, KHAZAD, M6, M8, MULTI2, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, Skipjack, TEA, 3DES, Twofish, XTEA	ChaCha, LEX, RC	BLAKE2, MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, Tiger, WHIRLPOOL	HMAC, OMAC, Poly1305, XCBC	DH, RSA	DSA, DSS, CMP, X.509	PKCS, SET,	AKA, CMP, EST, GPG, HTTPS, IKE, PE, PEM, PoSE, SEND, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
133	trezor-crypto	C	C	Low	Wrap.	https://github.com/BrianGladman/aes, https://github.com/luke-jr/libbase58, https://github.com/BLAKE2/BLAKE2, 139, http://www.aarongifford.com/computers/sha.html, https://github.com/rhash/RHash, https://github.com/agl/curve25519-donna, https://github.com/floodyberry/ed25519-donna, https://github.com/wg/c20p1305, https://github.com/floodyberry/poly1305-donna	-	31.32	23	A 1 C 17	Readme		2013-08-17 2017-08-16	MIT	https://github.com/trezor/trezor-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, CAST, DEAL, FROG, IDEA NXT, IDEA, M6, M8, Mercy, MESH, PRESENT, SEED, UES	ChaCha, Dragon, FISH, LEX, Rabbit, RC, SNOW	BLAKE2, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger	HMAC, Poly1305	ECDH, ECDSA	CMP, SET		CAVE, CMP, EST, GPG, HTTPS, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A C	1 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, ECDH, ECDSA, RSA	CMP, LDAP, RDBMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
109	vita-openssl	C	C	High, Low	Fork	137	-	30.39	439	A C	4 173	Readme		1998-12-21 2016-08-14	OpenSSL, SSLeay	https://github.com/xyzz/vita-openssl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC, XCBC	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, GOST, IDEA NXT, IDEA, M6, M8, MESH, MMB, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, Simon, SM4, 3DES, UES				Dragon, MAG, RC, SEAL, Turing, Vernam	LEX,	GOST, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC, XCBC		DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, OpenCA, PKCS, PKIX, SET, X.509	AKA, CMC, CMP, CSR, CMS, DTLS, DPD, EST, HTTPS, IES, IKE, IPsec, OCSP, PE, PEM, PoSE, RMA, RTD, SEND, SRTP, SSH, SSL, TLS, WTLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
113	Crypto-Engine-Contiki	C	C	High	Stan.	-	-	29.93	565	A C	6 124	Readme	Examples, Explanations	2006-06-17 2015-10-05	BSD-3-Clause	https://github.com/hosseinsh/Crypto-Engine-Contiki
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, Blowfish, Camellia, CAST, CDMF, DES, DEAL, DFC, GOST, IDEA, M6, M8, MAGENTA, MESH, NDS, Nimbus, PRESENT, Prince, RC, RC2, RC5, SEED, 3DES, UES				LEX, MAG, NLS, Panama, RC, Turing, Vernam, WAKE		GOST, MD2, MD5, MD6, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA, YAK	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	AS2, AKA, CMC, CMP, CSR, CMS, DTLS, DPD, DPV, DCII, EKE, EST, GSI, GPG, HTTPS, IES, IKE, IPsec, OCSP, PE, PEM, PoSE, RMA, SCP, SEND, SSH, SSL, TSP, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
074	milagro-crypto-c	C, Python, Go	C	High, Low	Stan.	-	-	29.28	47	A C	2 11	Readme, Download	Examples, Explanations	2016-03-10 2017-08-03	Apache-2.0	https://github.com/miracl/milagro-crypto-c
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	AES, CAST, CRYPTON, DES, IDEA, M6, M8, Mercy, PRESENT, SEED				MAG, RC, ZUC		SHA, SHA-2, SHA-3, SHA-256, SHA-512				-		DH, DSA, DSS, ECDH, ECDSA, RSA	PKCS, SET, X.509	DPD, EST, HTTPS, IKE, PE, SEND, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
067	simon-speck-supercop	C	C	High	Stan.	-	-	27.91	3978	A 1 C 5	Readme		2008-07-29 2017-07-20	-	https://github.com/iadgov/simon-speck-supercop

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305, VMAC	3-Way, AES, AES-128, AES-192, AES-256, ARIA, Blowfish, Camellia, CAST, CAST-128, CAST-256, CRYPTON, DES, DEAL, IDEA NXT, IDEA, M6, M8, MARS, Mercy, MMB, NDS, NOEKEON, PRESENT, Prince, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Simon, Skipjack, SM4, Speck, TEA, Twofish, XXTEA	ChaCha, CryptMT, Dragon, eSTREAM, HC-256, HC-128, LEX, NLS, Panama, Pike, Py, Rabbit, RC, Salsa, Scream, SEAL, SNOW, Sosemanuk, Trivium, Turing, WAKE	BLAKE2, FSB, Grostl, HAVAL, MD2, MD5, MD6, PBKDF2, RadioGatun, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, SipHash, Skein, Tiger, WHIRLPOOL	HMAC, Poly1305, VMAC	DH, DSA, DSS, CMP, ECDH, ECDSA, X.509 ElGamal, LUC, RSA	PKCS, SET,	AS1, AS2, AKA, CMC, CMP, DCII, EST, HTTPS, IES, IKE, OTR, PE, PoSE, RTD, SEND, SILC, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
076	engine	C	C	High	Stan.	-	-	27.61	47	A 1 C 10			2015-08-13 2017-08-14	OpenSSL, SSLeay	https://github.com/gost-engine/engine

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-192, AES-256, Camellia, GOST, IDEA, MESH, PRESENT	-	GOST, MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-512	HMAC	DH, DSA, ECDSA	CMP, PKCS, PKIX, SET, X.509	CMP, CMS, EST, PEM, SEND, SSL, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
143	matrixssl	C	C	High, Low	Wrap.	-	-	25.59	119	A 1 C 4			2015-03-26 2017-06-22	-	https://github.com/matrixssl/matrixssl

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-192, AES-256, DES, DEAL, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, SEED, SM4	ChaCha, MAG, RC, WAKE, ZUC	FSB, MD2, MD5, MD6, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, OCSP, PKCS, PKIX, SET, X.509	CMP, CSR, CMS, DTLS, DPV, EST, HTTPS, IKE, OCSP, PE, PEM, PHE, PGP, RMA, SCP, SEND, SFTP, SSH, SSL, TLS, WPA, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
111	libsodium	C	C	High, Low	Fork	132	-	24.39	26	A 1 C 43	Readme		2013-01-19 2016-03-10	ISC	https://github.com/wireapp/libsodium

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-256, CAST, DEAL, M6, PRESENT, RC, RC2, SEED	ChaCha, eSTREAM, Salsa, SEAL, Turing	BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash	HMAC, Poly1305	ECDH	CMP, SET	CMP, EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
103	libsodium-CMake	C	C	High, Low	Fork	132	-	23.98	24	A 1 C 39	Readme, Website, Download	Apis, Examples, Explanations	2013-01-19 2015-07-29	ISC	https://github.com/Cyberunner23/libsodium-CMake

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-256, CAST, DEAL, M6, PRESENT, RC, RC2, SEED	ChaCha, eSTREAM, Salsa, SEAL, Turing	BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash	HMAC, Poly1305	ECDH	CMP, SET	CMP, EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

141	picotls	C	C	High, Low	Wrap.	-	-	23.63	28	A 1 C 7			2016-09-28 2017-09-03	-		https://github.com/h2o/picotls
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, DEAL, IDEA NXT, IDEA, M8, PRESENT, RC, RC2, SEED			ChaCha, Salsa		PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305	ECDH, ECDSA, RSA		CMP, OCSP, SET, X.509		AKA, CMP, EST, HTTPS, IKE, OCSP, PE, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
128	ckm	C	C	High	Stan.	-	-	23.62	177	A 2 C 17	Readme		2014-05-14 2016-01-15	Apache-2.0, BoostSoftwareLicense		https://github.com/Samsung/ckm
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	3-Way, AES, AES-128, AES-192, AES-256, CAST, DES, DEAL, DFC, FPE, IDEA NXT, IDEA, M6, M8, MMB, PRESENT, RC, RC2, SEED			LEX, RC, WAKE, ZUC		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSA, DSS, ECDSA, LUC, RSA		CMP, OCSP, PKCS, RTCS, SET, X.509		AKA, CMC, CMP, CSR, CGA, DCII, EKE, EST, I2P, IES, IKE, MSE, OCSP, PE, PEM, PHE, PGP, RMA, SCP, SEND, SSL, VBR, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
116	nsec5-crypto	C	C	Low	Stan.	http://openssl.org, http://www.lysator.liu.se/%7Enisse/nettle, http://gnutls.org	-	23.45	1.39	A 1 C 0	Readme		2014-12-28 2017-07-17	-		https://github.com/fcelda/nsec5-crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	-	SEED			-		MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	RSA		CMP, SET, X.509		CMP, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
079	tlse	C	C	High	Wrap.	135	-	23.37	48	A 1 C 3	Readme	Apis, Examples, Explanations	2016-03-04 2017-06-18	Public Domain, MIT, BSD		https://github.com/eduardsui/tlse
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC, OMAC, Poly1305, XCBC	3-Way, AES, Anubis, Blowfish, DES, FPE, KASUMI, KHAZAD, M6, M8, MULTI2, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, Skipjack, TEA, Twofish, XTEA			ChaCha, MAG, RC		FSB, MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL				HMAC, OMAC, Poly1305, XCBC	DH, DSA, DSS, ECDH, ECDSA, PKCS, SET		CMP, OCSP,		CMP, DTLS, DPD, EST, HTTPS, IES, OCSP, PCT, PE, PEM, SEND, SRTP, SSL, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
061	aes_128	C	C	High	Stan.	-	-	22.81	1.62	A 1 C 1	Readme, Website	Apis, Explanations	2015-11-15 2017-08-07	MIT		https://github.com/openluopworld/aes_128
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	-	AES, AES-128, DEAL			-		-				-	-		-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
068	ArduinoSpritzCipher	C	C	High	Stan.	-	-	22.38	0.93	A 1 C 4	Readme	Apis, Examples, Explanations	2015-08-25 2017-04-30	MIT, CC-BY-SA-4.0, PublicDomain		https://github.com/abderraouf-adjal/ArduinoSpritzCipher
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	-	DEAL, RC, SEED			RC		-				-	-		-		EST, HTTPS, IKE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
100	sha2-le	C	C	High	Stan.	-	-	22.09	1.07	A 2 C 4	Readme		2016-12-06 2017-05-11	-	https://github.com/PPC64/sha2-le
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	CAST, DEAL, PRESENT				-	SHA, SHA-2, SHA-3, SHA-256, SHA-512				-		-	CMP, SET	AKA, CMP, EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
101	Monocypher	C, Crystal, Lua	C	High	Stan.	http://libsodium.org, http://tweetnacl.cr.yp.to, https://github.com/konovod/monocypher.cr, 124	-	21.31	7.92	A 1 C 2	Readme, Website	Apis, Explanations	2016-09-04 2017-08-16	BSD-2-Clause, OwnLicense	https://github.com/LoupVaillant/Monocypher
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	Poly1305	M6, M8, PRESENT, SEED				ChaCha, LEX, Salsa	BLAKE2, MD5, SHA, SHA-2, SHA-3, SHA-256, SHA-512				Poly1305		-	CMP, SET	CMP, EST, HTTPS, IKE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
138	org.eclipse.tinydtls.git	C	C	High	Stan.	-	-	20.74	16	A 1 C 3	Readme		2016-02-02 2017-04-26	EPL-1.0, EclipseDistributionLicense1.0(BSD)	http://git.eclipse.org/gitroot/tinydtls/org.eclipse.tinydtls.git
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, DEAL, PRESENT, SEED				IDEA, -	MD5, SHA, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, ECDH, ECDSA	CMP, SET	CMP, DTLS, EST, HTTPS, SEND, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
142	cifra	C	C	High, Low	Wrap.	-	-	19.68	15	A 1 C 2			2014-07-17 2017-02-24	-	https://github.com/ctz/cifra
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, PRESENT, SEED				IDEA, ChaCha, Salsa	PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305		ECDH	CMP, SET	AKA, CMP, EST, HTTPS, IKE, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
089	cryptobox-c	C	C	High	Wrap.	https://github.com/wireapp/cryptobox	-	19.47	1.35	A 1 C 4	Readme	Explanations	2015-02-28 2017-02-02	GPL-3.0, MIT, BSD-3-Clause, Apache-2.0, ISC	https://github.com/wireapp/cryptobox-c
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	IDEA, PRESENT				-	-				-		-	-	EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
065	libhydrogen	C	C	High, Low	Wrap.	-	-	19.06	2.84	A 1 C 1			2017-01-31 2017-08-09	ISC	https://github.com/jedisct1/libhydrogen
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	TMAC	CAST, SEED				-	-				TMAC		DH, ECDH	CMP, SET	CMP, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
081	cardano-crypto	C	C	High, Low	Wrap.	-	-	18.93	5.2	A 1 C 1			2017-02-09 2017-06-26	MIT	https://github.com/input-output-hk/cardano-crypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**

	HMAC	CRYPTON, DEAL, M6, M8, PRESENT, SEED				ChaCha		PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		-		SET		ACME, EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
062	wickr-crypto-c	C	C	High, Low	Wrap.	-	-	18.88	35	A 1 C 1			2017-02-13 2017-08-15	Wickr Public Review License	https://github.com/WickrInc/wickr-crypto-c						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	HMAC	AES, AES-256, ARIA, Blowfish, CAST, DES, DEAL, PRESENT, SAFER, SEED				IDEA, LEX, MAG, Salsa		MD5, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DSS, ECDH, ECDSA		CMP, SET		CMP, EST, HTTPS, SEND, SSL	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
093	CycloneCrypto	C	C	High, Low	Wrap.	-	-	18.59	30	A 1 C 0			2017-01-14 2017-06-14	GPL-2.0	https://github.com/Oryx-Embedded/CycloneCrypto						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	HMAC, Poly1305	AES, ARIA, Camellia, DES, PRESENT, RC, RC6, SEED				IDEA, ChaCha, ORYX, RC		MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, Tiger, WHIRLPOOL				HMAC, Poly1305		DH, DSA, DSS, ECDH, ECDSA, RSA		CMP, SET, X.509		CMP, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
071	lua-chacha	C	C	High, Low	Wrap.	-	-	18.51	1.19	A 1 C 1			2015-10-24 2017-03-23	MIT	https://github.com/catwell/lua-chacha						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	-	DEAL, PRESENT				ChaCha		-				-		-		SET		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
130	TinyECC	C	C	High, Low	Wrap.	-	-	18.49	33	A 1 C 0			2014-03-13 2017-02-21	RSAREF2.0 License	https://github.com/fergul/TinyECC						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	HMAC	PRESENT, SEED				-		SHA, SHA-1				HMAC		ECDH, ECDSA, RSA		CMP, SET		ACME, CMP, EST, PE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
126	php-lcrypto	C	C	High, Low	Wrap.	-	-	18.45	1.81	A 1 C 0			2015-09-20 2017-04-02	PHP-3.01	https://github.com/bukka/php-lcrypto						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	-	-				-		MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		RSA		SET		EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
124	luanacha	C	C	High, Low	Wrap.	-	-	18.17	2.35	A 1 C 0			2017-02-16 2017-08-14	MIT, OwnLicense	https://github.com/philanc/luanacha						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	Poly1305	IDEA NXT, SEED				ChaCha		BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-512				Poly1305		DH		SET		HTTPS, IKE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						
077	libvmod-crypto	C	C	High, Low	Wrap.	-	-	17.96	0.21	A 1 C 0			2016-01-29 2017-04-08	BSD-2-Clause	https://github.com/fgsch/libvmod-crypto						
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**			
	HMAC	IDEA NXT				-		MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC		-		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**						

075	SHA-Intrinsics	C	C	High, Low	Wrap.	-	-	17.92	1.21	A C	1 0		2017-01-14 2017-05-29	-		https://github.com/noloader/SHA-Intrinsics	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	-				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256				-	-		SET	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
121	NACrypto	C	C	High, Low	Wrap.	-	-	17.75	7.84	A C	1 0			2015-06-16 2017-03-06	MIT	https://github.com/gabriel/NACrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, AES-256, CAST, DEAL, IDEA, NOEKEON, PRESENT, Twofish				eSTREAM		SHA, SHA-3				-	-		SET	EST, HTTPS, IKE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
107	nim-crypto	C	C	High, Low	Wrap.	-	-	17.53	16	A C	1 2			2017-04-14 2017-05-22	Public Domain, WTFPL, GPL, BSD-3-Clause	https://github.com/mjfh/nim-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC, OMAC, Poly1305, XCBC	AES, Anubis, Blowfish, Camellia, CAST, CRYPTON, DES, IDEA, KASUMI, KHAZAD, MULTI2, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, Skipjack, Twofish, XTEA				ChaCha, RC, Salsa		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL				HMAC, OMAC, Poly1305, XCBC	DH, RSA	DSA, DSS, CMP, PKCS, SET		AKA, CMP, EST, HTTPS, SSL, TLS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
069	cryptoauth-openssl-engine	C	C	High, Low	Wrap.	-	-	17.13	41	A C	2 4			2015-12-23 2016-02-26	Own License	https://github.com/AtmelCSO/cryptoauth-openssl-engine	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, ARIA, DEAL, IDEA, M8, PRESENT, SAFER, SEED				MAG, WAKE		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDSA, RSA	ECDH, CMP, X.509	PKIX, SET,	AKA, CMP, CSR, CMS, DCII, EST, HTTPS, IKE, PEM, RTD, SEND, SSL, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
112	itsp-crypto-practice	C	C	High, Low	Wrap.	-	-	17.13	1.53	A C	2 2			2015-03-16 2015-11-20	MIT	https://github.com/noizbuster/itsp-crypto-practice	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	DEAL, SEED				-		-				-	RSA		CMP, SET	CMP, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
119	cryptoauth-openssl-engine	C	C	High, Low	Wrap.	-	-	17.13	41	A C	2 4			2015-12-23 2016-02-26	Own License	https://github.com/MicrochipTech/cryptoauth-openssl-engine	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, ARIA, DEAL, IDEA, M8, PRESENT, SAFER, SEED				MAG, WAKE		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDSA, RSA	ECDH, CMP, X.509	PKIX, SET,	AKA, CMP, CSR, CMS, DCII, EST, HTTPS, IKE, PEM, RTD, SEND, SSL, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
117	cipher-aes128	C	C	High, Low	Wrap.	-	-	17.06	2.41	A C	1 2			2012-12-27 2016-08-30	BSD-3-Clause	https://github.com/TomMD/cipher-aes128	

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-128, CAST, IDEA	Turing	-	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
131	AESLib	C	C	High, Wrap. Low	-	-	17.06	2.12	A 1 C 3			2012-02-02 2016-04-14	GPL-3.0	https://github.com/dexterserver/AESLib

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	OMAC	AES, AES-128, AES-192, AES-256, IDEA, PRESENT	-	-	OMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
090	mbedtls_ecp_compression	C	C	High, Wrap. Low	-	-	16.81	0.33	A 1 C 1			2017-07-03 2017-07-13	-	https://github.com/mwarning/mbedtls_ecp_compression

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	SEED	-	-	-	ECDSA, RSA	X.509	EST, HTTPS, X.509

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
122	CryptoAuth-explorations	C	C	High, Wrap. Low	-	-	16.44	362	A 1 C 0			2017-06-16 2017-06-18	Apache-2.0, BSD-3-Clause	https://github.com/sujaydinakar/CryptoAuth-explorations

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, DES, DEAL, FPE, IDEA, M6, M8, PRESENT, SEED	Pike, RC, Turing, WAKE	SHA, SHA-2, SHA-3, SHA-256	HMAC	DH, DSS, RSA	CMP, SET	AKA, CMC, CMP, CSR, EST, HTTPS, I2P, PE, SEND, SSL, TLS

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
072	kr-crypto	C	C	High, Wrap. Low	-	-	16.38	1.28	A 1 C 0			2017-06-20 2017-06-20	-	https://github.com/theori-io/kr-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
094	65816-crypto	C	C	High, Wrap. Low	-	-	16.26	2.22	A 1 C 0			2017-06-26 2017-07-05	-	https://github.com/sheuman/65816-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-128, AES-192, AES-256, PRESENT	-	MD5, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256	-	-	CMP, SET	CMP, HTTPS

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
080	openzkp	C	C	High, Wrap. Low	-	-	15.69	0.51	A 1 C 0			2016-07-27 2017-03-18	Apache-2.0	https://github.com/Silur/openzkp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, IDEA, PRESENT	Dragon, LEX	-	-	-	CMP, SET	AKA, CMP, EST, IKE, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl. Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
120	php-ext-sqrl	C	C	High, Wrap. Low	-	-	15.63	5.85	A 1 C 2			2013-10-17 2015-01-11	LGPL-3.0	https://github.com/ramriot/php-ext-sqrl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	XCBC	AES, FPE, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, RC6, SM4	MAG, NLS	FSB, MD2, SHA, SHA-2, SHA-3, SHA-512	XCBC	DH, DSA, RSA, YAK	CMP, SET	AS1, AKA, ACME, CMP, CSR, CMS, EKE, EST, HTTPS, IKE, MSE, OTR, PE, PHE, RTD, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
087	CryptoLab	C	C	High, Low	Wrap.	-	-	15.58	42	A 1 C 0			2017-01-29 2017-04-26	MIT	https://github.com/thebrankoo/CryptoLab

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, XCBC	AES, AES-128, AES-192, AES-256, ARIA, Blowfish, Camellia, CAST, CDMF, DES, DEAL, FPE, GOST, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, RC5, RC6, SEED	RC, SEAL, Turing, Vernam	GOST, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC, XCBC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	AS2, AKA, CMC, CMP, CMS, DTLS, EST, HTTPS, IPsec, OCSP, PE, PEM, PGP, SEND, SRTP, SSL, TSP, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
073	cryptoauth-arduino	C	C	High, Low	Wrap.	-	-	15.5	10	A 1 C 3			2014-11-13 2015-07-12	Own License	https://github.com/thiseldo/cryptoauth-arduino

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	CAST, NDS, PRESENT, SEED	WAKE	SHA, SHA-2, SHA-3, SHA-256	HMAC	-	SET	AKA, EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
127	cryptoauth-arduino	C	C	High, Low	Wrap.	-	-	15.5	10	A 1 C 3			2014-11-13 2015-07-12	Own License	https://github.com/axelelettronica/cryptoauth-arduino

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	CAST, NDS, PRESENT, SEED	WAKE	SHA, SHA-2, SHA-3, SHA-256	HMAC	-	SET	AKA, EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
078	crypto_ext	C	C	High, Low	Wrap.	-	-	15.47	1.81	A 1 C 2			2015-04-23 2016-08-26	BSD-3-Clause	https://github.com/adrienmo/crypto_ext

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES	-	-	-	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
084	4d-plugin-common-crypto	C	C	High, Low	Wrap.	-	-	14.98	62	A 1 C 1			2015-06-23 2016-10-01	OpenSSL, SSLeay	https://github.com/miyako/4d-plugin-common-crypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, XCBC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, GOST, IDEA NXT, IDEA, M6, M8, MESH, PRESENT, RC, RC2, RC5, SEED	Panama, RC, SEAL, Turing, Vernam	GOST, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC, XCBC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	CMC, CMP, CMS, EST, HTTPS, IKE, IPsec, OCSP, PE, PEM, SEND, SRTP, SSH, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
066	incubator-milagro-crypto	C	C	High, Low	Wrap.	-	-	14.97	96	A 1 C 2			2016-03-10 2016-11-25	Apache-2.0	https://github.com/apache/incubator-milagro-crypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES, CRYPTON, DES, IDEA, M6, M8, Mercy, PRESENT, SEED	-	SHA, SHA-2, SHA-3, SHA-256	-	DSS, ECDH, RSA	SET	AKA, EST, HTTPS, IKE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
098	cryptoapi	C	C	High, Low	Wrap.	-	-	14.89	4.26	A 1 C 0			2017-02-27 2017-04-20	BSD-2-Clause	https://github.com/odzhan/cryptoapi

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	HMAC	AES, AES-128, AES-192, AES-256, RC Camellia, CDMF, DES, GOST, IDEA, PRESENT, RC, RC2, RC5, SEED						GOST, MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA		CMP, LDAP, PKCS, SET, X.509		DVCS, OCSP, PKIX, CMC, CMP, CMS, EST, IPsec, OCSP, PE, PEM, SSL, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
125	Quadratic-Sieve	C	C	High, Low	Wrap.	-	-	14.42	1.33	A C	1 1			2017-04-01 2017-04-06	-			https://github.com/AlexDFischer/Quadratic-Sieve	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	PRESENT				-		-				-		-		CMP, SET		CMP	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
095	yacl	C	C	High, Low	Wrap.	-	-	14.25	13	A C	1 1			2015-09-02 2016-08-20	-			https://github.com/cryptotronix/yacl	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC, Poly1305	AES, AES-128, AES-256, CAST, DES, PRESENT, SAFER, SEED				ChaCha, RC, Salsa		BLAKE2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305		DH, DSS, ECDH, ECDSA		CMP, SET		AKA, CMP, EST, HTTPS, IKE, SSH, TLS, WPA	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
108	proest-arm11	C	C	High, Low	Wrap.	-	-	14.04	0.86	A C	1 0			2014-10-14 2016-04-11	-			https://github.com/thomwiggers/proest-arm11	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-		-				-		-		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
104	crypto-collection	C	C	High, Low	Wrap.	-	-	13.73	7.05	A C	1 0			2016-08-24 2017-01-26	-			https://github.com/cipherboy/crypto-collection	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, IDEA NXT, M6, M8, MMB, NOEKEON, PRESENT, RC, RC2, RC5, SEED, 3DES				ChaCha, LEX, MAG, Rabbit, RC		MD2, MD5, MD6, RadioGatun, SHA, SHA-1, SHA-2, SHA-3				HMAC		DH, DSA, DSS		SET		AKA, CGA, DCII, EST, HTTPS, PANA, PCT, PE, RMA, SSL, TSP, VBR, WPA, WPA2	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
110	vane	C	C	High, Low	Wrap.	-	-	13.65	38	A C	1 1			2015-06-06 2015-09-23	-			https://github.com/polysome/vane	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, CAST, DEAL, IDEA NXT, IDEA, M6, M8, MMB, PRESENT, Serpent, Threefish				NLS		SHA, SHA-2, Skein				-		DH		CMP, SET		CMP, EST, HTTPS, IKE, PE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
105	crypto_wrapper	C	C	High, Low	Wrap.	-	-	13.63	0.53	A C	1 0			2017-03-24 2017-03-31	-			https://github.com/waynemystir/crypto_wrapper	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, AES-256				-		scrypt				-		RSA		SET		EST, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**	
064	crypto	C	C	High, Low	Wrap.	-	-	13.31	3.63	A C	1 1			2015-09-21 2016-01-19	-			https://github.com/sainthsu/crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, CAST, DEAL, IDEA, M8, PRESENT, SEED				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		RSA		SET		EST, HTTPS	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
091	AtCryptoAuthLib	C	C	High, Low	Wrap.	-	-	13.17	19	A 1 C 1			2017-02-08 2017-02-15	-	https://github.com/CryptoThings/AtCryptoAuthLib
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	CAST, DEAL, PRESENT, SEED					WAKE	SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	ECDH, ECDSA	CMP, SET, X.509	AKA, CMP, CSR, EST, IKE, PEM, SEND, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
118	php-rsa	C	C	High, Low	Wrap.	-	-	13.15	1.18	A 1 C 0			2015-04-24 2015-10-01	-	https://github.com/bukka/php-rsa
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	-					-	MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	RSA	SET	HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
115	cse539_crypto_prj	C	C	High, Low	Wrap.	-	-	13.0	1.23	A 1 C 1			2015-11-06 2015-11-28	-	https://github.com/26597925/cse539_crypto_prj
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT, SEED					-	SHA, SHA-1				-	DH, RSA	CMP, SET	CMP, EST, HTTPS, PEM, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
086	CryptoMalloc	C	C	High, Low	Wrap.	-	-	12.97	2.31	A 1 C 0			2016-05-03 2016-11-05	-	https://github.com/bahusvel/CryptoMalloc
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DFC, FPE, M6, M8, PRESENT, Prince, RC, RC2					-	MD2				-	DH, RSA	SET	CMS, DPD, EST, GSI, HTTPS, PE, PEM, PHE, SCP, SSH, TSP, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
096	libpaillier	C	C	High, Low	Wrap.	-	-	12.9	1.11	A 1 C 1			2017-01-26 2017-02-01	-	https://github.com/mcornejo/libpaillier
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT					LEX	-				-	Paillier	CMP, SET	CMP, EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
083	cryptoauthlib	C	C	High, Low	Wrap.	-	-	12.72	9.07	A 1 C 0			2017-02-22 2017-02-27	-	https://github.com/sathibault/cryptoauthlib
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, PRESENT, SEED					WAKE	SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	ECDH, ECDSA	CMP, SET	CMP, EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
102	node-weixin-crypto	C	C	High, Low	Wrap.	-	-	12.68	82	A 1 C 1			2016-01-13 2016-01-14	-	https://github.com/lgyhitler/node-weixin-crypto
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, XCBC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, CDMF, DES, DEAL, GOST, IDEA, M8, PRESENT, RC, RC2, RC5, SEED					RC, Turing, Vernam	GOST, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC, XCBC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	CMC, CMP, CMS, EST, HTTPS, IPsec, OCSP, PE, PEM, SEND, SRTP, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
114	CryptoWrapperForCCode	C	C	High, Low	Wrap.	-	-	12.68	123	A 1 C 1			2016-01-13 2016-01-13	-	https://github.com/zhulianhai/CryptoWrapperForCCode
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Camellia, CAST, CDMF, DES, DEAL, FPE, GOST, IDEA, M6, M8, PRESENT, RC, RC2, RC5, SEED, SM4				eSTREAM, LEX, MAG, RC, Turing, WAKE		GOST, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509	AKA, CMC, CMP, CMS, DPD, EST, HTTPS, IPsec, OCSP, PE, PEM, SEND, SRTP, SSL, TLS, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
123	crypto1_bs	C	C	High, Low	Wrap.	-	-	12.29	0.74	A 1 C 1			2016-04-12 2016-04-20	-	https://github.com/iceman1001/crypto1_bs
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DEAL, IDEA, PRESENT				Crypto1		SHA, SHA-1				-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
106	pebble-crypto	C	C	High, Low	Wrap.	-	-	12.19	0.16	A 1 C 0			2016-07-11 2016-10-18	-	https://github.com/gregoiresage/pebble-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-		SHA, SHA-2, SHA-3, SHA-256				-	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
088	scrypto	C	C	High, Low	Wrap.	-	-	11.99	11	A 1 C 0			2016-01-16 2016-01-17	-	https://github.com/mcxiaoke/scrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, CAST, DES, IDEA, PRESENT				ChaCha, RC, Scream, SEAL		MD5, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305	DH, DSA, DSS, ECDSA, RSA	OCSP, SET, X.509	EST, HTTPS, OCSP, PEM, SEND, SRTP, SSL, TLS, WPA, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
129	cryptlib	C	C	High, Low	Wrap.	-	-	11.9	380	A 1 C 0			2016-02-05 2016-02-05	-	https://github.com/ryankurte/cryptlib
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, XCBC	AES, AES-128, AES-192, AES-256, ARIA, ARIA-128, ARIA-192, ARIA-256, Blowfish, CAST, DES, DEAL, GOST, IDEA NXT, IDEA, M6, M8, MAGENTA, MESH, MISTY1, MMB, PRESENT, RC, RC2, RC5, SAFER, Serpent, SEED, Skipjack, 3DES				Dragon, FISH, LEX, RC, SEAL, Turing, Vernam, WAKE		GOST, MD2, MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL				HMAC, XCBC	DH, DSA, DSS, ECDH, ECDSA, ElGamal, RSA	CMP, DVCS, EJBCA, Identrus, LDAP, OCSP, PKCS, PKIX, RPKI, RTCS, SCEP, SET, SigG, X.509	AKA, CMC, CMP, CSR, CMS, EST, GPG, HTTPS, IES, IKE, IPsec, OCSP, PE, PGP, PoSE, SCEP, SCP, SCVP, SEND, SFTP, SRTP, SSH, SSL, TSP, TLS, WTLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
082	cryptonight	C	C	High, Low	Wrap.	-	-	11.45	12	A 1 C 0			2016-05-22 2016-05-22	-	https://github.com/majestrate/cryptonight
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-256, CAST, CRYPTON, M6, SEED				ChaCha		BLAKE2, SHA, SHA-3, Skein				HMAC	-	SET	EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

092	LatticeCrypto	C	C	High, Low	Wrap.	-	-	11.44	1.85	A C	1 0			2016-05-25 2016-05-25	-	https://github.com/b/LatticeCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	DEAL, RC, RC2, SEED				-		-				-		-	CMP, SET	CMP, EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
097	Cryptology	C	C	High, Low	Wrap.	-	-	11.44	0.81	A C	1 0			2016-05-31 2016-06-06	-	https://github.com/emreberber/Cryptology
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	-				-		-				-		-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
099	cryptomiser	C	C	High, Low	Wrap.	-	-	11.31	0.8	A C	1 0			2016-10-14 2016-10-19	-	https://github.com/avisharma/cryptomiser
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	IDEA, PRESENT				-		-				-		RSA	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
063	cryptospecs	C	C	High, Low	Wrap.	-	-	11.3	22	A C	1 0			2016-07-07 2016-07-08	-	https://github.com/stamparm/cryptospecs
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	3-Way, AES, Anubis, Blowfish, Camellia, CAST, CAST-128, CAST-256, CRYPTON, DES, DEAL, DFC, FEAL, FPE, FROG, GOST, IDEA, KHAZAD, Khufu, Khafre, LOKI97, Lucifer, M6, M8, MacGuffin, MAGENTA, MARS, MISTY1, MMB, NDS, NewDES, NOEKEON, PRESENT, RC, RC2, RC5, RC6, REDOC, SAFER, Serpent, SEED, SHARK, Skipjack, TEA, Twofish, XTEA				Achterbahn, DECIM, ISAAC, LEX, MICKEY, Mir-1, NLS, Py, Rabbit, RC, SEAL, SFINKS, SNOW, Trivium, Vigenere cipher, Yamb, ZUC		FSB, HAVAL, MD2, MD5, MD6, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, Snefru, Tiger, WHIRLPOOL						DH, DSA, DSS, ElGamal, LUC, Paillier, RSA, YAK	CMP, SET, SigG	AS1, AS2, AKA, CMC, CMP, CSR, CMS, CGA, DPD, DPV, DCII, EST, GSI, HTTPS, IES, IKE, IPsec, MSE, OTR, PCT, PE, PEM, PHE, PGP, SCP, SEND, SSH, SSL, TSP, TLS, WPA
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
144	lightcrypto	C	-	High, Low	Wrap.	-	-	-	-	A C	- -			- -	-	-
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	-				-		-				-		-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
145	pyaes	C	-	High, Low	Wrap.	-	-	-	-	A C	- -			- -	-	-
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	-				-		-				-		-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
216	rust-openssl	Rust	Rust	High, Low	Wrap.	137, https://www.libressl.org	-	34.81	22	A C	1 143	Readme, Website	Apis, Explanations	2011-12-15 2017-08-16	Apache-2.0, MIT, OpenSSL, SSLeay	https://github.com/sfackler/rust-openssl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**

	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CDMF, DES, DEAL, IDEA, M6, PRESENT, RC, RC2, RC5, SAFER, SEED					ChaCha, LEX, RC, Vernam		MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL		HMAC, Poly1305		DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, DVCS, LDAP, OCSP, PKCS, PKIX, SET, X.509		CMC, CMP, CSR, CMS, DTLS, DPD, EST, HTTPS, IKE, IPsec, OCSP, PE, PEM, SEND, SRTP, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
215	sodiumoxide	Rust	Rust	High	Wrap.	http://nacl.cr.yp.to	-	32.07	6.67	A 1 C 31	Readme, Website	Apis, Examples, Explanations	2013-12-05 2017-05-24	Apache-2.0, MIT		https://github.com/dnaq/sodiumoxide
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	Poly1305	AES, AES-128, DEAL, IDEA NXT, PRESENT, SEED					ChaCha, Salsa, SEAL	BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				Poly1305	-		CMP, SET	CMP, EST, HTTPS, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
175	RustySecrets	Rust	Rust	High	Stan.	-	-	28.28	3.08	A 2 C 4	Readme, Website	Apis, Examples	2015-01-29 2017-08-04	BSD-3-Clause		https://github.com/SpinResearch/RustySecrets
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DEAL, M6, M8, MAGENTA, PRESENT					-	-				-	DH		CMP, SET	CMP, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
222	rustls	Rust	Rust	Low	Wrap.	211, 227	-	27.99	18	A 1 C 17	Readme, Website	Apis, Examples, Explanations	2016-05-02 2017-08-12	Apache-2.0, MIT, ISC		https://github.com/ctz/rustls
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, DEAL, IDEA, M6, M8, PRESENT, SEED, SM4					ChaCha, RC, SEAL	MD2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305	DH, ECDH, ECDSA, RSA, YAK	CMP, OCSP, SET, X.509		CMP, CSR, DTLS, EST, HTTPS, IKE, OCSP, PE, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
225	rust-security-framework	Rust	Rust	High	Wrap.	https://developer.apple.com/documentation/security	-	27.58	5.7	A 1 C 10	Readme, Website	Apis, Explanations	2015-08-19 2017-08-14	Apache-2.0, MIT		https://github.com/sfackler/rust-security-framework
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	DEAL, IDEA NXT, M6, PRESENT					-	MD5, SHA, SHA-1				HMAC	DH		CMP, SET	CMP, HTTPS, IKE, SEND, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
226	schannel-rs	Rust	Rust	High	Wrap.	https://msdn.microsoft.com/de-de/library/windows/desktop/aa380123(v=vs.85).aspx	-	27.35	3.54	A 1 C 10	Readme, Website	Apis, Explanations	2015-10-07 2017-07-19	MIT		https://github.com/steffengy/schannel-rs
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, DEAL, M6, PRESENT					-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	DH, DSA, RSA		CMP, SET	CMP, DPD, HTTPS, IKE, PEM, SEND, SSL, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**

153	noise-rust	Rust	Rust	High	Stan.	http://noiseprotocol.org	-	27.21	2.34	A C	2 4	Readme		2015-10-18 2017-06-13	Unlicense	https://github.com/sopium/noise-rust	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, DEAL, PRESENT				ChaCha, SEAL		BLAKE2, SHA, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305		DH		SET	HTTPS, IKE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
212	rust_sodium	Rust	Rust	High	Wrap.	132	-	27.0	7.24	A C	1 16	Readme, Website	Apis, Examples, Explanations	2016-08-04 2017-07-26	-	https://github.com/maidsafe/rust_sodium	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	Poly1305	AES, AES-128, AES-256, CAST, DEAL, IDEA NXT, PRESENT, SEED				ChaCha, Salsa, SEAL		BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				Poly1305		-		CMP, SET	CMP, EST, HTTPS, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
207	tiny-keccak	Rust	Rust	High	Stan.	-	-	25.93	0.64	A C	1 7	Readme, Website	Apis, Examples	2015-11-27 2017-08-14	CC0-1.0	https://github.com/debris/tiny-keccak	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	PRESENT				-		SHA, SHA-3, SHA-256, SHA-512, SHAKE				-		-		-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
146	rust-crypto	Rust	Rust	High, Low	Stan.	-	-	25.29	30	A C	1 53	Readme		2013-10-08 2016-09-07	MIT, Apache-2.0	https://github.com/DaGenix/rust-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, Blowfish, CAST, DEAL, IDEA NXT, PRESENT, SEED				ChaCha, HC-256, HC-128, RC, Salsa, Sosemanuk		BLAKE2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, WHIRLPOOL				HMAC, Poly1305		DH		CMP, PKCS, SET	CMP, EST, HTTPS, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
192	md5	Rust	Rust	High	Stan.	-	-	25.27	0.41	A C	1 4	Readme	Examples	2015-06-21 2017-06-12	Apache-2.0, MIT	https://github.com/stainless-steel/md5	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, RC				RC		MD5				-		-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
224	rust-native-tls	Rust	Rust	High	Wrap.	https://crates.io/crates/schannel, https://crates.io/crates/openssl, https://crates.io/crates/security-framework	-	25.03	2.08	A C	1 7	Readme, Website	Apis, Examples, Explanations	2016-04-16 2017-07-07	MIT, Apache-2.0, BSD-like	https://github.com/sfackler/rust-native-tls	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, M6, PRESENT				-		-				-		-		SET, X.509	HTTPS, IKE, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
184	curve25519-dalek	Rust	Rust	High, Low	Stan.	-	-	24.94	8.7	A C	2 6	Readme, Website	Apis, Examples, Explanations	2016-12-08 2017-08-15	BSD-3-Clause	https://github.com/isislovecruft/curve25519-dalek	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**

	-	IDEA, PRESENT				-		SHA, SHA-2				-		-		CMP, SET	CMP, EST, HTTPS, IKE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
203	rust-gpgme	Rust	Rust	High	Wrap.	https://www.gnupg.org/(it)/related_software/gpgme/index.html	-	24.29	8.95	A 1 C 2	Readme, Website	Apis, Examples, Explanations	2015-05-14 2017-08-04	LGPL-2.1			https://github.com/johnschug/rust-gpgme
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	IDEA, M6, M8, NDS, PRESENT				-		-				-	DH, RSA			CMP, SET	CMP, CMS, CGA, EST, GPG, HTTPS, IKE, PE, PGP, PoSE, RTD, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
179	argon2rs	Rust	Rust	High, Low	Stan.	-	-	24.05	1.67	A 1 C 4	Readme, Website	Apis, Examples, Explanations	2016-01-30 2017-06-06	MIT			https://github.com/bryant/argon2rs
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	DEAL, PRESENT				-		BLAKE2				-	-			SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
227	webpki	Rust	Rust	High, Low	Reim.	https://github.com/briansmith/mozillapkix	-	23.84	2.95	A 1 C 2	Readme, Website	Apis, Explanations	2015-08-27 2017-06-12	ISC			https://github.com/briansmith/webpki
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	DEAL, DFC, M8, PRESENT				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	ECDH, ECDSA, RSA			PKCS, PKIX, SET, X.509	DPD, EST, HTTPS, IKE, OTR, PE, PEM, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
208	twox-hash	Rust	Rust	High	Reim.	https://github.com/Cyan4973/xxHash	-	23.45	1.15	A 1 C 2	Readme, Website	Apis, Examples	2015-05-02 2017-05-26	MIT			https://github.com/shepmaster/twox-hash
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	DEAL, SEED				-		SipHash				-	-			-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
197	ring-pwhash	Rust	Rust	High, Low	Stan.	-	-	23.39	0.56	A 1 C 5	Readme, Website	Apis, Explanations	2016-07-16 2017-06-24	MIT, Apache-2.0			https://github.com/cryptosphere/ring-pwhash
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	CAST, DEAL, PRESENT				Salsa		PBKDF2, scrypt				-	-			SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**
206	rust-sha1	Rust	Rust	High	Stan.	-	-	23.16	0.35	A 1 C 6	Readme, Website	Apis, Examples	2014-11-21 2017-04-06	BSD-3-Clause			https://github.com/mitsuhiko/rust-sha1
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**			**PKI**	**Protocol**
	-	IDEA NXT, PRESENT				-		SHA, SHA-1				-	-			CMP	CMP, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**

148	rust-gcrypt	Rust	Rust	High	Wrap.	https://gnupg.org/related_software/libgcrypt	-	22.79	6.43	A 1 C 0	Readme, Website	Apis	2015-07-03 2017-08-04	LGPL-2.1		https://github.com/johnschug/rust-gcrypt
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	IDEA, PRESENT				-	PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	ECDSA, RSA		CMP, SET		CMP, EST, GPG, HTTPS, PoSE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
219	rust-djangohashers	Rust	Rust	High, Low	Reim.	https://www.djangoproject.com	-	22.58	1.39	A 1 C 1	Readme, Website	Apis, Examples, Explanations	2015-12-28 2017-06-14	BSD-3-Clause		https://github.com/racum/rust-djangohashers
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	DEAL				-	MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	-		SET		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
210	hashes	Rust	Rust	High	Stan.	-	-	22.54	10	A 1 C 5	Readme, Website	Apis, Examples, Explanations	2016-10-14 2017-07-24	Apache-2.0, MIT		https://github.com/RustCrypto/hashes
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	DEAL, IDEA NXT, M6, M8, PRESENT				-	BLAKE2, GOST, Grostl, MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, Streebog, WHIRLPOOL				HMAC	DH		CMP, SET		CMP, EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
176	scram	Rust	Rust	High, Low	Stan.	-	-	22.05	1.22	A 1 C 3	Readme, Website	Apis, Examples, Explanations	2016-08-18 2017-07-19	MIT		https://github.com/tomprogrammer/scram
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	DEAL, PRESENT				-	PBKDF2				HMAC	-		-		EST, HTTPS, SCRAM, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
218	nobsign	Rust	Rust	High	Reim.	https://github.com/cyx/nobi	-	21.55	0.26	A 1 C 2	Readme, Website	Examples	2015-10-13 2017-05-09	BSD-3-Clause		https://github.com/badboy/nobsign
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	HMAC	-				-	-				HMAC	-		-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
163	ruma-signatures	Rust	Rust	High	Stan.	-	-	21.27	0.89	A 1 C 2	Website	Apis, Examples, Explanations	2015-12-04 2017-05-09	MIT		https://github.com/ruma/ruma-signatures
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	-	DEAL, PRESENT, SEED				-	-				-	DSA		SET		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
189	hc256	Rust	Rust	High	Stan.	-	-	20.8	0.26	A 1 C 0	Download		2016-06-06 2017-07-10	MIT		https://github.com/Tyzzer/hc256
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**
	-	DEAL				-	-				-	-		-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
188	hc128	Rust	Rust	High	Stan.	-	-	20.79	0.37	A 1 C 0	Download		2016-06-07 2017-07-22	MIT		https://github.com/Tyzzer/hc128

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
232	webpki-roots	Rust	Rust	High	Wrap.	https://mkcert.org	-	20.75	5.71	A 1 C 1			2016-08-28 2017-08-13	MPL-2.0	https://github.com/ctz/webpki-roots

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DES, FPE, M6, M8, TEA	-	FSB, SHA, SHA-2, SHA-3, SHA-256	-	DH, DSS	X.509	DPD, HTTPS, IES, OTR, PE, PEM, RMA, SSL, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
157	crypto-hash	Rust	Rust	High	Wrap.	https://msdn.microsoft.com/en-us/library/ms867086.aspx, https://crates.io/crates/commoncrypto, https://crates.io/crates/openssl	-	20.66	0.53	A 1 C 0	Readme, Website	Apis, Examples, Explanations	2016-06-23 2017-07-10	MIT	https://github.com/malept/crypto-hash

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, IDEA NXT	-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	-	SET	HTTPS, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
194	newhope	Rust	Rust	High, Low	Reim.	https://github.com/google/boringssl/tree/master/crypto/newhope, https://github.com/fschlieker/newhope	-	20.48	2.22	A 1 C 0			2016-07-14 2017-07-10	MIT	https://github.com/quininer/newhope

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	ChaCha	SHA, SHA-3, SHA-256, SHAKE	-	-	-	EST, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
166	rust-fcp-cryptoauth	Rust	Rust	High	Stan.	-	-	20.38	2.91	A 1 C 1			2016-10-05 2017-06-17	MIT	https://github.com/rust-fcp/rust-fcp-cryptoauth

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	Poly1305	DEAL, PRESENT	Salsa, SEAL	SHA, SHA-2, SHA-3, SHA-256, SHA-512	Poly1305	-	SET	HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
209	block-ciphers	Rust	Rust	High	Stan.	-	-	20.24	3.04	A 1 C 2	Readme, Website	Apis, Examples, Explanations	2016-12-16 2017-08-07	Apache-2.0, MIT	https://github.com/RustCrypto/block-ciphers

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-128, AES-192, AES-256, Blowfish, DEAL, GOST, Kuznyechik, PRESENT, RC, RC2, Twofish	-	-	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

169	blissb	Rust	Rust	High, Low	Wrap.	-	-	20.08	0.86	A C	1 0		2016-08-28 2017-07-12	-		https://github.com/quininer/blissb	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL			-		SHA, SHA-3, SHA-512				-		-		CMP	CMP, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
229	seckey	Rust	Rust	High, Low	Wrap.	-	-	20.07	0.63	A C	1 0		2016-08-30 2017-08-04	-		https://github.com/quininer/seckey	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL			-		-				-		-		CMP, SET	CMP, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
213	rust-commoncrypto	Rust	Rust	High, Low	Wrap.	-	-	19.9	0.73	A C	1 1		2016-11-19 2017-07-16	-		https://github.com/malept/rust-commoncrypto	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, IDEA NXT			-		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
168	heimdal	Rust	Rust	High, Low	Wrap.	-	-	19.89	0.75	A C	1 0		2016-09-10 2017-06-06	-		https://github.com/psychonautwiki/heimdal	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, SEED			ChaCha		SHA, SHA-1, SHA-2, SHA-3, SHA-512				-		-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
228	clear_on_drop	Rust	Rust	High, Low	Wrap.	-	-	19.88	0.83	A C	1 2		2017-01-14 2017-08-06	-		https://github.com/cesarb/clear_on_drop	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, PRESENT			-		-				-		-		CMP, SET	CMP, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
185	ed25519-dalek	Rust	Rust	High, Low	Wrap.	-	-	19.77	0.8	A C	1 1		2016-12-01 2017-08-16	-		https://github.com/isislovecruft/ed25519-dalek	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	PRESENT			-		SHA, SHA-2				-		DH		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
155	milagro-crypto-rust	Rust	Rust	High, Low	Wrap.	-	-	19.6	2.83	A C	1 3		2017-03-22 2017-08-02	-		https://github.com/DSRCorporation/milagro-crypto-rust	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	SEED			-		SHA, SHA-2, SHA-3, SHA-256				-		-		CMP, SET	CMP	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
182	chacha	Rust	Rust	High	Wrap.	https://docs.rs/chacha/0.1.0/chacha	-	19.35	0.77	A C	1 1	Examples	2016-03-01 2017-04-25	MIT, Apache-2.0		https://github.com/PeterReid/chacha	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, PRESENT			ChaCha, Salsa		-				-		-		CMP	CMP, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
196	pwhash	Rust	Rust	High, Low	Wrap.	-	-	18.9	2.45	A C	1 2		2016-02-09 2017-04-01	-		https://github.com/inejge/pwhash	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	

	HMAC	DES, DEAL				-		MD5, SHA, SHA-1, SHA-2, SHA-3, HMAC SHA-256, SHA-512					DSS			CMP, SET		CMP, HTTPS, PE		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
231	untrusted	Rust	Rust	High, Low	Wrap.	-	-	18.76	0.4	A C	1 1			2016-06-05 2017-04-27	-			https://github.com/briansmith/untrusted			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	-				-		-					-	-		-		HTTPS, IKE			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
147	octavo	Rust	Rust	High, Low	Wrap.	-	-	18.74	8.13	A C	1 9			2015-07-27 2016-09-26	-			https://github.com/libOctavo/octavo			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC	Blowfish, DEAL, IDEA PRESENT, SEED				NXT, ChaCha		BLAKE2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL					HMAC	DH, RSA		CMP, SET		CMP, EST, HTTPS, IES, PCT, PGP, TLS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
180	blake2b	Rust	Rust	High, Low	Wrap.	-	-	18.49	0.84	A C	1 0			2017-01-23 2017-06-26	-			https://github.com/danielreisinger/blake2b			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	M6, PRESENT, SEED				-		BLAKE2					-	-		CMP, SET		CMP, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
193	murmurhash64-rs	Rust	Rust	High, Low	Wrap.	-	-	17.4	0.31	A C	1 2			2014-10-28 2016-12-09	-			https://github.com/badboy/murmurhash64-rs			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	SEED				-		-					-	-		-		HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
230	secrets	Rust	Rust	High, Low	Wrap.	-	-	17.24	1.24	A C	1 3			2014-12-08 2016-10-31	-			https://github.com/stouset/secrets			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	DEAL, PRESENT				-		-					-	-		SET		HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
173	rust-paillier	Rust	Rust	High, Low	Wrap.	-	-	17.02	3.4	A C	1 2			2016-07-19 2017-03-16	-			https://github.com/snipsco/rust-paillier			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	DEAL, PRESENT, SEED				-		-					-	Paillier		SET		EST, HTTPS, PE			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
214	sodalite	Rust	Rust	High, Low	Wrap.	-	-	16.83	2.92	A C	1 1			2015-10-15 2017-02-03	-			https://github.com/jmesmon/sodalite			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	Poly1305	CAST, SEED				Salsa		SHA, SHA-2, SHA-3, SHA-256, SHA-512					Poly1305	-		CMP, SET		CMP, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			
150	minimal-tls	Rust	Rust	High, Low	Wrap.	-	-	16.8	2.93	A C	1 1			2017-03-24 2017-05-16	-			https://github.com/cmalekpour/minimal-tls			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC, Poly1305	DEAL, PRESENT				ChaCha		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC, Poly1305	ECDSA, RSA		SET		HTTPS, PEM, SEND, SSL, TLS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**			

151	rust-siphash	Rust	Rust	High, Low	Wrap.	-	-	16.59	1.33	A C	1 2			2016-10-04 2017-03-23	-		https://github.com/jedisct1/rust-siphash		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-		SipHash				-		-		CMP, SET		CMP, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
199	rust-bcrypt	Rust	Rust	High, Low	Wrap.	-	-	16.19	0.48	A C	1 3			2015-12-24 2016-12-04	-		https://github.com/Keats/rust-bcrypt		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	DEAL, IDEA				-		-				-		-		-		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
191	lioness-rs	Rust	Rust	High, Low	Wrap.	-	-	16.06	0.39	A C	1 1			2016-12-16 2017-04-11	-		https://github.com/burdges/lioness-rs		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	DEAL, PRESENT				ChaCha		BLAKE2, scrypt				-		-		-		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
201	rust-farmhash	Rust	Rust	High, Low	Wrap.	-	-	16.01	1.53	A C	1 5			2015-07-10 2016-03-20	-		https://github.com/seiflotfy/rust-farmhash		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	MMH-Badger	AES, ARIA, BATON, Blowfish, CAST, Chiasmus, Crab, CRYPTON, DEAL, FEAL, FROG, IDEA NXT, IDEA, Lucifer, M6, M8, MAGENTA, Mercy, MESH, MMB, Nimbus, PRESENT, Prince, RC, RC2, Serpent, SEED, SHARK, Skipjack, Speck, TEA, Xenon, Zodiac					ChaCha, DICING, Dragon, eSTREAM, FISH, Frogbit, LEVIATHAN, LEX, MAG, Panama, Pike, Rabbit, Rambutan, Scream, SEAL, SNOW, SOBER, Solitaire, Trivium, Turing, Vernam, VEST, WAKE		SipHash, Skein, Tiger, WHIRLPOOL		MMH-Badger		DH, RSA, YAK		OpenCA, SET		AKA, ACME, CAVE, EKE, Firefly, HTTPS, IKE, KINK, PE, PoSE, RMA, SCRAM, SEND, SPORE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
165	cryptohash	Rust	Rust	High, Low	Wrap.	-	-	15.82	0.1	A C	1 0			2017-07-22 2017-07-23	-		https://github.com/krl/cryptohash		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-		BLAKE2				-		-		-		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
159	rust-crypto-working	Rust	Rust	High, Low	Wrap.	-	-	14.87	3.97	A C	1 0			2013-10-08 2016-05-22	-		https://github.com/DaGenix/rust-crypto-working		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	CAST, DEAL, IDEA NXT, PRESENT				Salsa		MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		-		SET		EST, HTTPS, TLS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	
171	message_verifier	Rust	Rust	High, Low	Wrap.	-	-	14.87	0.75	A C	1 0			2016-10-24 2017-03-18	-		https://github.com/mikeycgto/message_verifier		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, AES-256, DEAL, IDEA				-		PBKDF2, SHA, SHA-1				HMAC		-		SET		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**	

174	rust-threshold-secret-sharing	Rust	Rust	High, Low	Wrap.	-		-	14.83	1.84	A C	1 1			2016-06-24 2017-01-23	-			https://github.com/snipsco/rust-threshold-secret-sharing
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT					-		-					-		-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
181	blake2-rfc	Rust	Rust	High, Low	Wrap.	-		-	14.52	1.29	A C	1 2			2015-05-24 2016-02-27	-			https://github.com/cesarb/blake2-rfc
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, IDEA PRESENT, SEED				NXT,	-		BLAKE2					-		-		CMP, SET	CMP, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
200	rust-blake2	Rust	Rust	High, Low	Wrap.	-		-	14.48	5.06	A C	1 1			2014-08-25 2015-06-06	-			https://github.com/ebfe/rust-blake2
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	-					-		BLAKE2					-		-		CMP	CMP, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
195	pumpkin	Rust	Rust	High, Low	Wrap.	-		-	14.33	0.55	A C	1 2			2015-09-23 2016-06-11	-			https://github.com/zcdziura/pumpkin
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT					-		-					-		-		SET	EST, GPG, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
204	rust-hkdf	Rust	Rust	High, Low	Wrap.	-		-	14.28	0.2	A C	1 1			2015-01-02 2015-12-26	-			https://github.com/vladikoff/rust-hkdf
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	DEAL					-		SHA, SHA-2					HMAC		-		CMP	CMP, EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
156	steam-crypto-rs	Rust	Rust	High, Low	Wrap.	-		-	13.99	0.11	A C	1 2			2015-09-05 2016-01-11	-			https://github.com/yberreby/steam-crypto-rs
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, IDEA NXT, PRESENT					-		-					-		-		-	HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
217	edcert	Rust	Rust	High, Low	Wrap.	-		-	13.96	1.5	A C	1 1			2016-02-21 2016-10-22	-			https://github.com/zombiemuffin/edcert
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT					-		SHA, SHA-2, SHA-3, SHA-512					-		DSA		SET	HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
160	rust-cryptopp	Rust	Rust	High, Low	Wrap.	-		-	13.85	1.79	A C	1 1			2015-04-13 2015-09-10	-			https://github.com/cantora/rust-cryptopp
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	-					-		SHA, SHA-1, SHA-3					HMAC		-		CMP	CMP, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**		**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
158	rust-crypto	Rust	Rust	High, Low	Wrap.	-		-	13.84	0.27	A C	1 0			2014-12-03 2016-03-16	-			https://github.com/hmac/rust-crypto
	EAM			**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES					-		-					-		-		-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
177	susurrus	Rust	Rust	High, Low	Wrap.	-	-	13.64	0.9	A 1 C 1			2015-07-07 2016-01-11	-	https://github.com/tiffany352/susurrus
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	DEAL, PRESENT				ChaCha, Salsa	SHA, SHA-2, SHA-3, SHA-256					HMAC, Poly1305	DH	SET		HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
149	crypto	Rust	Rust	High, Low	Wrap.	-	-	13.52	0.39	A 1 C 1			2015-07-06 2015-08-30	-	https://github.com/CodingAnarchy/crypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	-	-				Vigenere cipher	-					-	-	-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
170	dono-crate	Rust	Rust	High, Low	Wrap.	-	-	13.51	0.82	A 1 C 1			2016-08-18 2016-12-17	-	https://github.com/dono-app/dono-crate
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	PRESENT				-	PBKDF2, SHA, SHA-2					HMAC	-	CMP		CMP, EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
221	libtls.rs	Rust	Rust	High, Low	Wrap.	-	-	13.44	0.72	A 1 C 0			2015-01-04 2015-01-04	-	https://github.com/manuels/libtls.rs
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	-	-				-	-					-	-	SET		HTTPS, SSL, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
154	rust-crypto-nacl	Rust	Rust	High, Low	Wrap.	-	-	13.34	0.61	A 1 C 0			2015-02-07 2015-02-12	-	https://github.com/Yawning/rust-crypto-nacl
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	Poly1305	-				Salsa	SHA, SHA-2					Poly1305	-	-		EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
202	rust-fastpbkdf2	Rust	Rust	High, Low	Wrap.	-	-	13.12	0.36	A 1 C 1			2015-10-09 2015-10-30	-	https://github.com/ctz/rust-fastpbkdf2
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	PRESENT				-	PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC	-	-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
187	hashsign	Rust	Rust	High, Low	Wrap.	-	-	12.97	0.69	A 1 C 0			2016-02-28 2016-09-30	-	https://github.com/Tyzzer/hashsign
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	-	-				-	SHA, SHA-2					-	-	CMP, SET		CMP, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
186	hash-rs	Rust	Rust	High, Low	Wrap.	-	-	12.89	0.33	A 1 C 1			2015-11-30 2015-12-10	-	https://github.com/asukharev/hash-rs
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**
	-	IDEA NXT, NOEKEON				-	SHA, SHA-1, SHA-3					-	-	-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
164	crypto_vault	Rust	Rust	High, Low	Wrap.	-	-	12.85	0.27	A 1 C 0			2015-06-30 2015-07-02	-	https://github.com/zmbush/crypto_vault

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL	-	PBKDF2, SHA, SHA-1	HMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
172	noises	Rust	Rust	High, Low	Wrap.	-	-	12.66	0.53	A 1 C 0			2015-09-16 2016-01-21	-	https://github.com/stouset/noises

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	DEAL, PRESENT	ChaCha	SHA, SHA-2, SHA-3, SHA-256	HMAC, Poly1305	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
162	rust-tweetnacl	Rust	Rust	High, Low	Wrap.	-	-	12.52	2.85	A 1 C 1			2016-09-04 2016-10-30	-	https://github.com/kcchu/rust-tweetnacl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	Poly1305	PRESENT	Salsa	SHA, SHA-2, SHA-3, SHA-256, SHA-512	Poly1305	-	CMP	CMP, EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
152	rust-sparx	Rust	Rust	High, Low	Wrap.	-	-	12.49	0.52	A 1 C 0			2017-02-15 2017-02-17	-	https://github.com/jedisct1/rust-sparx

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	IDEA NXT	LEX	SipHash	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
233	zerodrop-rs	Rust	Rust	High, Low	Wrap.	-	-	12.45	0.55	A 1 C 0			2017-01-11 2017-02-02	-	https://github.com/burdges/zerodrop-rs

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT	-	-	-	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
161	rust-paillier	Rust	Rust	High, Low	Wrap.	-	-	12.4	2.68	A 1 C 1			2016-05-11 2016-07-03	-	https://github.com/xcodevn/rust-paillier

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, SEED	-	-	-	Paillier	CMP, SET	CMP, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
205	rust-rabbit	Rust	Rust	High, Low	Wrap.	-	-	12.27	0.64	A 1 C 0			2015-11-15 2015-11-15	-	https://github.com/blackbeam/rust-rabbit

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	Rabbit	-	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
167	rs-encryptfile	Rust	Rust	High, Low	Wrap.	-	-	12.11	1.74	A 1 C 0			2015-12-22 2015-12-30	-	https://github.com/jmquigs/rs-encryptfile

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, SEED	ISAAC	scrypt, SHA, SHA-2	HMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
190	jhash-rs	Rust	Rust	High, Low	Wrap.	-	-	12.07	0.48	A 1 C 0			2017-01-26 2017-01-26	-	https://github.com/badboy/jhash-rs

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	PRESENT, SEED	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
183	chacha20-poly1305-aead	Rust	Rust	High, Low	Wrap.	-	-	11.93	1.79	A 1 C 0			2016-01-30 2016-02-01	-	https://github.com/cesarb/chacha20-poly1305-aead

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	Poly1305	CAST, DEAL, PRESENT	ChaCha	BLAKE2	Poly1305	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
198	rlwekex	Rust	Rust	High, Low	Wrap.	-	-	11.76	1.11	A 1 C 0			2016-05-08 2016-07-03	-	https://github.com/Tyzzer/rlwekex

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
178	aes	Rust	Rust	High, Low	Wrap.	-	-	11.67	2.03	A 1 C 0			2016-04-28 2016-05-31	-	https://github.com/quininer/aes

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES	-	-	-	-	SET	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
223	rust-mbedtls	Rust	Rust	High, Low	Wrap.	-	-	11.37	110	A 1 C 0			2016-10-30 2016-11-05	-	https://github.com/jethrogb/rust-mbedtls

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, IDEA NXT, IDEA, M6, M8, NDS, PRESENT, RC, RC2, SAFER, SEED, TEA, 3DES, XTEA	LEX, MAG, RC, Vernam	MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSA, DSS, CMP, ECDH, ECDSA, PKIX, RSA	PKCS, SET, X.509	AKA, CMP, CSR, DTLS, EST, HTTPS, IKE, IPsec, PE, PEM, SEND, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
220	alt-tls	Rust	Rust	High, Low	Wrap.	-	-	11.23	3.67	A 1 C 0			2016-09-09 2016-09-12	-	https://github.com/lemonrock/alt-tls

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, PRESENT, 3DES	RC	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DSA, ECDH, ECDSA, RSA	SET	AKA, HTTPS, SEND, SRTP, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
211	ring	Rust	Asse	High	Stan.	-	-	-	29	A 2 C 110	Readme, Website	Apis, Examples, Explanations	2014-06-20 2017-07-21	ISC, OpenSSL, SSLeay, IntelLicense, Apache-2.0, EricYoungOpenSourceLicense	https://github.com/briansmith/ring

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	3-Way, AES, AES-128, AES-256, CAST, DES, DEAL, IDEA, M6, M8, NDS, PRESENT, SAFER, SEED	ChaCha, Dragon, Scream, SEAL, Turing	PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSS, ECDH, CMP, ECDSA, RSA	PKIX, SET	CMP, EST, HTTPS, IKE, PE, PEM, SEND, SSH, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
243	rbnacl	Ruby	Ruby	High, Low	Wrap.	http://nacl.cr.yp.to	-	32.46	3.98	A 1 C 22	Readme, Website, Download	Apis, Examples, Explanations	2012-12-01 2017-06-13	MIT	https://github.com/cryptosphere/rbnacl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	DEAL, M6, M8, PRESENT, Q, SEED	ChaCha, Salsa	BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	ECDH	SET	EST, HTTPS, IKE, PE, SEND, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A C	1 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0		https://github.com/cossacklabs/themis
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, ECDH, ECDSA, RSA		CMP, LDAP, RDBMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
251	scrypt	Ruby	C	High, Low	Wrap.	http://www.tarsnap.com/scrypt.html	-	30.52	3.72	A C	3 15	Readme	Apis, Examples, Explanations	2010-12-16 2017-03-20	MIT		https://github.com/pbhogan/scrypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	M6, M8, PRESENT				Salsa		scrypt, SHA, SHA-2, SHA-3, SHA-256				-		DH		SET	HTTPS, PE, PEM, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
236	reversible_cryptography	Ruby	Ruby	High	Wrap.	137	-	27.49	0.21	A C	2 4	Readme	Apis, Examples	2015-03-28 2017-05-31	-		https://github.com/mitaku/reversible_cryptography
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256				-		MD5, PBKDF2, SHA, SHA-1				HMAC		-		SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
250	bcrypt-ruby	Ruby	C	High	Wrap.	https://man.openbsd.org/bcrypt.3	-	26.2	2.76	A C	2 26	Readme	Examples, Explanations	2007-02-27 2016-03-31	MIT		https://github.com/codahale/bcrypt-ruby
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	Blowfish, DES, DEAL				-		MD5				-		DSS		SET	EST, HTTPS, IKE, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
245	gibberish	Ruby	Ruby	High, Low	Wrap.	137	-	24.59	1.05	A C	1 10	Readme, Website	Apis, Examples	2011-03-23 2017-03-02	MIT		https://github.com/mdp/gibberish
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256, DEAL				-		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		RSA		CMP, SET	CMP, EST, HTTPS, PE, PEM, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
235	cryptosystem	Ruby	Ruby	High	Wrap.	137	-	21.64	0.14	A C	1 1	Readme	Apis, Examples, Explanations	2016-05-14 2017-07-29	MIT		https://github.com/joshwetzel/cryptosystem
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, M6				-		-				-		RSA		-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**

237	sirp	Ruby	Ruby	High	Fork	https://github.com/lamikae/srp-rb	-		19.61	1.16	A C	1 1	Readme, Website	Apis, Examples, Explanations	2012-03-05 2017-02-13	BSD-3-Clause		https://github.com/grempe/sirp	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	-	PRESENT, SEED					-		-					-	DH, DSA, RSA	SET		AKA, EST, GPG, HTTPS, PEM, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
239	virgil-crypto-ruby	Ruby	Ruby	High	Wrap.	https://github.com/VirgilSecurity/virgil-crypto	-		18.69	0.74	A C	1 4	Readme		2016-11-23 2017-04-24	-		https://github.com/VirgilSecurity/virgil-crypto-ruby	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	-	-					-		-					-	-	SET		EST, HTTPS, SSL	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
246	krypt	Ruby	Ruby	High, Low	Wrap.	-	-		18.66	14	A C	1 7			2011-12-05 2014-06-22	-		https://github.com/krypt/krypt	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	DEAL, M6, M8, PRESENT					-		MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC	DH, ECDSA, RSA	CMP, OCSP, X.509	LDAP, SET,	CMP, DPD, EST, HTTPS, IES, OCSP, PE, PEM, PGP, SEND, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
247	ruby-mcrypt	Ruby	Ruby	High, Low	Wrap.	-	-		16.26	5.17	A C	1 2			2009-09-06 2013-02-24	-		https://github.com/kingpong/ruby-mcrypt	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, CAST, CAST-128, CAST-256, WAKE DES, DEAL, LOKI97, PRESENT, RC, RC2, Serpent, Twofish, XTEA					-							-	DSS	PKCS, SET		EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
248	ezcrypto	Ruby	Ruby	High, Low	Wrap.	-	-		15.67	2.37	A C	1 1			2005-07-20 2009-03-10	-		https://github.com/pelle/ezcrypto	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, AES-128, AES-192, AES-256, RC Blowfish, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SAFER							SHA, SHA-1, SHA-2					-	DH, DSA, DSS, RSA, SET			DPD, EST, HTTPS, PE, PEM, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
238	lupine_crypto	Ruby	Ruby	High, Low	Wrap.	-	-		14.93	0.15	A C	1 0			2010-08-05 2010-11-18	-		https://github.com/LupineDev/lupine_crypto	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	-	DEAL					-		-					-	-	-		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
244	cryptor	Ruby	Ruby	High, Low	Wrap.	-	-		14.66	0.78	A C	1 1			2014-05-17 2014-08-23	-		https://github.com/cryptosphere/cryptor	
	EAM	**Block Cipher**					**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC, Poly1305	AES, AES-128, AES-256, DEAL, M6, PRESENT					Salsa		SHA, SHA-2, SHA-3, SHA-256					HMAC, Poly1305	DH, LUC		-	HTTPS, PE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**		**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
249	crypt	Ruby	Ruby	High, Low	Wrap.	-	-	14.42	1.78	A C 1 0			2013-07-25 2013-07-25	-	https://github.com/kixorz/crypt
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, Blowfish, IDEA, RC, RC6			LEX			MD5				-	-	-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
242	ossl_cryptor	Ruby	Ruby	High, Low	Wrap.	-	-	13.58	0.56	A C 1 0			2016-06-26 2016-12-31	-	https://github.com/koyupi/ossl_cryptor
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-256, DES, DEAL			-			MD5, PBKDF2, SHA, SHA-2, SHA-3, SHA-256				HMAC	DSS	SET	HTTPS, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
241	session-keys-rb	Ruby	Ruby	High, Low	Wrap.	-	-	12.36	0.46	A C 1 0			2016-04-24 2016-09-09	-	https://github.com/grempe/session-keys-rb
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT, SEED			-			scrypt, SHA, SHA-2, SHA-3, SHA-256				-	ECDH	SET	EST, GPG, HTTPS, PEM, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
240	Ruby-Cryptography	Ruby	Ruby	High, Low	Wrap.	-	-	11.46	0.18	A C 1 0			2016-05-20 2016-05-22	-	https://github.com/Maxwell-Alexius/Ruby-Cryptography
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	-			-			MD5				-	-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
234	OpenSSL(S)	Ruby	-	High, Low	Wrap.	137	-	-	-	A C - -	Readme, Website	Apis, Examples, Explanations	- -	Ruby, GPL-2.0, BSD-2-Clause	-
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	-			-			-				-	-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
136	wolfssl	C, Java, C#, Python, PHP, Perl	C	High	Wrap.	https://www.wolfssl.com/wolfSSL/Products-wolfcrypt.html	-	38.94	259	A C 4 49	Readme, Website, Download	Apis, Examples, Explanations	2011-02-05 2017-08-16	GPL-2.0, commercial	https://github.com/wolfssl/wolfssl
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, CRYPTON, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES			ChaCha, LEX, MAG, Rabbit, RC, Vernam			BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, NTRUEncrypt, RSA	CMP, PKCS, RTCS, SET, X.509	OCSP, PKIX, SCEP,	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, RTD, SCEP, SEND, SSH, SSL, TLS, WPA, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
264	commons-crypto	Java	Java	High, Low	Wrap.	137, http://docs.oracle.com/javase/8/docs/technotes/guides/security/crypto/CryptoSpec.html	-	34.21	12	A C 3 24	Readme, Website	Apis, Examples, Explanations	2015-03-27 2017-05-27	Apache-2.0	https://github.com/apache/commons-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-128, AES-192, AES-256, IDEA, PRESENT, RC, RC2, SEED				Crypto1		MD5				-	-	SET	EST, HTTPS, PE, PGP, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A C 1 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDH, ECDSA, RSA	CMP, LDAP, RD-BMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
299	org.globaltester.cryptoprovider	Java	Java	High	Fork	280	-	28.6	0.42	A C 2 5	Readme	Explanations	2015-03-27 2017-06-19	GPL-2.0, GPL-2.0+	https://github.com/PersoSim/org.globaltester.cryptoprovider
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DEAL, DFC, IDEA, M6, M8, PRESENT				MAG, ZUC		MD6				-	DH, DSA, ElGamal, LUC, McEliece, RSA	CMP, DVCS, OCSP, PKCS, SET, X.509	AS2, CMP, CMS, DCII, EST, IES, IKE, MSE, OCSP, PE, PEM, RTD, TSP, TLS, VBR, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
254	java-aes-crypto	Java	Java	High	Stan.	-	-	28.5	1.03	A C 2 4	Readme, Website	Examples, Explanations	2014-11-14 2017-06-12	MIT	https://github.com/tozny/java-aes-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, M6, M8, PRESENT, SEED				-		SHA, SHA-2, SHA-3, SHA-256				HMAC	-	SET	EST, HTTPS, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
261	tweetnacl-java	Java	Java	High, Low	Stan.	-	-	28.02	11	A C 2 3	Readme, Website	Apis, Explanations	2014-10-21 2017-07-25	MIT	https://github.com/InstantWebP2P/tweetnacl-java
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	DEAL, SEED				Salsa		SHA, SHA-2, SHA-3, SHA-256, SHA-512				Poly1305	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
257	jnacl	Java	Java	High	Reim.	http://nacl.cr.yp.to	-	27.23	1.53	A 1 C 4	Readme, Website		2011-12-30 2017-07-18	BSD-2-Clause	https://github.com/neilalexander/jnacl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	-				Salsa		-				Poly1305	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
319	jasypt	Java	Java	High, Low	Wrap.	-	-	27.19	63	A 1 C 4			2006-11-29 2017-06-04	-	http://svn.code.sf.net/p/jasypt/code/trunk
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	CAST, DES, DEAL, FPE, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, RC6, SAFER, TEA, UES				MAG, NLS, RC		MD2, MD5, MD6				-	DH, DSS, LUC, YAK	SET	AS2, CMC, CSR, DTLS, DPD, EST, GSI, GPG, HTTPS, IES, IKE, OTR, PE, PEM, PGP, PoSE, RMA, SCP, SEND, SSH, TLS, VBR, WPA
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
255	spring-crypto-utils	Java	Java	High	Wrap.	http://docs.oracle.com/javase/7/docs/technotes/guides/security/crypto/CryptoSpec.html	-	26.83	10	A 1 C 3	Website	Examples, Explanations	2010-02-09 2017-08-01	Apache-2.0	https://github.com/mcaserta/spring-crypto-utils
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	PRESENT				NLS, SEAL		-				HMAC	-	SET	EST, GPG, HTTPS, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
270	java-crypto-conditions	Java	Java	High	Wrap.	https://github.com/str4d/ed25519-java	-	25.79	3.4	A 2 C 5	Readme	Examples, Explanations	2016-07-28 2017-08-13	Apache-2.0	https://github.com/interledger/java-crypto-conditions
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	M6, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	RSA	SET	EST, HTTPS, I2P, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
263	cryptacular	Java	Java	High	Stan.	-	-	25.58	14	A 1 C 2	Readme	Explanations	2013-11-19 2017-07-10	Apache-2.0, LGPL-3.0	https://github.com/vt-middleware/cryptacular
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, DES, IDEA, M6, M8, PRESENT, RC, RC2, RC5, TEA				RC, SEAL		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSA, DSS, LUC, RSA	CMP, LDAP, PKCS, SET, X.509	EJBCA, OCSP, PKIX, CMP, CSR, DPD, EST, GPG, HTTPS, OCSP, PE, PEM, SSL, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
267	hadoop-crypto	Java	Java	High	Stan.	-	-	25.25	5.41	A 1 C 9	Readme	Examples, Explanations	2016-06-29 2017-08-16	Apache-2.0	https://github.com/palantir/hadoop-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, IDEA, M8, PRESENT				-		-				-	RSA	SET	AKA, EST, HTTPS, PE, PEM, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

262	tink	Java	Java	High	Stan.	-	-	23.93	49	A 1 C 14	Readme, Website, Download	Examples, Explanations	2017-03-22 2017-08-14	Apache-2.0	https://github.com/google/tink			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	HMAC, OMAC, Poly1305	AES, AES-128, AES-192, AES-256, CAST, DEAL, M8, PRESENT, SAFER				ChaCha, Salsa	scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC, OMAC, Poly1305	ECDH, ECDSA		CMP, SET, X.509	AKA, CMP, EST, GPG, HTTPS, IES, SEND, X.509		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
281	virgil-sdk-java-android	Java	Java	High	Stan.	-	-	22.81	30	A 1 C 2	Readme, Website	Apis, Explanations	2016-02-29 2017-08-11	BSD-3-Clause	https://github.com/VirgilSecurity/virgil-sdk-java-android			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	HMAC	AES, AES-128, AES-192, AES-256, CAST, DES, M6, M8, NDS, PRESENT, SEED				Crypto1, LEX, RC	MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC	DH, DSS, ECDH, ECDSA, LUC, RSA	CMP, X.509	PKCS, SET,	AS1, AKA, CMC, CMP, CSR, CMS, DPV, EKE, EST, GPG, HTTPS, IES, PE, PEM, SEND, TLS, X.509		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
277	Java-PBKDF2	Java	Java	High	Stan.	-	-	22.62	4.2	A 1 C 1	Readme	Examples, Explanations	2015-12-20 2017-06-20	BSD-2-Clause	https://github.com/SebastianDeiss/Java-PBKDF2			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	-	DEAL, PRESENT				-	RIPEMD					-	-		SET	EST, HTTPS		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
260	Cryptolite	Java	Java	High	Wrap.	http://docs.oracle.com/javase/8/docs/technotes/guides/security/crypto/CryptoSpec.html	-	21.82	4.41	A 1 C 3	Readme	Examples, Explanations	2011-07-06 2017-03-12	MIT	https://github.com/davidcarboni/Cryptolite			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	HMAC	CAST, CRYPTON, DEAL, IDEA NXT, IDEA, PRESENT, SEED				-	PBKDF2, SHA, SHA-2, SHA-3, SHA-256					HMAC	DSA, RSA		SET	EST, GPG, HTTPS, SEND		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
266	cryptolib	Java	Java	High, Low	Stan.	-	-	21.39	4.26	A 1 C 1	Readme	Explanations	2016-06-16 2017-08-16	AGPL-3.0, commerciallicence	https://github.com/cryptomator/cryptolib			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	HMAC	AES, AES-256, CAST, IDEA, PRESENT, SEED				-	scrypt, SHA, SHA-2, SHA-3, SHA-256					HMAC	-		SET	EST, GPG, HTTPS		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
273	java-aes-crypto	Java	Java	High	Fork	254	-	20.69	1.16	A 2 C 4	Readme	Examples, Explanations	2014-11-14 2016-11-22	MIT	https://github.com/scottyab/java-aes-crypto			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		
	HMAC	AES, DEAL, M6, M8, PRESENT, SEED				-	SHA, SHA-2, SHA-3, SHA-256					HMAC	-		SET	EST, HTTPS, SEND		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
274	cryptobox-jni	Java	Java	High	Wrap.	https://github.com/wireapp/cryptobox	-	20.45	1.66	A 1 C 6	Readme	Examples, Explanations	2015-02-28 2017-02-01	GPL-3.0	https://github.com/wireapp/cryptobox-jni			
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**					**MAC**	**PKC**		**PKI**	**Protocol**		

	-	IDEA, PRESENT				-		-					-		-		SET	EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
268	oversec_crypto	Java	Java	High, Low	Stan.	-	-	20.09	13	A C	1 1	Readme		2016-08-04 2017-05-27		GPL-3.0		https://github.com/oversecio/oversec_crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	Poly1305	ARIA, BATON, CAST, Crab, CRYPTON, CS-Cipher, DES, DEAL, FROG, IDEA NXT, IDEA, KASUMI, M6, M8, MARS, Mercy, MESH, Nimbus, PRESENT, Prince, SEED, SHARK, Simon, Speck, TEA, Xenon				ChaCha, Dragon, FISH, ISAAC, LEX, MAG, MICKEY, Panama, Pike, Rabbit, Salsa, Scream, SEAL, SFINKS, SNOW, SOBER, VEST, WAKE		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, Tiger					Poly1305		DH, DSS, RSA, YAK, SET			AKA, ACME, CAVE, EKE, EST, GPG, HTTPS, IES, IKE, KINK, Oakley, PANA, PE, PGP, PoSE, RMA, SCRAM, SEND, SPORE, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
288	java-crypto-utils	Java	Java	High, Low	Wrap.	-	-	19.42	0.95	A C	1 0			2016-11-02 2017-07-06		-		https://github.com/NeilMadden/java-crypto-utils
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	PRESENT				-		SipHash					HMAC		-		-	EST, GPG, HTTPS, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
256	Whitebox-crypto-AES-java	Java	Java	High, Low	Wrap.	-	-	19.39	9.01	A C	1 2			2013-10-07 2017-01-31		GPL-3.0, LGPL-2.1 +		https://github.com/ph4r05/Whitebox-crypto-AES-java
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, IDEA, PRESENT				-		-					-		-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
315	chloride	Java	Java	High, Low	Wrap.	-	-	19.17	0.88	A C	1 1			2015-03-11 2017-03-16		-		https://github.com/jtdowney/chloride
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT				-		-					-		-		-	EST, GPG, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
280	org.globaltester.cryptoprovider	Java	Java	High, Low	Wrap.	-	-	19.07	0.41	A C	2 5			2015-03-27 2016-05-06		-		https://github.com/GlobalTester/org.globaltester.cryptoprovider
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, DEAL, DFC, IDEA, M6, M8, PRESENT				MAG, ZUC		MD6					-		DH, DSA, ElGamal, LUC, McEliece, RSA		CMP, DVCS, OCSP, PKCS, SET, X.509	AS2, CMP, CMS, DCII, EST, IES, IKE, MSE, OCSP, PE, PEM, RTD, TSP, TLS, VBR, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
258	aerogear-crypto-java	Java	Java	High, Low	Wrap.	-	-	18.71	2.81	A C	1 7			2013-09-02 2016-05-11		-		https://github.com/aerogear/aerogear-crypto-java
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, PRESENT				-		PBKDF2					HMAC		ECDSA		SET, X.509	EST, GPG, HTTPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
306	amv-highmobility-cryptotool-wrapper	Java	Java	High, Low	Wrap.	-	-	18.63	1.67	A 1 C 2			2017-04-19 2017-07-05	-	https://github.com/amvnetworks/amv-highmobility-cryptotool-wrapper
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, M8, PRESENT, SEED			Crypto1		SHA, SHA-2, SHA-3, SHA-256				HMAC		DH	SET	EST, HTTPS, PE, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
265	CloudCrypto	Java	Java	High, Low	Wrap.	-	-	18.36	41	A 1 C 2			2015-10-05 2017-03-02	-	https://github.com/liuweiran900217/CloudCrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	IDEA, M6, M8, PRESENT, Prince			LEX		-				-		DH	SET	EST, HTTPS, IKE, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
303	ntru-crypto	Java	Java	High, Low	Wrap.	-	-	18.33	40	A 1 C 7			2013-06-05 2015-01-12	-	https://github.com/AttackVectorLinux/ntru-crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, IDEA, M6, M8, PRESENT, SEED			Salsa		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, NTRUEncrypt, RSA	LUC, CMP, PKCS, SET	AKA, CMP, EKE, EST, HTTPS, IES, IKE, PE, PHE, SEND, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
271	android_crypto	Java	Java	High, Low	Wrap.	-	-	18.31	2.65	A 1 C 0			2017-02-05 2017-08-09	-	https://github.com/universum-studios/android_crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	M6, M8, PRESENT			-		-				-		DH	SET	EST, HTTPS, PE, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
304	crypto-exist-java-lib	Java	Java	High, Low	Wrap.	-	-	17.75	0.93	A 1 C 1			2016-02-04 2017-03-19	-	https://github.com/claudius108/crypto-exist-java-lib
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	TEA			-		-				HMAC		DH	SET	EST, PE, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
312	tweetPepper	Java	Java	High, Low	Wrap.	-	-	17.59	15	A 2 C 2			2015-03-29 2016-06-15	-	https://github.com/buttermilk-crypto/tweetPepper
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	DEAL, IDEA, M6, M8, NOEKEON, PRESENT, SEED			ChaCha, Salsa, Turing		scrypt, SHA, SHA-2, SHA-3, SHA-512				-		DH	SET	EST, GPG, HTTPS, IKE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
283	Cryptography	Java	Java	High, Low	Wrap.	-	-	17.46	3.15	A 1 C 1			2017-05-24 2017-06-10	-	https://github.com/Bobulous/Cryptography
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	CAST, NDS, NOEKEON, PRESENT			-		SHA, SHA-3				-		-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
317	jnacl	Java	Java	High, Low	Wrap.	-	-	17.41	1.54	A 1 C 3			2011-12-30 2016-07-03	-	https://github.com/Eyremba/jnacl
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**

	Poly1305	-				Salsa	-					Poly1305	-		SET		EST, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
305	drill-crypto-functions	Java	Java	High, Low	Wrap.	-	-	16.98	0.43	A 1 C 1			2017-06-23 2017-07-05	-	https://github.com/cgivre/drill-crypto-functions					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	AES, DES, PRESENT			-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					-	DSS		SET		HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
307	sec-crypto-utils-2017-ist	Java	Java	High, Low	Wrap.	-	-	16.95	0.61	A 1 C 2			2017-03-04 2017-05-04	-	https://github.com/francisco-polaco/sec-crypto-utils-2017-ist					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	AES, PRESENT			-		SHA, SHA-2					-	-		SET		HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
294	crypto-function	Java	Java	High, Low	Wrap.	-	-	16.8	2.06	A 1 C 1			2017-07-05 2017-07-11	-	https://github.com/sunilkanjar/crypto-function					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	-			-		-					-	-		SET		EST, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
286	crypto-service	Java	Java	High, Low	Wrap.	-	-	16.44	0.3	A 1 C 0			2017-06-16 2017-06-16	-	https://github.com/aramzl/crypto-service					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	-			-		-					-	-		-		EST, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
298	EllipticCurveCryptography	Java	Java	High, Low	Wrap.	-	-	16.35	1.92	A 2 C 1			2015-03-31 2015-04-01	-	https://github.com/azaky/EllipticCurveCryptography					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	PRESENT			-		-					-	-		SET		EST			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
300	cryptonit-applet	Java	Java	High, Low	Wrap.	-	-	16.3	1.57	A 1 C 0			2016-11-05 2017-04-21	-	https://github.com/mbrossard/cryptonit-applet					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	CRYPTON, IDEA, PRESENT			-		SHA, SHA-2, SHA-3, SHA-256					-	ECDSA, RSA		PKCS, SET, X.509		EST, HTTPS, SEND, X.509			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
316	Java-Crypt	Java	Java	High, Low	Wrap.	-	-	16.28	7.94	A 1 C 1			2016-04-15 2017-02-21	-	https://github.com/erikcostlow/Java-Crypt					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	AES, M6, M8, NDS			eSTREAM		SHA, SHA-2, SHA-3, SHA-256					-	DH, RSA, YAK		SET, X.509		EST, GPG, HTTPS, PCT, PE, X.509			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					
276	crypto-utils	Java	Java	High, Low	Wrap.	-	-	15.9	0.39	A 3 C 0			2017-01-31 2017-02-01	-	https://github.com/zfreyr/crypto-utils					
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**					**MAC**	**PKC**		**PKI**		**Protocol**			
	-	IDEA, PRESENT			-		-					-	-		-		-			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**					

278	crypto-signatures	Java	Java	High, Low	Wrap.	-	-	15.75	0.62	A 1 C 5			2015-10-02 2016-04-29	-		https://github.com/Financial-Times/crypto-signatures	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	DEAL, PRESENT				-		-				-	-		-	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
293	AbarrowCrypto	Java	Java	High, Low	Wrap.	-	-	15.26	7.83	A 1 C 2			2014-12-08 2016-05-01	-		https://github.com/Abarrowman/AbarrowCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, Blowfish, DES, DEAL, IDEA NXT, Serpent				Rabbit, RC		PBKDF2				HMAC	DSS		SET	EST, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
259	jackson-crypto	Java	Java	High, Low	Wrap.	-	-	15.25	2.31	A 1 C 0			2014-10-11 2016-10-11	-		https://github.com/meltmedia/jackson-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, AES-256, CAST, PRESENT				-		PBKDF2				-	-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
310	Whitebox-crypto-AES-java	Java	Java	High, Low	Wrap.	-	-	15.15	9.01	A 1 C 1			2013-10-07 2015-12-04	-		https://github.com/liujianqun/Whitebox-crypto-AES-java	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, IDEA, PRESENT				-		-				-	-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
253	Cryptosuite	Java	Java	High, Low	Wrap.	-	-	14.94	0.4	A 1 C 0			2010-05-26 2010-05-26	-		https://github.com/Cathedrow/Cryptosuite	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	-				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	-		-	EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
285	ahome-crypto	Java	Java	High, Low	Wrap.	-	-	14.36	0.78	A 1 C 1			2015-02-16 2016-04-13	-		https://github.com/ahome-it/ahome-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, PRESENT				Rabbit		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-		SET	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
313	idcrypt	Java	Java	High, Low	Wrap.	-	-	13.66	1.02	A 1 C 0			2016-02-06 2016-11-11	-		https://github.com/martinpaljak/idcrypt	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	AES, AES-128, AES-256, IDEA, PRESENT				-		-				-	RSA		LDAP, SET, X.509	AKA, EST, HTTPS, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
301	CryptoMarketsAPI	Java	Java	High, Low	Wrap.	-	-	13.63	1.97	A 1 C 1			2015-06-03 2015-06-22	-		https://github.com/RichMerlin/CryptoMarketsAPI	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**	
	-	PRESENT				-		-				-	-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
311	djanpto	Java	Java	High, Low	Wrap.	-	-	13.58	0.26	A 1 C 1			2016-08-03 2016-12-15	-		https://github.com/mervinkid/djanpto	

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, M6	-	MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	-	SET	EST, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
284	crypto-util	Java	Java	High, Low	Wrap.	-	-	13.37	1.13	A 1 C 0			2015-03-06 2015-11-25	-	https://github.com/jsumners/crypto-util

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-256, DEAL, IDEA NXT, PRESENT	-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256	HMAC	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
309	java-cryptobox	Java	Java	High, Low	Wrap.	-	-	13.25	0.56	A 1 C 0			2015-03-09 2015-03-10	-	https://github.com/vstakhov/java-cryptobox

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	BLAKE2	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
287	aws-crypto-tools-java	Java	Java	High, Low	Wrap.	-	-	13.23	0.31	A 1 C 1			2015-11-03 2016-03-29	-	https://github.com/gravieinc/aws-crypto-tools-java

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, M6	-	-	-	-	SET, X.509	EST, HTTPS, PE, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
269	Crypto	Java	Java	High, Low	Wrap.	-	-	13.21	1.03	A 1 C 0			2015-04-21 2015-11-28	-	https://github.com/Slashmsu/Crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	MD5	-	RSA	SET	EST, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
314	memlo	Java	Java	High, Low	Wrap.	-	-	13.2	0.41	A 1 C 1			2016-05-10 2016-10-07	-	https://github.com/cliixtech/memlo

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	CAST, M6	-	-	HMAC	-	PKIX, SET	EST, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
302	CloudCrypto	Java	Java	High, Low	Wrap.	-	-	13.16	3.74	A 1 C 1			2015-10-05 2015-11-15	-	https://github.com/uuunic/CloudCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	M6, M8, PRESENT, RC, RC5	ZUC	-	-	DH, DSA, El-Gamal, LUC, McEliece, RSA	CMP, DVCS, OCSP, PKCS, SET, X.509	CMP, CMS, DPD, DCII, EST, IES, MSE, OCSP, PCT, PE, PEM, PHE, PGP, SCP, TSP, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
295	pdfbox-crypto	Java	Java	High, Low	Wrap.	-	-	13.13	2.45	A 1 C 0			2015-04-15 2015-05-31	-	https://github.com/Rayman2200/pdfbox-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	PRESENT	-	SHA, SHA-2, SHA-3, SHA-256	-	-	PKCS, SET, X.509	CMS, EST, HTTPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

289	cryptoutils	Java	Java	High, Low	Wrap.	-	-	12.95	1.14	A 1 C 1			2016-03-22 2016-08-02	-		https://github.com/simonmittag/cryptoutils		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	-	Crab, DEAL, IDEA, Mercy, PRESENT, SAFER, Serpent, SEED, Speck, TEA				FISH, LEVIATHAN, Rabbit, Scream, SOBER, Turing, WAKE	-					-	-		SET		EST, GPG, HTTPS, IKE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
290	gwt-crypto	Java	Java	High, Low	Wrap.	-	-	12.81	317	A 1 C 1			2016-01-10 2016-03-13	-		https://github.com/ttt43ttt/gwt-crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	HMAC, OMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, GOST, IDEA NXT, IDEA, M6, M8, NDS, NOEKEON, PRESENT, RC, RC2, RC6, Serpent, SEED, Threefish, TEA, 3DES, Twofish					ChaCha, eSTREAM, ISAAC, LEX, MAG, Py, RC, Salsa, SEAL		BLAKE2, GOST, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, SipHash, Skein, WHIRLPOOL				HMAC, OMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, McEliece, RSA, YAK		CMP, DVCS, LDAP, OCSP, PKCS, PKIX, PKCS#7, SET, X.509		AKA, CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, ISAKMP, IPsec, OTR, OCSP, PE, PEM, PGP, SCVP, SEND, SRTP, SSL, TSP, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
275	trestor-crypto-java	Java	Java	High, Low	Wrap.	-	-	12.58	7.35	A 1 C 0			2015-09-09 2015-10-03	-		https://github.com/Trestor/trestor-crypto-java		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	-	PRESENT, SEED				-	-					-	-		SET		EST, GPG, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
292	CryptoLibrary	Java	Java	High, Low	Wrap.	-	-	12.5	0.69	A 1 C 0			2015-09-24 2015-09-29	-		https://github.com/amor87/CryptoLibrary		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	-	DEAL				-	-					-	-		PKCS, SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
279	CryptoManager	Java	Java	High, Low	Wrap.	-	-	12.36	0.56	A 1 C 1			2016-12-26 2016-12-28	-		https://github.com/rajeshkumarkhadka/CryptoManager		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	-	M8				-	-					-	-		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
296	commons-crypto	Java	Java	High, Low	Wrap.	-	-	12.24	2.02	A 1 C 0			2016-02-09 2016-06-06	-		https://github.com/p-acs/commons-crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	
	-	CRYPTON, PRESENT				-	-					-	RSA		PKIX, SET, X.509		EST, GPG, HTTPS, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
282	smcrypto	Java	Java	High, Low	Wrap.	-	-	11.94	3.01	A 1 C 1			2016-08-24 2016-08-31	-		https://github.com/shepherdviolet/smcrypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**	

	-	M6, M8, PRESENT, SM4				LEX, NLS		SHA, SHA-2, SHA-3, SHA-256				-		DH, RSA		CMP, PKCS, X.509		OCSP, SET,	AS2, CMP, CMS, EST, GPG, HTTPS, OCSP, PE, PEM, TSP, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	
272	CryptokCodeCracker	Java	Java	High, Low	Wrap.	-	-	11.39	2.59	A 1 C 0			2016-11-21 2016-11-22	-				https://github.com/kjhulin/CryptokCodeCracker	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**	
	MMH-Badger	ARIA, BATON, CAST, Crab, DES, DEAL, FROG, IDEA NXT, IDEA, Lucifer, MAGENTA, MARS, Mercy, MESH, NDS, Nimbus, PRESENT, Prince, RC, SAFER, Serpent, SEED, SHARK, Speck, TEA, UES, Zodiac				ChaCha, Dragon, FISH, LEVIATHAN, LEX, Panama, Pike, Rabbit, RC, Scream, SEAL, SNOW, SOBER, Solitaire, Turing, VEST, WAKE		Skein, Tiger, WHIRLPOOL				MMH-Badger		DSS, YAK		LUC, RSA, SET		ACME, CAVE, EKE, EST, HTTPS, IES, IKE, KINK, PE, PoSE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	
308	cryptography-samples	Java	Java	High, Low	Wrap.	-	-	11.33	1.37	A 1 C 0			2016-07-03 2016-07-07	-				https://github.com/aibax/cryptography-samples	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**	
	-	AES, Blowfish, DES, DEAL, M6, M8				-		MD5, SHA, SHA-1				-		DH, DSS, RSA		SET, X.509		CSR, EST, HTTPS, PE, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	
297	cryptoGriffin	Java	Java	High, Low	Wrap.	-	-	11.27	137	A 1 C 0			2016-07-23 2016-07-24	-				https://github.com/adnanakgun/cryptoGriffin	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**	
	-	CAST, CRYPTON, DES, DEAL, FPE, IDEA, M6, M8, MAGENTA, MESH, MMB, PRESENT, RC, RC2, SEED				LEX, MAG, NLS, SNOW, Turing		FSB, MD2, MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		DH, YAK	DSS, RSA,	CMP, OCSP, RPKI,	DVCS, PKIX, SET, X.509	AKA, CCMP, CMC, CMP, CMS, CGA, DCII, EST, HTTPS, IES, IKE, MIKEY, MSE, OCSP, PCT, PE, PEM, PGP, SCP, SCVP, S-HTTP, SEND, SSH, SSL, TSP, TLS, VBR, WPS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	
252	JDK(S)	Java	-	High, Low	stan.	-	-	-	-	A - C -	Website	Apis, Explanations	- -	GPL-2.0 + linking exception		-			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**	
	-	-				-		-				-		-		-		-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	
291	dna-crypto	Java	HTML	High, Low	Wrap.	-	-	-	1.15	A 2 C 1			2017-05-15 2017-08-11	-				https://github.com/sbimochan/dna-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**	
	-	M6				-		-				-		-		SET		EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**				**URL**	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
318	bouncycastlecrypto157	Java	Java	High, Low	Wrap.	-	-	-	795	A 5 C -	-	-	-	-	https://bouncycastle.org/download/crypto-157.zip
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, OMAC, Poly1305	3-Way, AES, AES-128, AES-192, AES-256, ARIA, ARIA-128, ARIA-192, ARIA-256, Blowfish, Camellia, CAST, DES, DEAL, DFC, FPE, GOST, IDEA NXT, IDEA, M6, M8, MMB, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SM4, Threefish, TEA, 3DES, Twofish, UES				ChaCha, Crypto1, eSTREAM, FISH, ISAAC, LEX, MAG, NLS, Py, RC, Salsa, SEAL, Turing, ZUC	BLAKE2, FSB, GOST, MD2, MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE, SipHash, Skein, Streebog, WHIRLPOOL				HMAC, OMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, ElGamal, LUC, McEliece, RSA, YAK	CMP, LDAP, OCSP, PKCS, PKIX, PKCS#7, SET, X.509	DVCS,	AS1, AS2, AKA, CMC, CMP, CSR, CMS, CGA, DTLS, DPD, DPV, DCII, DK, EKE, EST, GSI, GPG, HTTPS, I2P, IES, IKE, ISAKMP, IPsec, KMIP, MSE, OTR, OCSP, PCT, PE, PEM, PHE, PGP, RMA, RTD, SCP, SCVP, SEND, SRTP, SSH, SSL, TSP, TLS, VBR, WPA, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
321	crypto	Go	Go	High, Low	Stan.	-	-	39.48	62	A 5 C 140	Readme, Website	Apis, Examples, Explanations	2012-01-25 2017-08-08	BSD-3-Clause	https://github.com/golang/crypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, DFC, M6, M8, NOEKEON, PRESENT, RC, RC2, RC6, SEED, TEA, 3DES, Twofish, XTEA				ChaCha, Dragon, RC, Salsa, Scream, SEAL, Vernam	BLAKE2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger				HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, ElGamal, RSA	CMP, PKIX,	OCSP, SET, X.509	ACME, CMP, CSR, CGA, EST, GPG, HTTPS, IES, IKE, OTR, OCSP, PCT, PE, PEM, PGP, SEND, SSH, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
332	go-crypto	Go	Go	High, Low	Fork	321	-	39.45	59	A 5 C 84	Readme, Website	Apis, Examples, Explanations	2012-01-25 2017-06-28	BSD-3-Clause	https://github.com/keybase/go-crypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, DEAL, DFC, FPE, M6, M8, NOEKEON, PRESENT, RC, RC2, RC6, SEED, SM4, TEA, Twofish, XTEA				Dragon, FISH, MAG, RC, Salsa, Scream, Vernam	MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger				HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, ElGamal, LUC, RSA	CMP, PKCS, PKIX, SET, X.509	OCSP,	CMP, CMS, CGA, DPD, DCII, EKE, EST, GPG, HTTPS, IES, MSE, OTR, OCSP, PCT, PE, PEM, PGP, SEND, SSH, TLS, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
325	crypto	Go	Go	High, Low	Fork	321	-	39.17	61	A 4 C 133	Readme, Website	Apis, Examples, Explanations	2012-01-25 2017-06-09	BSD-3-Clause	https://github.com/ScriptRock/crypto
	EAM	**Block Cipher**				**Stream Ci.**	**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**

	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, DFC, M6, M8, NOEKEON, PRESENT, RC, RC2, RC6, SEED, TEA, 3DES, Twofish, XTEA			ChaCha, Dragon, RC, Salsa, Scream, SEAL, Vernam		BLAKE2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger			HMAC, Poly1305		DH, DSA, DSS, CMP, OCSP, ECDH, ECDSA, PKIX, SET, X.509 ElGamal, RSA			ACME, CMP, CSR, CGA, EST, GPG, HTTPS, IES, IKE, OTR, OCSP, PCT, PE, PEM, PGP, SEND, SSH, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
324	crypto	Go	Go	High, Low	Wrap.	-	-	38.01	57	A 4 C 119			2012-01-25 2017-05-22	-	https://github.com/ProtonMail/crypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, DFC, M6, M8, NOEKEON, PRESENT, RC, RC2, RC6, SEED, TEA, 3DES, Twofish, XTEA	ChaCha, Dragon, RC, Salsa, Scream, SEAL, Vernam	BLAKE2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger	HMAC, Poly1305	DH, DSA, DSS, CMP, OCSP, ECDH, ECDSA, PKIX, SET, X.509 ElGamal, RSA		ACME, CMP, CSR, CGA, EST, GPG, HTTPS, IES, OTR, OCSP, PCT, PE, PEM, PGP, SEND, SSH, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
391	sftp	Go	Go	High	Fork	390	-	37.33	9.89	A 3 C 38	Readme, Website	Apis, Examples, Explanations	2013-11-05 2017-06-27	BSD-2-Clause	https://github.com/ScriptRock/sftp

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	DEAL, DFC, IDEA, PRESENT	Dragon	SHA, SHA-1, Tiger	HMAC	RSA	SET	EST, HTTPS, SEND, SFTP, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
392	sftp	Go	Go	High, Low	Wrap.	-	-	37.17	9.35	A 3 C 35			2013-11-05 2017-06-19	-	https://github.com/kardianos/sftp

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	DEAL, DFC, IDEA, PRESENT	Dragon	SHA, SHA-1, Tiger	HMAC	RSA	SET	EST, HTTPS, SEND, SFTP, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
330	kyber	Go	Go	High	Wrap.	https://golang.org/pkg/crypto, 137, https://crypto.stanford.edu/pbc	-	36.88	44	A 3 C 25	Readme, Website	Apis, Explanations	2011-02-16 2017-08-15	MPL-2.0	https://github.com/dedis/kyber

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, RMAC	AES, Blowfish, DEAL, IDEA NXT, M6, M8, NOEKEON, PRESENT, RC, SEED, Twofish	RC, Salsa	BLAKE2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, RMAC	DH, DSA	CMP, SET	AKA, CMP, DPD, EST, HTTPS, PCT, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
390	sftp	Go	Go	High	Stan.	-	-	36.29	10	A 2 C 43	Readme, Website	Apis, Examples, Explanations	2013-11-05 2017-08-23	BSD-2-Clause	https://github.com/pkg/sftp

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	DEAL, DFC, IDEA, PRESENT	Dragon	SHA, SHA-1, Tiger	HMAC	ECDSA, RSA	SET, X.509	EST, HTTPS, PEM, SEND, SFTP, SSH, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA			LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, ECDH, ECDSA, RSA	CMP, LDAP, RDBMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
351	pkcs11key	Go	Go	High	Stan.	-	-	30.43	0.99	A 2 C 9			2015-02-17 2017-06-08	BSD-2-Clause	https://github.com/letsencrypt/pkcs11key
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	PRESENT			-		SHA, SHA-2, SHA-3, SHA-256				-		ECDSA, RSA	PKCS, SET, X.509	EST, HTTPS, PEM, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
329	libsodium-go	Go	Go	High, Low	Wrap.	https://download.libsodium.org/doc	-	30.01	1.88	A 3 C 6	Readme, Website		2015-06-16 2017-08-12	ISC	https://github.com/GoKillers/libsodium-go
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-256, SEED			ChaCha, Dragon, Salsa, SEAL		BLAKE2, SHA, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
326	go-jose	Go	Go	High	Stan.	-	-	29.69	15	A 1 C 14	Readme, Website	Apis, Examples, Explanations	2014-12-19 2017-08-16	Apache-2.0	https://github.com/square/go-jose
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, M6, M8, PRESENT			Nimbus,	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, ECDSA, RSA	PKCS, PKIX, SET, X.509	AKA, EST, HTTPS, PE, PEM, SSH, VBR, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
074	milagro-crypto-c	C, Python, Go	C	High, Low	Stan.	-	-	29.28	47	A 2 C 11	Readme, Download	Examples, Explanations	2016-03-10 2017-08-03	Apache-2.0	https://github.com/miracl/milagro-crypto-c
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**	**PKI**	**Protocol**
	-	AES, CAST, CRYPTON, DES, IDEA, M6, M8, Mercy, PRESENT, SEED			MAG, RC, ZUC		SHA, SHA-2, SHA-3, SHA-256, SHA-512				-		DH, DSA, DSS, ECDH, ECDSA, RSA	PKCS, SET, X.509	DPD, EST, HTTPS, IKE, PE, SEND, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
356	golang-crypto	Go	Go	High	Stan.	-	-	28.72	44	A 3 C 77	Readme, Website	Apis	2012-01-25 2016-01-27	-	https://github.com/AGWA-forks/golang-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, DFC, M6, M8, NOEKEON, PRESENT, RC, RC2, RC6, TEA, Twofish, XTEA	Dragon, RC, Salsa, Scream, Vernam	MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger	HMAC, Poly1305	DH, DSA, DSS, CMP, ECDH, ECDSA, PKIX, ElGamal, RSA	OCSP, SET, X.509	CMP, CGA, EST, GPG, HTTPS, IES, OTR, OCSP, PCT, PE, PEM, PGP, SEND, SSH, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
345	go-libp2p-crypto	Go	Go	High, Low	Wrap.	-	-	27.72	1.17	A 1 C 11			2015-09-30 2017-07-06	MIT	https://github.com/libp2p/go-libp2p-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL, PRESENT, SEED	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	RSA	SET, X.509	EST, HTTPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
393	sftp	Go	Go	High, Low	Wrap.	-	-	25.47	7.12	A 1 C 31			2013-11-05 2016-11-30	-	https://github.com/oscarhealth/sftp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DFC, IDEA, PRESENT	Dragon	SHA, SHA-1, Tiger	HMAC	RSA	SET	EST, HTTPS, SEND, SFTP, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
333	whirlpool	Go	Go	High	Stan.	-	-	25.08	0.88	A 1 C 1	Readme	Examples	2012-02-20 2017-06-02	BSD-3-Clause	https://github.com/jzelinskie/whirlpool

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	PRESENT	Scream	WHIRLPOOL	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
370	openpgp	Go	Go	High	Fork	https://godoc.org/golang.org/x/crypto/openpgp	-	24.81	11	A 2 C 18	Readme		2012-01-25 2016-04-10	-	https://github.com/benburkert/openpgp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DES, DEAL, M6, M8, PRESENT	-	MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DH, DSA, DSS, SET ECDH, ECDSA, ElGamal, RSA		EST, GPG, HTTPS, IES, PGP

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
331	go-crypto	Go	Go	High	Wrap.	https://golang.org/pkg/crypto	-	24.13	5.89	A 1 C 3	Readme	Apis	2015-10-25 2017-07-29	Apache-2.0	https://github.com/tendermint/go-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, Blowfish, CAST, DEAL, FROG, IDEA NXT, IDEA, Mercy, MESH, PRESENT, SEED	Dragon, Rabbit, FISH, Salsa, SNOW	PBKDF2, RIPEMD, SHA, SHA-2, SHA-3, SHA-256, SHA-512, Tiger	HMAC, Poly1305	ECDSA	SET	CAVE, EST, GPG, HTTPS, PE, PGP, SEND, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
355	go-crypto	Go	Go	High	Wrap.	https://godoc.org/golang.org/x/crypto, https://golang.org/pkg/crypto	-	23.42	3.5	A 1 C 0	Readme		2015-01-07 2017-07-01	MIT	https://github.com/davidlazar/go-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	HMAC, Poly1305	AES, DEAL, SEED				Salsa		scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512		HMAC, Poly1305		-		SET		EST, HTTPS, SSH			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
328	crypt2go	Go	Go	High	Stan.	-	-	23.05	0.58	A 2 C 2	Readme	Apis, Examples, Explanations	2016-09-05 2017-05-28	BSD-3-Clause		https://github.com/andreburgaud/crypt2go			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, Blowfish				-		-				-		-		-		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
327	crypto	Go	Go	High	Wrap.	https://golang.org/pkg/crypto	-	22.58	1.37	A 1 C 2	Website	Apis	2016-04-02 2017-06-14	MIT		https://github.com/xigang/crypto			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, DES, DEAL, M8, PRESENT				Scream		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256		-				DSS, RSA		X.509		EST, HTTPS, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
388	pki	Go	Go	High	Wrap.	https://golang.org/pkg/crypto, https://golang.org/pkg/encoding	-	21.49	0.84	A 1 C 0			2015-02-15 2017-05-12	ISC		https://github.com/Gibheer/pki			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	PRESENT				-		SHA, SHA-2, SHA-3, SHA-512				-		ECDSA, RSA		PKIX, SET, X.509		CSR, EST, HTTPS, PE, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
336	cryptokit	Go	Go	High	Wrap.	https://golang.org/pkg/crypto	-	21.21	3.61	A 1 C 4	Website	Apis	2016-08-05 2017-05-17	MIT		https://github.com/pagarme/cryptokit			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, DES, DEAL				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512		HMAC				DSS		-		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
364	gear-auth	Go	Go	High	Stan.	-	-	20.57	0.89	A 1 C 2	Readme, Website	Apis, Examples, Explanations	2016-11-15 2017-08-10	MIT		https://github.com/teambition/gear-auth			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	DEAL, PRESENT				-		-				-		-		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
376	virgil-crypto-go	Go	Go	High, Low	Wrap.	-	-	19.8	0.36	A 1 C 1			2016-11-29 2017-07-07	-		https://github.com/VirgilSecurity/virgil-crypto-go			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-		SHA, SHA-2, SHA-3, SHA-256				-		-		-		-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**			
368	go-openssl	Go	Go	High	Wrap.	https://golang.org/pkg/crypto/aes	-	19.51	0.28	A 1 C 1	Readme	Examples	2015-07-17 2017-04-04	-		https://github.com/Luzifer/go-openssl			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, AES-256				-		MD5				-		-		-		EST	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
322	crypto	Go	Go	High, Low	Wrap.	-	-	19.11	4.06	A 1 C 4			2012-09-02 2016-11-11	-	https://github.com/jacobsa/crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DES, M6, M8, MMB, PRESENT				-		-				-	DH, DSS	SET	CMS, DPV, EST, HTTPS, IKE, PE, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
352	fastrand	Go	Go	High	Reim.	https://golang.org/pkg/crypto/rand	-	19.09	0.87	A 2 C 1	Readme, Website	Apis, Explanations	2017-03-21 2017-05-12	MIT	https://github.com/NebulousLabs/fastrand
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, SEED				-		BLAKE2				-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
373	cryptoconditions	Go	Go	High, Low	Wrap.	-	-	18.97	1.83	A 1 C 0			2016-12-13 2017-06-19	-	https://github.com/stevenroose/cryptoconditions
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	CAST, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				-	RSA	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
357	cf-tls	Go	Go	High, Low	Wrap.	-	-	18.15	8.88	A 1 C 8			2014-09-08 2015-12-08	-	https://github.com/cloudflare/cf-tls
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, DES, PRESENT, SEED				ChaCha, RC, SEAL, Vernam		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC, Poly1305	DSA, ECDSA, RSA	DSS, OCSP, SET, X.509	DCII, EST, HTTPS, OCSP, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
341	crypto	Go	Go	High, Low	Wrap.	-	-	17.73	0.09	A 1 C 0			2017-03-22 2017-06-14	-	https://github.com/golang-plus/crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT				-		-				-	-	-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
362	golang-crypto-tls	Go	Go	High, Low	Wrap.	-	-	17.57	13	A 1 C 1			2017-05-12 2017-06-06	-	https://github.com/mordyovits/golang-crypto-tls
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, DES, M6, PRESENT, SEED				ChaCha, RC, Vernam		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, Poly1305	DH, DSA, DSS, ECDSA, RSA	OCSP, PKIX, SET, X.509	DCII, EST, HTTPS, OCSP, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
366	token	Go	Go	High, Low	Wrap.	-	-	17.33	0.2	A 1 C 0			2017-04-18 2017-06-16	-	https://github.com/nogoegst/token
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT				-		-				-	-	-	EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
383	cryptohelpers-go	Go	Go	High, Low	Wrap.	-	-	17.17	0.06	A 1 C 0			2017-04-30 2017-07-12	-	https://github.com/frasys-cloud/cryptohelpers-go
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**

	-	DEAL	-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	-	-	EST							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
381	tlsdialer	Go	Go	High, Low	Wrap.	-	-	16.84	0.48	A 1, C 0			2014-09-03 2017-01-05	-	https://github.com/getlantern/tlsdialer
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	-	PRESENT	-	-	-	-	SET, X.509	DCII, EST, HTTPS, IKE, SEND, TLS, X.509							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
323	crypto	Go	Go	High, Low	Wrap.	-	-	16.82	13	A 2, C 3			2016-02-01 2016-07-07	-	https://github.com/enceve/crypto
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	Poly1305	AES, Camellia, IDEA, PRESENT, Serpent, SEED, Threefish	ChaCha	BLAKE2, SipHash, Skein	Poly1305	DH, ECDH	CMP, SET	CMP, EST, HTTPS, SEND							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
378	EcDSA--EcDH-in-Go	Go	Go	High, Low	Wrap.	-	-	16.52	1.17	A 1, C 2			2010-06-23 2016-03-08	-	https://github.com/zaker/EcDSA--EcDH-in-Go
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	-	Blowfish	-	SHA, SHA-2, SHA-3, SHA-256	-	-	SET	EST							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
382	go-cryptopia	Go	Go	High, Low	Wrap.	-	-	16.24	0.66	A 1, C 0			2017-06-28 2017-06-28	-	https://github.com/gabu/go-cryptopia
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	HMAC	-	-	MD5, SHA, SHA-2, SHA-3, SHA-256	HMAC	-	-	EST, HTTPS							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
342	crypto	Go	Go	High, Low	Wrap.	-	-	16.14	0.28	A 1, C 0			2017-07-04 2017-08-01	-	https://github.com/gowww/crypto
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	HMAC	AES, DEAL	-	MD5, SHA, SHA-2, SHA-3, SHA-256	HMAC	-	-	EST, HTTPS							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
369	crypto-go	Go	Go	High, Low	Wrap.	-	-	16.09	0.56	A 1, C 1			2017-03-10 2017-05-02	-	https://github.com/teambition/crypto-go
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	HMAC	AES, DEAL	-	MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256	HMAC	-	-	EST, HTTPS							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
359	crypto11	Go	Go	High, Low	Wrap.	-	-	15.79	2.16	A 2, C 0			2017-03-23 2017-03-23	-	https://github.com/ThalesIgnite/crypto11
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	-	DEAL, PRESENT	Crypto1	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DSA, ECDSA, RSA	SET, X.509	EST, HTTPS, PEM, TLS, X.509							
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
349	go-cryptoapi	Go	Go	High, Low	Wrap.	-	-	15.39	1.3	A 1, C 0			2015-06-30 2016-12-13	-	https://github.com/andviro/go-cryptoapi
	EAM	**Block Cipher**	**Stream Ci.**	**Hash**	**MAC**	**PKC**	**PKI**	**Protocol**							
	-	PRESENT	-	-	-	-	SET	CMS, EST, HTTPS							

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
358	cryhel	Go	Go	High, Low	Wrap.	-	-	14.88	0.32	A 1 C 2			2017-02-19 2017-03-21	-	https://github.com/qeek-dev/cryhel
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES			-			-				-	-	-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
350	go-crypto	Go	Go	High, Low	Wrap.	-	-	14.85	0.67	A 1 C 0			2014-12-28 2016-09-25	-	https://github.com/phylake/go-crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES			-			SHA, SHA-1				-	RSA	X.509	EST, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
334	go-crypto	Go	Go	High, Low	Wrap.	-	-	14.57	1.34	A 1 C 0			2015-03-20 2016-09-23	-	https://github.com/jlhawn/go-crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT			Scream			SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	-	-	EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
339	crypto	Go	Go	High, Low	Wrap.	-	-	14.56	0.27	A 1 C 0			2013-05-21 2015-09-01	-	https://github.com/dsnet/crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, SEED			-			-				-	-	SET	EST, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
374	cryptoauth	Go	Go	High, Low	Wrap.	-	-	14.5	1.36	A 1 C 1			2015-02-01 2016-05-09	-	https://github.com/lgierth/cryptoauth
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT			-			SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	-	SET	EST, HTTPS, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
353	gosshtool	Go	Go	High, Low	Wrap.	-	-	14.36	0.92	A 1 C 1			2016-02-24 2016-11-20	-	https://github.com/scottkiss/gosshtool
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT			-			-				-	RSA	-	EST, HTTPS, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
335	cryptogo	Go	Go	High, Low	Wrap.	-	-	14.28	1.35	A 1 C 0			2013-12-05 2015-03-06	-	https://github.com/vgorin/cryptogo
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, PRESENT			-			MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	ECDSA	X.509	EST, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
354	crypto-conditions	Go	Go	High, Low	Wrap.	-	-	13.98	0.87	A 1 C 2			2016-03-09 2016-09-09	-	https://github.com/jtremback/crypto-conditions
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	M6, M8, NDS, PRESENT, SEED			WAKE			SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	DH, RSA	SET	EST, PE, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
384	go-sha3	Go	Go	High, Low	Wrap.	-	-	13.82	1.11	A 1 C 0			2014-08-19 2015-05-05	-	https://github.com/coruus/go-sha3
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	M6, M8, NOEKEON, PRESENT			Salsa		MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SHAKE				-	DH		-	EST, HTTPS, PCT, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
361	bletchley	Go	Go	High, Low	Wrap.	-	-	13.75	0.72	A 1 C 1			2015-05-17 2015-10-25	-	https://github.com/pivotal-cf-experimental/bletchley
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, DEAL, PRESENT			-		SHA, SHA-2, SHA-3, SHA-256				-	ECDSA, RSA		X.509	EST, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
340	gocrypto	Go	Go	High, Low	Wrap.	-	-	13.67	0.26	A 1 C 0			2014-10-10 2014-10-11	-	https://github.com/st3fan/gocrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	IDEA, PRESENT			-		SHA, SHA-2, SHA-3, SHA-256				-	RSA		SET, X.509	CSR, EST, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
338	crypto	Go	Go	High, Low	Wrap.	-	-	13.62	5.7	A 1 C 0			2014-12-29 2015-12-27	-	https://github.com/opennota/crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, CAST-128, CAST-256, IDEA, PRESENT, SAFER, Serpent			-		-				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
385	godjan	Go	Go	High, Low	Wrap.	-	-	13.61	0.23	A 1 C 1			2016-07-31 2016-12-15	-	https://github.com/mervinkid/godjan
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	DEAL			-		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
363	hydrogen	Go	Go	High, Low	Wrap.	-	-	13.58	1.24	A 1 C 0			2017-02-22 2017-03-22	-	https://github.com/aead/hydrogen
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DEAL, M6			ChaCha		SipHash				-	-		-	EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
367	aws-crypto-tools-go	Go	Go	High, Low	Wrap.	-	-	13.57	0.47	A 1 C 2			2015-11-25 2016-01-08	-	https://github.com/gravieinc/aws-crypto-tools-go
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, DEAL			-		scrypt				-	RSA		SET, X.509	EST, HTTPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
360	randomstring	Go	Go	High, Low	Wrap.	-	-	13.4	0.09	A 1 C 0			2017-02-02 2017-03-10	-	https://github.com/leonklingele/randomstring
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	PRESENT			-		-				-	-		-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
344	cryptoauth	Go	Go	High, Low	Wrap.	-	-	13.36	1.35	A 1 C 0			2015-02-01 2015-02-15	-	https://github.com/nsjph/cryptoauth

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	PRESENT	-	SHA, SHA-2, SHA-3, SHA-256, SHA-512	-	-	SET	EST, HTTPS, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
343	ecdh	Go	Go	High, Low	Wrap.	-	-	13.33	0.41	A C	1 1			2016-07-15 2016-11-22	-	https://github.com/aead/ecdh

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT	-	-	-	DH, ECDH	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
346	cryptohelper	Go	Go	High, Low	Wrap.	-	-	13.29	0.21	A C	1 0			2015-02-25 2015-02-25	-	https://github.com/ereyes01/cryptohelper

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
380	gocrypto	Go	Go	High, Low	Wrap.	-	-	13.21	0.87	A C	1 0			2015-04-06 2015-09-18	-	https://github.com/kennylevinsen/gocrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	MMH-Badger	DEAL	eSTREAM, Rabbit	-	MMH-Badger	-	-	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
379	cmac	Go	Go	High, Low	Wrap.	-	-	13.0	0.35	A C	1 0			2015-05-21 2015-05-27	-	https://github.com/dchest/cmac

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
386	gotls	Go	Go	High, Low	Wrap.	-	-	12.98	8.52	A C	1 0			2015-05-27 2015-06-05	-	https://github.com/elorimer/gotls

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, DES, PRESENT, SAFER, SEED	RC, SEAL, Vernam	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256	HMAC	DSA, DSS, ECDSA, RSA	OCSP, PKIX, SET, X.509	DCII, EST, HTTPS, OCSP, PEM, SEND, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
375	hog	Go	Go	High, Low	Wrap.	-	-	12.95	0.38	A C	1 1			2015-11-13 2015-11-13	-	https://github.com/jochasinga/hog

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256	-	-	-	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
372	gpgeez	Go	Go	High, Low	Wrap.	-	-	12.94	12	A C	1 1			2016-09-21 2016-12-06	-	https://github.com/alokmenghrajani/gpgeez

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DES, DEAL, IDEA, PRESENT	-	MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DSA, DSS, ECDH, ECDSA, ElGamal, RSA	SET	EST, GPG, HTTPS, IKE, PGP

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
389	tlsrp	Go	Go	High, Low	Wrap.	-	-	12.86	12	A C	1 1			2017-01-04 2017-01-22	-	https://github.com/nikkolasg/tlsrp

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, DES, DEAL, IDEA, PRESENT, SEED	RC, SEAL, Vernam	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DSA, DSS, ECDSA, RSA	OCSP, PKIX, SET, X.509	DCII, EST, HTTPS, OCSP, PEM, SEND, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
394	ca	Go	Go	High, Low	Wrap.	-	-	12.85	0.46	A 1 C 0			2015-07-23 2015-11-30	-	https://github.com/neptulon/ca

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	RSA	PKIX, SET, X.509	EST, HTTPS, PEM, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
348	sm_crypto_golang	Go	Go	High, Low	Wrap.	-	-	12.64	1.04	A 1 C 0			2017-02-24 2017-02-26	-	https://github.com/qingche123/sm_crypto_golang

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, PRESENT, SM4	Scream	SHA, SHA-2, SHA-3, SHA-256, SHA-512	-	ECDSA	-	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
337	crypto	Go	Go	High, Low	Wrap.	-	-	12.52	1.64	A 1 C 0			2015-09-23 2015-10-18	-	https://github.com/andmarios/crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	scrypt	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
347	go-dkim	Go	Go	High, Low	Wrap.	-	-	12.4	1.51	A 1 C 0			2017-01-29 2017-02-08	-	https://github.com/emersion/go-dkim

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256	-	RSA	SET, X.509	DK, EST, HTTPS, PEM, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
371	sodiumbox	Go	Go	High, Low	Wrap.	-	-	12.38	0.18	A 1 C 0			2016-02-10 2016-07-06	-	https://github.com/mdp/sodiumbox

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	SEAL	BLAKE2	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
377	shortid	Go	Go	High, Low	Wrap.	-	-	12.22	0.07	A 1 C 0			2015-11-30 2015-12-16	-	https://github.com/neptulon/shortid

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
365	cryptostack	Go	Go	High, Low	Wrap.	-	-	11.71	1.46	A 1 C 0			2016-03-19 2016-03-19	-	https://github.com/ArtemKulyabin/cryptostack

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT	-	BLAKE2, PBKDF2	-	-	SET	EST, HTTPS, PE, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
387	bn448	Go	Go	High, Low	Wrap.	-	-	11.21	2.42	A 1 C 0			2016-09-28 2016-09-28	-	https://github.com/Bren2010/bn448

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	SET	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
320	Crypto(S)	Go	-	High, Low	Stan.	-	-	-	-	A - C -	Website	Apis, Examples, Explanations	- -	BSD-like + patent grant	-

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
426	php-src	PHP	C	High, Low	stan.	-	-	40.0	1619	A 19 C 779	Readme, Website, Download	Apis, Examples, Explanations	1999-04-07 2017-08-16	PHP-3.01	https://github.com/php/php-src

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, ARIA, Blowfish, CAST, CRYPTON, DES, DEAL, FROG, IDEA NXT, IDEA, M6, M8, MAGENTA, MARS, MESH, NDS, NewDES, NOEKEON, PRESENT, RC, RC2, SAFER, SEED, SHARK, Simon, TEA, UES	ChaCha, Dragon, eSTREAM, FISH, LEX, MAG, NLS, Rabbit, RC, Salsa, Scream, SEAL, Turing, Vernam, WAKE	BLAKE2, HAVAL, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Snefru, Tiger, WHIRLPOOL	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, RSA, YAK	CMP, LDAP, RDBMS, PKIX, RPKI, SET, X.509	AKA, CMC, CMP, CSR, CMS, DPD, DCII, EST, GPG, HTTPS, IES, IKE, PANA, PCT, PE, PEM, PHE, PGP, PoSE, RTD, SASL, SCP, SCVP, SEND, SFTP, SSH, SSL, S/MIME, TSP, TLS, VBR, WPA, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
136	wolfssl	C, Java, C#, Python, PHP, Perl	C	High	Wrap.	https://www.wolfssl.com/wolfSSL/Products-wolfcrypt.html	-	38.94	259	A 4 C 49	Readme, Website, Download	Apis, Examples, Explanations	2011-02-05 2017-08-16	GPL-2.0, commercial	https://github.com/wolfssl/wolfssl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, CRYPTON, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES	ChaCha, LEX, MAG, Rabbit, RC, Vernam	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, NTRUEncrypt, RSA	CMP, OCSP, PKCS, PKIX, RTCS, SCEP, SET, X.509	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, RTD, SCEP, SEND, SSH, SSL, TLS, WPA, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
431	phpseclib	PHP	PHP	High	Stan.	-	-	34.95	49	A 1 C 80	Readme, Website	Apis, Explanations	2007-06-11 2017-08-08	MIT	https://github.com/phpseclib/phpseclib

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, DEAL, IDEA NXT, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC2, RC5, SEED, 3DES, Twofish	NLS, RC	MD2, MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSA, DSS, ECDSA, RSA	CMP, LDAP, OCSP, PKCS, PKIX, SET, X.509	CMP, CSR, CGA, EST, HTTPS, IKE, OCSP, PE, PEM, SCP, SEND, SFTP, SSH, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
428	php-encryption	PHP	PHP	High	Wrap.	137	-	32.73	3.82	A 1 C 28	Readme, Website	Apis, Examples, Explanations	2014-02-05 2017-06-21	MIT	https://github.com/defuse/php-encryption
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-256, DES, DEAL, IDEA, M6, M8, PRESENT, SAFER				-		FSB, MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC	DH, DSS, LUC, SET RSA			EKE, EST, GPG, HTTPS, IKE, OTR, PE, SCP, SSH, TSP, TLS, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDH, CMP, LDAP, RD-ECDSA, RSA BMS, SET			AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
430	libsodium-php	PHP	C	High, Low	Wrap.	132	-	30.5	3.02	A 1 C 14	Readme, Website	Apis, Explanations	2013-11-11 2017-08-08	BSD-2-Clause	https://github.com/jedisct1/libsodium-php
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	Poly1305	AES, AES-256, M6, M8, SEED				ChaCha, SEAL		BLAKE2				Poly1305	-	-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
404	virgil-sdk-crypto-php	PHP	PHP	High	Stan.	-	-	28.6	4.05	A 3 C 3	Readme	Examples	2015-05-18 2017-07-25	BSD-3-Clause	https://github.com/VirgilSecurity/virgil-sdk-crypto-php
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	-				-		-				HMAC	-	SET		CMS, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
403	windwalker-crypt	PHP	PHP	High	Wrap.	137, 132	-	24.98	3.98	A 1 C 2	Readme	Apis, Examples, Explanations	2014-10-05 2017-06-11	LGPL-2.0+, LGPL-3.0+	https://github.com/ventoviro/windwalker-crypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256, DES				Salsa		MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	DSS	SET		CMS, EST, HTTPS, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
427	php-crypto	PHP	C	High, Low	Wrap.	137	-	23.24	7.04	A 1 C 2	Readme	Apis, Examples, Explanations	2013-05-30 2017-04-30	PHP-3.01	https://github.com/bukka/php-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**

	HMAC	AES, AES-128, AES-192, AES-256, CAST, IDEA NXT, IDEA, PRESENT, SEED				RC		MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		-		SET		EST, HTTPS, PCT, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
395	CryptoLib	PHP	PHP	High, Low	Stan.	-	-	20.01	0.82	A 1 C 4	Readme, Website	Apis, Examples, Explanations	2014-12-25 2017-02-13	AGPL-3.0+			https://github.com/IcyApril/CryptoLib		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	IDEA, PRESENT				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-512, WHIRLPOOL				-		-		SET		EST, HTTPS, IKE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
416	php-Crypto	PHP	PHP	High, Low	Wrap.	-	-	19.25	4.69	A 1 C 2			2014-11-17 2017-02-20	-			https://github.com/vinpel/php-Crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	DES, IDEA, PRESENT, RC, RC2, RC5, Simon				RC, Salsa		MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, DSS, PKCS, RSA		PKIX, SET, X.509		EST, HTTPS, IKE, PEM, SEND, SSL, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
429	halite	PHP	PHP	High, Low	Wrap.	-	-	19.17	8.43	A 1 C 8			2015-09-21 2016-12-08	-			https://github.com/paragonie/halite		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	Poly1305	AES, AES-256, CAST, IDEA, M6, PRESENT, SAFER, SEED				ChaCha, Salsa, Scream, SEAL		PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256				Poly1305		DH, ECDH		SET		EST, GPG, HTTPS, IKE, PE, PGP, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
419	dterranovaCryptoBundle	PHP	PHP	High, Low	Wrap.	-	-	19.14	0.29	A 2 C 1			2012-12-16 2016-09-21	-			https://github.com/davidterranova/dterranovaCryptoBundle		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, AES-256				-		MD5				-		-		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
423	security	PHP	PHP	High, Low	Wrap.	-	-	18.82	4.29	A 1 C 0			2015-12-08 2017-04-18	-			https://github.com/xp-framework/security		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	Blowfish, CAST, DES, PRESENT, 3DES				RC, SEAL		MD2, MD5, SHA, SHA-1				-		DSS		CMP, LDAP, SET, X.509		CMP, CSR, EST, HTTPS, SASL, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
405	php-crypto	PHP	PHP	High, Low	Wrap.	-	-	18.62	0.32	A 1 C 0			2016-07-06 2017-05-11	-			https://github.com/io-digital/php-crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, AES-256, IDEA, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				HMAC		-		SET		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
408	CryptoKit	PHP	PHP	High, Low	Wrap.	-	-	18.26	2.19	A 2 C 3			2015-03-24 2016-06-28	-			https://github.com/amilabs/CryptoKit		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**	
	-	AES, DEAL				-		MD5, SHA, SHA-2, SHA-3, SHA-256				-		-		SET		HTTPS, SEND, SSL	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
413	crypto-bundle	PHP	PHP	High, Low	Wrap.	-	-	17.74	4.44	A 1 C 0			2017-03-16 2017-06-07	-	https://github.com/Carteni/crypto-bundle
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, IDEA NXT, PRESENT			Crypto1			MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-512				-	DH	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
407	cryptal	PHP	PHP	High, Low	Wrap.	-	-	16.99	6.04	A 1 C 0			2017-05-12 2017-08-02	-	https://github.com/fpoirotte/cryptal
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	OMAC, Poly1305, UMAC	AES, AES-128, Camellia, DEAL, PRESENT			ChaCha			MD5, SHA, SHA-1				OMAC, Poly1305, UMAC	-	CMP, SET, X.509	CMP, EST, HTTPS, IKE, RTD, SSH, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
412	CwsCrypto	PHP	PHP	High, Low	Wrap.	-	-	16.66	0.7	A 1 C 0			2013-09-01 2016-11-28	-	https://github.com/crazy-max/CwsCrypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	Blowfish, M6, PRESENT			-			MD5, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256				HMAC	DH	SET	EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
417	crypto-encoding	PHP	PHP	High, Low	Wrap.	-	-	16.28	0.53	A 1 C 0			2017-06-26 2017-07-13	-	https://github.com/sop/crypto-encoding
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, FPE, M6, M8, TEA			-			FSB, MD2				-	DH	SET	DPD, EST, HTTPS, IES, PE, PEM, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
432	crypto-types	PHP	PHP	High, Low	Wrap.	-	-	16.24	8.66	A 1 C 0			2017-06-28 2017-08-03	-	https://github.com/sop/crypto-types
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, DES, DEAL, PRESENT, RC, RC2			-			MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DSS, ECDSA, RSA	SET	EST, HTTPS, PE, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
418	crypto-bridge	PHP	PHP	High, Low	Wrap.	-	-	16.23	0.73	A 1 C 0			2017-06-29 2017-08-03	-	https://github.com/sop/crypto-bridge
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, RC, RC2			-			MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	ECDSA, RSA	PKCS, SET	EST, HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
433	pkcs5	PHP	PHP	High, Low	Wrap.	-	-	16.21	3.73	A 1 C 0			2017-06-30 2017-08-03	-	https://github.com/sop/pkcs5
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, PRESENT			-			MD2, MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	PKCS, SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
434	pkcs8	PHP	PHP	High, Low	Wrap.	-	-	16.21	0.58	A 1 C 0			2017-06-30 2017-08-03	-	https://github.com/sop/pkcs8
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**

	HMAC		AES, AES-256, DEAL, M6, M8				-		-					HMAC		-			CMP, SET			CMP, EST, HTTPS, OTR, PEM		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
399	crypto	PHP	PHP	High, Low	Wrap.	-	-	16.02	0.51	A 1 C 0			2014-11-07 2016-12-06	-	https://github.com/g4code/crypto									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	AES, AES-256, DEAL				-		MD5, SHA, SHA-1				-		-		SET	EST, HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
396	Crypto	PHP	PHP	High, Low	Wrap.	-	-	14.73	0.53	A 1 C 1			2016-07-18 2017-01-26	-	https://github.com/YABhq/Crypto									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	-				-		MD5, SHA, SHA-1				-		-		SET	EST, HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
397	CryptoApi	PHP	PHP	High, Low	Wrap.	-	-	14.66	3.95	A 1 C 1			2014-05-16 2014-06-11	-	https://github.com/Amegatron/CryptoApi									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	AES, PRESENT				-		MD5, scrypt, SHA, SHA-1, Tiger				-		RSA		SET, X.509	CSR, EST, HTTPS, SEND, X.509								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
409	crypto_lib	PHP	PHP	High, Low	Wrap.	-	-	14.47	0.14	A 1 C 0			2016-09-07 2017-02-23	-	https://github.com/alexsasharegan/crypto_lib									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	-				LEX		-				-		-		SET	HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
414	cryptosecureprng	PHP	PHP	High, Low	Wrap.	-	-	14.13	0.26	A 1 C 0			2014-04-22 2015-10-12	-	https://github.com/elcodedocle/cryptosecureprng									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	DEAL				-		-				-		-		SET	HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
410	dynamic-crypto	PHP	PHP	High, Low	Wrap.	-	-	13.9	0.73	A 1 C 1			2015-03-13 2015-03-23	-	https://github.com/testinaweb/dynamic-crypto									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	PRESENT				Crypto1		SHA, SHA-2, SHA-3, SHA-512				-		-		SET	EST, HTTPS, IKE								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
425	Inner-Cryptography	PHP	PHP	High, Low	Wrap.	-	-	13.34	0.48	A 1 C 0			2016-04-14 2016-11-19	-	https://github.com/QBonaventure/Inner-Cryptography									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	HMAC	AES, AES-256				-		SHA, SHA-2, SHA-3, SHA-256				HMAC		-		SET	EST, HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										
402	cryptomute	PHP	PHP	High, Low	Wrap.	-	-	13.08	1.24	A 1 C 1			2016-02-15 2016-07-15	-	https://github.com/loostro/cryptomute									
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**								
	-	AES, AES-128, AES-192, Camellia, DES, DEAL, PRESENT				-		MD5				-		DSS		CMP, SET	CMP, EST, HTTPS								
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**										

424	silverstripe-cryptofier	PHP	PHP	High, Low	Wrap.	-	-	12.88	1.81	A 1 C 0			2015-06-28 2015-08-26	-		https://github.com/CrackerjackDigital/silverstripe-cryptofier	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	AES, ARIA, IDEA, PRESENT			-		-				-		-		SET		EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
398	crypto	PHP	PHP	High, Low	Wrap.	-	-	12.77	0.37	A 1 C 1			2015-12-23 2015-12-30	-		https://github.com/rafrsr/crypto	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	DEAL			-		MD5				-		-		-		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
415	Cryptography	PHP	PHP	High, Low	Wrap.	-	-	12.73	0.21	A 1 C 0			2015-07-30 2015-07-30	-		https://github.com/FiveLab/Cryptography	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	AES, AES-128, DEAL			-		MD5				-		-		-		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
406	cryptojs-aes-php	PHP	PHP	High, Low	Wrap.	-	-	12.7	0.31	A 1 C 0			2015-08-07 2015-08-07	-		https://github.com/blocktrail/cryptojs-aes-php	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	AES, AES-256, M6			-		MD5				-		DH		-		EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
411	Crypto228	PHP	PHP	High, Low	Wrap.	-	-	12.23	0.07	A 1 C 0			2015-12-26 2016-03-16	-		https://github.com/da411d/Crypto228	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	-			-		MD5				-		-		-		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
422	yacl	PHP	PHP	High, Low	Wrap.	-	-	12.03	3.3	A 1 C 0			2016-12-11 2017-01-03	-		https://github.com/lovenunu/yacl	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, PRESENT			-		SHA, SHA-1, SHA-2, SHA-3				HMAC		-		SET		EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
401	php-openssl-cryptor	PHP	PHP	High, Low	Wrap.	-	-	11.48	0.2	A 1 C 0			2016-05-16 2016-05-18	-		https://github.com/ioncube/php-openssl-cryptor	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	AES, AES-256, DEAL			-		SHA, SHA-2, SHA-3, SHA-256				-		-		-		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
421	crypto-utils-php	PHP	PHP	High, Low	Wrap.	-	-	11.24	0.1	A 1 C 0			2016-10-11 2016-10-11	-		https://github.com/msfidelis/crypto-utils-php	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	PRESENT			-		SHA, SHA-2, SHA-3, SHA-256				-		-		SET		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**
400	crypto	PHP	PHP	High, Low	Wrap.	-	-	11.23	0.08	A 1 C 0			2016-10-08 2016-10-08	-		https://github.com/rob-watts2/crypto	
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**		**PKC**			**PKI**	**Protocol**
	-	AES, AES-256, IDEA, NXT, PRESENT			-		-				-		-		-		-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
420	JsCrypto_for_PHP	PHP	PHP	High, Low	Wrap.	-	-	11.21	0.95	A 1 C 0			2016-09-28 2016-09-28	-	https://github.com/jic5760/JsCrypto_for_PHP
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-	-					-	-	SET	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
580	closure-library	JavaScript	JS	High	Stan.	-	-	39.33	698	A 4 C 606	Readme, Website	Apis, Explanations	2009-11-04 2017-09-01	Apache-2.0	https://github.com/google/closure-library
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	3-Way, AES, AES-256, ARIA, CAST, DES, DEAL, DFC, IDEA NXT, IDEA, M6, M8, MAGENTA, MARS, MMB, NDS, PRESENT, RC, RC2, SAFER, SEED, TEA, UES				eSTREAM, FISH, LEX, MAG, RC, SEAL, SNOW, Turing, ZUC		FSB, MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger				HMAC	DH, DSS, RSA	LUC, CMP, DVCS, SET	AKA, CMC, CMP, CGA, EST, HTTPS, IES, IKE, MSE, PCT, PE, PoSE, SEND, SSH, SSL, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
440	sjcl	JavaScript	JS	High	Stan.	-	-	38.53	25	A 3 C 60	Readme, Website	Apis, Explanations	2010-05-26 2017-07-07	BSD-2-Clause, GPL-2.0	https://github.com/bitwiseshiftleft/sjcl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, OMAC	AES, AES-128, DEAL, IDEA NXT, IDEA, M6, M8, MMB, PRESENT, RC, RC2, RC5, RC6, SEED, SM4, UES				RC, Salsa, Turing		FSB, MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, OMAC	DH, ECDSA	ECDH, CMP, PKCS, SET	CMC, CMP, CMS, DPV, DCII, EKE, EST, HTTPS, I2P, IES, IKE, OTR, PCT, PE, PEM, RMA, SCP, SEND, SSH, TLS, VBR, WPA

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
445	xml-crypto	JavaScript	JS	High, Low	Stan.	-	-	35.81	3.85	A 2 C 28	Readme	Apis, Examples, Explanations	2012-05-13 2017-06-07	MIT	https://github.com/yaronn/xml-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, PRESENT				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, RSA	SET, X.509	CSR, EST, HTTPS, PEM, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
458	react-native-crypto	JavaScript	JS	High, Low	Fork	443	-	35.23	1.21	A 2 C 23	Readme		2012-04-23 2017-06-11	MIT	https://github.com/mvaynGrib/react-native-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, DEAL				Crypto1		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDSA, RSA	ECDH, SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
443	crypto-browserify	JavaScript	JS	High	Reim.	https://nodejs.org/api/crypto.html	-	35.08	1.22	A 2 C 22	Readme		2012-04-23 2017-07-11	MIT	https://github.com/crypto-browserify/crypto-browserify
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, DEAL				Crypto1		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDSA, RSA	ECDH, SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
449	forge	JavaScript	JS	High, Low	Stan.	-	-	34.69	46	A 1 C 54	Readme	Examples, Explanations	2010-07-12 2017-08-11	GPL-2.0	https://github.com/digitalbazaar/forge

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-128, AES-192, AES-256, DES, DEAL, IDEA NXT, M6, M8, MAGENTA, PRESENT, RC, RC2, SEED, 3DES	LEX, RC, Turing, Vernam, WAKE	MD2, MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSA, DSS, RSA	PKCS, PKCS#7, SET, X.509	AS2, CSR, DPD, EST, HTTPS, IKE, PE, PEM, SEND, SSH, SSL, TLS, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
577	openpgpjs	JavaScript	JS	High, Low	Stan.	-	-	34.64	44	A 1 C 58	Readme, Website	Apis, Examples	2011-11-13 2017-07-30	GPL-3.0+	https://github.com/openpgpjs/openpgpjs

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, DEAL, IDEA, M6, M8, PRESENT, SEED, 3DES, Twofish	LEX, SEAL, Turing	MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSA, DSS, ECDH, ElGamal, RSA	CMP, PKCS, SET	CMP, DPD, EST, GPG, HTTPS, IKE, PE, PGP, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
576	jsencrypt	JavaScript	JS	High, Low	Wrap.	http://www-cs-students.stanford.edu/Etjw/jsbn	-	34.0	17	A 2 C 17	Readme, Website	Examples	2013-02-15 2017-07-07	ISC, MIT	https://github.com/travist/jsencrypt

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-128, AES-192, AES-256, ARIA, ARIA-128, ARIA-192, ARIA-256, Blowfish, DES, DEAL, GOST, IDEA, MAGENTA, MESH, MISTY1, PRESENT, RC, RC2, RC5, Serpent, SEED, 3DES	RC, SEAL	GOST, MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL	HMAC	DH, DSA, DSS, ECDSA, ElGamal, RSA	CMP, Identrus, OCSP, PKIX, RTCS, X.509	DVCS, LDAP, PKCS, RPKI, SET,	AKA, CMC, CMP, CMS, EST, HTTPS, IKE, IPsec, OCSP, PE, PEM, PGP, SCVP, SEND, SSL, WTLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
558	sjcl	JavaScript	JS	High	Fork	440	-	32.4	28	A 4 C 60	Readme		2010-05-26 2017-01-12	BSD-2-Clause, GPL-2.0	https://github.com/agilebits/sjcl

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, OMAC	AES, AES-128, DES, DEAL, IDEA NXT, IDEA, M6, M8, MMB, NDS, PRESENT, RC, RC2, RC5, SEED, SM4, TEA	Salsa, Turing	FSB, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, OMAC	DH, DSS, ECDH, ECDSA, RSA	CMP, PKCS, SET	AS2, CMP, CSR, CMS, DPD, DPV, DCII, EKE, EST, HTTPS, IES, IKE, MSE, OTR, PE, PEM, PHE, RMA, SEND, SSH, SSL, TLS, VBR, WPA

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
465	end-to-end	JavaScript	JS	High	Stan.	-	-	32.0	91	A 5 C 31	Readme	Examples, Explanations	2014-06-03 2017-02-24	Apache-2.0	https://github.com/google/end-to-end

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC	AES, AES-128, AES-192, AES-256, Blowfish, DES, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES	NLS	MD5, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSA, DSS, ECDH, ECDSA, ElGamal, RSA	CMP, PKCS, SET	AS1, CMP, DPD, DK, EST, GPG, HTTPS, IKE, OTR, PE, PGP, SCP, SEND, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL

070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossaclabs/themis	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, ECDH, CMP, LDAP, RDBMS, SET	ECDSA, RSA		AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
439	sha.js	JavaScript	JS	High	Stan.	-	-	30.44	1.07	A 1 C 14	Readme	Examples	2013-12-24 2017-08-02	MIT	https://github.com/crypto-browserify/sha.js	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			-		DH		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
438	crypto-js	JavaScript	JS	High	Stan.	-	-	29.08	9.62	A 1 C 10	Readme, Website	Apis, Examples	2013-04-08 2017-06-02	MIT	https://github.com/brix/crypto-js	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256, DES, DEAL, IDEA NXT, M8, PRESENT				Rabbit, RC		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, DSS		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
467	js-libp2p-crypto	JavaScript	JS	High, Low	Reim.	345	-	28.77	2.38	A 2 C 11	Readme, Website	Apis, Explanations	2016-05-19 2017-08-17	MIT	https://github.com/libp2p/js-libp2p-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-256, DEAL, PRESENT, SEED				-		SHA, SHA-2			HMAC		ECDH, RSA		PKIX, SET	HTTPS, IKE, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
447	browserify-aes	JavaScript	JS	High, Low	Wrap.	https://github.com/keybase/triplesec, https://nodejs.org/api/crypto.html	-	28.65	1.46	A 1 C 10	Readme		2014-10-15 2017-06-16	MIT	https://github.com/crypto-browserify/browserify-aes	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-128, AES-192, AES-256, DEAL, IDEA NXT, PRESENT				-		-			-		-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
452	tweetnacl-js	JavaScript	JS	High	Reim.	https://tweetnacl.js.org	-	28.06	23	A 1 C 7	Readme	Apis, Explanations	2014-01-05 2017-07-07	Public Domain	https://github.com/dchest/tweetnacl-js	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**

	HMAC, Poly1305	AES, DES, DEAL, DFC, FPE, M6, M8, MESH, NDS, PRESENT, RC, RC6, SAFER, SEED, SM4, TEA, UES				Dragon, LEX, NLS, RC, SEAL	Salsa,	FSB, MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-2, SHA-3, SHA-256, SHA-512			HMAC, Poly1305		DH, DSA, DSS, CMP, SET ECDH, LUC, RSA, YAK			AS1, AS2, AKA, CMC, CMP, CSR, CMS, CGA, DPD, DPV, DCII, EKE, EST, GSI, GPG, HTTPS, I2P, IES, IKE, MSE, PCT, PE, PHE, PGP, RMA, RTD, SCP, SSH, SSL, TSP, TLS, VBR, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
442	node-argon2	JavaScript	JS	High, Low	Wrap.	https://www.npmjs.com/package/argon2	-	27.61	0.57	A 1 C 12	Readme	Examples	2015-12-19 2017-08-15	MIT, CC0-1.0, Apache-2.0		https://github.com/ranisalt/node-argon2
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL, PRESENT				-		BLAKE2				-	-		SET	HTTPS, IKE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
450	crypto-pouch	JavaScript	JS	High, Low	Stan.	466, 443, https://github.com/calvinmetcalf/chacha20poly1305	-	27.39	26	A 1 C 7	Readme	Apis, Examples, Explanations	2014-11-24 2017-08-01	MIT		https://github.com/calvinmetcalf/crypto-pouch
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, CAST, DES, DEAL, M8, PRESENT, SEED				ChaCha		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC, Poly1305		DH, DSA, DSS, CMP, SET ECDH, ECDSA, RSA			AKA, CMP, EST, HTTPS, IKE, PE, PEM, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
453	scrypt-async-js	JavaScript	JS	Low	Stan.	-	-	27.04	1.25	A 1 C 5	Readme	Apis, Examples, Explanations	2014-03-13 2017-08-11	MIT, BSD-2-Clause		https://github.com/dchest/scrypt-async-js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	-				Salsa		scrypt				-	-		SET	EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
480	virgil-crypto-javascript	JavaScript	JS	High, Low	Stan.	-	-	26.9	13	A 3 C 2	Readme, Website	Apis, Examples, Explanations	2016-01-05 2017-07-11	BSD-3-Clause		https://github.com/VirgilSecurity/virgil-crypto-javascript
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				-	DH		SET	EST, HTTPS, IKE, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
459	cryptiles	JavaScript	JS	High	Stan.	-	-	26.79	0.21	A 1 C 4	Readme	Apis, Explanations	2013-01-12 2017-06-04	BSD-3-Clause		https://github.com/hapijs/cryptiles
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	-				-	-					-	-		-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
437	node-rsa	JavaScript	JS	High, Low	Stan.	-	-	25.99	4.47	A 1 C 12	Readme	Apis, Examples, Explanations	2014-03-24 2017-04-07	Own Licenses		https://github.com/rzcoder/node-rsa
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**

	-	DEAL, PRESENT, SEED				-		MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					RSA	SET		EST, HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
436	crypto	JavaScript	JS	High	Stan.	https://github.com/dojo/core	-	25.51	0.28	A C	3 4	Readme		2015-05-27 2017-04-11	BSD-3-Clause		https://github.com/dojo/crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	NDS, PRESENT				Vernam		PBKDF2				-		-		SET	EST, HTTPS, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
441	js-jose	JavaScript	JS	High	Stan.	-	-	25.19	7.35	A C	1 5	Readme	Examples	2014-11-20 2017-05-20	Apache-2.0		https://github.com/square/js-jose
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	M6, PRESENT				Scream		SHA, SHA-2, SHA-3, SHA-256				HMAC		RSA		SET, X.509	EST, HTTPS, IKE, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
573	forge-universal	JavaScript	JS	High, Low	Wrap.	-	-	24.87	46	A C	1 43			2010-07-12 2016-04-29	-		https://github.com/SSLcom/forge-universal
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, DES, DEAL, IDEA NXT, M6, M8, MAGENTA, PRESENT, RC, RC2, SEED, 3DES				LEX, RC, Turing, Vernam, WAKE		MD2, MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, DSS, PKCS, PKCS#7, RSA		SET, X.509	AS2, CSR, DPD, EST, HTTPS, IKE, PE, PEM, SEND, SSH, SSL, TLS, WPA, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
575	ursa	JavaScript	JS	High, Low	Wrap.	-	-	24.78	3.74	A C	1 29			2012-02-08 2016-09-18	-		https://github.com/quartzjer/ursa
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-128, CAST, DES, DEAL, IDEA, PRESENT				Turing		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				-		DH, DSS, RSA		PKCS, SET	AKA, EST, HTTPS, PE, PEM, SSH, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
483	get-random-values	JavaScript	JS	High, Low	Wrap.	-	-	24.49	0.08	A C	1 1			2014-08-07 2017-06-19	-		https://github.com/KenanY/get-random-values
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	CAST, DEAL				-	-					-		-		SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
446	browserid-crypto	JavaScript	JS	High, Low	Wrap.	-	-	24.26	7.14	A C	2 11			2011-08-12 2016-10-11	-		https://github.com/mozilla/browserid-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, DEAL, PRESENT, SEED				-		MD2, MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, RSA		CMP, SET, X.509	CMP, EST, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
526	crypto-lite	JavaScript	JS	High, Low	Wrap.	-	-	24.04	2.34	A C	1 0			2014-04-21 2017-07-24	-		https://github.com/litejs/crypto-lite
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	PRESENT				-		PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC		-		SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
464	react-native-rsa	JavaScript	JS	High	Stan.	-	-	23.83	1.73	A 2 C 2	Readme	Examples	2016-03-17 2017-05-19	MIT	https://github.com/z-hao-wang/react-native-rsa
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT, SEED				-	-					-	RSA	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
540	webcrypto	JavaScript	JS	High, Low	Wrap.	-	-	23.77	0.58	A 1 C 2			2015-09-13 2017-08-05	-	https://github.com/diasdavid/webcrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, DEAL				Crypto1		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, ECDH, ECDSA, RSA	SET	EST, HTTPS, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
485	WebCrypto.js	JavaScript	JS	High, Low	Wrap.	-	-	23.65	0.54	A 1 C 0			2014-10-18 2017-08-04	-	https://github.com/boldt/WebCrypto.js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, PRESENT				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	ECDH, ECDSA, RSA	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
501	crypto-api	JavaScript	JS	High, Low	Wrap.	-	-	22.71	3.54	A 1 C 1			2015-12-03 2017-08-16	-	https://github.com/nf404/crypto-api
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	ARIA, DEAL				-		MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
543	node-npmdoc-angular-crypto	JavaScript	JS	High, Low	Wrap.	-	-	22.56	0.3	A 1 C 2			2014-03-26 2017-04-25	-	https://github.com/npmdoc/node-npmdoc-angular-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-	-					-	-	SET	EST, HTTPS, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
542	crypto-js	JavaScript	JS	High, Low	Wrap.	-	-	22.11	9.62	A 1 C 10			2013-04-08 2016-12-14	-	https://github.com/wangsiyuan0215/crypto-js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-256, DES, DEAL, IDEA NXT, M8, PRESENT				Rabbit, RC		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSS	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
574	js-nacl	JavaScript	JS	High, Low	Wrap.	-	-	21.98	1.72	A 1 C 4			2013-01-20 2017-03-08	-	https://github.com/tonyg/js-nacl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	AES, DEAL, M6, M8, MMB, PRESENT, RC, RC2, SEED				ChaCha, Salsa, SEAL		BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				Poly1305	DH	SET	EST, HTTPS, IKE, PCT, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
516	cryptobject	JavaScript	JS	High, Low	Wrap.	-	-	21.57	0.11	A 1 C 2			2015-10-21 2017-05-09	-	https://github.com/astronomerio/cryptobject
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**

	-	-				-	-					-		-	-		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
454	CryptoStego	JavaScript	JS	High, Low	Wrap.	-	-	21.53	4.53	A C	2 3			2016-05-11 - 2017-04-05	-		https://github.com/zeruniverse/CryptoStego	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	ARIA, DEAL, IDEA, M6, PRESENT				Turing		SHA, SHA-2, SHA-3, SHA-512				-		DH		SET	EST, HTTPS, PE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
466	native-crypto	JavaScript	JS	High, Low	Wrap.	-	-	21.52	3.75	A C	1 3			2015-10-18 - 2017-04-28	-		https://github.com/calvinmetcalf/native-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256				-		PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		ECDH, RSA	ECDSA, CMP, SET		AKA, CMP, EST, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
520	meteor-aes-crypto	JavaScript	JS	High, Low	Wrap.	-	-	21.4	0.12	A C	1 1			2015-10-18 - 2017-05-17	-		https://github.com/VeliovGroup/meteor-aes-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES				-	-					-		-	-		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
546	crypto-password-helper	JavaScript	JS	High, Low	Wrap.	-	-	20.84	0.28	A C	2 0			2017-02-03 - 2017-07-19	-		https://github.com/Steeljuice/crypto-password-helper	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-512				-		-		-	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
474	crypto2	JavaScript	JS	High, Low	Wrap.	-	-	20.4	0.48	A C	1 1			2012-12-21 - 2017-03-12	-		https://github.com/thenativeweb/crypto2	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, DEAL				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC		RSA		SET	HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
489	mpw-js	JavaScript	JS	High, Low	Wrap.	-	-	20.13	0.66	A C	1 1			2014-08-15 - 2017-03-26	-		https://github.com/tmthrgd/mpw-js	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	PRESENT, SEED				Salsa		PBKDF2, scrypt				-		-		SET	HTTPS, IES	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
471	sas-crypto	JavaScript	JS	High, Low	Wrap.	-	-	19.8	0.17	A C	1 1			2016-11-29 - 2017-07-26	-		https://github.com/theharveyz/sas-crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, AES-256, DEAL, M8				-	-					-		-	-		HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
456	crypto-async	JavaScript	JS	High, Low	Wrap.	-	-	19.64	1.46	A C	1 0			2016-10-13 - 2017-08-03	-		https://github.com/ronomon/crypto-async	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	CAST, DEAL, SEED				-		SHA, SHA-1				HMAC		-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
538	angular-sha1	JavaScript	JS	High, Low	Wrap.	-	-	19.59	0.15	A 1 C 0			2015-02-04 - 2017-04-08		https://github.com/dday34/angular-sha1
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT				-		SHA, SHA-1				-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
536	gencryption	JavaScript	JS	High, Low	Wrap.	-	-	19.51	12	A 1 C 2			2017-02-14 - 2017-08-08		https://github.com/umut-sahin/gencryption
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, Blowfish, Camellia, DES, DEAL, RC, RC2, SEED				Crypto1, Vernam, Vigenere cipher		MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC	DSS, RSA	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
549	meteor-sjcl	JavaScript	JS	High, Low	Wrap.	-	-	19.42	0.08	A 3 C 2			2013-09-25 - 2015-04-03		https://github.com/icellan/meteor-sjcl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-256				HMAC	ECDSA	-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
451	javascript-crypto-library	JavaScript	JS	High, Low	Wrap.	-	-	19.41	29	A 4 C 0			2011-09-04 - 2016-01-11		https://github.com/clipperz/javascript-crypto-library
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, IDEA, MAGENTA, PRESENT, SEED				SNOW, Turing		MD5, scrypt, SHA, SHA-2, SHA-3, SHA-256				HMAC	RSA	CMP, SET	CMP, EST, HTTPS, IKE, PE, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
562	digest-stream	JavaScript	JS	High, Low	Wrap.	-	-	19.41	0.21	A 1 C 0			2012-11-23 - 2017-03-03		https://github.com/jeffbski/digest-stream
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-		MD5, SHA, SHA-1				-	-	-	HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
494	asymmetric-crypto	JavaScript	JS	High, Low	Wrap.	-	-	19.31	0.14	A 1 C 1			2017-01-10 - 2017-06-23		https://github.com/queicherius/asymmetric-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	DEAL				Salsa	-					Poly1305	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
497	js-crypto	JavaScript	JS	High, Low	Wrap.	-	-	19.29	1.07	A 1 C 1			2017-01-11 - 2017-07-10		https://github.com/mappum/js-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, SEED				Turing		MD5, RIPEMD, SHA, SHA-2, SHA-3, SHA-256				HMAC	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
510	nxt-crypto	JavaScript	JS	High, Low	Wrap.	-	-	19.2	3.11	A 1 C 0			2016-06-20 - 2017-05-18		https://github.com/DeBuNe/nxt-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT				-		SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	-	SET	EST, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

476	n-crypto	JavaScript	JS	High, Low	Wrap.	-	-	18.81	1.27	A C	1 2			2015-09-11 - 2017-03-11		https://github.com/navyxie/n-crypto		
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, DES			-			MD5				HMAC		DSS, RSA		SET	HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
541	xml-crypto-browser	JavaScript	JS	High, Low	Wrap.	-	-	18.61	2.15	A C	1 7			2012-05-13 - 2015-02-24			https://github.com/Scytl/xml-crypto-browser	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	PRESENT			-			SHA, SHA-1, SHA-2, SHA-3, SHA-256				-		RSA		SET, X.509	CSR, EST, HTTPS, PEM, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
479	crypto	JavaScript	JS	High, Low	Wrap.	-	-	18.6	21	A C	1 2			2014-12-05 - 2017-02-01			https://github.com/romanspov/crypto	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256, DES, GOST, M6, PRESENT, SEED			-			GOST, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Streebog				HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA		LDAP, PKCS, PKCS#7, X.509	OCSP, PKIX, SET, IPsec, OCSP, X.509	AKA, CSR, CMS, EST, HTTPS,
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
468	crypto-pro	JavaScript	JS	High, Low	Wrap.	-	-	18.56	5.81	A C	1 0			2017-01-17 - 2017-06-08			https://github.com/vgoma/crypto-pro	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	-			-			GOST, PBKDF2, RIPEMD				-		-		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
477	crypto-hashing	JavaScript	JS	High, Low	Wrap.	-	-	18.35	0.04	A C	2 2			2014-01-12 - 2016-03-30			https://github.com/cryptocoinjs/crypto-hashing	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL			-			RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
507	es-crypto	JavaScript	JS	High, Low	Wrap.	-	-	18.33	1.28	A C	1 0			2017-02-04 - 2017-06-17			https://github.com/logotype/es-crypto	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, DES, DEAL			Turing			MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSS, ECDH, RSA		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
462	crypto	JavaScript	JS	High, Low	Wrap.	-	-	18.13	2.6	A C	2 0			2017-05-21 - 2017-05-22			https://github.com/wxcsdb88/crypto	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	Poly1305	DEAL, SEED			Salsa		-					Poly1305		-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
530	crypto-promise	JavaScript	JS	High, Low	Wrap.	-	-	18.11	0.04	A C	1 0			2015-03-11 - 2017-03-06			https://github.com/valeriangalliat/crypto-promise	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, PRESENT			-			MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-512				HMAC		-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
552	node-cryptopia-api	JavaScript	JS	High, Low	Wrap.	-	-	17.71	0.14	A 1 C 1			2017-05-08 - 2017-07-06		https://github.com/broketech/node-cryptopia-api
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	-				-		MD5, SHA, SHA-2, SHA-3, SHA-256				HMAC	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
457	merkle	JavaScript	JS	High, Low	Wrap.	-	-	17.68	0.93	A 1 C 5			2013-07-30 - 2016-03-22		https://github.com/c-geek/merkle
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-		MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
473	web-eid.js	JavaScript	JS	High, Low	Wrap.	-	-	17.62	0.35	A 1 C 0			2017-03-29 - 2017-07-03		https://github.com/web-eid/web-eid.js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-	-					-	-	SET, X.509	HTTPS, SEND, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
455	js-crypto	JavaScript	JS	High, Low	Wrap.	-	-	17.44	0.25	A 1 C 4			2011-06-11 - 2015-12-13		https://github.com/jbt/js-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	IDEA				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
514	node-cryptopia	JavaScript	JS	High, Low	Wrap.	-	-	17.41	0.23	A 1 C 6			2014-07-14 - 2015-11-21		https://github.com/sigwo/node-cryptopia
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL				-		MD5, SHA, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	SET	HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
448	angularjs-crypto	JavaScript	JS	High, Low	Wrap.	-	-	17.06	1.27	A 1 C 3			2014-05-22 - 2016-09-06		https://github.com/pussinboots/angularjs-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DES, IDEA, PRESENT				Rabbit	-					-	DSS	SET	EST, HTTPS, IKE, PE, SEND, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
461	angular-cryptography	JavaScript	JS	High, Low	Wrap.	-	-	16.9	0.03	A 1 C 4			2014-09-27 - 2016-07-11		https://github.com/middleout/angular-cryptography
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, PRESENT				-	-					-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
502	Cryptor	JavaScript	JS	High, Low	Wrap.	-	-	16.84	0.29	A 1 C 0			2017-05-21 - 2017-06-10		https://github.com/fabioricali/Cryptor
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-256, Blowfish				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

522	runtime-node-crypto	JavaScript	JS	High, Low	Wrap.	-	-	16.72	0.19	A 2 C 1			2015-07-06 - 2016-07-09		https://github.com/facekapow/runtime-node-crypto		
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, DEAL			-		-				HMAC		DH		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
515	cryptozoa	JavaScript	JS	High, Low	Wrap.	-	-	16.71	0.68	A 1 C 1			2017-07-10 - 2017-07-17			https://github.com/anywhichway/cryptozoa	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL			-		-				-		-		-	HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
555	webcrypto-crypt	JavaScript	JS	High, Low	Wrap.	-	-	16.7	2.31	A 1 C 0			2017-05-30 - 2017-08-01			https://github.com/c2fo-lab/webcrypto-crypt	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, DES, DEAL, M8, PRESENT, SEED			Turing			PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-512			HMAC		DH, DSS, ECDH, RSA		SET	EST, HTTPS, PGP, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
475	node-cryptojs-aes	JavaScript	JS	High, Low	Wrap.	-	-	16.59	13	A 1 C 3			2012-07-30 - 2014-02-26			https://github.com/chengxianga2008/node-cryptojs-aes	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, ARIA, CAST, DEAL, M6, M8, PRESENT, SEED			Turing			MD2, MD5, MD6			HMAC		-		SET	EST, HTTPS, SEND, S/MIME	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
435	crypto	JavaScript	JS	High, Low	Wrap.	-	-	16.02	22	A 1 C 1			2014-12-05 - 2016-10-30			https://github.com/rudonick/crypto	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256, DES, GOST, M6, PRESENT, SEED			-			GOST, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Streebog			HMAC		DH, DSA, DSS, ECDH, ECDSA, RSA		LDAP, PKCS, PKCS#7, X.509	OCSP, AKA, CSR, CMS, PKIX, EST, HTTPS, SET, IPsec, OCSP, PE, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
567	wechat-dingding-cryptor	JavaScript	JS	High, Low	Wrap.	-	-	15.97	0.46	A 2 C 1			2015-08-03 - 2015-12-01			https://github.com/Broooooklyn/wechat-dingding-cryptor	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, AES-256			-			SHA, SHA-1			-		-		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
579	obsolete.cifre	JavaScript	JS	High, Low	Wrap.	-	-	15.88	19	A 1 C 2			2013-01-29 - 2013-07-30			https://github.com/hookflash/obsolete.cifre	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256, DES, DEAL, PRESENT, RC, RC2, SEED, 3DES			Turing			MD2, MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DSS, RSA		PKCS, PKCS#7, SET, X.509	CSR, EST, HTTPS, IKE, PEM, SSL, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
517	cryptonic	JavaScript	JS	High, Low	Wrap.	-	-	15.72	3.67	A 2 C 0			2015-11-10 - 2016-08-18			https://github.com/lklancir/cryptonic	
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	

	HMAC	AES, ARIA, CRYPTON, DES, DEAL, IDEA, M6, M8, NDS, RC, RC2	-			MD2, MD5, MD6, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512		HMAC			DH, DSS, RSA		PKCS, SET, X.509		CSR, EKE, EST, HTTPS, PE, PEM, PGP, SEND, SSH, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
482	WhiteBoxCrypto	JavaScript	JS	High, Low	Wrap.	-	-	15.6	82	A 1 C 0			2015-07-01 - 2016-12-24			https://github.com/msotoodeh/WhiteBoxCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	ARIA, M6, M8				-	-				-		DH		-	EST, MSE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
500	OpenCrypto	JavaScript	JS	High, Low	Wrap.	-	-	15.6	1.24	A 1 C 1			2016-07-31 - 2017-02-26			https://github.com/safebash/OpenCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL				-	-				-		-		-	EST, HTTPS, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
553	Cryptor-Eof	JavaScript	JS	High, Low	Wrap.	-	-	15.6	0.54	A 2 C 0			2015-04-21 - 2015-04-22			https://github.com/ezeoleaf/Cryptor-Eof	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL				-	-				-		-		SET	EST, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
463	crypto-lib	JavaScript	JS	High, Low	Wrap.	-	-	15.19	10	A 1 C 1			2013-05-16 - 2015-04-23			https://github.com/whiteout-io/crypto-lib	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, AES-192, AES-256, RC DES, DEAL, PRESENT, RC, RC2, SEED, TEA, 3DES						MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DSS, RSA		PKCS, SET, X.509	CSR, EST, HTTPS, PEM, SEND, SSH, SSL, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
539	streembitlib	JavaScript	JS	High, Low	Wrap.	-	-	15.16	4.68	A 1 C 2			2016-03-29 - 2016-12-12			https://github.com/streembit/streembitlib	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	IDEA, MAGENTA, PRESENT, SEED				-		SHA, SHA-1			-		-		SET	HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
527	CryptoCookie	JavaScript	JS	High, Low	Wrap.	-	-	15.15	0.42	A 1 C 2			2014-08-09 - 2015-06-12			https://github.com/fenivana/CryptoCookie	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256				-		PBKDF2, SHA, SHA-2, SHA-3			HMAC		-		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
560	hashifier	JavaScript	JS	High, Low	Wrap.	-	-	15.15	0.09	A 1 C 0			2014-10-05 - 2016-10-02			https://github.com/tswaters/hashifier	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-512			-		-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**	
490	node-nxt-api	JavaScript	JS	High, Low	Wrap.	-	-	15.08	6.87	A 1 C 2			2014-09-01 - 2015-03-24			https://github.com/pocesar/node-nxt-api	

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	CAST, DEAL, PRESENT	SEAL, Vernam	PBKDF2	-	-	SET	AKA, EST, HTTPS, IKE, SEND, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
488	createECDH	JavaScript	JS	High, Low	Wrap.	-	-	15.05	0.19	A 1 C 2				2014-11-02 - 2015-12-11		https://github.com/crypto-browserify/createECDH

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	DH, ECDH	SET	AKA, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
484	node-hashit	JavaScript	JS	High, Low	Wrap.	-	-	14.92	0.72	A 1 C 0				2017-02-20 - 2017-04-19		https://github.com/yarabey/node-hashit

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	MD5, SHA, SHA-2, SHA-3, SHA-256	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
486	meteor-crypto-sha256	JavaScript	JS	High, Low	Wrap.	-	-	14.92	0.21	A 1 C 1				2013-12-12 - 2014-08-13		https://github.com/Pagebakers/meteor-crypto-sha256

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	-	-	SHA, SHA-2, SHA-3, SHA-256	HMAC	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
544	crypto-pouch	JavaScript	JS	High, Low	Wrap.	-	-	14.88	0.18	A 1 C 1				2014-11-24 - 2016-06-20		https://github.com/nolanlawson/crypto-pouch

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	ChaCha	PBKDF2	-	DH	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
444	crypto	JavaScript	JS	High, Low	Wrap.	-	-	14.74	6.93	A 1 C 0				2012-07-24 - 2015-05-15		https://github.com/cyphrd/crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256, PRESENT, SEED	Dragon, RC	MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC	RSA	SET	EST, HTTPS, IKE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
578	cryptico	JavaScript	JS	High, Low	Wrap.	-	-	14.71	7.1	A 1 C 0				2012-07-28 - 2013-03-31		https://github.com/wwwtyro/cryptico

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DES, M6, M8, PRESENT, RC, RC2, RC5, SEED	LEX, NLS, Turing	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DH, DSS, RSA	SET	EST, HTTPS, IKE, PE, PEM, PHE, SEND, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
472	djcl	JavaScript	JS	High, Low	Wrap.	-	-	14.64	45	A 1 C 1				2014-06-02 - 2015-01-29		https://github.com/ad-l/djcl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, CAST, DEAL, IDEA, M6, M8, PRESENT, SAFER, SEED, TEA	LEX, Turing	SHA, SHA-1, SHA-2, SHA-3, SHA-256	HMAC	DH, RSA	SET	AKA, DCII, EST, HTTPS, IKE, PE, PEM, SEND, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
470	crypto	JavaScript	JS	High, Low	Wrap.	-	-	14.63	0.17	A 1 C 0				2012-12-27 - 2015-03-02		https://github.com/anchorjs/crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL	-	MD5	HMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
513	forward-secrecy	JavaScript	JS	High, Low	Wrap.	-	-	14.62	1.38	A 1 C 2				2015-08-31 - 2016-07-14		https://github.com/alax/forward-secrecy

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	PRESENT	-	PBKDF2, SHA, SHA-2, SHA-3, SHA-256	HMAC	DH	SET	AKA, HTTPS, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
508	crypto-js	JavaScript	JS	High, Low	Wrap.	-	-	14.6	17	A 1 C 0				2013-01-15 - 2013-02-24		https://github.com/mychaelgo/crypto-js

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-256, CAST, DES, DEAL, IDEA NXT, M6, M8, MMB, PRESENT, SM4, UES	NLS, Rabbit, RC, Turing	MD5, MD6, SHA, SHA-1, SHA-256, SHA-512	PBKDF2, RIPEMD, SHA-2, SHA-3, SHA-	DH, DSS	SET	CMS, DPV, DCII, EST, HTTPS, I2P, IES, PE, PEM, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
550	easy-encryption	JavaScript	JS	High, Low	Wrap.	-	-	14.44	0.34	A 1 C 1				2015-08-07 - 2016-08-29		https://github.com/digitaledgeit/easy-encryption

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	PBKDF2, SHA, SHA-1	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
499	crypto-token	JavaScript	JS	High, Low	Wrap.	-	-	14.4	0.08	A 1 C 1				2014-10-01 - 2015-06-19		https://github.com/segmentio/crypto-token

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	SET	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
557	WebCrypto.js	JavaScript	JS	High, Low	Wrap.	-	-	14.34	0.33	A 1 C 1				2014-10-18 - 2015-04-20		https://github.com/ajsb85/WebCrypto.js

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, IDEA, PRESENT	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	RSA	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
561	subtle-digest	JavaScript	JS	High, Low	Wrap.	-	-	14.18	0.18	A 1 C 0				2016-04-21 - 2017-01-03		https://github.com/michaelrhodes/subtle-digest

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	PRESENT	-	SHA, SHA-1	-	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
506	crypto-random	JavaScript	JS	High, Low	Wrap.	-	-	14.17	0.11	A 1 C 0				2017-04-16 - 2017-04-18		https://github.com/SkepticalHippo/crypto-random

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
565	machinepack-aes256	JavaScript	JS	High, Low	Wrap.	-	-	14.11	0.37	A 1 C 0				2015-03-20 - 2016-08-02		https://github.com/wi2/machinepack-aes256

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-256, DEAL	-	-	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
564	libnatrium.js	JavaScript	JS	High, Low	Wrap.	-	-	14.08	0.13	A 1 C 1			2015-01-16 2015-01-18	-	https://github.com/nelfin/libnatrium.js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT				-	-					-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
566	jscrypt	JavaScript	JS	High, Low	Wrap.	-	-	14.03	0.04	A 1 C 0			2017-03-01 2017-04-03	-	https://github.com/behdadahmadi/jscrypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, RC Blowfish, Camellia, CAST, DES, IDEA, PRESENT, RC, RC2, SEED						MD5, scrypt, SHA, SHA-1, SHA-2, HMAC SHA-3, SHA-256					DSS	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
547	cryptoJsPassword Encoder	JavaScript	JS	High, Low	Wrap.	-	-	13.99	0.07	A 1 C 1			2015-03-07 2015-09-29	-	https://github.com/cbourgois/cryptoJsPasswordEncoder
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-		SHA, SHA-2, SHA-3, SHA-512				-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
568	node-aes256	JavaScript	JS	High, Low	Wrap.	-	-	13.97	0.69	A 1 C 1			2015-04-04 2015-12-17	-	https://github.com/JamesMGreene/node-aes256
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-256, DEAL, IDEA				-		SHA, SHA-2, SHA-3, SHA-256				-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
512	node-crypto-gcm	JavaScript	JS	High, Low	Wrap.	-	-	13.9	0.22	A 1 C 0			2017-03-03 2017-03-31	-	https://github.com/mingchen/node-crypto-gcm
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-128, AES-192, AES-256, DEAL				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
525	crypto-json	JavaScript	JS	High, Low	Wrap.	-	-	13.89	0.14	A 1 C 0			2015-01-20 2016-05-16	-	https://github.com/roryrjb/crypto-json
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-256, Camellia, DEAL				-	-					-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
521	neoatlantis-crypto-js	JavaScript	JS	High, Low	Wrap.	-	-	13.87	8.9	A 1 C 0			2014-07-26 2015-04-27	-	https://github.com/neoatlantis/neoatlantis-crypto-js
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	DEAL, PRESENT, SEED				ChaCha, Salsa		PBKDF2, scrypt, WHIRLPOOL				Poly1305	ECDSA	SET	EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
570	crypt-maker	JavaScript	JS	High, Low	Wrap.	-	-	13.84	0.74	A 1 C 1			2015-04-27 2015-11-03	-	https://github.com/NummiNorihSF/crypt-maker
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, DEAL				-		SHA, SHA-1				HMAC	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

504	webcrypto-jwt	JavaScript	JS	High, Low	Wrap.	-	-	13.78	0.45	A 1 C 1			2015-04-25 - 2015-07-21		https://github.com/pose/webcrypto-jwt
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL			-		-					HMAC	-	-	EST, HTTPS, PoSE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
532	storj-crypto	JavaScript	JS	High, Low	Wrap.	-	-	13.76	0.25	A 1 C 1			2017-03-06 - 2017-03-13		https://github.com/Storj/storj-crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, PRESENT			-		PBKDF2, SHA, SHA-2, SHA-3, SHA-256					-	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
492	cryptopeer-crypto	JavaScript	JS	High, Low	Wrap.	-	-	13.71	2.49	A 1 C 0			2016-11-17 - 2017-02-23		https://github.com/zMotivat0r/cryptopeer-crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	DEAL			ChaCha		PBKDF2, SHA, SHA-2, SHA-3, SHA-512					Poly1305	ECDH, RSA	SET	EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
559	secret-utils	JavaScript	JS	High, Low	Wrap.	-	-	13.71	0.14	A 1 C 0			2014-10-13 - 2015-07-30		https://git.daplie.com/coolaj86/secret-utils
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	PRESENT			-		MD5, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
495	borschik-hash	JavaScript	JS	High, Low	Wrap.	-	-	13.58	0.17	A 1 C 1			2017-03-09 - 2017-03-10		https://github.com/borschik/borschik-hash
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL			-		SHA, SHA-1					-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
519	crypto-rc4	JavaScript	JS	High, Low	Wrap.	-	-	13.58	0.12	A 1 C 1			2015-07-02 - 2015-11-06		https://github.com/execmd/crypto-rc4
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL			RC		-					-	RSA	-	HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
535	microstar-crypto	JavaScript	JS	High, Low	Wrap.	-	-	13.53	0.21	A 1 C 0			2014-12-06 - 2015-01-22		https://github.com/microstar-db/microstar-crypto
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	M6			-		-					-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
496	cryptojs-extension	JavaScript	JS	High, Low	Wrap.	-	-	13.51	12	A 1 C 0			2015-06-05 - 2016-06-09		https://github.com/artjomb/cryptojs-extension
	EAM	**Block Cipher**			**Stream Ci.**			**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, OMAC	AES, AES-128, Blowfish, DEAL, DFC, GOST, M6, M8, MMB, RC, RC2, TEA			MAG		GOST, SHA, SHA-1, SHA-2, SHA-3, SHA-256, Streebog					HMAC, OMAC	DH, YAK	SET	EST, GSI, HTTPS, I2P, PE, PEM, RMA, SFTP
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

563	crc-hash	JavaScript	JS	High, Low	Wrap.	-	-	13.5	0.53	A 1 C 0			2014-12-18 2015-03-14	-		https://github.com/DavidAnson/crc-hash	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	-	DEAL				-		MD5				-	-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
545	crypto-classic-otp	JavaScript	JS	High, Low	Wrap.	-	-	13.43	0.09	A 1 C 0			2015-01-07 2015-01-16	-		https://github.com/lostways/crypto-classic-otp	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	-	-				-		-				-	-		-	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
518	cryptoanalysis	JavaScript	JS	High, Low	Wrap.	-	-	13.41	8.17	A 1 C 1			2015-07-29 2015-08-01	-		https://github.com/ahvonenj/cryptoanalysis	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, ARIA, DES, MAGENTA, PRESENT, SEED				LEX, Rabbit, RC, SNOW		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSS		SET	AKA, EST, HTTPS, IKE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
534	node-crypto	JavaScript	JS	High, Low	Wrap.	-	-	13.36	0.21	A 1 C 0			2016-02-18 2016-10-27	-		https://github.com/DoctorMcKay/node-crypto	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, IDEA NXT, IDEA				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	-		-	HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
498	libaxolotl-crypto-node	JavaScript	JS	High, Low	Wrap.	-	-	13.35	0.36	A 1 C 0			2015-02-05 2015-02-07	-		https://github.com/joebandenburg/libaxolotl-crypto-node	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				HMAC	-		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
487	crypto.js	JavaScript	JS	High, Low	Wrap.	-	-	13.25	0.2	A 1 C 0			2017-02-17 2017-03-12	-		https://github.com/yutent/crypto.js	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-128, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
505	node-crypto-extra	JavaScript	JS	High, Low	Wrap.	-	-	13.15	0.33	A 1 C 0			2016-02-19 2016-10-10	-		https://github.com/jsonmaur/node-crypto-extra	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, DEAL				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256				HMAC	-		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
460	crypto	JavaScript	JS	High, Low	Wrap.	-	-	13.12	0.94	A 1 C 1			2016-02-22 2016-07-28	-		https://github.com/wieldo/crypto	
	EAM	**Block Cipher**				**Stream Ci.**			**Hash**			**MAC**	**PKC**		**PKI**	**Protocol**	
	-	-				-		-				-	-		-	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**	**URL**	
469	cryptohat	JavaScript	JS	High, Low	Wrap.	-	-	12.99	0.88	A 1 C 2			2016-03-30 2016-04-09	-		https://github.com/heap/cryptohat	

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT, SEED	-	-	-	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
569	node-acrypto	JavaScript	JS	High, Low	Wrap.	-	-	12.87	0.02	A 1 C 0				2015-06-23 - 2015-06-23	-	https://github.com/aluxian/node-acrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	M6, PRESENT	-	PBKDF2, SHA, SHA-2, SHA-3, SHA-256	-	-	-	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
528	crypto-stream	JavaScript	JS	High, Low	Wrap.	-	-	12.86	0.28	A 1 C 0				2015-06-26 - 2015-06-26	-	https://github.com/calvinmetcalf/crypto-stream

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256	-	SHA, SHA-2, SHA-3, SHA-256	HMAC	-	SET	HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
554	awesome-cryptography	JavaScript	JS	High, Low	Wrap.	-	-	12.85	1.14	A 1 C 0				2016-08-25 - 2016-12-22	-	https://github.com/gunngunfebrianza/awesome-cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL	-	SHA, SHA-2, SHA-3, SHA-512	HMAC	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
493	node-password-encrypter	JavaScript	JS	High, Low	Wrap.	-	-	12.68	0.63	A 1 C 0				2017-02-28 - 2017-02-28	-	https://github.com/giovaniRodighiero/node-password-encrypter

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	MD5, PBKDF2, SHA, SHA-2, SHA-3, SHA-512	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
523	minimalistic-crypto-utils	JavaScript	JS	High, Low	Wrap.	-	-	12.55	0.08	A 1 C 0				2017-02-22 - 2017-02-22	-	https://github.com/indutny/minimalistic-crypto-utils

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	-	HTTPS, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
478	cryptoidentity	JavaScript	JS	High, Low	Wrap.	-	-	12.43	0.53	A 1 C 1				2016-03-07 - 2016-03-07	-	https://github.com/richardanaya/cryptoidentity

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, DES, DEAL, PRESENT, SEED	Crypto1	MD2, MD5, SHA, SHA-1, PBKDF2, SHA-2, SHA-3, SHA-256, SHA-512, RIPEMD,	HMAC	DSA, ECDSA, RSA	DSS, OCSP, SET, X.509	CSR, CMS, EST, GPG, HTTPS, IKE, OCSP, PEM, PGP, TSP, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
551	meteor-server-encryption	JavaScript	JS	High, Low	Wrap.	-	-	12.42	0.43	A 1 C 0				2016-05-02 - 2016-09-21	-	https://github.com/jeescu/meteor-server-encryption

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES	-	-	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc.	Kind	Doc. Com.	Dates	Licence	URL
529	random-crypto	JavaScript	JS	High, Low	Wrap.	-	-	12.4	0.06	A 1 C 0				2015-12-05 - 2016-04-03	-	https://github.com/PsychicCat/random-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	-	-				-	-					-	-	-		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
531	node-crypto	JavaScript	JS	High, Low	Wrap.	-	-	12.25	0.27	A C	1 1			2016-09-06 - 2016-10-12			https://github.com/elastic/node-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-256				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-512				-		-		SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
548	node-easy-crypto	JavaScript	JS	High, Low	Wrap.	-	-	12.13	0.3	A C	1 0			2016-05-05 - 2016-08-23			https://github.com/emartech/node-easy-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-256, DEAL				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-256				-		-		SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
491	react-native-webview-crypto	JavaScript	JS	High, Low	Wrap.	-	-	12.05	0.15	A C	1 0			2016-06-17 - 2016-09-20			https://github.com/saulshanabrook/react-native-webview-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	CAST				-	-					-		-		SET	HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
533	crypto-xor	JavaScript	JS	High, Low	Wrap.	-	-	12.03	0.08	A C	1 0			2016-02-10 - 2016-04-15			https://github.com/thomaschampagne/crypto-xor
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL				-	-					-		-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
556	des	JavaScript	JS	High, Low	Wrap.	-	-	12.02	0.72	A C	1 0			2016-01-10 - 2016-01-10			https://github.com/mushtat/des
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	DES				-		MD5				-		DSS		-	-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
511	SM2	JavaScript	JS	High, Low	Wrap.	-	-	11.99	58	A C	1 0			2016-12-15 - 2017-01-04			https://github.com/lifesreason/SM2
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, DES, PRESENT, SEED				Crypto1		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	PBKDF2, RIPEMD, HMAC					DH, DSA, DSS, ECDSA, RSA	LDAP, PKCS, PKIX, SET, X.509	OCSP, CSR, CMS, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, SEND, TSP, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
524	zymkey	JavaScript	JS	High, Low	Wrap.	-	-	11.76	0.4	A C	1 0			2017-01-04 - 2017-01-04			https://github.com/Oaken-Innovations/zymkey
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				-		-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**
571	crypt	JavaScript	JS	High, Low	Wrap.	-	-	11.55	0.36	A C	1 0			2016-05-03 - 2016-05-11			https://github.com/kelvin-martin/crypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES, AES-256, DEAL, IDEA				-		SHA, SHA-2, SHA-3, SHA-256				-		-		-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
537	crypt	JavaScript	JS	High, Low	Wrap.	-	-	11.48	0.18	A 1 C 0			2016-05-15 - 2016-05-15		https://github.com/gonzalo123/crypt
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	AES				-	-				-		-	SET		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
503	cryptojs	JavaScript	JS	High, Low	Wrap.	-	-	11.47	6.11	A 1 C 0			2016-12-01 - 2016-12-03		https://github.com/magicwing/cryptojs
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, PRESENT				Rabbit, RC		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH	SET		EST, HTTPS, SSH
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
572	hmac-file-stream	JavaScript	JS	High, Low	Wrap.	-	-	11.44	0.05	A 1 C 0			2016-11-29 - 2016-11-30		https://github.com/nyraxle/hmac-file-stream
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	DEAL				-		SHA, SHA-1			HMAC		-	SET		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
481	crypto-random-string	JavaScript	JS	High, Low	Wrap.	-	-	11.35	0.02	A 1 C 0			2016-11-14 - 2016-11-14		https://github.com/sindresorhus/crypto-random-string
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	-	DEAL				-	-				-		-	-		HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
509	crypto-aes	JavaScript	JS	High, Low	Wrap.	-	-	11.31	6.36	A 1 C 0			2016-08-15 - 2016-08-26		https://github.com/albertayfun/crypto-aes
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, M6, M8, PRESENT				-	-				HMAC		DH	SET		EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
581	jscryptolib	JavaScript	-	High, Low	Wrap.	-	-	-	0.0	A - C -			- -	-	https://storage.googleapis.com/google-code-archive-source/v2/code.google.com/jscryptolib/source-archive.zip
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	SEED				-		scrypt			HMAC		DH, ECDSA	-		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
582	crypto-js	JavaScript	JS	High, Low	Wrap.	-	-	-	189	A - C -			- -	-	https://storage.googleapis.com/google-code-archive-source/v2/code.google.com/crypto-js/source-archive.zip
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**	**Protocol**
	HMAC	AES, AES-256, CAST, DES, DEAL, IDEA NXT, M6, M8, MMB, PRESENT, RC, RC2, RC5, SM4, TEA, UES				LEX, NLS, Rabbit, RC, Turing		MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, DSS	SET		AS2, CMS, DPV, DCII, EKE, EST, GSI, HTTPS, I2P, IES, IKE, PE, PEM, PHE, SSH, SSL, TSP, TLS, VBR, WPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

583	msrCrypto1.4	JavaScript	JS	High, Low	Wrap.	-	-	-	74	A C	- -			- -	-		https://download.microsoft.com/download/C/A/C/CACB6F6B-4855-4ED2-935F-A3DB277E6B3D/msrCrypto.1.4.zip		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**		
	HMAC	AES, CAST, IDEA NXT, M6, M8, PRESENT, SEED				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, ECDH, PKCS, SET ECDSA, RSA				EST, HTTPS, SEND		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A C 1 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0			https://github.com/cossaklabs/themis		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**		
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, ECDH, CMP, LDAP, RD-ECDSA, RSA BMS, SET				AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
616	Objective-C-RSA	Objective-C	ObjC	High	Stan.	-	-	24.64	0.68	A C 1 2	Readme, Website	Apis, Examples	2015-02-03 2017-07-18	BSD-3-Clause			https://github.com/ideawu/Objective-C-RSA		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**		
	-	-				-		scrypt, SHA, SHA-2, SHA-3, SHA-512			-		RSA		SET		HTTPS		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
584	tweetnacl-objc	Objective-C	C	High	Wrap.	http://tweetnacl.cr.yp.to	-	23.53	1.65	A C 1 0	Readme	Examples	2014-01-15 2017-05-30	-			https://github.com/tancred/tweetnacl-objc		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**		
	Poly1305	DEAL				Salsa		SHA, SHA-2, SHA-3, SHA-256, SHA-512			Poly1305		-		SET		EST, SEND		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		
612	aerogear-cordova-crypto	Objective-C	ObjC	High	Reim.	https://aerogear.org/docs/specs/aerogear-js/AeroGear.Crypto.html	-	23.48	1.21	A C 1 5	Readme, Website	Examples	2013-11-08 2017-04-07	Apache-2.0			https://github.com/aerogear/aerogear-cordova-crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**		
	-	M6, M8, PRESENT, RC, RC6				-		PBKDF2			-		DH, DSA, ElGamal, RSA		CMP, PKCS, X.509	OCSP, SET,	CMP, CMS, EST, HTTPS, IES, OCSP, PE, PEM, SEND, TSP, TLS, X.509		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**			**URL**		

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
600	INBSecurityCrypto	Objective-C	ObjC	High	Wrap.	https://opensource.apple.com/source/CommonCrypto, https://developer.apple.com/documentation/corefoundation	-	22.98	2.35	A C 1 0	Readme		2015-05-18 2017-07-22	MIT	https://github.com/Daniate/INBSecurityCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, M8				-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, RSA	SET, X.509	EST, PE, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
614	cryptokit	Objective-C, Swift	ObjC	High	Wrap.	https://developer.apple.com/documentation/corefoundation	-	22.39	3.9	A C 1 0	Readme	Apis	2008-08-30 2017-04-29	BSD-3-Clause	https://github.com/ameingast/cryptokit
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT, SAFER				-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-512				-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
621	swift-sodium	Swift, Objective-C	C	High	Wrap.	https://download.libsodium.org/doc	-	20.28	4.48	A C 1 13	Readme	Apis, Examples	2014-12-27 2016-07-28	ISC	https://github.com/alex-chan/swift-sodium
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, M6, M8, PRESENT, SEED				ChaCha, Salsa, SEAL	LEX,	BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				HMAC, Poly1305	DH	SET	EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
603	aerogear-crypto-ios	Objective-C	ObjC	High, Low	Wrap.	http://nacl.cr.yp.to	-	18.83	1.71	A C 1 8	Readme, Website	Apis, Examples, Explanations	2013-10-09 2016-02-11	Apache-2.0	https://github.com/aerogear/aerogear-crypto-ios
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	Poly1305	PRESENT, SEED				Salsa		PBKDF2				Poly1305	-	-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
586	react-native-aes	Objective-C	ObjC	High	Wrap.	https://opensource.apple.com/source/CommonCrypto, https://docs.oracle.com/javase/7/docs/api/javax/crypto/package-summary.html	-	18.69	0.46	A C 1 1	Readme	Apis, Examples	2017-02-10 2017-06-05	GPL-3.0	https://github.com/tectiv3/react-native-aes
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, IDEA, PRESENT				-		PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	SET	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
598	react-native-des	Objective-C	ObjC	High	Wrap.	https://opensource.apple.com/source/CommonCrypto, https://docs.oracle.com/javase/7/docs/api/javax/crypto/package-summary.html	-	18.04	1.7	A 1 C 0	Readme	Apis, Examples	2015-11-04 2017-03-30	MIT	https://github.com/remobile/react-native-des
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DES, DEAL, PRESENT				-		MD5				-	DSS		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
597	react-native-ecc	Objective-C	ObjC	High	Wrap.	https://docs.oracle.com/javase/7/docs/api/java/security/package-summary.html, https://opensource.apple.com/source/CommonCrypto	-	17.42	1.13	A 1 C 2	Readme	Examples	2015-12-27 2017-02-15	MIT	https://github.com/tradle/react-native-ecc
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DEAL, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256				-	ECDSA		SET	EST, HTTPS, I2P
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
591	LaraCryptObjC	Objective-C	ObjC	High, Low	Wrap.	-	-	16.36	2.21	A 1 C 0			2017-06-21 2017-06-21	-	https://github.com/FardadCo/LaraCryptObjC
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, AES-128, DEAL, PRESENT				-		-				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
617	MIHCrypto	Objective-C	ObjC	High	Wrap.	137	-	16.25	5.65	A 1 C 3	Readme, Website	Apis, Examples	2014-04-11 2016-03-17	MIT	https://github.com/hohl/MIHCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, AES-128, AES-192, AES-256, DES, DEAL, NDS, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	DH, DSA, RSA	DSS, CMP, SET		CMP, EST, HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
588	RSA_crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	16.14	0.64	A 1 C 0			2017-07-04 2017-07-04	-	https://github.com/edward1985/RSA_crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	AES				-		MD5, SHA, SHA-2, SHA-3, SHA-256				HMAC	RSA		SET	EST, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
609	nv-ios-digest	Objective-C	ObjC	High, Low	Wrap.	-	-	16.0	1.36	A 1 C 1			2013-04-09 2016-07-15	-	https://github.com/TakahikoKawasaki/nv-ios-digest
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

596	Encryption-Key	Objective-C	ObjC	High	Wrap.	https://opensource.apple.com/source/CommonCrypto	-		15.93	0.08	A 1 C 0			2017-05-27 2017-05-27	MIT		https://github.com/AlexanderBirks/Encryption-Key
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	DEAL				-		-				-		-		SET		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
606	iOS-Crypto-API	Objective-C	ObjC	High, Low	Wrap.	-	-	15.8	1.22	A 1 C 2				2013-07-08 2015-08-25	-			https://github.com/cstaylor/iOS-Crypto-API
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	PRESENT				-		-				-		RSA		SET		EST, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
611	ObjC-PyCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	15.27	5.85	A 1 C 1				2013-01-20 2013-01-22	-			https://github.com/alexlehn/ObjC-PyCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	AES, NDS, PRESENT				SNOW	scrypt					-		-		SET		EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
607	cocoa-crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.98	1.18	A 1 C 0				2008-11-03 2008-11-22	-			https://github.com/st3fan/cocoa-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	-				-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		-		SET		-
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
604	NuCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.91	0.65	A 1 C 0				2010-11-20 2011-01-27	-			https://github.com/timburks/NuCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	HMAC	AES, NUSH, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, HMAC SHA-256, SHA-512						RSA		SET		EST, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
592	CommonCrypto-module-clang	Objective-C	ObjC	High, Low	Wrap.	-	-	14.88	0.45	A 2 C 0				2015-12-03 2016-03-24	-			https://github.com/cantinac/CommonCrypto-module-clang
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	PRESENT				-		-				-		-		SET		EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
589	nu-crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.86	3.05	A 1 C 0				2013-05-17 2016-04-03	-			https://github.com/nulang/nu-crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	HMAC	AES, AES-256, DES, M8, PRESENT, SEED				-		MD5, SHA, SHA-1, SHA-2, SHA-3, HMAC SHA-256, SHA-512						DH, DSS, RSA		CMP, SET, X.509		CMP, CSR, EST, HTTPS, PEM, SEND, SSL, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**
601	CryptoCoding	Objective-C	ObjC	High, Low	Wrap.	-	-	14.68	0.89	A 1 C 0				2012-09-24 2014-09-17	-			https://github.com/nickloc kwood/CryptoCoding
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**		**Protocol**
	-	AES, PRESENT				-		-				-		-		SET		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**		**Licence**		**URL**

610	CommonCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.5	0.65	A 1 C 0			2013-05-12 - 2013-05-22		https://github.com/matehat/CommonCrypto			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-	-				-		-		SET		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
608	RadCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.49	3.05	A 1 C 0			2013-05-17 - 2013-05-28				https://github.com/timburks/RadCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, AES-256, DES, M8, PRESENT, SEED				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, DSS, RSA		CMP, SET, X.509		CMP, CSR, EST, HTTPS, PEM, SEND, SSL, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
605	NSData-Crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.18	0.37	A 1 C 0			2014-02-05 - 2014-12-02				https://github.com/tparry/NSData-Crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	PRESENT				-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			-		-		-		HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
585	crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.16	2.3	A 1 C 1			2015-02-21 - 2016-01-22				https://github.com/thinkclay/crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	DEAL				-		PBKDF2			HMAC		-		SET		HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
602	GMEllipticCurveCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	14.07	2.5	A 1 C 0			2014-04-07 - 2014-12-12				https://github.com/ricmoo/GMEllipticCurveCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-	-				-		ECDH, ECDSA		CMP, SET		CMP, EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
594	cryptobox-ios	Objective-C	ObjC	High, Low	Wrap.	-	-	14.03	1.65	A 1 C 2			2015-07-31 - 2015-08-25				https://github.com/kompozer/cryptobox-ios	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	Poly1305	AES, AES-128, PRESENT				ChaCha, Salsa		BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash			Poly1305		-		SET		EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
599	LFCommonCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	13.71	1.13	A 2 C 0			2016-08-23 - 2016-08-23				https://github.com/willbetter/LFCommonCrypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	PRESENT				-	-				-		RSA		SET		EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
613	crypto	Objective-C	ObjC	High, Low	Wrap.	-	-	13.63	0.29	A 1 C 0			2014-10-27 - 2014-10-28				https://github.com/nixplay/crypto	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-	MD5				-		-		-		HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**		**Licence**		**URL**	
615	ReactiveCryptor	Objective-C	ObjC	High, Low	Wrap.	-	-	13.61	1.23	A 1 C 0			2014-11-26 - 2015-08-20				https://github.com/ndouglas/ReactiveCryptor	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	

	-	PRESENT				-	-					-		-	SET		EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
590	EasyCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	13.21	2.51	A 1 C 1			2015-09-15 - 2015-09-23		https://github.com/DoubleREW/EasyCrypto			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	-				-		MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		-		SET		EST, PEM	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
595	IRCrypto	Objective-C	ObjC	High, Low	Wrap.	-	-	12.42	4.14	A 1 C 0			2016-06-25 - 2016-10-25		https://github.com/ivRodriguezCA/IRCrypto			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC	AES, DEAL, PRESENT				-		scrypt			HMAC		RSA		SET		EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
587	Cryptos	Objective-C	ObjC	High, Low	Wrap.	-	-	11.49	0.28	A 1 C 0			2016-05-27 - 2016-06-10		https://github.com/RenanDiaz/Cryptos			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	-				-	-				-		-		SET		EST, PE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
593	iOS-and-Java-AES-Cryptor	Objective-C	ObjC	High, Low	Wrap.	-	-	11.21	1.8	A 1 C 0			2016-09-21 - 2016-09-21		https://github.com/originalix/iOS-and-Java-AES-Cryptor			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	DEAL				-	-				-		-		SET		EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
618	chilkat	Objective-C	C	High, Low	Wrap.	-	-	-	149	A - C -			- -	-	https://chilkatdownload.com/9.5.0.68/chilkat-9.5.0-ios.zip			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	HMAC, Poly1305, UMAC	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, DFC, FPE, IDEA NXT, IDEA, M6, M8, NDS, PRESENT, RC, RC2, RC5, SEED, 3DES, Twofish				ChaCha, MAG, RC, SEAL, ZUC	LEX,	GOST, HAVAL, MD2, MD5, MD6, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC, Poly1305, UMAC		DH, DSA, DSS, ECDH, ECDSA, RSA		CMP, PKCS, SET, X.509		OCSP, PKIX,	AS2, AKA, CMC, CMP, CSR, DK, EST, HTTPS, IES, OCSP, PCT, PE, PEM, PHE, PGP, SCP, SEND, SFTP, SSH, SSL, TLS, WPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
619	objc-crypto-lib	Objective-C	ObjC	High, Low	Wrap.	-	-	-	1.36	A - C -			- -	-	https://netcologne.dl.sourceforge.net/project/objc-crypto-lib/objc-crypto-lib/0.5Alpha/objc-crypto-lib.tgz			
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**		**PKI**		**Protocol**	
	-	M8, PRESENT, SEED				-		MD5, scrypt, SHA, SHA-1			-		DH		SET		EST, PE	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**			
620	bdangerous-crypto	Objective-C	C	High, Low	Wrap.	-	-	-	4.38	A - C -			- -	-	https://ayera.dl.sourceforge.net/project/bdangerous/bdangerous-crypto/bdangerous-crypto-0.1a/crypto-0.1a.tar.gz			

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, UMAC	DES, PRESENT	-	MD2, MD5, SHA, SHA-1	HMAC, UMAC	DH, DSA, RSA	DSS, CMP, SET	CMP

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
622	Security(S)	Swift, Objective-C	-	High, Low	Stan.	-	-	-	-	A - C -	Website	Apis, Examples, Explanations	- -	Own License	-

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
625	CryptoSwift	Swift	Swift	High, Low	Stan.	-	-	33.65	6.97	A 1 C 54	Readme	Apis, Examples	2014-07-06 2017-08-11	Zlib	https://github.com/krzyzanowskim/CryptoSwift

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Blowfish, CAST, IDEA NOEKEON, PRESENT, SEED	ChaCha, Rabbit NXT,	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	-	SET	AKA, EST, HTTPS, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
627	IDZSwiftCommonCrypto	Swift	Swift	High, Low	Wrap.	https://opensource.apple.com/source/CommonCrypto	-	31.55	3.19	A 2 C 11	Readme	Apis, Examples	2014-09-20 2017-06-20	MIT	https://github.com/iosdevzone/IDZSwiftCommonCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, Blowfish, CAST, DES, DEAL, IDEA NXT, M6, M8, PRESENT, RC, RC2	-	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, DSS	SET	EST, HTTPS, PE, S-HTTP, SEND

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA	LEX, SEAL, Rabbit, SNOW, Turing	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC	DH, ECDH, ECDSA, RSA	CMP, LDAP, RDBMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
624	crypto	Swift	Swift	High	Stan.	-	-	24.54	1.2	A 1 C 8			2016-08-05 2017-08-12	MIT	https://github.com/vapor/crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, DES, IDEA NXT, PRESENT, RC, RC2	RC	MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC	DSS, ECDSA	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
642	CryptoKitten	Swift	Swift	High	Stan.	-	-	24.08	1.3	A 2 C 2			2016-08-05 2017-08-09	-	https://github.com/OpenKitten/CryptoKitten
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	IDEA NXT, PRESENT, SAFER					-	-				-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
623	Crypto	Swift	Swift	High	Wrap.	https://github.com/soffes/CommonCrypto	-	23.94	0.37	A 1 C 5	Readme	Apis, Examples	2015-04-21 2017-05-08	MIT	https://github.com/soffes/Crypto
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL					-	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
629	BlueCryptor	Swift	Swift	High	Reim.	627	-	23.57	3.38	A 1 C 4	Readme	Examples	2016-04-20 2017-08-14	Apache-2.0	https://github.com/IBM-Swift/BlueCryptor
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, Blowfish, CAST, DES, IDEA NXT, PRESENT, RC, RC2					-	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DSS	SET	EST, HTTPS, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
632	CryptoJS.swift	Swift	Swift	High, Low	Wrap.	438	-	23.38	1.16	A 2 C 2	Readme	Apis, Examples	2015-07-30 2017-04-20	MIT	https://github.com/etienne-martin/CryptoJS.swift
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, AES-256, DEAL, PRESENT					-	MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
657	BlueSSLService	Swift	Swift	High, Low	Stan.	-	-	23.31	1.5	A 1 C 4	Readme	Apis, Examples, Explanations	2016-05-26 2017-08-14	Apache-2.0	https://github.com/IBM-Swift/BlueSSLService
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	PRESENT					-	MD5				HMAC	-	SET	EST, HTTPS, PEM, SEND, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
614	cryptokit	Objective-C, Swift	ObjC	High	Wrap.	https://developer.apple.com/documentation/corefoundation	-	22.39	3.9	A 1 C 0	Readme	Apis	2008-08-30 2017-04-29	BSD-3-Clause	https://github.com/ameingast/cryptokit
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT, SAFER					-	MD2, MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-512				-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
621	swift-sodium	Swift, Objective-C	C	High	Wrap.	https://download.libsodium.org/doc	-	20.28	4.48	A 1 C 13	Readme	Apis, Examples	2014-12-27 2016-07-28	ISC	https://github.com/alex-chan/swift-sodium
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305	AES, AES-128, AES-256, M6, M8, PRESENT, SEED					ChaCha, Salsa, SEAL LEX,	BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash				HMAC, Poly1305	DH	SET	EST, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
640	CryptoKit	Swift	Swift	High	Stan.	-	-	20.08	1.31	A 1 C 0	Readme	Examples	2016-08-28 2017-07-04	MIT	https://github.com/chrisamanse/CryptoKit
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, IDEA NXT, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
638	Perfect-Crypto	Swift	Swift	High	Wrap.	137	-	19.58	2.27	A 1 C 2	Readme	Apis, Examples	2017-02-07 2017-07-08	Apache-2.0	https://github.com/PerfectlySoft/Perfect-Crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, RC Camellia, DES, PRESENT, RC, RC2, SEED						MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC	DSS, ECDSA	SET	EST, HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
647	CommonCrypto	Swift	Swift	High	Wrap.	https://opensource.apple.com/source/CommonCrypto	-	18.08	1.53	A 1 C 1			2017-04-14 2017-08-14	MIT	https://github.com/alexaubry/CommonCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
644	WebCrypto.swift	Swift	Swift	High, Low	Reim.	632	-	17.41	1.13	A 1 C 0	Readme	Apis	2017-04-13 2017-06-18	MIT	https://github.com/etienne-martin/WebCrypto.swift
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DEAL, PRESENT				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-	-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
626	crypto	Swift	Swift	High	Stan.	-	-	17.27	0.32	A 1 C 1	Readme	Examples	2017-02-13 2017-05-15	-	https://github.com/verbeeckkristof/crypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	-				-	-	-				-	-	-	EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
653	CryptoWithSwift	Swift	Swift	High, Low	Wrap.	-	-	16.58	0.32	A 1 C 1			2017-07-18 2017-07-19	-	https://github.com/saiyuujob/CryptoWithSwift
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-	-	-				-	-	SET	EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
658	SwiftCommonCrypto	Swift	ObjC	High	Wrap.	https://opensource.apple.com/source/CommonCrypto	-	16.56	0.03	A 1 C 0			2017-06-09 2017-06-09	-	https://github.com/desmondmcnamee/SwiftCommonCrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	M6, PRESENT				-		SHA, SHA-1				-	-	-	EST
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
628	AsymmetricCrypto	Swift	Swift	High, Low	Wrap.	-	-	16.31	0.55	A 1 C 0			2015-10-04 2017-02-07	-	https://github.com/DigitalLeaves/AsymmetricCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DEAL, M6, M8, PRESENT, 3DES, UES	-	MD5	-	DH	SET	AKA, CMS, EKE, EST, PE, VBR

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
639	CommonCrypto	Swift	Swift	High, Low	Wrap.	-	-	15.71	0.01	A C	1 1			2015-12-14 2017-01-05	-	https://github.com/venj/CommonCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	-	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
633	CryptoEssentials	Swift	Swift	High, Low	Wrap.	-	-	15.36	1.68	A C	1 5			2016-04-04 2016-09-01	-	https://github.com/CryptoKitten/CryptoEssentials

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DEAL, PRESENT	-	-	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
636	Crypto	Swift	Swift	High, Low	Wrap.	-	-	15.08	0.44	A C	1 1			2017-04-26 2017-04-26	-	https://github.com/tattn/Crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, DEAL, PRESENT	-	-	-	RSA	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
630	SwiftSSL	Swift	Swift	High, Low	Wrap.	-	-	14.53	0.41	A C	1 1			2014-10-06 2016-01-02	-	https://github.com/SwiftP2P/SwiftSSL

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL	-	-	HMAC	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
648	CryptoSwift	Swift	Swift	High, Low	Wrap.	-	-	14.36	4.91	A C	1 2			2016-12-16 2017-02-13	-	https://github.com/hanamichi07/CryptoSwift

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	Poly1305	AES, AES-128, AES-192, AES-256, CAST, NOEKEON, PRESENT, SEED	ChaCha	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	Poly1305	-	SET	EST, HTTPS, TLS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
643	SwiftCrypt	Swift	Swift	High, Low	Wrap.	-	-	14.35	1.03	A C	1 1			2014-10-17 2015-04-19	-	https://github.com/pentateu/SwiftCrypt

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, M6, M8, PRESENT	LEX	-	-	DH	SET	EST, I2P, PE, VBR

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
645	RDHCommonCrypto	Swift	Swift	High, Low	Wrap.	-	-	13.72	1.82	A C	1 0			2014-09-21 2014-09-21	-	https://github.com/rhodgkins/RDHCommonCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	-	-	-	-	SET	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People		Doc. Kind	Doc. Com.	Dates	Licence	URL
649	SwiftCrypto	Swift	Swift	High, Low	Wrap.	-	-	13.12	0.46	A C	1 0			2016-04-26 2016-11-11	-	https://github.com/ankitthakur/SwiftCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL	Crypto1	MD2, MD5	-	RSA	-	EST, HTTPS, PEM, SSL

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
637	Crypto	Swift	Swift	High, Low	Wrap.	-	-	12.93	0.24	A 1 C 1			2016-04-12 2016-08-18	-	https://github.com/noppoMan/Crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	-			-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-			EST, HTTPS, IKE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
641	Crypto	Swift	Swift	High, Low	Wrap.	-	-	12.79	0.43	A 1 C 2			2016-11-17 2016-11-25	-	https://github.com/yinhaofrancis/Crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	-			LEX		-				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
646	CryptoSwift	Swift	Swift	High, Low	Wrap.	-	-	12.48	3.04	A 1 C 0			2015-10-13 2015-12-19	-	https://github.com/zhengrf225/CryptoSwift
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	Poly1305	AES, AES-128, AES-192, AES-256, ChaCha CAST, PRESENT					MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				Poly1305	-		SET	HTTPS, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
650	TomatoCrypto	Swift	Swift	High, Low	Wrap.	-	-	12.36	3.68	A 1 C 1			2016-11-21 2016-12-08	-	https://github.com/xhhuango/TomatoCrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	HMAC	AES, DES, SEED			-		SHA, SHA-1				HMAC	DSS, RSA		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
655	UTSwiftCrypto	Swift	Swift	High, Low	Wrap.	-	-	12.28	0.4	A 1 C 1			2016-04-12 2016-04-13	-	https://github.com/ungacy/UTSwiftCrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	AES, DEAL			-		MD5				-	-		-	HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
656	TextCrypto	Swift	Swift	High, Low	Wrap.	-	-	12.25	0.28	A 1 C 1			2016-12-07 2016-12-12	-	https://github.com/ttkien/TextCrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	Blowfish, PRESENT			Rabbit		-				-	-		-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
654	SwiftCrypto	Swift	Swift	High, Low	Wrap.	-	-	12.19	0.16	A 1 C 1			2016-05-04 2016-05-04	-	https://github.com/banxi1988/SwiftCrypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	DEAL, IDEA NXT			-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	-		SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
634	Crypto	Swift	Swift	High, Low	Wrap.	-	-	11.9	0.34	A 1 C 0			2016-08-07 2016-10-15	-	https://github.com/ccsteam/Crypto
	EAM	**Block Cipher**			**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**
	-	PRESENT			-		-				-	RSA		SET	EST, HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
651	CryptoKitten	Swift	Swift	High, Low	Wrap.	-	-	11.64	3.13	A 1 C 0			2016-04-24 2016-05-19	-	https://github.com/CryptoKitten/CryptoKitten

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	AES, AES-128, AES-192, AES-256, DEAL, PRESENT	-	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
631	Cryptography	Swift	Swift	High, Low	Wrap.	-	-	11.51	1.84	A 1 C 0			2016-07-05 2016-08-07	-	https://github.com/mlachmish/Cryptography

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	DEAL, IDEA NXT, M8, PRESENT	-	SHA, SHA-2	-	-	SET	EST, HTTPS, PE

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
652	CommonCryptoSwift	Swift	Swift	High, Low	Wrap.	-	-	11.3	0.2	A 1 C 0			2016-08-15 2016-08-25	-	https://github.com/chrisamanse/CommonCryptoSwift

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	DEAL, PRESENT	-	-	-	-	-	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
635	Crypto	Swift	Swift	High, Low	Wrap.	-	-	11.22	0.68	A 1 C 0			2016-08-25 2016-08-26	-	https://github.com/skylarsch/Crypto

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	PRESENT	-	-	-	-	-	EST

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
622	Security(S)	Swift, Objective-C	-	High, Low	Stan.	-	-	-	-	A - C -	Website	Apis, Examples, Explanations	- -	Own License	-

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
-	-	-	-	-	-	-	-

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
136	wolfssl	C, Java, C#, Python, PHP, Perl	C	High	Wrap.	https://www.wolfssl.com/wolfSSL/Products-wolfcrypt.html	-	38.94	259	A 4 C 49	Readme, Website, Download	Apis, Examples, Explanations	2011-02-05 2017-08-16	GPL-2.0, commercial	https://github.com/wolfssl/wolfssl

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, CRYPTON, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES	ChaCha, LEX, MAG, Rabbit, RC, Vernam	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, NTRUEncrypt, RSA	CMP, OCSP, PKCS, PKIX, RTCS, SCEP, SET, X.509	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, RTD, SCEP, SEND, SSH, SSL, TLS, WPA, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
692	bc-csharp	C#	C#	Low	Reim.	https://www.bouncycastle.org/java.html	-	30.1	330	A 1 C 12	Readme, Website		2013-06-28 2017-08-12	MIT, Apache-2.0	https://github.com/onovotny/bc-csharp

EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	HMAC, OMAC, Poly1305	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, DFC, GOST, IDEA NXT, IDEA, M6, M8, MMB, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, Serpent, SEED, SM4, Threefish, TEA, 3DES, Twofish, UES	ChaCha, eSTREAM, ISAAC, LEX, MAG, Py, RC, Salsa, ZUC	BLAKE2, FSB, GOST, MD2, MD5, MD6, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SipHash, Skein, WHIRLPOOL	HMAC, OMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, LUC, RSA, YAK	CMP, LDAP, OCSP, PKCS, PKIX, SET, X.509	AS1, AKA, CMP, CSR, CMS, DTLS, DPD, DPV, EST, GPG, HTTPS, I2P, IES, IKE, ISAKMP, IPsec, MSE, OTR, OCSP, PE, PEM, PHE, PGP, RTD, SCVP, SEND, SRTP, SSH, SSL, TSP, TLS, VBR, WPA, WPS, X.509					
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
693	bc-csharp	C#	C#	High, Low	Wrap.	-	-	29.45	330	A 1 C 10			2013-06-28 2017-08-14	-	https://github.com/bcgit/bc-csharp	
	EAM	**Block Cipher**		**Stream Ci.**		**Hash**						**MAC**	**PKC**	**PKI**	**Protocol**	
	HMAC, OMAC, Poly1305	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, DFC, GOST, IDEA NXT, IDEA, M6, M8, MMB, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, Serpent, SEED, SM4, Threefish, TEA, 3DES, Twofish, UES		ChaCha, eSTREAM, ISAAC, LEX, MAG, Py, RC, Salsa, ZUC		BLAKE2, FSB, GOST, MD2, MD5, MD6, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, SipHash, Skein, WHIRLPOOL			HMAC, OMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, LUC, RSA, YAK	CMP, LDAP, OCSP, PKCS, PKIX, SET, X.509	AS1, AKA, CMP, CSR, CMS, DTLS, DPD, DPV, EST, GPG, HTTPS, I2P, IES, IKE, ISAKMP, IPsec, MSE, OTR, OCSP, PE, PEM, PHE, PGP, RTD, SCVP, SEND, SRTP, SSH, SSL, TSP, TLS, VBR, WPA, WPS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
695	bcrypt.net	C#	C#	High, Low	Reim.	http://www.mindrot.org/projects/jBCrypt	-	28.31	4.41	A 1 C 6	Readme	Examples	2010-12-14 2017-08-25	MIT	https://github.com/BcryptNet/bcrypt.net	
	EAM	**Block Cipher**		**Stream Ci.**		**Hash**						**MAC**	**PKC**	**PKI**	**Protocol**	
	-	Blowfish, DES, DEAL, IDEA, M6, M8, MESH, NDS, PRESENT, Prince, SAFER, UES		Dragon, FISH, MICKEY, Rabbit		Tiger						-	DH, DSA, DSS	SET	EKE, EST, HTTPS, MSE, PCT, PE, SEND, SSH	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
661	PCLCrypto	C#	C#	High, Low	Wrap.	operationsystemscrypto	-	27.54	23	A 1 C 6	Readme, Website	Examples	2014-02-22 2017-06-19	MS-PL	https://github.com/AArnott/PCLCrypto	
	EAM	**Block Cipher**		**Stream Ci.**		**Hash**						**MAC**	**PKC**	**PKI**	**Protocol**	
	-	AES, CAST, DEAL, FPE, M6, M8, NDS, PRESENT, SM4		MAG, NLS, RC		MD5, PBKDF2						-	DH, ECDH, ECDSA, RSA	SET	CGA, EST, GSI, HTTPS, PE, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**	
694	Cauldron	C#	C#	High	Stan.	-	-	27.28	58	A 2 C 6	Readme, Website	Apis, Examples	2016-03-21 2017-08-17	MIT	https://github.com/Capgemini/Cauldron	
	EAM	**Block Cipher**		**Stream Ci.**		**Hash**						**MAC**	**PKC**	**PKI**	**Protocol**	
	-	AES, CAST, DES, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, SEED		Turing, Vernam		FSB, MD5, MD6, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512						-	DH, DSS, RSA	SET	AS2, EST, HTTPS, IES, IKE, PE, RMA, SCP, SEND, TSP	

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
681	Science.Cryptography.Ciphers	C#	C#	High	Wrap.	https://github.com/dotnet/standard	-	25.27	4.55	A 1 C 3	Readme, Website, Download	Examples	2015-01-15 2017-06-21	MIT	https://github.com/Peter-Juhasz/Science.Cryptography.Ciphers
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL, IDEA NXT, PRESENT					Vigenere cipher	-				-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
662	SecurityDriven.Inferno	C#	C#	High, Low	Stan.	-	-	23.43	2.8	A 1 C 1	Website	Apis, Examples, Explanations	2015-07-10 2017-08-15	MIT	https://github.com/sdrapkin/SecurityDriven.Inferno
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, DEAL, PRESENT					-	-				HMAC	ECDH	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
665	GostCryptography	C#	C#	High	Stan.	-	-	21.9	21	A 2 C 1	Readme		2015-03-05 2017-03-22	mit	https://github.com/AlexMAS/GostCryptography
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, GOST, NDS, PRESENT, SEED					LEX	GOST				HMAC	DSA, RSA	SET, X.509	CMS, EST, HTTPS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
687	Isopoh.Cryptography.Argon2	C#	C#	High, Low	Reim.	https://github.com/P-H-C/phc-winner-argon2, https://github.com/BLAKE2/BLAKE2	-	21.0	6.95	A 1 C 1	Readme	Examples	2016-07-31 2017-08-13	Public Domain	https://github.com/mheyman/Isopoh.Cryptography.Argon2
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	M6, M8, PRESENT					-	BLAKE2				-	-	SET	EST, HTTPS, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
673	Cryptography.ECDSA	C#	C#	High	Reim.	https://github.com/warner/python-ecdsa	-	20.6	8.48	A 2 C 2	Readme	Examples	2017-05-24 2017-06-24	MIT	https://github.com/Chainers/Cryptography.ECDSA
	EAM	**Block Cipher**					**Stream Ci.**	**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	CAST, DEAL, M6, M8, PRESENT, SAFER, SEED					-	SHA, SHA-2, SHA-3, SHA-256				HMAC	ECDH, ECDSA	CMP, SET	CMP, EST, HTTPS, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
688	CryptoHelper	C#	C#	High	Stan.	https://msdn.microsoft.com/de-de/library/system.security.cryptography(v=vs.110).aspx, https://docs.microsoft.com/en-us/aspnet/core/api/microsoft.aspnetcore.cryptography.keyderivation	-	20.4	0.24	A 1 C 0	Readme	Apis	2015-07-24 2017-05-05	MIT	https://github.com/henkmollema/CryptoHelper

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, PRESENT	-	-	-	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
660	StreamCryptor	C#	C#	High	Stan.	-	-	20.07	3.41	A 1 C 2	Readme	Apis	2014-09-13 2017-03-10	MIT	https://github.com/bitbeans/StreamCryptor

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	DEAL, M6, M8, PRESENT, RC, RC2, SM4	eSTREAM, ZUC	BLAKE2, MD6, SHA, SHA-2, SHA-3, SHA-256	-	DH	CMP, SET	AS2, CMP, EST, HTTPS, PE, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
680	cs-libp2p-crypto	C#	C#	High	Reim.	345	-	19.38	1.0	A 1 C 0	Readme		2016-11-07 2017-08-15	MIT	https://github.com/libp2p/cs-libp2p-crypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	AES, DEAL, PRESENT, SEED	-	-	HMAC	RSA	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
666	nsec	C#	C#	High	Wrap.	132	-	18.74	13	A 1 C 0	Readme, Website	Apis, Examples, Explanations	2017-01-01 2017-08-17	MIT	https://github.com/ektrah/nsec

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-256, DEAL, M8, PRESENT, SEED	ChaCha	BLAKE2, SHA, SHA-2, SHA-3, SHA-256, SHA-512	HMAC, Poly1305	DSA	PKIX, SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
674	Kalix.ApiCrypto	C#	C#	High, Low	Wrap.	-	-	17.8	3.21	A 1 C 1			2013-12-23 2016-12-28	-	https://github.com/KalixHealth/Kalix.ApiCrypto

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, PRESENT	-	SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	ECDSA, RSA	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
668	Konscious.Security.Cryptography	C#	C#	High, Low	Wrap.	-	-	16.32	3.25	A 1 C 2			2016-06-29 2017-02-21	-	https://github.com/kmaragon/Konscious.Security.Cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC	DEAL, NDS, SEED	-	BLAKE2	HMAC	-	SET	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
670	Delta.Cryptography	C#	C#	High, Low	Wrap.	-	-	16.08	79	A 1 C 1			2013-05-14 2016-07-31	-	https://github.com/odalet/Delta.Cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	CAST, DES, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC2, RC6, SEED	RC, SEAL, Turing, ZUC	MD2, MD5, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DH, RSA	DSA, DSS, CMP, PKCS, PKIX, SET, X.509, OCSP	AKA, CMC, CMP, CMS, DPD, DPV, EST, GPG, HTTPS, IKE, IPsec, OCSP, PE, PEM, PHE, PGP, RMA, RTD, SCP, SEND, SSL, TLS, WPA, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
689	PWDTK.NET	C#	C#	High, Low	Wrap.	-	-	15.81	1.02	A 1 C 3			2014-12-17 2016-04-29	-	https://github.com/Thashiznets/PWDTK.NET

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	-	PRESENT				-		SHA, SHA-2, SHA-3, SHA-512			-		-		SET		HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
678	Lightweight_IoT_Crypto_Library	C#	C#	High, Low	Wrap.	-	-	14.66	123	A 1 C 0			2016-09-14 2017-03-03	-		https://github.com/PanagiotisDrakatos/Lightweight_IoT_Crypto_Library				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC	AES, AES-128, CAST, FPE, IDEA, M6, M8, MESH, NDS, PRESENT, RC, RC2, RC5, RC6, SEED, UES				RC, Turing		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, RSA, YAK		CMP, SET, X.509		AS1, CMP, CSR, CMS, EST, HTTPS, IKE, PE, PEM, SEND, SSL, TLS, X.509		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
664	crypto	C#	C#	High, Low	Wrap.	-	-	14.59	0.53	A 1 C 0			2013-02-03 2014-08-04	-		https://github.com/galmeida/crypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC	AES				-		PBKDF2				HMAC	-		SET		EST			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
676	BouncyCastleCrypto	C#	C#	High, Low	Wrap.	-	-	14.57	236	A 1 C 0			2013-06-06 2015-10-06	-		https://github.com/WolfeReiter/BouncyCastleCrypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC, OMAC	3-Way, AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, GOST, IDEA, M6, M8, MMB, NDS, PRESENT, RC, RC2, RC5, RC6, Serpent, SEED, SM4, TEA, 3DES, Twofish, UES				ISAAC, LEX, MAG, Py, RC, Salsa, ZUC		FSB, GOST, MD2, MD5, MD6, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, OMAC	DH, DSA, DSS, ECDH, ECDSA, RSA, YAK		CMP, LDAP, OCSP, PKCS, PKIX, SET, X.509		AKA, CMP, CSR, CMS, DPD, EST, GPG, HTTPS, IES, IKE, ISAKMP, IPsec, OCSP, PE, PEM, PGP, RTD, SEND, SSH, SSL, TSP, TLS, WPA, X.509		
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
671	CryptoService	C#	C#	High, Low	Wrap.	-	-	14.56	1.3	A 1 C 0			2013-04-09 2015-05-04	-		https://github.com/aliencube/CryptoService				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	-	AES, DES, DEAL, NDS, PRESENT, RC, RC2				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-	DH, DSS, RSA		SET		EST, HTTPS, IES, PE, RMA			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
667	EasyCrypto	C#	C#	High, Low	Wrap.	-	-	14.11	4.84	A 1 C 1			2016-06-26 2016-12-24	-		https://github.com/stanac/EasyCrypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC	AES, AES-256, DEAL, PRESENT				-		PBKDF2				HMAC	-		SET		EST, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
663	Cryptography	C#	C#	High, Low	Wrap.	-	-	14.1	5.32	A 1 C 3			2016-03-12 2016-07-13	-		https://github.com/sshnet/Cryptography				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			
	HMAC	DEAL, PRESENT, RC, RC2				-		MD5, RIPEMD, SHA, SHA-1, SHA-2				HMAC	-		SET		EST, HTTPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**				
683	cryptography.Net	C#	C#	High, Low	Wrap.	-	-	13.54	2.42	A 1 C 1			2015-06-27 2015-08-12	-		https://github.com/acschmit/cryptography.Net				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**		**Protocol**			

	HMAC	AES, AES-128, AES-192, AES-256, Camellia, DEAL, M6, M8, NDS, PRESENT, RC, RC2, SAFER, SEED, TEA				ISAAC, Salsa	MAG,	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DH, DSA, ECDH, ECDSA, RSA		OCSP, SET, X.509	PKIX,	EST, HTTPS, IES, OCSP, PE, PEM, PGP, RTD, SEND, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
686	Free.Crypto	C#	C#	High, Low	Wrap.	-	-	12.81	9.57	A C	1 0			2015-07-11 2015-07-11	-		https://github.com/shintadono/Free.Crypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	-	DEAL, IDEA, PRESENT, TEA				-		-					-	-		SET			AKA
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
669	CryptoN	C#	C#	High, Low	Wrap.	-	-	12.57	0.67	A C	1 1			2016-02-05 2016-02-07	-		https://github.com/tamimsalem/CryptoN		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	-	AES, DEAL				-		-					-	-		SET			EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
691	CryptoProgram	C#	C#	High, Low	Wrap.	-	-	12.56	2.5	A C	1 1			2016-03-25 2016-05-27	-		https://github.com/bartduisters/CryptoProgram		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	-	AES, DES, NDS, PRESENT				-		SHA, SHA-1					-	DSS, RSA		SET			EST, SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
679	virgil-crypto-net	C#	C#	High, Low	Wrap.	-	-	12.41	10	A C	1 1			2016-11-25 2016-12-12	-		https://github.com/VirgilSecurity/virgil-crypto-net		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	Poly1305	AES, IDEA NXT, IDEA, PRESENT, RC, RC2, SEED				Salsa		PBKDF2, SHA, SHA-2, SHA-3, SHA-512					Poly1305	-		SET			EST, HTTPS, PEM
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
685	SSMonoCryptographyLibrary	C#	C#	High, Low	Wrap.	-	-	12.15	24	A C	1 1			2016-05-12 2016-05-12	-		https://github.com/oznetmaster/SSMonoCryptographyLibrary		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	HMAC	AES, DES, DEAL, PRESENT, RC, RC2, SEED				-		RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC	DSA, DSS, RSA		CMP, PKCS, SET			CMP, EST, IKE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
684	NoEdgeSoftware.Cryptography	C#	C#	High, Low	Wrap.	-	-	11.81	5.91	A C	1 0			2016-02-24 2016-02-24	-		https://github.com/jtenos/NoEdgeSoftware.Cryptography		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	-	M8, NDS, PRESENT, SAFER, SEED				-		MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					-	DH, RSA		SET			EST, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
690	CryptoLibrary	C#	C#	High, Low	Wrap.	-	-	11.65	2.07	A C	1 0			2016-12-22 2016-12-24	-		https://github.com/verd710/CryptoLibrary		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**
	-	DES, M6, M8, PRESENT				-		MD5					-	DH, DSS, RSA		SET			EST, PE
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**		**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**		**URL**		
682	Xamarin.Droid.AesCrypto	C#	C#	High, Low	Wrap.	-	-	11.37	7.09	A C	1 0			2016-06-15 2016-06-16	-		https://github.com/smoy/Xamarin.Droid.AesCrypto		
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**	**PKC**			**PKI**		**Protocol**

	-	AES, CAST, DEAL, M8, PRESENT			MAG			scrypt					-		-		SET		EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
677	next-generation-crypto-.NET.git	C#	C#	High, Low	Wrap.	-	-	11.31	5.83	A 1 C 0			2016-07-03 2016-07-03	-	git@github.com:anilhakanyaricI/next-generation-crypto-.NET.git				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, DEAL, SEED				-		-					HMAC		DSA		SET	EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
672	CryptoNet	C#	C#	High, Low	Wrap.	-	-	11.21	1.04	A 1 C 0			2016-09-30 2016-09-30	-	https://github.com/aligoren/CryptoNet				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, AES-256				-		PBKDF2, SHA, SHA-2, SHA-3, SHA-256					-		-		SET	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
675	cryptography	C#	C#	High, Low	Wrap.	-	-	11.21	0.37	A 1 C 0			2016-08-22 2016-08-22	-	https://github.com/aduwillie/cryptography				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, DES				-		MD5					HMAC		DSS, RSA		-	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
659	DotNet(S)	C#, C++, VB	-	High	Stan.	-	-	-	-	A - C -	Website, Download	Apis, Examples, Explanations	- -	MS-RSL	-				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	-	-				-		-					-		-		-	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
696	netcologne	C#	-	High, Low	Wrap.	-	-	-	-	A - C -			- -	-	-				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	-	-				-		-					-		-		-	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
136	wolfssl	C, Java, C#, Python, PHP, Perl	C	High	Wrap.	https://www.wolfssl.com/wolfSSL/Products-wolfcrypt.html	-	38.94	259	A 4 C 49	Readme, Website, Download	Apis, Examples, Explanations	2011-02-05 2017-08-16	GPL-2.0, commercial	https://github.com/wolfssl/wolfssl				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**					**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, CRYPTON, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, SEED, 3DES				ChaCha, LEX, MAG, Rabbit, RC, Vernam		BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512					HMAC, Poly1305		DH, DSA, DSS, ECDH, ECDSA, NTRUEncrypt, RSA		CMP, PKCS, RTCS, SET, X.509	OCSP, PKIX, SCEP,	CMP, CSR, CMS, DTLS, DPD, EST, GPG, HTTPS, IKE, OCSP, PE, PEM, PGP, RTD, SCEP, SEND, SSH, SSL, TLS, WPA, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
699	pycryptodome	Python	Py	High	Fork	731	-	37.18	55	A 3 C 41	Readme, Website, Download	Apis, Examples, Explanations	2014-05-02 2017-08-16	BSD-2-Clause, PublicDomain	https://github.com/Legrandin/pycryptodome				

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, OMAC, Poly1305, XCBC	AES, AES-128, AES-192, AES-256, Anubis, ARIA, Blowfish, CAST, DES, DEAL, IDEA, KASUMI, KHAZAD, M6, M8, MARS, MULTI2, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, Skipjack, 3DES, Twofish, XTEA	ChaCha, RC, Salsa, Turing	BLAKE2, MD2, MD5, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL	HMAC, OMAC, Poly1305, XCBC	DH, DSA, DSS, ECDH, ECDSA, LUC, RSA	CMP, LDAP, OpenCA, PKCS, SET, X.509	AKA, CCMP, CMP, EST, GPG, HTTPS, IKE, PCT, PE, PEM, PGP, RTD, SEND, SSH, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
702	cryptography	Python	Py	High, Low	Stan.	-	-	36.91	49	A 2 C 151	Readme, Website, Download	Apis, Examples, Explanations	2013-08-06 2017-08-15	Apache-2.0, BSD-3-Clause, PSFLicense	https://github.com/pyca/cryptography

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	HMAC, Poly1305	AES, AES-128, AES-192, AES-256, Camellia, CAST, DES, DEAL, IDEA NXT, IDEA, M6, M8, NDS, PRESENT, RC, RC2, RC5, SAFER, SEED, 3DES	ChaCha, Crypto1, Dragon, LEX, MAG, NLS, RC, Vernam, ZUC	BLAKE2, MD2, MD5, MD6, PBKDF2, RIPEMD, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL	HMAC, Poly1305	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, LDAP, OCSP, OpenCA, PKCS, PKIX, SET, X.509	AKA, CMP, CSR, CMS, DTLS, DPD, DCII, EST, GSI, GPG, HTTPS, IKE, MSE, OCSP, PE, PEM, PGP, RMA, RTD, SEND, SSH, SSL, TLS, WPS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
708	pysodium	Python	Py	High, Low	Wrap.	132	-	36.43	1.08	A 4 C 21	Readme	Apis	2013-08-25 2017-08-11	BSD	https://github.com/stef/pysodium

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	Poly1305	SEED	ChaCha, Salsa, SEAL	BLAKE2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512	Poly1305	-	-	EST, HTTPS

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
732	pyopenssl	Python	Py	High	Wrap.	137	-	34.77	15	A 1 C 55	Readme, Website, Download	Apis, Explanations	2008-02-18 2017-08-07	Apache-2.0	https://github.com/pyca/pyopenssl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	Blowfish, CAST, DEAL, M6, M8, PRESENT, RC, RC6, SEED	LEX, Vernam	MD5, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512	-	DH, DSA, ECDH, ECDSA, RSA	CMP, OCSP, SET, X.509	CMP, CSR, DCII, EST, HTTPS, OCSP, PE, PEM, RTD, SEND, SSL, TLS, X.509

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
004	cryptominisat	C++, C, Python	C++	High, Low	Stan.	-	-	33.71	61	A 1 C 30	Readme, Website	Examples	2009-08-10 2017-08-17	MIT	https://github.com/msoos/cryptominisat

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol
	-	AES, AES-128, ARIA, CAST, DEAL, IDEA, PRESENT, SEED, Simon	FISH, VMPC	MD5, SHA, SHA-1	-	DH	CMP, SET	CMP, CMS, EST, HTTPS, IKE, SCP, SEND, SSH

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
700	pynacl	Python	C	High, Low	Wrap.	132	-	32.92	47	A 1 C 26	Readme, Website, Download	Apis, Examples, Explanations	2013-02-21 2017-08-10	Apache-2.0	https://github.com/pyca/pynacl

	EAM	Block Cipher	Stream Ci.	Hash	MAC	PKC	PKI	Protocol

	HMAC, Poly1305	AES, AES-128, AES-256, CAST, DEAL, IDEA NXT, IDEA, M6, M8, PRESENT, RC, RC2, SEED				ChaCha, Dragon, eSTREAM, LEX, Salsa, SEAL, Turing		BLAKE2, PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256, SHA-512, SipHash		HMAC, Poly1305	ECDH	CMP, SET		AKA, CMP, EST, HTTPS, IKE, PE, RTD, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
070	themis	C, C++, Swift, Objective-C, Java, Ruby, Python, PHP, C++, JavaScript, Go	C	High	Stan.	-	-	31.05	47	A 1 C 19	Readme, Website, Download	Apis, Examples, Explanations	2014-09-13 2017-08-16	Apache-2.0	https://github.com/cossacklabs/themis
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, ARIA, CAST, DEAL, IDEA, M6, M8, MAGENTA, NDS, PRESENT, RC, RC5, TEA				LEX, SEAL, Turing	Rabbit, SNOW,	MD2, MD5, MD6, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH, ECDH, CMP, LDAP, RD-ECDSA, RSA	BMS, SET	AKA, CMP, DPV, DCII, EST, GPG, HTTPS, IKE, MSE, OTR, PE, PEM, PGP, SEND, SSH, SSL, VBR
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
074	milagro-crypto-c	C, Python, Go	C	High, Low	Stan.	-	-	29.28	47	A 2 C 11	Readme, Download	Examples, Explanations	2016-03-10 2017-08-03	Apache-2.0	https://github.com/miracl/milagro-crypto-c
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**	**PKI**	**Protocol**
	-	AES, CAST, CRYPTON, DES, IDEA, M6, M8, Mercy, PRESENT, SEED				MAG, RC, ZUC		SHA, SHA-2, SHA-3, SHA-256, SHA-512			-		DH, DSA, DSS, PKCS, ECDH, ECDSA, RSA	SET, X.509	DPD, EST, HTTPS, IKE, PE, SEND, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
711	tls	Python	Py	High	Stan.	-	-	29.26	4.88	A 1 C 11	Readme	Apis, Examples, Explanations	2014-06-17 2017-06-14	Apache-2.0, BSD-3-Clause	https://github.com/python-tls/tls
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC	DEAL, IDEA, PRESENT, SEED				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512			HMAC		DH	OCSP, SET	EST, HTTPS, IKE, OCSP, RTD, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
697	pycryptopp	Python	C++	High	Wrap.	-	-	27.97	59	A 2 C 10	Readme, Website		2007-10-30 2017-03-21	GPL-2.0, MIT, TGPPL-1.0, SPL-1.0	https://github.com/tahoe-lafs/pycryptopp
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**			**MAC**		**PKC**	**PKI**	**Protocol**
	HMAC, Poly1305, VMAC	AES, AES-128, AES-192, AES-256, Blowfish, Camellia, CAST, DES, DEAL, IDEA NXT, IDEA, M6, M8, MARS, PRESENT, RC, RC2, RC5, RC6, SAFER, Serpent, SEED, SHACAL, SHARK, Skipjack, TEA, Twofish				ChaCha, Panama, Salsa, SEAL, Sosemanuk, WAKE		BLAKE2, MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL			HMAC, Poly1305, VMAC		DH, DSA, DSS, CMP, ECDSA, ElGamal, PKIX, SET LUC, RSA	PKCS,	CMP, EST, HTTPS, IKE, PE, SEND, TLS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**

ID	Name	I.L.	M.L.	I.Lvl.	Type	Related	Depen.	Impact	kLOC	People	Doc. Kind	Doc. Com.	Dates	Licence	URL
731	pycrypto	Python	Py	High, Low	Stan.	-	-	26.77	43	A 2 C 32	Readme, Website	Apis, Examples, Explanations	1998-12-13 2016-04-02	Public Domain, Python2.2License	https://github.com/dlitz/pycrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC, OMAC, XCBC	AES, AES-128, AES-192, Anubis, Blowfish, CAST, DES, DEAL, IDEA, KASUMI, KHAZAD, MULTI2, NDS, NOEKEON, PRESENT, RC, RC2, RC5, RC6, SAFER, SEED, Skipjack, 3DES, Twofish, XTEA				Dragon, LEX, RC, Turing		MD2, MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Tiger, WHIRLPOOL				HMAC, OMAC, XCBC	DSA, DSS, RSA	CMP, LDAP, PKCS, SET	AKA, CMP, EST, GPG, HTTPS, PCT, PE, PEM, PGP, SEND, SSH, SSL
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
706	pysha2	Python	Py	High	Stan.	-	-	25.93	0.35	A 1 C 2	Readme	Examples	2012-11-24 2017-06-20	MIT	https://github.com/thomdixon/pysha2
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	DEAL				-		MD5, SHA, SHA-2, SHA-3, SHA-256, SHA-512				-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
717	sjcl	Python	Py	High	Wrap.	731	-	24.75	0.46	A 2 C 2	Readme	Examples	2016-05-17 2017-08-08	BSD-3-Clause	https://github.com/berlincode/sjcl
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES				-	-					-	-	SET	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
701	pyaes	Python	Py	High	Stan.	-	-	23.04	1.29	A 1 C 5	Readme	Apis, Examples	2014-05-12 2017-04-04	MIT	https://github.com/ricmoo/pyaes
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	-	AES, DEAL, PRESENT				-		PBKDF2, scrypt, SHA, SHA-2, SHA-3, SHA-256				-	-	-	EST, HTTPS
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
710	oscrypto	Python	Py	Low	Stan.	cryptography primitivesfromthehostoperatingsystem	-	22.21	29	A 1 C 2	Readme	Apis, Explanations	2015-06-03 2017-05-09	MIT	https://github.com/wbond/oscrypto
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, AES-128, AES-192, AES-256, CAST, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, RC5, SEED, 3DES				Crypto1, RC		MD2, MD5, PBKDF2, scrypt, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	DH, DSA, DSS, ECDSA, RSA	OCSP, SET, X.509	CMS, DPD, EST, HTTPS, IKE, IPsec, OCSP, PE, PEM, SEND, SSL, TLS, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
704	crypto_utils	Python	Py	High	Wrap.	https://docs.python.org/2/library/hashlib.html	-	22.02	0.81	A 1 C 1	Readme		2015-09-06 2017-05-23	GPL	https://github.com/hasherezade/crypto_utils
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**
	HMAC	AES, PRESENT				RC		PBKDF2, SHA, SHA-2, SHA-3, SHA-512				HMAC	-	SET	SEND
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**
725	django-x509	Python	Py	High, Low	Wrap.	-	-	21.2	1.75	A 1 C 1			2016-07-08 2017-07-04	-	https://github.com/openwisp/django-x509
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**

	-		M6, PRESENT				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				-		-		SET, X.509		ACME, EST, HTTPS, PEM, X.509
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
716	CryptographyKit	Python	Py	High	Stan.	-	-	20.3	137	A 2 C 0	Readme	Apis, Explanations	2015-03-26 2017-02-27	-	https://github.com/marcsantiago/CryptographyKit				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	-	M6, M8				Vigenere cipher		-				-	DH	-	DPV, HTTPS, PE				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
705	python-cryptoplus	Python	Py	High	Wrap.	-	-	19.7	14	A 1 C 5	Readme	Examples	2008-08-28 2016-10-28	-	https://github.com/doegox/python-cryptoplus				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	HMAC, OMAC	AES, AES-128, AES-192, AES-256, Blowfish, DES, DEAL, IDEA NXT, IDEA, NOEKEON, PRESENT, RC, Serpent, 3DES, Twofish				RC		MD5, PBKDF2, RadioGatun, RIPEMD, SHA, SHA-2, SHA-3, SHA-256, SHA-512, WHIRLPOOL				HMAC, OMAC	DSS, RSA	PKCS, SET	EST, HTTPS, IKE				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
712	crysp	Python	Py	High, Low	Wrap.	-	-	17.75	4.48	A 1 C 0			2011-12-19 2016-12-31	-	https://github.com/bdcht/crysp				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	-	DES, NOEKEON, PRESENT, Serpent, Threefish, 3DES				ChaCha, eSTREAM, RC, Salsa		BLAKE2, MD5, MD6, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512, Skein				-	DSS	CMP, SET	CMP, HTTPS				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
714	python-csiphash	Python	Py	High, Low	Wrap.	-	-	17.07	1.2	A 1 C 0			2016-09-22 2017-04-27	-	https://github.com/zacharyvoase/python-csiphash				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	-	DEAL, IDEA, PRESENT				-		SipHash				-	-	SET	HTTPS				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
707	m2crypto	Python	Py	High, Low	Wrap.	-	-	16.33	31	A 1 C 2			1999-08-16 2015-05-26	-	https://github.com/eventbrite/m2crypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	HMAC, RMAC	AES, AES-128, AES-192, AES-256, CAST, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, RC5, SEED				RC, Turing		MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, RMAC	DH, DSA, DSS, ECDH, ECDSA, RSA	CMP, SET, X.509	AKA, CMP, DPD, DPV, EST, HTTPS, IKE, PE, PEM, PGP, SEND, SSL, TLS, X.509				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
720	mcrypt	Python	Py	High, Low	Wrap.	-	-	15.72	0.22	A 2 C 1			2015-10-29 2016-03-17	-	https://github.com/wamacdonald89/mcrypt				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				
	-	-				-		-				-	-	-	-				
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
718	M2Crypto	Python	Py	High, Low	Wrap.	-	-	14.57	31	A 1 C 0			2013-04-18 2015-07-06	-	https://github.com/edevil/M2Crypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**	**PKI**	**Protocol**				

	HMAC, RMAC	AES, AES-128, AES-192, AES-256, RC, Turing CAST, DES, DEAL, IDEA, M6, M8, PRESENT, RC, RC2, RC5, SEED						MD5, PBKDF2, RIPEMD, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC, RMAC		DH, DSA, DSS, CMP, SET, X.509 ECDH, ECDSA, RSA			AKA, CMP, DPD, DPV, EST, HTTPS, IKE, PE, PEM, PGP, SEND, SSL, TLS, X.509	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
715	Elliptical-Curve-Cryptography	Python	Py	High, Low	Wrap.	-	-	14.48	0.76	A 1 C 2			2015-04-02 2015-06-12	-	https://github.com/iCHAIT/Elliptical-Curve-Cryptography				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	-	M6, M8, PRESENT				-		MD5				-	DH, DSA, ECDH, SET ElGamal			PE, SEND			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
703	crypto	Python	Py	High, Low	Wrap.	-	-	14.45	3.37	A 1 C 1			2014-11-07 2016-01-04	-	https://github.com/chrissimpkins/crypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	-	DEAL, M6, M8, PRESENT				-		SHA, SHA-2, SHA-3, SHA-256, Tiger				-	DH	SET		EST, GPG, HTTPS, PGP			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
730	cypher	Python	Py	High, Low	Wrap.	-	-	14.2	0.13	A 2 C 0			2016-03-20 2016-03-20	-	https://github.com/anarcoder/cypher				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	-	PRESENT				-		-				-	-	-		-			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
709	django-cryptography	Python	Py	High, Low	Wrap.	-	-	13.94	2.31	A 1 C 0			2016-03-02 2016-12-06	-	https://github.com/georgemarshall/django-cryptography				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	HMAC	PRESENT				-		MD5, PBKDF2, SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC	-	SET		EST, HTTPS, RTD			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
727	cryptodev-python	Python	Py	High, Low	Wrap.	-	-	13.93	2.85	A 1 C 0			2014-06-24 2015-03-09	-	https://github.com/tchar/cryptodev-python				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	HMAC	AES, CAST, PRESENT				-		scrypt, SHA, SHA-1				HMAC	-	SET		EST, HTTPS, SRTP			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
728	Rabin_cryptogram	Python	Py	High, Low	Wrap.	-	-	13.73	0.12	A 2 C 0			2016-10-09 2016-10-09	-	https://github.com/Tobegiantgod/Rabin_cryptogram				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	-	-				-		-				-	-	-		-			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				
719	adver-neural-crypto	Python	Py	High, Low	Wrap.	-	-	13.56	0.29	A 1 C 1			2016-11-08 2017-01-23	-	https://github.com/RylanSchaeffer/adver-neural-crypto				
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**	**PKC**		**PKI**	**Protocol**			
	-	IDEA, M6, M8				-		-				-	DH	-		HTTPS, IKE, PE, WPS			
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**	**Dates**	**Licence**	**URL**				

726	senic.cryptoyaml	Python	Py	High, Low	Wrap.	-	-	13.5	0.34	A C	1 0			2016-12-19 2017-02-27	-		https://github.com/getsenic/senic.cryptoyaml	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, PRESENT				-	-					-		-		SET	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
721	cryptosystem-RSA	Python	Py	High, Low	Wrap.	-	-	13.3	1.38	A C	1 0			2015-02-20 2015-02-20	-		https://github.com/Serafim-End/cryptosystem-RSA	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	SEED				-	-					-		-		SET	EST	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
722	python-ifalg	Python	Py	High, Low	Wrap.	-	-	13.14	1.35	A C	1 0			2015-04-11 2015-05-13	-		https://github.com/manolog ab/python-ifalg	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES, AES-256, CAST, DES, DEAL, IDEA				-		SHA, SHA-1, SHA-2, SHA-3, SHA-256, SHA-512				HMAC		DSS		SET	EST, HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
724	otw	Python	Py	High, Low	Wrap.	-	-	12.7	0.64	A C	1 1			2016-10-16 2016-12-05	-		https://github.com/flipchan/otw	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	AES				-		BLAKE2, SHA, SHA-2, SHA-3, SHA-256				HMAC		DH, DSA		SET	AKA, GPG, HTTPS, OTR, PGP	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
713	cryptoshop	Python	Py	High, Low	Wrap.	-	-	12.35	0.74	A C	1 1			2016-04-11 2016-05-05	-		https://github.com/Antidote1911/cryptoshop	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	AES, IDEA, M6, M8, PRESENT, Serpent, SM4, Twofish				eSTREAM	-					-		DH		SET	EST, HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
729	Cryptopie	Python	Py	High, Low	Wrap.	-	-	11.77	0.64	A C	1 0			2016-03-17 2016-04-06	-		https://github.com/davidcarboni/Cryptopie	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	DEAL, IDEA, PRESENT				-	-					-		RSA		-	HTTPS, SEND	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
723	noxcrypt	Python	Py	High, Low	Wrap.	-	-	11.26	1.46	A C	1 0			2016-08-22 2016-08-27	-		https://github.com/NoxTools/noxcrypt	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	-	Blowfish				-	-					-		-		-	HTTPS	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
698	CryptographicServices(S)	Python	Py	High	Stan.	-	-	-	-	A C	- -	Readme, Website	Apis, Examples, Explanations	- -	PSFL		-	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	
	HMAC	-				-	-					HMAC		-		-	-	
ID	**Name**	**I.L.**	**M.L.**	**I.Lvl.**	**Type**	**Related**	**Depen.**	**Impact**	**kLOC**	**People**	**Doc. Kind**	**Doc. Com.**		**Dates**	**Licence**		**URL**	
733	pyAES	Python	Py	High, Low	Wrap.	-	-	-	0.15	A C	- -			- -	-		https://master.dl.sourceforge.net/project/pyaes/OldFiles/pyAES-1.0-win32.zip	
	EAM	**Block Cipher**				**Stream Ci.**		**Hash**				**MAC**		**PKC**		**PKI**	**Protocol**	

-	AES, PRESENT, SEED	-	SHA, SHA-2, SHA-3, SHA-256	-	SET	AKA

Table 30: Detailed library overview