

# Restoration of the Church of St. Nicholas Fort Ricasoli: The Process of Conserving Our Heritage

Gareth Cutajar

Corresponding Author: [Gareth.Cutajar.b42508@mcast.edu.mt](mailto:Gareth.Cutajar.b42508@mcast.edu.mt)  
Institute of Engineering and Transport, MCAST

**Abstract:** Restoration programmes aid in preserving local building heritage for future generations. Documentation of these restoration programmes is a fundamental task in conserving and reserving significant cultural buildings. Documenting and developing a conservation strategy for a historical structure is quite a complex task and requires not only planning the interventions required to conserve a building but also for future maintenance to enhance the effectiveness of such work. This paper is divided into five sections. The first section, the introduction, gives a description and overview of the subject being studied. In the second section, the existing literature study evaluates different paradigms of protecting existing significant historic buildings. This is followed by an explanation of the historical context and the history related to the subject studied. Finally, research on the documentation process is also reviewed. The third section describes the methodological approach that aided the analysis of this study's research questions in the fourth section. The fifth section gathers the primary and secondary data analysed and sums up everything in accordance with the proposed research questions of this study. In order to conduct this research, the Church of St. Nicholas at Fort Ricasoli was used as the main case study. A detailed investigation of the church to identify the significance of conserving such buildings and an investigation of the existing conditions of the church were conducted. This aided in establishing the documentation process prior to the actual interventions on the fabric. In order to carry out such a process, different methods of documentation were used, such as laser scanning surveys, photogrammetry, and documentation of the existing state of the building to aid in the process of deciding on future interventions. As a result of such a process, considerations of appropriate uses of such methods and proposals were given and, additionally, considerations of successful conservation after the actual conservation are highlighted. The proposal for the conservation of the church of St. Nicholas at Fort Ricasoli also aims to set guidelines for other conservation programmes within the fort, amongst other local restoration projects. Conservation of abandoned structures will enhance the local context in various aspects. Finally, conservation programmes will give potential benefits to the Maltese islands. Giving back these historically significant monuments to the general public will aid the Maltese islands' economy.

**Keywords:** cultural significance; documentation; conservation strategy; future interventions; potential benefits

## Focus and Scope

Restoration and conservation programmes aid in preserving local building heritage for future generations. The documentation and establishment of a conservation plan to maintain a historical building are quite complex. Thus, this document will study in-depth

the process of documentation that could be used as a guideline for conserving the rest of the fort and other local conservation projects. As the main case study to explain the process of documentation, the restoration of the church of St. Nicholas at Fort Ricasoli will be used. Thus, following the planning of the conservation process of the church, the study will outline the importance of documentation, how this study could be utilised in similar local projects, and the importance of restoring existing cultural significant buildings.

### *Research Questions*

- What are the main elements which should be studied to decide the best and the most ethical interventions for a building in both a historical context and an analysis of the existing fabric?
- What are the key benefits of maintaining and restoring abandoned structures for the Maltese islands?
- How can the study be used to document and interpret future interventions at Fort Ricasoli?

## **Literature Review**

Smith (1840) theoretically stated that whoever finds a stone that will survive from one century to another with all-natural elements acting on its surface without the need for reparation will undoubtedly search for a “philosopher’s stone” (PAGE NUMBER).

In time, it was discovered that earth materials such as stones, even though they were viewed as eternal, have a limited lifetime. According to Ashurst and Dimes (2011), such materials might deteriorate because of various features, such as the polluted atmosphere, surface erosion, weather, and salt crystallisation. Eventually, these actions affect the visual aesthetic of the structured fabric and the structural integrity aspect, which might infirm the stabilisation of the building. Furthermore, the lack of maintenance on existing structures could lead to other significant social implications such as SBS (Sick Building Syndrome), low living standards, and stigma based on prejudice against individuals or communities due to their built environment (Passarelli 2009).

- Evaluation of Four Different Paradigms

Generations of people’s historical monuments have survived to this day as living testimony to their age-old traditions. People are becoming increasingly aware of the interconnectedness of human values and hold ancient civilisations in high regard. As a communal heritage, monuments are essential; thus, everyone must protect them in the future. The Venice Charter ICOMOS (1964) stated that the principles employed to preserve these historic structures must be agreed upon and written down on an international level, with each country responsible for implementing the plan within the context of its culture and traditions. Furthermore, Santos et al. (2013) specify that it is fundamental to thoroughly understand the genesis to adopt a suitable safeguarding measure. Thus, it is paramount to identify different paradigms that could be adopted to safeguard a historical monument. The main four different paradigms are as follows.

### *Renovation*

The process of conducting structural alterations without dismantling the complete structure and replacing it with a new building (Martinez and Montanes 2015).

### *Restoration*

The main aim of restoration is not only the conservation of the integrity of a structure or monument but also to outlast the presentation of its cultural significance and the revival of the legibility of the original design (Lakhani and Kumar 2018).

### *Conservation*

It is the process that restores and preserves a building. In accordance with the Burra Charter, replacement of features is only considered when a structural element is in severe condition (Burra Charter 2013).

### *Preservation*

Building preservation is the process by which the historic fabric of cultural significance is sustained and retained (ICOMOS 2004).

- Historical Context

### *The Grand Harbour*

The Maltese Grand Harbour has long been a place of great strategic importance (Arrigo 2018). The Grand Harbour is one of the world's deepest natural harbours, situated in the central Mediterranean. For 268 years, the Grand Harbour was the base for the Knights of St. John, and after their departure, it was a British colony for a further 170 years. After Freedom Day, the harbour lost much of its military significance. However, the port is still active in a more civilian-oriented manner since Malta's commercial shipping is now taking place at the Free Port situated in Kalafrana (Farrugia 2007).

### *Fort Ricasoli*

Following the Great Siege of 1565, Giovanni de Medici proposed to abandon Fort St. Angelo and construct a new fort on Gallows Point and the north shore of Rinella Bay, commanding the entrance of the Grand Harbour along with Fort St. Elmo. Before this plan, the Ottoman Empire had used the same area to attack Fort St. Elmo during the Great Siege. Following this, the Italian knight Alessandro Orsi funded the building of a tower to aid the surrounding fortifications. This tower was known as the Tower of Orsi and built in 1629. It was then, in 1669, that Grand Master Nikola Cotoner decided to execute the plan of Giovanni de Medici and build the fort. Engineer Antonio Maurizio Valperga was appointed to design the fort and, in 1670, the actual development was initiated. The fort was nearly finished in 1689 and named Ricasoli in honour of the Knight Giovanni Francesco Ricasoli, who donated 20,000 scudi to construct the fort (Quintano 1999).

In 1681, Ing. Carlos de Grunebergh proposed a set of modifications to the initial design of the fort, which was implemented between the 1680s and 1690s. Such amendments included a building of a church and barracks. The fort was officially completed and armed in May 1698 (Bonnici 2008). Throughout the years, the fort kept undergoing modifications. Despite the enormous financial expenses sustained by the Order, the fort was still feared as a weak point in the harbours defence mechanism.

Hermann (2008) states that the fortifications of the fort were finally tested when, under the command of Bali de Tillet and garrisoned by the *Cacciatori*, the fort repulsed three French attacks. However, in June 1798, Grand Master Hompesch surrendered to Napoleon. By this time, Fort Ricasoli was under French hands. The fort continued to be active for military purposes through the British period. Further additions were made to satisfy the needs of the British empire in that era. Such additions mainly included engine rooms to generate electricity and powder magazines to store gunpowder.

Post-1979, after the withdrawal of the British troops and the Royal Navy from Malta, the fort lost its military significance. After the area was handed over to the Maltese government, Fort Ricasoli was abandoned; however, it was used by the port authorities as an area for raw materials arriving in Malta. The area kept being neglected after the development of Smart City as it demolished the Ricasoli industrial estate (Zammit 2007). The fort is under the control of Malta Film Commission and is used extensively to produce films and serials today. Even though the fort is still being used, it is suffering from high deterioration due to the absence of maintenance work.

### *The Church of St. Nicholas*

The Knights of St John were recognised as a religious order. Grand Master Nicola Cotoner appointed Ing. Medetico Blondel to design a military church to be used by the residents within the fort. Quintano (1999) states that the main idea of Blondel was to build the church within the regiment quarters to be protected from assaults. The St Nicholas Church was going to be similar to the church of St Anne in Fort St. Elmo. Quintano (1999) states that the same church influenced Blondel. However, before consulting with Prijur Konvertwali, it was decided to build the church in a more central area closer to the barracks.

Further to the original plan, a crypt beneath the church was added to serve as a burying area and minimise the humidity level. Quintano (1999) describes the church as a simple rectangular military design. It is rectangular, around eighteen metres in length by nine metres in width. It is a baroque-style church having structural pillars with a simple cornice and a continuing entablature. The main façade has two openings at the bottom courses, mainly to vent in the air to the crypt beneath the church. Another opening is visible at the top levels of the church to allow natural light. The top part of the church has two limestone ornaments.

The church is dedicated to St Nicholas in memory of Grand Master Nicola Cotoner who funded the building and maintenance expenses. The church was built on 31 March 1696 and was consecrated on the 15<sup>th</sup> of May 1698 (Brincat, 2001). The church of St Nicholas within the fort served until the British period because Maltese people still lived in the fort. However, when the fort lost its military purpose, like all the forts, the church was left abandoned for a long time. Currently, under the Malta Film Commission, the church is being used as a store for props (Brincat 2001). Brincat (2001) also recalls the importance of restoring this monument since other significant historical materials, such as the first prose written in Maltese, typically recognise the Maltese identity through traditions practised for years.



**Figure 1:** Image showing St Nicholas Church on the right-hand side and the Governor's house on the left-hand side (Heritage Malta)

- Process of Documentation and Presentation Techniques

The conservation process of historical monuments is a complex task involving multidisciplinary responsibilities. To understand and work efficiently, it is important to divide the project into different conservation phases as described in the Burra Charter Process Flow Chart (ICOMOS 2013).

### *Understanding Significance*

Historical elements accord authenticity to a place and can easily identify different cultures through architecture, often representing a considerable era or some historical milestone in areas. One way of acknowledging history is by preserving existing structures and conserving a threatened building by extending its lifetime (Historical England 2019).

A significant period of heritage classifications commenced in 1988 with the ICOMOS Australian Burra Charter. This charter has been updated several times, emphasising the significance of heritage values as being paramount. Before attempting to conserve a historical monument, a policy should be set and structured. The policy should include reusing the structure that retains the cultural significance of the place.

### *Documentation*

Following understanding and assessing a historical monument's cultural significance, the next phase is identifying what is threatening the structure and requirements to anticipate future circumstances. This document includes an existing survey highlighting structural issues and other elements threatening the fabric to establish a proper approach for conservation (Watt 2011).

Different buildings or monuments have different surveying approaches since structures might suffer from prolonged exposure to the elements or deterioration. They could also have been subject to inappropriate uses or neglect from ongoing maintenance (Watt 2011). Such approaches could initiate from archived documentation such as drawings,

survey reports, and maintenance reports. However, these could extend to remodelling the structure (Watt 2011). Gumus et al. (2017) state that the most efficient method to survey a historical feature is the Terrestrial Laser Scanning (TLS) process. Scanning instruments can produce a 3-dimensional point cloud of surfaces which can easily identify types of deterioration through the model itself. The surveyor can also export plans, sections, and elevations from a model for future documentation.

A mapping process can identify the degradation causes and different deterioration characteristics of the monuments. Mapping involves a study of deterioration patterns in different fabrics (Delgado 2015). This process is essential to identify conservation needs and plan accordingly since deterioration patterns help identify the primary source of the fabric's actual degradation (Kasthurba et al. 2021). Through the evolution of the building industry, the different terminology that is mainly used to describe the earth sciences disciplines, such as erosion, degradation, and decay forms, amongst others, has been introduced to describe different patterns of deterioration.

Following the preparation of surveyed drawings, discovering all threatened parts, and identifying the main cause which leads to the deterioration of fabric, a plan should be structured (ICOMOS 2013). To attain an effective conservation project, these policies must highlight the main aims and objectives to retain the significance of the place for future generations (Kerr 2013). Kerr (2013) adds that such a document would demonstrate the highest possible standards to the local planning authorities and other regulations.

### *Conclusion*

Historical monuments aid in observing societal changes to better understand what motivates the development of cities and the origins of particular traditions. Moreover, saving architectural monuments aids the tourism sector by attracting individuals interested in history and the evolution of architecture (Lakhani and Kumar 2018). When maintaining a monument, one only solves the situation for a short period. However, by adding a goal to follow the conservation plan, one could adapt the structure for the goal, keeping in mind conservation standards and local regulations without additional retrofitting after the conservation process. As Watt (2011) states, one of the key factors leading to a structure's deterioration is inadequate service installation.

Furthermore, maintenance is an essential factor in quality assurance. Thus, when creating the Conservation Management Plan (CMP), additional notes should include a maintenance scheme for the project. This extends the lifespan without the need for extensive interventions.

## **Methodology**

### *Description of the methods used*

To assess the research questions of this study, I selected the church of St. Nicholas situated in Fort Ricasoli to conduct a detailed conservation plan as a case study. The Burra Charter was used as general guidance to build the conservation plan, as well as other significant data collected and mentioned in the literature review. The figure below represents the methodological process taken to collect primary data.

### *Step 1: Desktop Study*

A desktop study initiated the process. This was an important step in understanding the significance of the building and other related information concerning the selected case study. The collection of the secondary data was mainly based on historical books, articles, records from the National Archives of Malta in Rabat, the Public Works Department in Floriana, the National Library of Malta in Valletta, and other casual interviews with expert individuals who were involved in different studies at Fort Ricasoli.

### *Step 2: Site Reconnaissance*

The process continued with several site inspections. These visits were done to visually study the context of the building within Fort Ricasoli. In addition, the existing condition of the site was also observed to prepare a methodological procedure to survey the structure. All health and safety precautions were taken during this inspection, and adequate clothing was utilised.

### *Step 3: Photographic Survey*

To study and compare the effects of external damage on the internal fabric of the structure, the researcher collected an internal photographic survey and was represented in sequence on a plan drawing showing different damages to the interior fabric. The external fabric was also collected mainly to aid in the mapping process and to look at areas where it was difficult to determine different deterioration patterns due to the lack of site accessibility. Furthermore, such images were used to conduct an existing deterioration/definition glossary for future conservation projects within Fort Ricasoli.

### *Structure Surveying*

Following the first site inspection, the land surveyor and I agreed to utilise a laser scanner to survey the external fabric of the structure. Through a 3-dimensional point cloud, the instrument could produce an existing 3-dimensional virtual model and 2-dimensional plans and elevations. The visit also noted that the site does not have direct and safe access to the roof level. Thus, a drone photographic survey was agreed to be used to survey the roof. An internal photographic survey was taken for a better understanding of the structural deterioration and to understand whether the external deterioration is affecting the interior fabric of the building.

### *Step 4: Drawing*

With all the surveying information, the structure was transformed on the CAD software *AutoCAD* in preparation for the mapping process. Once the structure was drawn, the mapping was initiated. At this stage, another site visit was done to better inspect the deterioration variety of the fabric of the structure. Such a deterioration was marked on the drawings concerning their real position on-site. This aided in developing different patterns of fabric deterioration on all external facades, which gave a better understanding of the deterioration caused in preparation for the interventions that needed to be conducted.

### *Step 5: Proposal for Interventions*

Subsequently, all the collected data were combined to determine the factors deteriorating the structure. This process aided in the preparation of the intervention programme. Finally, a set of proposed interventions for the church was drawn up based on the collected data.

This methodology for the selected case study was drawn not only to conserve the Church but also to document historical architectural findings and the structure's current condition. Furthermore, this document was conducted as general guidance to conserve other structures within Fort Ricasoli, with the most ethical procedure towards restoring historical context and highlighting the key benefits of maintaining and conserving abandoned structures in the Maltese islands.

## Results and Analysis

This section discusses and documents the primary research findings as well as the existing state of the church at Fort Ricasoli and the relation between both. Here the research centres around the process required to document the existing state of the building, which will, in turn, help in the decision on a strategy to conserve the building fabric.

### *Data Gathered from Desktop Study (Step 1)*

In order to initiate the process of data gathering and also to understand the significance of the structure, a preliminary analysis of the church, as well as the context within Fort Ricasoli, must be made. From such an analysis and site inspections, it was clear that the area is suffering from advanced deterioration since it has been neglected for many years or is broadly used by the film industry. In addition, historical images were also found, which enabled me to identify missing features. Even though drawings were not found, some relevant information with regard to the repair works in the church after the Second World War were found at the National Archives of Malta in Rabat.

### *Analysis of Visual Inspections and Photographic Surveys (Steps 2 & 3)*

The preliminary site inspections and photographic surveys of both the exterior and interior fabric immediately began indicating the main degradations affecting the deterioration of the church. Factors such as damaged roof stormwater runoff system (*deffun/copertina*), open joints, missing parts, and vegetation/biological growth confirmed the reason behind the quick deterioration of the fabric.

Moreover, these photographic surveys also aided in the process of deterioration mapping by comparing the scanned elevations with a higher resolution image. When it comes to roof deterioration, mapping photographs captured with a drone were rectified and attached to the plan drawing. Due to the lack of site accessibility, the scanning instrument could not be set at the roof level or above to capture data. Such images were also utilised to conduct a deterioration glossary attached in the following section for a better interpretation of the types of deterioration affecting the fabric.

### *The Scanning Process (Step 3)*

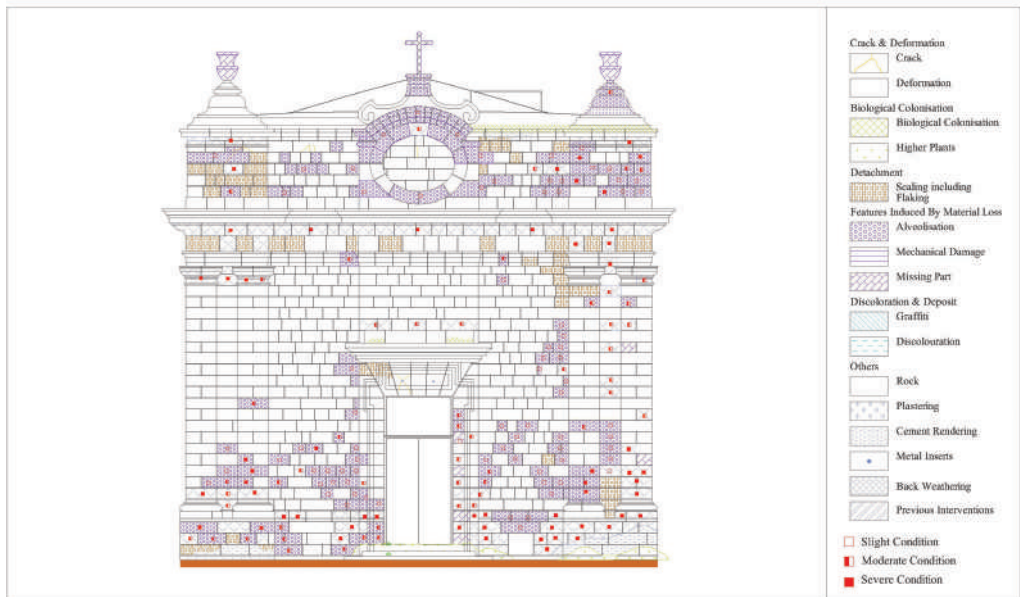
The laser scanning instrument was used in order to capture existing data with real dimensions. In general, the laser scanner was set at different angles around the site in order to get the maximum data possible. However, due to the lack of site accessibility, higher parts of the church were not measured. Thus, a drone was seen as an alternative tool to gather photogrammetric information. The laser scanner instrument was set and calibrated to measure approximately a point every twenty-five millimetres (one inch) in a distance of thirty metres, which increased the resolution of the final virtual model and thus aided in the process of deterioration mapping.

The collected data was transferred as a point cloud into Cyclone, the software that recognises the Leica C10 instrument that was used, which had created a 3-dimensional virtual model of the existing state of the church. Finally, 2-dimensional elevations were extruded from the virtual model, which was further drawn and mapped.

#### *Deterioration Mapping (Step 4)*

From visual observations and images, different deterioration patterns were observed. Alveolar, pitting, and back weathering were the most common deterioration patterns observed on the church fabric. Considering the church's roof, the stormwater runoff system (*deffun*) has severely deteriorated. Large areas comprise biological growth, amongst other cracks and damaged patches. All the types of deteriorations observed were mapped on traced drawings (extracted from the laser scanner) to further aid in understanding the patterns.

The following figure represents the approach selected to document the fabric deterioration.

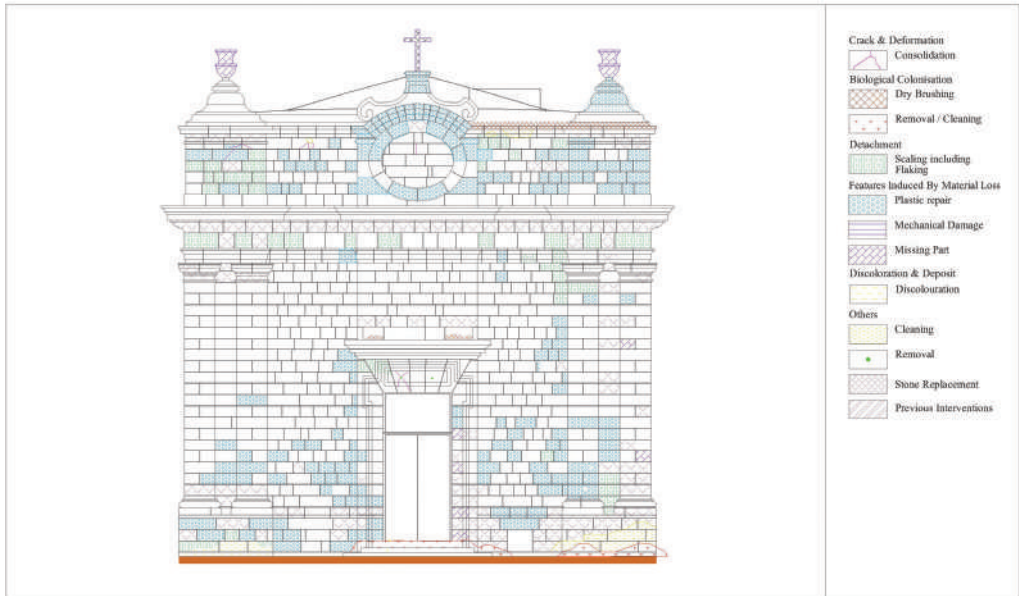


**Figure 2:** Deterioration, mapping on the main façade

#### *Proposal for Interventions Step 5*

After understanding the causes of deterioration by observing the exterior and interior fabric conditions of the church, a set of interventions were set. These were categorised under three phases, initiating with the urgent interventions moving forward to restoring the external fabric to ensure water tightness and concluding with a basic interior restoration in order to make the church useful.

In order to interpret the interventions required to conserve the external fabric of the church, a set of intervention drawings was created. These drawings show the specific intervention required in order to mitigate the threatened deterioration.



**Figure 3:** Intervention mapping on the main façade

Even though the mentioned interventions are drawn from the deterioration patterns which were visually observed, after the erection of the scaffolding, closer inspection of the fabric will be possible, and modifications to the proposed interventions might be required.

## Conclusion

To sum up the conservation process and enhance the quality of local conservation projects, the documentation of the existing state of the historic fabric should be combined and kept as a record of what work was conducted. In addition, at the end of the actual conservation process, it is important that an updated set of intervention drawings as well as a list of technical specifications are compiled from the contractor's side in order to document the work that was carried out and the technical specification of the material used. This will aid in future maintenance on the same fabric and distinguish whether particular materials were adequate for a particular intervention. Seasonal observations and maintenance of the structural fabric, particularly stormwater systems, should be done. This will enhance and extend the interventions previously carried out. The Burra Charter ICOMOS (2013) also points out that giving an end-purpose and use to the structure prior to the start of the conservation process will aid in preserving the subject matter in the longterm. When it comes to Fort Ricasoli, a proposal for the regeneration of the area was conducted by Brincat (2018: PAGE NUMBER), who stated, "It is useless restoring this landmark without offering it another chance of being alive" In this proposal, Brincat also proposed to pass the church to the Assoċjazzjoni Wirt il-Kalkara as a permanent exhibition on its own after returning artistic items which were transferred to other places for the satisfaction of the general public.

Conserving abandoned structures will enhance the local context in various aspects. However, giving back these historically significant monuments to the general public will re-establish the structure from the neglected state. It will also restore and preserve the

historical context of the various elements involved for future generations. Furthermore, when enhancing the local history by restoring chronological elements, the tourism sector will also be positively affected by the increased accessibility of such historical artefacts for individuals with historical interests. Thus, the conservation of historical elements will aid in both the economy of the Maltese islands.

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