

## FINAL QUALITY REPORT

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University of Nis



Strengthening of master curricula in water resources management  
for the Western Balkans HEIs and stakeholders

## PROJECT INFO

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## 1. Introduction

Quality assurance and monitoring is essential to ensure that project objectives and results defined in the project proposal can be achieved and delivered within the project implementation period at a high-quality level. Therefore, the SWARM consortium has set up quality control and assurance mechanisms and procedures to be followed throughout the whole project implementation and by all partners.

This document presents the Final Quality Report for Erasmus+ KA2 CBHE project *597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP "Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders"* (SWARM). It is developed in the scope of the WP5 (Quality assurance and monitoring) of the Project in compliance with the Project description and all applicable rules and guidelines.

The Final Quality Report should be regarded as an additional deliverable to Work Package 5 and has been necessitated by the short 6-month extension awarded to the project to complete activities. The report will comment on two main aspects: i) an overall discussion on the quality of the project, and II) a qualitative evaluation of the project.

## 2. Overall quality of the project

Overall quality of the project has been high and project partners have been dedicated to the successful realisation of the developed curricula. The project has not been without its challenges, however with support from the coordinating team from the University of Nis, these difficulties have been overcome. This section will provide a brief quality overview of each of the work packages (WPs). The WPs and their WP leading institutions are presented in Figure 1.

Work package name	Leading institution
WP1 Analysis of water resources management in the Western Balkan region	University of Natural Resources and Life Sciences, Vienna (BOKU)
WP2 Development of competence-based curricula aligned with EU trends	Aristotle University of Thessaloniki (AUTH)
WP3 Development of trainings for professionals in water sector	University of Priština settled in Kosovska Mitrovica (UPKM)
WP4 Implementation of developed master curricula and trainings	Norwegian University of Life Sciences (NMBU)
WP5 Quality assurance and monitoring	Universidade de Lisboa (UL)
WP6 Dissemination and exploitation	University of Nis (UNI)
WP7 Project management	University of Nis (UNI)

### WP1 Analysis of water resources management in the Western Balkan region

WB regional issues related to WRM in the field of HEI are analyzed in WP1. The corresponding report (output) of the first activity to identify the current state targets Bosnia and Hercegovina, Kosovo\*, Montenegro, and Serbia presenting the following topics: a) the policy, strategic planning and legal framework; b) governance and institutional frameworks; c) management instruments; d) infrastructure development and financing; e) sources of financing for WR development; f) outcomes and impact; g) priority challenges; and g) issues in WRM in WB. The second activity targets analysis of EU innovations in water policy and EU recommendations and legislation in water sector by analyzing the EU legislation for the directives targeting: a) water framework; b) floods; c) drinking water; d)

ground water; e) urban waste-water treatment; f) industrial emission; g) renewable energy; h) habitats; i) birds; and other related directives. Analysis of master curricula related to WRM in EU and WB countries is reported in the third activity. Needed laboratory resources in WB HEIs are identified in the fourth activity in alignment with formed EU HEIs WM laboratory equipment. The fifth activity targets the barriers and opportunities for innovative EU practices in the WRM reported by the organized workshop. The general overview of existing successful models of education in the field of WRM of EU HEIs and comparative analysis with the existing curricula in WB partner countries will represent the basic guidelines for the definition and development of the new courses and master curricula in WB countries.

### **WP2 Development of competence-based curricula aligned with EU trends**

WP2 addresses curricula development activities organized in 6 activities. The first activity aiming at development of specific competencies and learning outcomes of curricula in WB is reported by a corresponding catalogue, along with career opportunities with specific job descriptions. Development of courses content and syllabi is reported in the corresponding report for the second activity A2.2 and Innovation of existing and development of new master curricula for WRM in WB in the third activity. The fourth activity for course accreditation has been finished with some delay. The fifth activity on acquired teaching and learning methods is well documented covering both the strategy and realized activities and their outcomes. Purchase of required literature, equipment and software is documented in the report of the sixth activity. All activities within the work package were successfully completed.

### **WP3 Development of trainings for professionals in water sector**

Trainings for professionals are objective of WP3 realized in three activities. The first activity introduces LLL courses about WRM in EU countries, and the second analyses water sector needs and companies in WB countries. The last activity targets development of training material on WRM. The training materials produced for these courses has been collated and printed as an accompanying handbook *A Handbook for Training in Water Resources Management*. The handbook contains seven chapters (I) Water management and climate change adaptation; II) Water – scarce resource; III) Flood and drought risk management; IV) Management the quality of stormwaters; V) Wastewater treatment and reuse of treated wastewater; VI) IT tools in the water resources management; VII) Innovation in the water sector).

### **WP4 Implementation of developed master curricula and trainings**

WP4 is dedicated to implementation of developed master curricula and training for professionals in the water sector. One online and two in-person training have been organized by WB partners.

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During the training implementation, 259 participants were trained i.e. 184 from the non-academic sector and 75 from the academic sector. In total, 57 different companies took part in these trainings.

#### **WP5 Quality assurance and monitoring**

Quality assurance and monitoring are developed within WP5. The first activity to develop quality plan is well documented with corresponding procedures, tools, and specification of relevant internal and external evaluation, along with specification of reporting templates, questionnaires and forms. In total, six Quality Assurance Committee meetings have been organized. External evaluation of the project and external financial control have been organized. The purposes of the inter-project coaching meeting were to share projects' outcomes and future ideas, and focus on knowledge exchanges with partners. The inter-project coaching is an effort of different scientific groups from the water sector that aims to further discuss water resources management issues met through various implemented or ongoing projects. It involved 18 panelists from different universities and companies. In total, 72 participants registered, 57 attended from 16 countries (Norway, Serbia, Bosnia and Herzegovina, Greece, Austria, Croatia, Netherlands, Ukraine, India, Kenya, Uganda, Bulgaria, Montenegro, Portugal, Kazakhstan, Kosovo\*) or 79.17% attendance rate.

#### **WP6 Dissemination and exploitation**

Dissemination and exploitation constitute WP6 in 6 planned activities. The dissemination and exploitation plan contains all necessary elements and details for dissemination, communication and exploitation strategy, with defined objectives, activities, target groups, key messages, specification of dissemination tools, monitoring and evaluation, and exploitation including sustainability. Branding activities resulted with clear development of logos and key messages. Opened social network profile and project web site has ensured electronic presence and wider dissemination. The project participants have created a very functional and transparent web site within the second activity, where one can get info on reports on realized project activities. The web site is constantly updated with new information. The project management platform is used to communicate all partners about activities. Promotional materials include brochure, poster, rollup, folder, notebook, bag, tags, etc. All partners have created their web pages and links to other web sites with the project results. The following activities have been organised info day for student enrolment, roundtable with academic sector, winter/summer schools and promotional symposium.

The International symposium "Water Resources Management: New Perspectives and Innovative Practices" was an interdisciplinary forum where the research results and best practices in the field of Water Resources Management (WRM) were shared with all SWARM fellows and stakeholders from the entire world. At the same time, the event was the place for the promotion of the achieved results

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under the SWARM project to a wider audience. Effective results can be realized exclusively with active involvement, unbiased judgment and constructive input of all the innovation processes. In that context, topics were carefully selected to provide up-to-date issues and to encourage productive discussion bringing fresh and original insights and concepts at the forefront. The symposium presented different interdisciplinary research experiences, in order to create a dialogue to point up solutions and synergies related to sustainable and fair water resources management, highlighting strengths, potentialities, and critical issues. Also, the symposium was a place to make a synergy between different areas in the water sector and between academia, business sector and policy making bodies.

In total, 110 participants registered, 104 attended (43 in-person and 61 online) from 20 countries (Austria, Belgium, Bosnia and Herzegovina, Bulgaria, China, Croatia, Greece, India, Italy, Kazakhstan, Kosovo\*, Montenegro, Norway, Portugal, Republic of Moldova, Serbia, Sri Lanka, the Netherlands, Uganda, Ukraine). Two representatives from the policy decision making bodies were participated in the event (Ministry of Environmental Protection of the Republic of Serbia and Directorate – General for the Environment). Five keynotes from the Netherlands, Norway, Greece and Italy presented the important topics in the field of water resources management. In total, 19 out of 20 received papers were accepted for publication involving 51 authors. Presentations were prepared and showed by 39 panelists in 8 sessions.

### **WP7 Project management**

WP7 is devoted to project management activities. The first three activities include local project and Brussels kick-off meetings, and development of the project management plan. They are completed and well documented. Six steering committee meetings have been organized. The management guide contains all relevant specifications of management structure, roles and responsibilities, decision-making, management procedures, monitoring of realization, output delivery, reporting templates and forms, communication methods, protection of intellectual property, financial management, and contingency plan. All public documents are transparent on the web site and they confirm that relevant activities were undertaken to manage all required activities and solve problematic issues, by established project management procedures. A software platform was used to enable monitoring of activities by corresponding project management bodies and coordinators. Detailed reports including presentations are given for all meetings, including, kick-off meeting, steering committee and project management meetings, developed project management and reporting guidelines. For day-to-day activities, they use relevant project management software. Preventive monitoring visits are documented by relevant agenda, minutes and presentation slides.



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### 3. Qualitative evaluation

The 6-month extension to the project afforded the possibility to undertake additional feedback activities as part of WP5. A qualitative evaluation was undertaken to gather some more perspectives on the benefits and limitations of the project and (personal and professional) experiences of being involved. Some open questions were provided in an online survey tool to all those who had been involved in the project between 24 February and 02 March 2022.

As well as asking respondents about if they were EU or WB Partners, the survey asked the following open questions:

- Communication between partners
- Logistic preparation and organization of the SWARM events
- Quality of materials provided during the SWARM implementation
- Mode of reaching the decisions during the SWARM implementation
- Assignment of tasks by WP leaders
- Satisfaction with the implementation of the SWARM activities
- What were the positives/negatives of the SWARM project?
- Have any additional collaborations or new projects occurred because of your involvement in the SWARM project?
- Please write a couple of sentences describing the key benefits you have gained (both personally and/or professionally) from participating in the SWARM project.

The following section provides details of the feedback provided. The types of responses are provided in the description section along with some indicative quotations from participants in the quotation section of the table.

A total of 50 completed questionnaires were returned, either fully completed or with some questions answered. Of these, 12 were EU partners and 38 were WB partners.

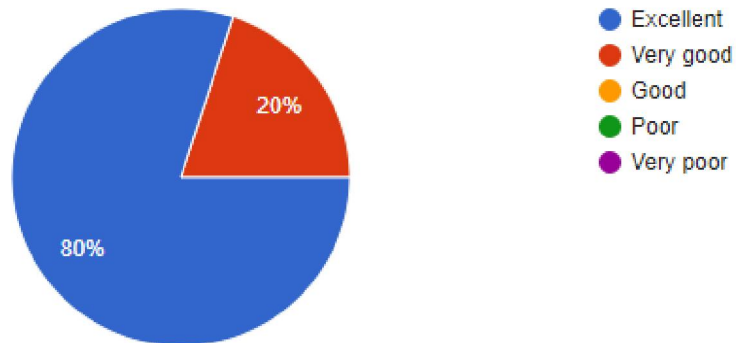
The n = (the top right-hand corner of the table for each question) refers to the specific number of responses to that particular question. Those that were left blank, N/A or left unanswered have not been included in the response rates for each question.

General conclusion: excellent communication between partners have been achieved (76.9% - excellent, 23.1% - very good), excellent logistic preparation and organization of the SWARM events (89.7% - excellent, 10.3% - very good), excellent quality of materials provided during the SWARM implementation has been achieved (79.5% - excellent, 20.5% - very good), excellent mode of reaching the decisions during the SWARM implementation (76.9% - excellent, 23.1% - very good), excellent

assignment of tasks by WP leaders has been done (74.4% - excellent, 25.6% - very good). The SWARM members were very satisfied with the implementation of the SWARM activities (76.9% - excellent, 23.1% - very good).

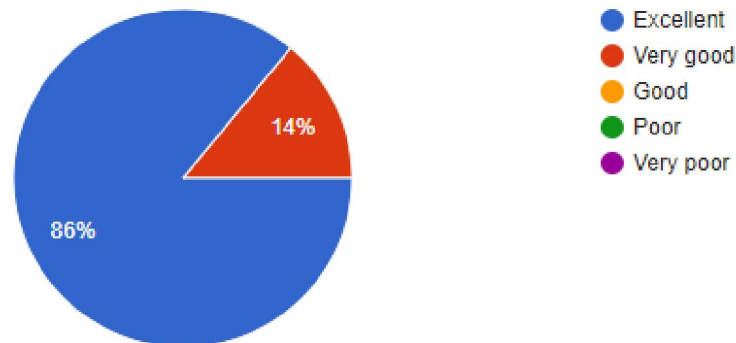
### Communication between partners

50 responses



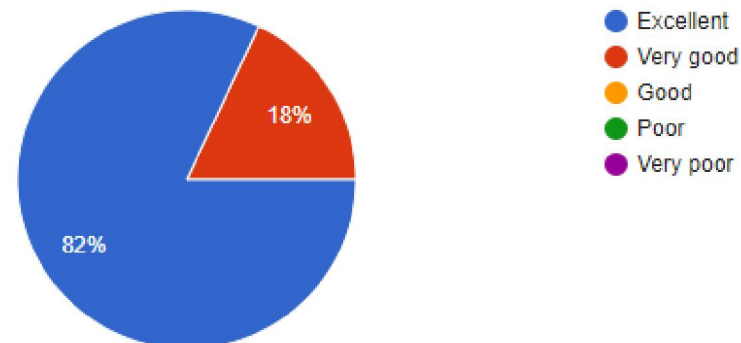
### Logistic preparation and organization of the SWARM events

50 responses



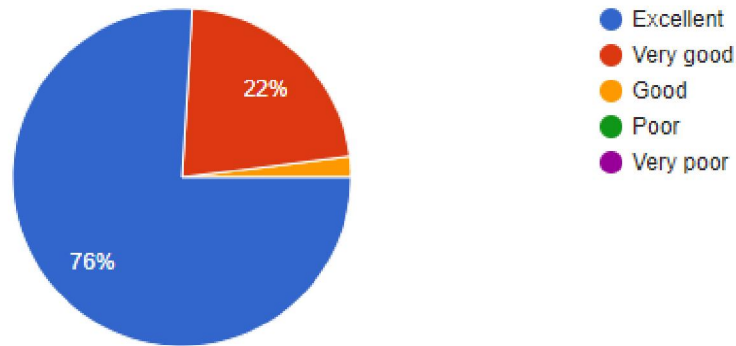
### Quality of materials provided during the SWARM implementation

50 responses



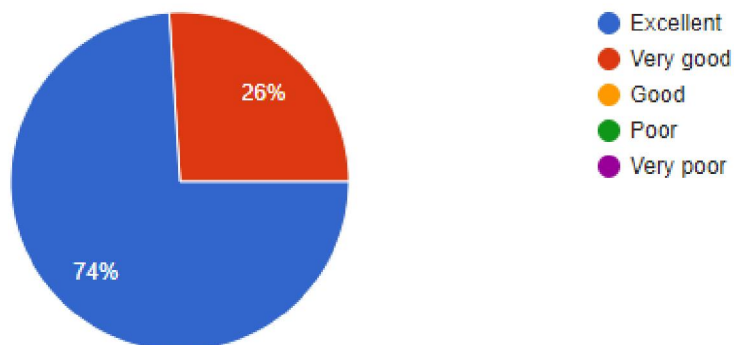
### Mode of reaching the decisions during the SWARM implementation

50 responses



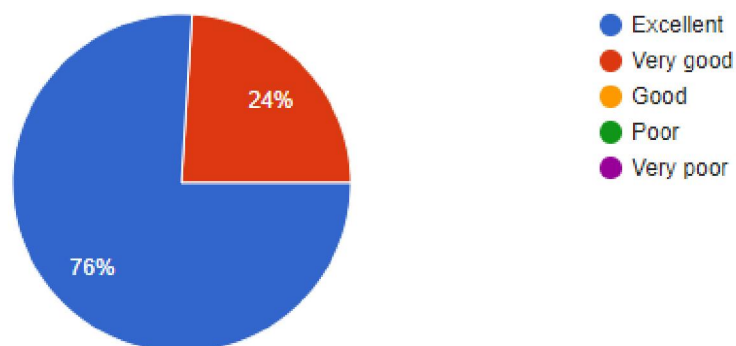
### Assignment of tasks by WP leaders

50 responses



### Satisfaction with the implementation of the SWARM activities

50 responses



What were the positives/negatives of the SWARM project?	n = 21
<b>Description</b>	
<p>It was very encouraging to see that respondents were able to provide positive responses, both on a personal and professional level. These included: obtaining and exchanging new knowledge; meeting, working with and learning from new colleagues. Excellent organisation was mentioned several times as was the creation of the curricula. It was also clear that SWARM had provided participants with new opportunities.</p>	
<b>Some specific answers</b>	
<ul style="list-style-type: none"> <li>➤ Great collaboration between all universities</li> <li>➤ Very innovative concept of project implementation.</li> <li>➤ New contacts and knowledge</li> <li>➤ Everything was positive, except stupid Corona that enabled us to spend more time together in person.</li> <li>➤ Great consortium</li> <li>➤ The collaboration between partners, and internal communication! The different committees within the project have been effective and interesting.</li> <li>➤ Everything was positive in the swarm project</li> <li>➤ Good partnership, clear roles and obligations.</li> <li>➤ Great joint international efforts to enhance water management in the Western Balkans in the future! Excellent team spirit in the project.</li> <li>➤ Identification of Western Balkan regional issues related to Water Resources Management. Development of competence-based curricula aligned with EU trends. Development of trainings for professionals in water sector. Implementation of developed master curricula and trainings.</li> <li>➤ Online meetings were positive.</li> <li>➤ Sharing experiences and best practices among project partners.</li> <li>➤ Positives: Collaboration between project partners, established network for future collaboration between institutions but also individual collaboration with colleagues on specific research interests, improvement of teaching on our own institution, development of teaching skills, learning on water management specificities in other countries Negatives: COVID pandemic which made travel, live meetings and other face-to-face activities very difficult and at the beginning of pandemic even impossible.</li> <li>➤ Training opportunities for improving water resources management and cooperation with colleagues from the Western Balkans were provided.</li> <li>➤ Coordinators of the project successfully overcame all the obstacles posed by the pandemic. It was certainly not an easy job.</li> <li>➤ Excellent staff training programs, very useful equipment and training materials gained.</li> <li>➤ The leadership excellence is positive.</li> </ul>	

<b>Have any additional collaborations or new projects occurred because of your involvement in the SWARM project?</b>	<b>n = 20</b>
<b>Description</b>	
<p>This question tried to establish whether collaborating on SWARM has nurtured new and lasting working relationships. A number of new initiatives, proposals and projects were identified, with some Erasmus+ and EU funded projects successfully awarded.</p>	
<b>Some specific answers</b>	
<ul style="list-style-type: none"> <li>➤ Yes</li> <li>➤ Yes, new project</li> <li>➤ We hope they will in the near future. Collaboration is realized with most of the partners.</li> <li>➤ Yes, the SMARTEN project for instance.</li> <li>➤ Not yet, but it probably will</li> <li>➤ Yes, several new project applications.</li> <li>➤ During the project activities, numerous contacts were made and the potential for additional cooperation and definition of new projects and programs was increased.</li> <li>➤ No</li> <li>➤ Yes, ERASMUS and CEEPUS mobility between project partners (new agreements, mobility of teachers), participation in scientific boards for conferences, collaboration in research.</li> <li>➤ Yes, we are applying for a new Erasmus project with the same leadership.</li> </ul>	

<b>Please write a couple of sentences describing the key benefits you have gained (both personally and/or professionally) from participating in the SWARM project.</b>	<b>n = 18</b>
<b>Description</b>	
<p>A summary of benefits from participating in SWARM was sought from respondents, both from a personal and/or professional capacity. From the 13 responses received, we can see the many new experiences achieved, new countries visited, SWARM participants developing their knowledge of practices and meeting new people were all mentioned.</p>	
<b>Some specific answers</b>	
<ul style="list-style-type: none"> <li>➤ Very strong and new connection between expert from different countries; new ideas for collaboration</li> <li>➤ Establishment of a new study program, procurement of laboratory equipment, student</li> </ul>	

training, training of engineers

- Strengthening of personal skills and competences in water resources management due to the participation of high-quality experts from program countries. Moreover, my professional network has increased. SWARM project gave me the possibility to get a high-quality knowledge related to the project management tasks, dissemination possibilities and quality assurance and control methods.
- Personally, I have met many wonderful people and I am sure that friendship with them will last for a long time. I had opportunity to see different cultures, lifestyles etc. Professionally, I developed my communication, professional and methodological skills. The future cooperation with EU and WB colleagues will certainly improve my professional skills to higher level. I would especially like to thank to our coordinator Milan, who is the best coordinator ever, very skillful, professional and good person.
- New contacts for possible future collaboration
- Personally, it has been great to be a part of SWARM. Even though I came into the project quite late, fortunately for me, the project was extended. This gave me the benefit and opportunity to join and get to know the SWARM partners better. It was especially interesting and existing to be a part of the conference which was held in Novi Sad in September 2021. Also, I must say that it has been very insightful to be a part of a project with such good reporting routines! It has been so inspiring to see how Milan is tackling the different reporting requirements, and I hope that I professionally can learn from this and adapt this into other projects I am involved in. Milan is always responsive and helpful, which I really appreciate! Thank you so much to Milan and all other partners who has been involved in SWARM.
- Acquisition of knowledge and specific knowledge from good practice abroad. Developing one's own competence in one's field and increasing the relevance of my learning. Build new contacts. Good cooperation with a partner institution etc.
- Scientific collaborations expressed through common scientific publications, familiarization with colleagues coming from Western Balkans, development of an active network that is seeking for new cooperation opportunities.
- Improved inter-cultural working skills (even though Europe shares a common historical cultural background, working styles are different in various geographical locations). Learned about different water management approaches applied in other countries.
- Collaboration between colleges from different countries, interchange of knowledge, education, new ideas.
- Networking and meeting with new colleagues what make good basis for new partnerships.
- Professional development, team building, improving skills.
- New colleagues - network, participation in scientific boards for conferences, collaboration in research, improvement of my teaching skills, improvement of teaching content.
- Training opportunities for improving water resources management and cooperation with colleagues from the Western Balkans were provided. As part of the project, new and improved old curricula for graduate studies in the field of water management were developed, as well as lifelong learning programs.
- Professionally I am very satisfied with experience of training programs, and personally I think we all gained valuable acquaintances as colleagues and friends.
- Experience gained in joint trainings in the field of water. Acquiring new and useful acquaintances of colleagues from the region and abroad.

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## Annex 1 – Qualitative evaluation of the SWARM project



### Qualitative evaluation of the SWARM project

Thank you for taking the time to complete this questionnaire. Your comments are important to us and provide us with valuable feedback on the quality of the SWARM implementation.

Email \*

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This form is collecting emails. [Change settings](#)

Communication between partners \*

- Excellent
- Very good
- Good
- Poor
- Very poor

Logistic preparation and organization of the SWARM events \*

- Excellent
- Very good
- Good
- Poor
- Very poor

Quality of materials provided during the SWARM implementation \*

- Excellent
- Very good
- Good
- Poor
- Very poor

Mode of reaching the decisions during the SWARM implementation \*

- Excellent
- Very good
- Good
- Poor
- Very poor



Assignment of tasks by WP leaders \*

- Excellent
- Very good
- Good
- Poor
- Very poor

Satisfaction with the implementation of the SWARM activities \*

- Excellent
- Very good
- Good
- Poor
- Very poor

What were the positives/negatives of the SWARM project?

Long answer text

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Have any additional collaborations or new projects occurred because of your involvement in the SWARM project?

Long answer text

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Please write a couple of sentences describing the key benefits you have gained (both personally and/or professionally) from participating in the SWARM project.

Long answer text

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