



## **Ad-Hoc Query on tuberculosis screening of foreigners**

**Requested by HU EMN NCP on 21. November 2011**

**Compilation produced on 26 January 2012**

**Responses from Austria, Belgium, Estonia, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Slovak Republic, Sweden, United Kingdom (15 in Total)**

*Disclaimer: The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.*

### **1. Background Information**

In the context of a planned reform of the Hungarian system for the diagnosis, treatment and prevention of tuberculosis (TB) the question of the determination of the circle of foreigners who should be screened was raised. Hungary is interested in the practice of the other Member States and would like to ask them to answer the following questions:

1. What categories of foreigners are required to undergo a TB screening in the Member State or are required to present the results of such a test in the context of the admission procedure/asylum procedure/return procedure? How regular is this requirement?
2. Do persons in immigration detention undergo TB screening?
3. What methods are used for testing, where does the test take place?
4. Who bears the costs of the test and the possible treatment? What are the consequences of a positive result?

**Disclaimer:** The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.

The HU EMN NCP would very much appreciate if we could receive your responses by **17 December 2011**.

## 2. Responses<sup>1</sup>

		Wider Dissemination? <sup>2</sup>	<ol style="list-style-type: none"> <li>1. What categories of foreigners are required to undergo a TB screening in the Member State or are required to present the results of such a test in the context of the admission procedure/asylum procedure/return procedure? How regular is this requirement?</li> <li>2. Do persons in immigration detention undergo TB screening?</li> <li>3. What methods are used for testing, where does the test take place?</li> <li>4. Who bears the costs of the test and the possible treatment? What are the consequences of a positive result?</li> </ol>
	Austria	No	This EMN NCP has provided a response to the requesting EMN NCP. However, they have requested that it is not disseminated further.
	Belgium	Yes	<ol style="list-style-type: none"> <li>1. <b>Asylum seekers</b> have to undergo a mandatory TB screening following the lodging of their application (unless they have already lodged an asylum application and have been screened less than 6 months ago) by Fedasil (Federal Agency for the Reception of Asylum Seekers). Pregnant women and children under 5 years old will be invited for a tuberculin sensitivity test or Mantou test by the medical office of their reception center, or a X-ray examination after childbirth. Each asylum seeker will get two control radiographs of the lungs within the year after his asylum application: after 6 months and after 1 year. An asylum seeker who stays longer than 1 year after his asylum application, is no longer screened in a systematic manner. When someone has however complaints or there exists a clinical presumption on tuberculosis, that person will be checked by the VRGT (Flemish Association for Respiratory Health Care and Tuberculosis Control) or FARES (Fund for Respiratory Diseases) for free advice and further research. A <b>third country national</b> who applies for a residence permit of at least 3 months and who comes from a country where tuberculosis occurs regularly, is entitled to a one-off screening after arrival in Belgium. A practical rule which is used is that all areas are risky except: Western-Europe, North America, Canada, Japan, Australia and New Zealand. VRGT and FARES ask the reception offices and municipal services to provide newcomers with a brochure which informs them concerning the right to screening for TB. A newcomer can register for a preventive research up to two years after registration, hereafter he is no longer considered as a newcomer. In case of complaints one can of course contact the VRGT or FARES for free advice and if necessary for further research.</li> </ol>

<sup>1</sup> If possible at time of making the request, the Requesting EMN NCP should add their response(s) to the query. Otherwise, this should be done at the time of making the compilation.

<sup>2</sup> A default "Yes" is given for your response to be circulated further (e.g. to other EMN NCPs and their national network members). A "No" should be added here if you do not wish your response to be disseminated beyond other EMN NCPs. In case of "No" and wider dissemination beyond other EMN NCPs, then for the Compilation for Wider Dissemination the response should be removed and the following statement should be added in the relevant response box: "This EMN NCP has provided a response to the requesting EMN NCP. However, they have requested that it is not disseminated further."

**Disclaimer:** The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.

			<p>2. The screenings in the detention centers are done by the VRTG and the FARES with a mobile unit, within one week after the beginning of the detention. If the doctor of the detention center diagnoses at the first medical check upon arrival that the foreigner is contaminated with TB, he or she will immediately brought to the hospital.</p> <p>3. The TB screening is made by an X-Ray of the thorax (except for pregnant women and children younger than 5 years old) under the authority of Fedasil, in the premises of the Immigration Office. The radiographs are interpreted by specialised doctors of the VRGT and FARES who as soon as possible take the necessary measures to hospitalise contagious persons. Children under five and pregnant women get a tuberculin sensitivity test when they have arrived in the reception structures by the medical staff. Because of the raised prevalence of tuberculosis in this group and raised chance on developing tuberculosis in the first Months/years after arrival in the host country all asylum seekers are examined in the same way (RX or THT). These follow-up researches happen in the local welfare centres of the VRGT or FARES or by the mobile entity of these organisations.</p> <p>4. <b>Asylum seekers:</b> Fedasil pays for the equipment in the buildings of the Immigration Office, the initial screening, the interpreting of the initial radiographs and the control radiographs after 6 months. In case of a positive result, Fedasil is in charge of the hospitalisation, all diagnostic and succession researches and consultations and medicines available on the Belgian market. The follow up screenings are organised at the expenses of the VRGT and FARES. In case a multi-resistant patient has to be treated with a special medicine or a medicine not available on the Belgian market, the cost can be taken in charge by BELTA-Tbnet (a project of the Belgian Lung and Tuberculosis Association with financial support of the federal government, it insures the repayment of the costs linked to the tuberculosis treatment which are not taken in charge by any other social institution). The TB infection does not have any consequences in the asylum procedure (aside from the proper placement and medical treatment of the asylum seeker). When an asylum seeker has TB and his demand for asylum has been rejected, the order to leave the territory can be extended two times for a period of 3 months by the Immigration Office if the treatment takes at least 6 months. If the treatment requires more than 6 months, e.g. for multi-resistant tuberculosis, the person can ask for a residence authorization for medical reasons. The procedure regarding costs for <b>(other) third country nationals</b> is more complex. In possible the testing and treatment is free, although there might be some exceptions, where for example a guarantee underwriter can be approached.</p>
	<b>Estonia</b>	<b>Yes</b>	Estonia does not require foreigners to undergo TB screening.
	<b>Finland</b>	<b>Yes</b>	<p>1. Asylum seekers and refugees from countries with high TB risk undergo a mandatory TB screening. Medical personnel are also advised to screen students and employees from countries with high TB risk but this is not mandatory. X-ray should be taken within seven days from entry into Finland. Minors younger than 7 years are screened by other means. Also Interferon Gamma release Assay –test may be used instead of other tests. Refugees without TB symptoms are tested within one month from entry into Finland and similar asylum seekers within three months from entry. Asylum seekers subject to accelerated asylum procedure won't fall within this category since their residence in Finland is rather short and therefore not considered as a risk for public health.</p> <p>2. On regular basis, no. See above.</p>

**Disclaimer:** *The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.*

			<p>3. Thorax x-ray (pregnant women included). X-ray is taken at Hospital or Municipal Health Centre.</p> <p>4. Each reception centre (asylum seekers) and municipality (refugees) is responsible for organising TB screening for new asylum seekers and refugees on their territory. They also bear the costs of screening. Reception centres in Finland are led by Finnish Immigration Service and state funded. The consequence of a positive result is that the receiving hospital is consulted by phone and the patient is sent to emergency treatment. If tuberculin or IGRA-test of a child &lt;7 years is positive, he or she will be subject to specialised health care and assessed in case of active or latent tuberculosis.</p>
	<b>France</b>	<b>Yes</b>	<p>1 – In France, according to the Code on Entry and Residence of Foreigners and Right of Asylum, any third country national applying for a residence permit must provide a medical certificate. The decree of January 11, 2006 defines the practical details of the control, including notably an X-ray examination of the lungs. However, children aged under 10 who provide a certificate of BCG vaccine are exempt from such examination. This also concerns any foreigner providing an X-ray certificate less than three months old when the clinical examination cannot identify a progressive tuberculosis.</p> <p>2 – No. There is no tuberculosis screening for foreigners in administrative detention.</p> <p>3 - The screening method is a chest radiograph, which is conducted by the services the Office Français de l'Immigration et de l'Intégration (OFII - French agency in charge of migration and welcoming foreign people). In addition, children aged under 15 coming from countries with high prevalence of tuberculosis are subjected to a tuberculin test conducted within a structure defined during the medical examination.</p> <p>4 – The OFII takes care of the chest radiograph's costs. Further tests and possible treatment are covered by the common law health system.</p> <p>When progressive contagious tuberculosis is detected, the personal file of the individual is pending until a medical certificate is established by the tuberculosis service of the place of residence, testifying the recovery.</p>
	<b>Germany</b>	<b>Yes</b>	<p>1. In accordance with Section 36 (4) of the Infektionsschutzgesetz (IfSG) [German Law on the Prevention and Control of Infectious Diseases), only persons who are to be accommodated in shared accommodation for the homeless, refugees or asylum seekers or in an initial reception center for ethnic German immigrants (Germans from the republics of the former Soviet Union and relatives of theirs taken in with them) provided by the German government , are required to present to the director of the facility, either before or immediately they are accommodated, a medical certificate confirming that there is no reason to believe that they have infectious pulmonary tuberculosis. For persons who are accommodated in shared accommodation for refugees or asylum seekers or in an initial reception center for ethnic German immigrants provided by the German government and have reached 15 years of age, the certificate must be based on an x-ray of the lungs which has been taken in Germany; in the case of first time accommodation at the facility the examination for the medical findings must have been carried out within the previous sixth months, or within the previous twelve months in the case of renewed accommodation. The reason for the examination is that because large numbers of people are in close spatial proximity to each other there is an increased risk of infections being transmitted.</p> <p>2. No.</p>

**Disclaimer:** The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.

			<p>3. Section 62 of the German Asylum Procedure Act requires that foreigners who have to be accommodated in a reception center or shared accommodation must undergo a medical examination for infectious diseases, including an x-ray of the respiratory organs. Section 36 (4) of the IfSG specifically requires that an examination for tuberculosis be carried out. All of the federal Länder in Germany have an obligation to carry out these examinations. The health authorities in each of the German federal Länder are responsible for the respective measures involved. The health ministry of each federal Land, or the authority selected by the respective ministry, is responsible for stipulating what is to be covered by the examination and the doctor responsible for carrying it out. The doctors are selected directly by the health authority. By way of example, asylum seekers at the reception center in Zirndorf are examined at the staatliche Gesundheitsamt Fürth (Fürth Health Authority). In addition to an x-ray of the respiratory organs and a blood test, a stool examination and HIV test are also carried out, plus examinations for hepatitis and sexually transmitted diseases. The result of the examination must be reported to the authority responsible for the provision of the accommodation.</p> <p>4. The costs of the examinations and required treatment are paid for by the state. All cases of tuberculosis afflictions found in the course of these examinations have to be reported by the local health authority to a central institution in an obligatory reporting system. If a foreigner with a transmittable disease refuses the medical treatment required and thereby poses a risk to public health, this may, at the discretion of the responsible authorities, lead to their expulsion (Section 55 (2) 5 German Residence Act).</p>
	<b>Hungary</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>1. Asylum seekers have to undergo a mandatory TB screening following the lodging of their application (unless they have already been screened once and had not left the country since the screening). The screening is not repeated during the asylum procedure. Furthermore third country nationals who apply for residence permit or for the renewal of a residence permit shall make a statement on whether they are infected with TB and whether they receive proper medical treatment. If the statement is affirmative regarding TB, the third country national can be required to undergo a TB screening and medical treatment.</li> <li>2. No.</li> <li>3. The TB screening is made by an X-Ray, at the local pulmonology center.</li> <li>4. Both the costs of the screening and the necessary treatment of the asylum seeker are borne by the asylum authority. The TB infection does not have any consequences in the asylum procedure (aside from the proper placement and medical treatment of the asylum seeker). The costs of the screening and the treatment of the third country national can be borne by the National Health Insurance Fund if the person concerned is entitled to its services or by the person concerned (who is required to have a full healthcare insurance or sufficient financial resources for healthcare services in order to stay in Hungary). If the third country national is infected and refuses to submit to the appropriate compulsory medical treatment, the residence permit cannot be issued or renewed or has to be withdrawn.</li> </ol>
	<b>Italy</b>	<b>Yes</b>	<p>Currently, the Italian legislation does not impose an obligation to undergo a TB screening for asylum seekers, even when they are housed in the identification and reception centres. Only in the presence of suspected infection medical examinations are ordered and their costs are borne by the Ministry of the Interior. If medical treatment regards foreign nationals who have obtained a residence permit for asylum seekers or are granted refugee status or subsidiary protection, in these cases costs are borne by the National Health System. In no event the success of a diagnosis of TB will have direct consequences to the right of residence and the ownership of a residence permit.</p>

**Disclaimer:** The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.

	<b>Latvia</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li><u>Admission:</u> All third-country citizens should undergo a mandatory TB screening after they have received a positive decision on issuance of a residence permit. Screening is not required if a person applies for a renewal of a residence permit, as the person only signs an application stating that s/he is not suffering from tuberculosis. If s/he is suffering from TB then, in case of the first permit, a residence permit can be refused. In case of renewal a person should submit an additional document from a medical institution, stating that this person has undertaken all necessary measures in order to have a treatment. <u>Asylum:</u> all asylum seekers are tested. <u>Detention:</u> persons are tested only in case if there is a ground to assume that a person might suffer from TB. No.</li> <li>X-ray. In case of admission - in any medical institution of Latvia. Documents, issued in other countries, are not accepted. In case of asylum and detention – health centre of Ministry of Interior or other health centres in Latvia.</li> <li>Screening is paid by a third-country citizen who is applying for a residence permit. In case of asylum seekers and detained persons costs are covered by asylum and detention authorities (from a state budget).</li> </ol>
	<b>Lithuania</b>	<b>No</b>	This EMN NCP has provided a response to the requesting EMN NCP. However, they have requested that it is not disseminated further.
	<b>Luxembourg</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>In Luxembourg the TB screening is compulsory to any third country national who wishes to stay more than three months in Luxembourg and for any international protection applicant. This screening must be made in a three month period, because the third country national has to apply for a residence permit in that period and for obtaining the residence permit he/she must join the medical certificate. That certificate must indicate that the person fulfill or not the medical conditions to be authorized to reside in the country. (articles 41(2) and 41 (3) of the Law of 20 August 2008 on free movement of persons and immigration). Any person who wishes to obtain a residence permit in Luxembourg must pass the IDR (test of Mantoux) or the IGRA test (Quantiferon) and a lung X-ray.</li> <li>Yes. The persons that are held in immigration detention have to undergo TB screening in a delay of 24 hours upon since their arrival at the detention centre (article 9 of the Law of 29 May 2009 on the creation and organisation of the detention centre), because the limited confinements of their detention.</li> <li>As we mentioned the methods used for testing are the IDR (test of Mantoux) and a lung X-ray or the IGRA test (Quantiferon) and a lung X-ray The type of test that will be applied depends on the doctor of one of the three social-medical centre of the Luxemburgish league for the prevention and medical-social actions, where the test has to take place. However, at the detention center the IGRA test is systematically used.</li> <li>The costs of the test and treatment in the case of asylum applicants will be borne by the State (OLAI). The fact that the applicant is sick will not have any incidence on the asylum procedure. In the case of third country nationals that have apply for residence permit the cost of medical examination and treatment must be borne by the applicant. His/her application will not be treated until the medical certificate from the Medical Immigration Service arrives. In case of positive result the residence permit will not be issued, because the medical certificate must indicate that the sanitary conditions for residence are fulfilled (article 41 (4) of the Law of 20 August 2008 on free movement of persons and immigration). The application must be refused in the case that the applicant refuses to undergo the TB screening (art. 41 (3) of the Law of 29 August 2008 on free movement of persons and immigration)</li> </ol>
	<b>Malta</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>Asylum seekers have to undergo a chest x-ray shortly after arrival. They are screened again before being released from detention if 6 months are exceeded. Children are screened using the Mantoux Test while pregnant women are seen by a chest consultant.</li> </ol>

**Disclaimer:** *The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.*

			<p>All foreigners coming from third world tuberculosis high risk countries and are seeking a work permit are required to take a chest x-ray before obtaining approval. Tourists are not screened.</p> <ol style="list-style-type: none"> <li>Persons in the detention centres are all screened for TB</li> <li>Methods used include chest x-ray, Mantoux test, if required quantiferon test and if necessary they are seen by a chest consultant. They are done at the Chest Unit in the public primary care sector and in the Radiology department at the state hospital.</li> <li>For asylum seekers both the costs of the screening and the necessary treatment are borne by the Ministry of Health. A positive result does not have any consequences in the asylum procedure. The person is given the required treatment free of charge. The cost of screening a third country national, who applied for a work permit is borne by the employer. If the third country national is found positive before starting employment, the permit is not issued. If found positive after having been working here and is paying national insurance then the person is entitled to treatment free of charge.</li> </ol>
	<b>Slovak Republic</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>All asylum seekers are screened for tuberculosis. It is mandatory. Within 30 days after being granted temporary or permanent residence permit a third country national must submit a medical certificate stating that he/she is free of contagious diseases at a police department. A third country national who filed application for an EU Blue Card at a diplomatic mission must submit a medical certificate stating that he/she is free of contagious diseases at a police department within 30 days after being granted a blue card. A third country national who filed application for an EU Blue Card at a police department must submit a medical certificate stating that he/she is free of contagious diseases at the police department within 30 days after application submission. Screening of a third country national for tuberculosis is not obligatory, it is facultative if there is a suspicion of TB.</li> <li>No.</li> <li>Chest X-ray screening for tuberculosis is carried out at competent health centres.</li> <li>In case of asylum seekers, test and treatment costs are covered by the budget of the Migration Office of the Ministry of Interior of the Slovak Republic. A positive result of the test has no consequences for the asylum procedure. In case of third country nationals, test and treatment costs are borne by the respective third country nationals. A positive test result leads to revocation of permanent/temporary residence permit. Application for an EU Blue Card is rejected if a third country national poses a threat to public health.</li> </ol>
	<b>Sweden</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>In Sweden asylum seekers have the right to a free medical examination. This is totally voluntary. If the asylum seekers is stating that he/she has TB this is to be reported to the health authorities.</li> <li>If a person in detention is suspected to have TB a screening can be done.</li> <li>The test is the regular TB screening performed by the regular health care system (hospital).</li> <li>The cost for the screening and treatment are born by the authorities.</li> </ol>
	<b>United Kingdom</b>	<b>Yes</b>	<ol style="list-style-type: none"> <li>The UK Border Agency, with the assistance of the International Organization for Migration (IOM), has since 2005 conducted a pilot pre-entry screening programme for TB across countries where the disease is highly prevalent. Those seeking entry clearance to the UK for more than 6 months in these countries are required to undergo TB screening through the IOM. The countries involved are Bangladesh, Cambodia, Ghana (which also takes applications from Burkina Faso, Cote d'Ivoire, Togo and Niger), Kenya (which also takes applications from residents of Eritrea and Somalia), Pakistan, Sudan, Tanzania and Thailand (which also takes applications from residence of Laos). This screening is applied equally to all visa applicants from these countries and not limited only to nationals of these countries.</li> </ol>

***Disclaimer:*** *The following responses have been provided primarily for the purpose of information exchange among EMN NCPs in the framework of the EMN. The contributing EMN NCPs have provided, to the best of their knowledge, information that is up-to-date, objective and reliable. Note, however, that the information provided does not necessarily represent the official policy of an EMN NCPs' Member State.*

			<p>Other migrants arriving in the UK for more than six months from high risk countries (with a high incidence of TB of over 40 per 100,000 population) and intending a stay of over 6 months may be screened on arrival at Heathrow or Gatwick Airports or identified for medical referral after entry under longstanding arrangements at other ports. British and EEA citizens and people exempt from immigration controls are not liable to screening under immigration legislation.</p> <p>Refuges accepted for resettlement into the UK through the Gateway Programme are screened for TB and other medical conditions and needs prior to relocation to the UK.</p> <ol style="list-style-type: none"> <li>2. All those admitted to immigration detention centres are offered a range of medical services which can include screening for TB. However, TB screening is not carried out routinely on admission, unless it is clinically indicated.</li> <li>3. Pre-entry screening consists of initial chest x-rays and for those with abnormalities, three consecutive days sputum smear tests and sputum culture analysis as required. On entry screening consists of x-ray screening. Those with abnormalities are referred to the National Health Service.</li> <li>4. The pre-entry scheme is now self financing with applicants paying a fee of between \$50 and \$77 US. Screening under the Gateway Programme is financed by the UK Border Agency. The Health Protection Agency and the NHS are responsible for the cost of on entry screening. TB treatment is available free of cost to the patient and the costs borne by local health authorities.</li> </ol> <p>Those who test positively for active TB through the pre-screening pilot and the Gateway Programme will be advised to undertake a course of treatment and then come back for a further test. They will normally be unable to travel to the UK whilst suffering the active pulmonary disease. Those who test positive for active TB through testing at Heathrow or Gatwick Airports will generally be admitted into the country and depending on the severity of the condition either admitted to hospital or referred to local health authorities for treatment. Whilst there are powers in law to refuse entry to a person suffering the active pulmonary disease, these powers can only be used in limited circumstances and removing a person with the active disease may constitute a breach of the International Health Regulations 2005. Those who test positive whilst in detention will, depending on the severity of the condition, either be admitted to a hospital or treated whilst in detention.</p>
--	--	--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------